EMAX
LABORATORIES, INC.
1835 W. 205th Street
Torrance, CA 90501
Tel: (310) 618-8889

Date: 06-18-2019
EMAX Batch No.: 19E197

Attn: Laura Madsen

ARCADIS
1410 Rocly Ridge Dr #330
Roseville CA 95661

Subject: Laboratory Report
Project: PG&E TOPOCK-GMP

Enclosed is the Laboratory report for samples received on 05/24/19.
The data reported relate only to samples listed below :

Sample ID	Control #	Col Date	Matrix	Analysis
MW-54-195-EB-Q219	E197-01	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
MW-54-195-Q219	E197-02	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
				SPECIFIC CONDUCTANCE
				DISSOLVED METALS BY ICP-MS
MW-54-085-EB-Q219	E197-03	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
MW-54-085-Q219	E197-04	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
				SPECIFIC CONDUCTANCE
				DISSOLVED METALS BY ICP-MS
MW-54-140-EB-Q219	E197-05	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
MW-54-140-Q219	E197-06	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
				SPECIFIC CONDUCTANCE
				DISSOLVED METALS BY ICP-MS
MW-55-045-EB-Q219	E197-07	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
MW-55-045-Q219	E197-08	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
				SPECIFIC CONDUCTANCE
				DISSOLVED CHROMIUM
MW-55-120-Q219	E197-09	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
				SPECIFIC CONDUCTANCE
				DISSOLVED CHROMIUM
MW-56D-Q219	E197-10	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
				SPECIFIC CONDUCTANCE
				DISSOLVED CHROMIUM
MW-56M-Q219	E197-11	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
				SPECIFIC CONDUCTANCE
				DISSOLVED CHROMIUM
MW-56S-Q219	E197-12	05/23/19	WATER	CHROMIUM HEXAVALENT BY IC
				SPECIFIC CONDUCTANCE
				DISSOLVED CHROMIUM

The results are summarized on the following pages.

Please feel free to call if you have any questions concerning
these results.

Sincerely yours,

Caspar J. Pang
Laboratory Director

This report is confidential and intended solely for the use of the individual or entity to whom it is addressed. This report shall not be reproduced except in full or without the written approval of EMAX.

EMAX certifies that results included in this report meets all TNI & DOD requirements unless noted in the Case Narrative.

NELAP Accredited Certificate Number CA002912018-14
ANAB Accredited DoD ELAP and ISO/IEC 17025 Certificate Number L2278 Testing
California ELAP Accredited Certificate Number 2672

CHAIN OF CUSTODY

EMAX Laboratories, Inc.	1835 W. 205th Street, Torrance, CA 90501 Tel # : 310-618-8889 FAX#: 310-618-0818 Email: info@emaxlabs.com	**PO NUMBER: RC000753.801D** SAMPLE STORAGE	**EMAX CONTROL NO.** 19E197 **PROJECT CODE:**

CLIENT: ARCADIS

PROJECT PG&E Topock - AZ GMP

COORDINATOR

TEL 916-786-3302 FAX EMAIL dan.bush@arcadis.com

SEND REPORT TO DAN BUSH

COMPANY ARCADIS

ADDRESS: 1410 ROCKY RIDGE DR #330

ROSEVILLE, CA 95661

EMAX PM

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaO3
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H2SO4
O=	

ANALYSIS REQUIRED

- Cr(VI) FF (E218.6)(NH4)2. SO4, NH4, OH 250mL
- Cr(VI) FF (E218.6)(NH4)2. SO4, NH4, OH 2x250mL
- Alkalinity, Total as CaCO3 (SM2320B)
- Sulfate, Chloride (EPA 300.0)
- Specific Conductance (EPA 120.1)
- Total Dissolved Solids (SM 2540)
- Arsenic, Dissolved (SW 6020)
- Chromium, Dissolved (SW 6020)
- Manganese, Dissolved (SW 6020)

TAT

- ☐ Rush __24__hrs.
- ☐ Rush
- ☐ Rush_72_hrs
- ☑ 7 days
- ☐ 14 days
- ☐ 21 days

LAB	SAMPLE ID CLIENT	SAMPLING LOCATION	SAMPLING DATE	SAMPLING TIME	CONTAINER NO.	CONTAINER SIZE	CONTAINER TYPE	MATRIX CODE	QC	PRESERVATIVE CODE									COMMENTS
												IC	IC	IC	IC	HN	HN	HN	
* 1	MW-54-195-EB-Q219		5/23/2019	7:25	1	125mL	P	GW		X									
* 2	MW-54-195-Q219		5/23/2019	8:01	4		P	GW			X			X		X	X	X	
* 3	MW-54-085-EB-Q219		5/23/2019	7:20	1	125mL	P	GW		X									
* 4	MW-54-085-Q219		5/23/2019	7:50	4		P	GW			X			X		X	X	X	
* 5	MW-54-140-EB-Q219		5/23/2019	8:50	1	125mL	P	GW		X									
* 6	MW-54-140-Q219		5/23/2019	8:44	4		P	GW			X			X		X	X	X	
* 7	MW-55-045-EB-Q219		5/23/2019	11:15	1	125mL	P	GW		X									
* 8	MW-55-045-Q219		5/23/2019	11:10	4		P	GW			X			X			X		
* 9	MW-55-120-Q219		5/23/2019	11:49	4		P	GW			X			X			X		
10	MW-56D-Q219		5/23/2019	13:23	3		P	GW		X				X			X		

Instructions	Cooler #	Temp. (°C)	Sample #s
		2.3	

SAMPLER

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	5/23/19	1400	
	5-24-19	10:25	Maria Martinez

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs. TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

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EMAX Laboratories, Inc.	1835 W. 205th Street, Torrance, CA 90501 Tel # : 310-618-8889 FAX#: 310-618-0818 Email: info@emaxlabs.com	PO NUMBER: RC000753.801D SAMPLE STORAGE	EMAX CONTROL NO. 19E197 PROJECT CODE:

CLIENT: ARCADIS

PROJECT PG&E Topock - AZ GMP

COORDINATOR

TEL 916-786-3302 FAX EMAIL dan.bush@arcadis.com

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ADDRESS: 1410 ROCKY RIDGE DR #330

ROSEVILLE, CA 95661

EMAX PM

MATRIX CODE	PRESERVATIVE CODE
DW=Drinking Water	IC = Ice
GW=Ground Water	HC = HCl
WW=Waste Water	HN=HNO3
SD=Solid Waste SL=Sludge	SH=NaO3
SS=Soil/ Sediment	ST=Na2S2O3
WP=Wipes PP=Pure Products	ZA=Zinc Acetate
AR=Air	HS=H2SO4
O=	

ANALYSIS REQUIRED

- Cr(VI) FF (E218.6)(NH4)2, SO4, NH4, OH
- Cr(VI) FF (E218.6)(NH4)2, SO4, NH4, OH
- Alkalinity, Total as CaCO3 (SM2320B)
- Sulfate, Chloride (EPA 300.0)
- Specific Conductance (EPA 120.1)
- Total Dissolved Solids (SM 2540)
- Arsenic, Dissolved (SW 6020)
- Chromium, Dissolved (SW 6020)
- Manganese, Dissolved (SW 6020)

TAT

- ☐ Rush __24__ hrs.
- ☐ Rush
- ☐ Rush_72_hrs
- ☑ 7 days
- ☐ 14 days
- ☐ 21 days

SAMPLE ID		SAMPLING			CONTAINER			MATRIX CODE	QC	PRESERVATIVE CODE									COMMENTS
LAB	CLIENT	LOCATION	DATE	TIME	NO.	SIZE	TYPE					IC	IC	IC	IC	HN	HN	HN	
1	MW-56M-Q219		5/23/2019	13:02	3		P	GW		X				X			X		
2	MW-56S-Q219		5/23/2019	12:40	3		P	GW		X				X			X		
* 3																			
* 4																			
* 5																			
* 6																			
* 7																			
* 8																			
* 9																			
10																			

Instructions	Cooler #	Temp. (°C)	Sample #s
		2.3	

SAMPLER

COURIER/AIRBILL

RELINQUISHED BY	Date	Time	RECEIVED BY
	5/23/19	1400	
	5-24-19	10:25	Maria Martinez

NOTICE: Turn-around-time (TAT) for samples shall not begin untill all discrepancies have been resolved. For samples received and discrepacies resolved after 1500 hrs. TAT shall start at 0800 hrs the next business day. The client is responsible for all cost associted with sample disposal. Samples shall be disposed of as soon as practical (but not prior to fifteen (15) calendar days) after issuance of analytical report unless a different sample disposal schedule is pre-arranged with EMAX. Disposal fee for samples defined by CA Title 22 as non-hazardous shall be $5.00 per sample. EMAX will return hazardous samples to the client at the client's expense unless directed in writing otherwise.

SAMPLE RECEIPT FORM 1

Type of Delivery	Airbill / Tracking Number	ECN 19E197
☑ Fedex ☐ UPS ☐ GSO ☐ Others	7752 9529 8199	Recipient MariaMartinez
☐ EMAX Courier ☐ Client Delivery		Date 5-24-19 Time 10:25

COC INSPECTION

☑ Client Name	☐ Client PM/FC	☐ Sampler Name	☑ Sampling Date/Time	☑ Sample ID	☐ Matrix
☑ Address	☐ Tel # / Fax #	☐ Courier Signature	☑ Analysis Required	☑ Preservative (if any)	☐ TAT
Safety Issues (if any)	☐ High concentrations expected	☐ From Superfund Site	☐ Rad screening required		

Note: _____

PACKAGING INSPECTION

Container	☑ Cooler	☐ Box	☐ Other		
Condition	☐ Custody Seal	☐ Intact	☐ Damaged		
Packaging	☐ Bubble Pack	☐ Styrofoam	☐ Popcorn	☐ Sufficient	☑ Plastic Bags
Temperatures (Cool, ≤6 °C but not frozen)	☑ Cooler 1 2.3 °C	☐ Cooler 2_____ °C	☐ Cooler 3_____ °C	☐ Cooler 4_____ °C	☐ Cooler 5_____ °C
	☐ Cooler 6_____ °C	☐ Cooler 7_____ °C	☐ Cooler 8_____ °C	☐ Cooler 9_____ °C	☐ Cooler 10_____ °C
Thermometer:	*A - S/N 170324872*	*(B) S/N 150555522*	*C - S/N 170324888*	*D - S/N* _____	

Comments: ☐ **Temperature is out of range. PM was informed IMMEDIATELY.**

Note: _____

DISCREPANCIES

LabSampleID	LabSampleContainerID	Code	ClientSample Label ID / Information	Corrective Action
1,3,5,7,10,11,12	1,6,11,16,25,28, 31	D2	Label Reads: SW 6010B (*)	R1
11	30	D7	Label Reads: 5-21-19	C1

☐ pH holding time requirement for water samples is 15 mins. Water samples for pH analysis are received beyond 15 minutes from sampling time.

NOTES/OBSERVATIONS: (*) per COC CrVI by 218.6

LEGEND:

☐ Continue to next page.

Code	Description- Sample Management
D1	Analysis is not indicated in _____
(D2)	Analysis mismatch COC vs label
D3	Sample ID mismatch COC vs label
D4	Sample ID is not indicated in _____
D5	Container -[improper] [leaking] [broken]
D6	Date/Time is not indicated in _____
(D7)	Date/Time mismatch COC vs label
D8	Sample listed in COC is not received
D9	Sample received is not listed in COC
D10	No initial/date on corrections in COC/label
D11	Container count mismatch COC vs received
D12	Container size mismatch COC vs received

Code	Description-Sample Management
D13	Out of Holding Time
D14	Bubble is >6mm
D15	No trip blank in cooler
D16	Preservation not indicated in _____
D17	Preservation mismatch COC vs label
D18	Insufficient chemical preservative
D19	Insufficient Sample
D20	No filtration info for dissolved analysis
D21	No sample for moisture determination
D22	_____
D23	_____
D24	_____

Code	Description-Sample Management
R1	Proceed as indicated in ☑ COC ☐ Label
R2	Refer to attached instruction
R3	Cancel the analysis
R4	Use vial with smallest bubble first
R5	Log-in with latest sampling date and time+1 min
R6	Adjust pH as necessary
R7	Filter and preserved as necessary
R8	_____
R9	_____
R10	_____
R11	_____
R12	_____

REVIEWS:

Sample Labeling Maria Martinez / Date 5-24-19 (5/24/19)

SRF Date 5/24/19

PM Date 5/24/19

Page 1 of 1

ORIGIN ID:IXDA (913) 998-6908
ARCADIS KANSAS CITY
ARCADIS U.S., INC.
8725 ROSEHILL ROAD
SUITE 350
LENEXA, KS 66215
UNITED STATES US

SHIP DATE: 23MAY19
ACTWGT: 50.00 LB
CAD: 4502286/INET4100
DIMS: 34x22x22 IN

BILL SENDER

TO SAMPLE RECIEVING
EMAX LABORATORIES, INC.
1835 W. 205TH STREET

TORRANCE CA 90501
(310) 618-8889 REF: RC000753.8010.2Q19E
INV:
PO: DEPT:

565J1/D66C/23AD

FedEx Express

FedEx
TRK# 0201 7752 9529 8199

FRI – 24 MAY 10:30A
PRIORITY OVERNIGHT

QZ HHRA

90501
CA – US LAX

EXP 04/20

#535186 05/23 565J1/D66C/23AD

REPORTING CONVENTIONS

DATA QUALIFIERS:

Lab Qualifier	AFCEE Qualifier	Description
J	F	Indicates that the analyte is positively identified and the result is less than LOQ/RL but greater than LOD/MDL/DL.
N		Indicates presumptive evidence of a compound.
B	B	Indicates that the analyte is found in the associated method blank as well as in the sample at above QC level.
E	J	Indicates that the result is above the maximum calibration range or estimated value.
*	*	Out of QC limit.

Note: The above qualifiers are used to flag the results unless the project requires a different set of qualification criteria.

ACRONYMS AND ABBREVIATIONS:

CRDL	Contract Required Detection Limit
RL	Reporting Limit
MRL	Method Reporting Limit
MDL	Method Detection Limit
DL	Detection Limit
LOD	Limit of Detection
LOQ	Limit of Quantitation
DO	Diluted out

DATES

The date and time information for leaching and preparation reflect the beginning date and time of the procedure unless the method, protocol, or project specifically requires otherwise.

LABORATORY REPORT FOR

ARCADIS

PG&E'S TOPOCK-GMP

METALS

SDG#: 19E197

CASE NARRATIVE

Client : ARCADIS

Project: PG&E TOPOCK-GMP

SDG : 19E197

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

A total of three (3) water samples were received on 05/24/19 to be analyzed for Dissolved Metals by ICP-MS in accordance with Method SW6020A and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source(ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were satisfied. MRL was analyzed as required by the project.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. IME026WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. IME026WL/IME026WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
No matrix QC sample was provided on this SDG.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

Samples were reported from dilution due to internal-standard deficiencies at non-dilution run. Matrix interference was suspected.

LAB CHRONICLE
DISSOLVED METALS BY ICP-MS

Client : ARCADIS
Project : PG&E TOPOCK-GMP

SDG NO. : 19E197
Instrument ID : T-IF6

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IME026WB	1.00	NA	05/30/1914:51	05/28/1914:22	F6E21042	F6E21040	IME026W	Method Blank
LCS1W	IME026WL	1.00	NA	05/30/1914:56	05/28/1914:22	F6E21043	F6E21040	IME026W	Lab Control Sample (LCS)
LCD1W	IME026WC	1.00	NA	05/30/1915:00	05/28/1914:22	F6E21044	F6E21040	IME026W	LCS Duplicate
MW-54-195-Q219	E197-02I	10.00	NA	05/30/1915:05	05/28/1914:22	F6E21045	F6E21040	IME026W	Diluted Sample
MW-54-085-Q219	E197-04I	10.00	NA	05/30/1915:09	05/28/1914:22	F6E21046	F6E21040	IME026W	Diluted Sample
MW-54-140-Q219	E197-06I	10.00	NA	05/30/1915:14	05/28/1914:22	F6E21047	F6E21040	IME026W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	05/23/19 08:01
Project	: PG&E TOPOCK-GMP	Date Received:	05/24/19
SDG NO.	: 19E197	Date Extracted:	05/28/19 14:22
Sample ID:	MW-54-195-Q219	Date Analyzed:	05/30/19 15:05
Lab Samp ID:	E197-02I	Dilution Factor:	10
Lab File ID:	F6E21045	Matrix:	WATER
Ext Btch ID:	IME026W	% Moisture:	NA
Calib. Ref.:	F6E21040	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Arsenic	ND	10.0	2.00
Chromium	15.1	10.0	2.00
Manganese	273	100	2.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	05/23/19 07:50
Project	: PG&E TOPOCK-GMP	Date Received:	05/24/19
SDG NO.	: 19E197	Date Extracted:	05/28/19 14:22
Sample ID:	MW-54-085-Q219	Date Analyzed:	05/30/19 15:09
Lab Samp ID:	E197-04I	Dilution Factor:	10
Lab File ID:	F6E21046	Matrix:	WATER
Ext Btch ID:	IME026W	% Moisture:	NA
Calib. Ref.:	F6E21040	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Arsenic	ND	10.0	2.00
Chromium	ND	10.0	2.00
Manganese	531	100	2.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	05/23/19 08:44
Project	: PG&E TOPOCK-GMP	Date Received:	05/24/19
SDG NO.	: 19E197	Date Extracted:	05/28/19 14:22
Sample ID:	MW-54-140-Q219	Date Analyzed:	05/30/19 15:14
Lab Samp ID:	E197-06I	Dilution Factor:	10
Lab File ID:	F6E21047	Matrix:	WATER
Ext Btch ID:	IME026W	% Moisture:	NA
Calib. Ref.:	F6E21040	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Arsenic	ND	10.0	2.00
Chromium	ND	10.0	2.00
Manganese	ND	100	2.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client : ARCADIS	Date Collected: NA
Project : PG&E TOPOCK-GMP	Date Received: NA
SDG NO. : 19E197	Date Extracted: 05/28/19 14:22
Sample ID: MBLK1W	Date Analyzed: 05/30/19 14:51
Lab Samp ID: IME026WB	Dilution Factor: 1
Lab File ID: F6E21042	Matrix: WATER
Ext Btch ID: IME026W	% Moisture: NA
Calib. Ref.: F6E21040	Instrument ID: F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Arsenic	ND	1.00	0.200
Chromium	ND	1.00	0.200
Manganese	ND	10.0	0.200

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount : 50ml	Final Volume:50ml
Prepared by : MCande	Analyzed by:LYaman

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : SW6020A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1.00	1.00	1.00
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: IME026WB	IME026WL	IME026WC
LAB FILE ID	: F6E21042	F6E21043	F6E21044
DATE PREPARED	: 05/28/19 14:22	05/28/19 14:22	05/28/19 14:22
DATE ANALYZED	: 05/30/19 14:51	05/30/19 14:56	05/30/19 15:00
PREP BATCH	: IME026W	IME026W	IME026W
CALIBRATION REF	: F6E21040	F6E21040	F6E21040

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Arsenic	ND	30	30.2	101	30	30.9	103	2	85-115	20
Chromium	ND	30	30.6	102	30	31.3	104	2	85-115	20
Manganese	ND	30	32.8	109	30	33.0	110	1	85-115	20

ICP-MS QC CHECK TABLE

QC	S4	ICV	CCV	ICSAB	ICSA
Limit%		90-110	90-110	80-120	80-120
Comp	ug/L	ug/L	ug/L	ug/L	ug/L
Al	50000	30000	25000	100000	100000
Sb	100	60	50	20	0
As	500	300	250	20	0
Ba	1000	300	500	20	0
Be	50	30	25	20	0
B	100	30	50	20	0
Cd	500	300	250	20	0
Ca	50000	30000	25000	100000	100000
Cr	500	300	250	20	0
Co	500	300	250	20	0
Cu	500	300	250	20	0
Fe	50000	30000	25000	100000	100000
Li	50	30	25	20	0
Pb	500	300	250	20	0
Mg	50000	30000	25000	100000	100000
Mn	3000	2000	1500	20	0
Mo	500	300	250	2000	2000
Ni	500	300	250	20	0
P	500	300	250	100000	100000
K	50000	30000	25000	100000	100000
Se	500	300	250	20	0
Si	5000	3000	2500	200	0
Ag	50	30	25	20	0
Na	50000	30000	25000	100000	100000
Sr	500	300	250	20	0
Tl	500	300	250	20	0
Sn	500	300	250	20	0
Ti	500	300	250	2000	2000
W	50	30	25	20	0
V	500	300	250	20	0
U	500	300	250	20	0
Zn	500	300	250	20	0
Zr	50	30	25	20	0

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 05/30/19 11:49

End Date: 05/30/19 17:45

Comments:

All soil/solid samples are diluted at 10x dilution prior to analysis.

Filter Lot #: NA

ICSA1 Be IS < 70%.

ICSAB1 ↓

Book #:	AF6-024
Instrument No.:	F6
Analytical Batch:	1F0E21
Analytical Sequence:	F6E21
Method File:	EM0020R2
Micropipette ID:	☐ 142781004
Micropipette ID:	☒ ICP-06
Micropipette ID:	☒ 339362028
Micropipette ID:	☒ GFAA-07
Micropipette ID:	☐ 339342032
Micropipette ID:	☒ 542780515
Micropipette ID:	☐ 542761827
Micropipette ID:	☐

SOP #	Rev. #
☒ EMAX-6020	10
☒ EMAX-200.8	6
☐ EMAX-	
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		STANDARDS ID	
S0	SM6B-17-32-02	MRL1	SM6B-17-21-02
S1	33-01	MRL2	↓ 04-01
S2	33-02	MRL3	NA
S3	34-01	MRL4	↓
S4	↓ 34-02	MRL5	
S5	NA	MRL6	↓
S6	↓	Internal Standard	SM6B-17-12-02
S7	↓	Post-Spike 1	SM6A-007-05-25
ICV	SM6B-17-31-02	Post-Spike 2	↓ 05-26
CCV	35-01	Post-Spike 3	NA
ICSA	35-02	Post-Spike 4	↓
ICSAB	↓ 36-01		
6020 TUNE SOLN.	SM6B-16-91-02		
200.8 TUNE SOLN.	↓ 92-01		

Analyzed By: LY

Date: 05/30/19

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG NO. : 19E197
Method : METHOD SW6020A
Sequence : IF6E21
InstrumentID: F6

Lab Samp ID :	ICV	ICSA1	ICSAB1
QC Limit :	%R:90-110/RSD:<5	%R:80-120/<LOD	%R:80-120
Lab File ID :	F6E21009	F6E21013	F6E21014
DateAnalyed :	05/30/1912:16	05/30/1912:34	05/30/1912:38

Parameter		Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Lithium		31.84	30	1.28	106	.7906	0	>0	20.44	20	102
Beryllium		31.93	30	1.12	106	-.01081	0	<0.1	21.84	20	109
Boron		25.23	30	4.46	84*	-.7736	0	<5.0	18.62	20	93
Sodium		30190	30000	0.73	101	98940	100000	99	94930	100000	95
Magnesium		30330	30000	0.43	101	88890	100000	89	86040	100000	86
Aluminum		30150	30000	1.16	100	90080	100000	90	86980	100000	87
Silicon		3063	3000	1.16	102	64.41	0	>20	220.7	200	110
Phosphorus		295.3	300	0.61	98	91680	100000	92	89820	100000	90
Potassium		29330	30000	1.22	98	95250	100000	95	95760	100000	96
Calcium		30250	30000	0.81	101	101400	100000	101	100600	100000	101
Titanium		293.6	300	0.17	98	2084	2000	104	2118	2000	106
Vanadium		295.1	300	0.43	98	-.1108	0	<0.5	20.37	20	102
Chromium	T	285.9	300	1.29	95	.2773	0	>0.2	19.81	20	99
Manganese	T	1927	2000	0.17	96	1.447	0	>0.2	20.84	20	104
Iron		29130	30000	0.32	97	97350	100000	97	100500	100000	100
Cobalt		284.2	300	0.55	95	.525	0	>0.2	20.67	20	103
Nickel		282.1	300	1.28	94	.3578	0	>0.2	18.91	20	95
Copper		272	300	0.97	91	.1199	0	<0.5	18.18	20	91
Zinc		290.7	300	1.56	97	5.067	0	<10	22.22	20	111
Arsenic	T	291.9	300	0.73	97	.1875	0	<0.2	20.33	20	102
Selenium		292.1	300	0.17	97	.1345	0	<0.3	21.83	20	109
Strontium		309.7	300	0.71	103	.8655	0	<1.0	21.44	20	107
Zirconium		27.51	30	0.56	92	.106	0	<2.0	6.552	20	33*
Molybdenum		295.8	300	0.87	99	1982	2000	99	2013	2000	101
Silver		32.18	30	0.78	107	.01779	0	<0.2	18.83	20	94
Cadmium		288	300	0.58	96	.1689	0	<0.2	19.06	20	95
Tin		301.8	300	0.60	101	.2969	0	>0.2	19.96	20	100
Antimony		59.89	60	0.68	100	.169	0	<0.5	20.33	20	102
Barium		305	300	1.38	102	.2372	0	<0.5	20.91	20	105
Tungsten		33.2	30	1.04	111*	.2427	0	<1.0	21.18	20	106
Thallium		289.5	300	0.48	96	.006968	0	<0.2	19.52	20	98
Lead		297.5	300	0.57	99	.07933	0	<0.1	19.93	20	100
Uranium		297.9	300	0.41	99	.01003	0	<0.1	20.31	20	102

| Unit: ug/L
| T: Target analyte
| EV: Expected Value
| Comment: * Out of QC limit

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG NO. : 19E197
Method : METHOD SW6020A
Sequence : IF6E21
Instrument ID: F6

CCV SampleID			CCV1			CCV4			CCV5			CCV6			CCV7		
CCV DataFileID			F6E21015			F6E21040			F6E21048			F6E21059			F6E21065		
CCV DateTime			05/30/19 12:43			05/30/19 14:42			05/30/19 15:18			05/30/19 16:08			05/30/19 16:57		
PARAMETER		CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD
Lithium		25	25.2	101	1.01	25.3	101	1.68	24.7	99	1.11	24.4	98	2.07	24.1	97	1.66
Beryllium		25	25.1	100	1.89	24.6	98	1.75	23.3	93	2.52	22.7	91	1.68	24.1	97	0.29
Boron		50	48.9	98	2.94	50.3	101	1.63	47.7	95	4.16	46.5	93	1.81	48.3	97	0.69
Sodium		25000	23700	95	0.22	25000	100	0.43	25700	103	0.94	26300	105	0.27	23300	93	0.44
Magnesium		25000	23700	95	3.65	25600	102	1.33	27000	108	1.11	27500	110	0.33	24200	97	0.32
Aluminum		25000	23900	95	2.03	25300	101	1.02	26800	107	1.65	27100	109	0.56	24300	97	0.68
Silicon		2500	2370	95	0.98	2500	100	0.51	2580	103	0.78	2660	106	0.25	2360	94	0.21
Phosphorus		250	263	105	14.30	249	99	0.72	264	106	0.93	267	107	0.26	242	97	1.21
Potassium		25000	24400	98	0.23	24900	100	1.02	25300	101	1.47	25400	102	0.82	24800	99	0.51
Calcium		25000	25100	100	0.55	25300	101	0.89	25300	101	0.36	25700	103	0.42	25000	100	0.67
Titanium		250	249	100	1.29	251	100	1.37	250	100	1.25	250	100	1.15	247	99	0.55
Vanadium		250	260	104	0.57	258	103	0.33	255	102	0.32	253	101	1.22	261	104	0.59
Chromium	T	250	252	101	1.69	250	100	0.20	243	97	1.00	241	97	1.02	252	101	0.93
Manganese	T	1500	1530	102	2.10	1540	103	2.14	1500	100	0.72	1470	98	1.42	1550	103	0.38
Iron		25000	26100	104	0.17	25500	102	0.49	25000	100	0.40	25000	100	0.38	26100	105	0.93
Cobalt		250	250	100	1.84	252	101	2.31	246	98	0.96	241	97	1.14	252	101	0.67
Nickel		250	253	101	0.47	248	99	0.46	243	97	0.94	240	96	0.26	252	101	0.86
Copper		250	244	98	1.17	236	95	0.19	229	92	1.06	228	91	0.58	242	97	0.98
Zinc		250	245	98	1.96	251	100	1.42	251	100	0.74	251	100	0.32	247	99	1.23
Arsenic	T	250	253	101	0.52	252	101	0.13	252	101	0.88	252	101	0.24	251	100	0.79
Selenium		250	258	103	0.91	256	103	0.21	251	100	0.53	250	100	0.11	257	103	0.16
Strontium		250	271	108	0.58	264	106	0.38	261	104	0.92	265	106	0.74	283	113*	0.66
Zirconium		25	23.8	95	1.82	22.0	88*	2.22	22.3	89*	0.40	22.4	90	0.63	23.5	94	0.58
Molybdenum		250	249	100	0.52	249	99	1.91	248	99	0.68	247	99	1.77	239	95	1.16
Silver		25	25.3	101	1.85	25.7	103	3.08	25.3	101	0.07	25.3	101	0.83	24.7	99	1.33
Cadmium		250	249	99	2.11	252	101	0.39	249	100	0.37	248	99	0.42	248	99	0.53
Tin		250	253	101	0.55	249	100	1.47	249	100	0.42	250	100	0.82	251	100	0.62
Antimony		50	49.8	100	1.51	49.5	99	1.42	49.2	98	0.43	49.1	98	1.50	49.9	100	0.47
Barium		500	516	103	1.30	515	103	1.37	513	102	1.22	515	103	1.59	513	103	1.10
Tungsten		25	27.8	111*	0.68	27.8	111*	0.50	27.7	111*	0.79	27.5	110	0.77	27.7	111*	0.69
Thallium		250	247	99	0.67	248	99	0.19	246	99	1.03	245	98	0.49	246	98	0.37
Lead		250	254	102	1.83	252	101	0.56	253	101	0.26	253	101	0.04	253	101	0.21
Uranium		250	254	102	3.17	245	98	1.55	248	99	0.46	245	98	0.77	245	98	0.48

| Unit: ug/L
| T: Target analyte
|%Rec QC Limit: 90-110
| RSD QC Limit: <5
| CCV EV: CCV Expected Value ug/L
| Comment: * Out of QC limit

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG NO. : 19E197
Method : SW6020A
Sequence : IF6E21
Instrument ID: F6

CB SampleID	: ICB	CCB1	CCB4	CCB5	CCB6
CB DataFileID	: F6E21010	F6E21016	F6E21041	F6E21049	F6E21060
CB DateTime	: 05/30/1912:20	05/30/1912:47	05/30/1914:47	05/30/1915:23	05/30/1916:12

PARAMETER	LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Lithium	0	0.06	>0	0.03	>0	0.1	>0	0.1	>0	0.3	>0
Beryllium	0.1	0.01	<0.1	0.01	<0.1	0.02	<0.1	0.01	<0.1	0.01	<0.1
Boron	5.0	0.4	<5.0	0.10	<5.0	0.6	<5.0	0.5	<5.0	0.7	<5.0
Sodium	50	2	<50	20	<50	0.9	<50	60	>50	60	>50
Magnesium	10	2	<10	8	<10	0.4	<10	4	<10	0.6	<10
Aluminum	20	2	<20	7	<20	0.4	<20	3	<20	0.08	<20
Silicon	20	2	<20	2	<20	1	<20	3	<20	0.2	<20
Phosphorus	25	0.8	<25	6	<25	1	<25	0.6	<25	1	<25
Potassium	20	1	<20	20	<20	3	<20	20	<20	0.5	<20
Calcium	25	0.3	<25	10	<25	0.9	<25	30	>25	8	<25
Titanium	0.5	0.002	<0.5	0.2	<0.5	0.001	<0.5	0.03	<0.5	0.02	<0.5
Vanadium	0.5	0.08	<0.5	0.09	<0.5	0.05	<0.5	0.2	<0.5	0.04	<0.5
Chromium T	0.2	0.009	<0.2	0.010	<0.2	0.02	<0.2	0.1	<0.2	0.008	<0.2
Manganese T	0.2	0.2	<0.2	0.02	<0.2	0.02	<0.2	0.2	>0.2	0.05	<0.2
Iron	10	0.8	<10	20	>10	0.6	<10	40	>10	7	<10
Cobalt	0.2	0.010	<0.2	0.01	<0.2	0.01	<0.2	0.02	<0.2	0.007	<0.2
Nickel	0.2	0.004	<0.2	0.007	<0.2	0.004	<0.2	0.2	<0.2	0.02	<0.2
Copper	0.5	0.03	<0.5	0.02	<0.5	0.03	<0.5	0.1	<0.5	0.01	<0.5
Zinc	10	0.04	<10	0.04	<10	0.02	<10	0.010	<10	0.03	<10
Arsenic T	0.2	0.04	<0.2	0.02	<0.2	0.02	<0.2	0.2	<0.2	0.04	<0.2
Selenium	0.3	0.02	<0.3	0.04	<0.3	0.004	<0.3	0.4	>0.3	0.09	<0.3
Strontium	1.0	0.01	<1.0	0.005	<1.0	0.03	<1.0	0.08	<1.0	0.06	<1.0
Zirconium	2.0	0.001	<2.0	0.002	<2.0	0.002	<2.0	0.001	<2.0	0.001	<2.0
Molybdenum	0.5	0.05	<0.5	0.2	<0.5	0.006	<0.5	0.04	<0.5	0.01	<0.5
Silver	0.2	0.003	<0.2	0.003	<0.2	0.0008	<0.2	0.005	<0.2	0.001	<0.2
Cadmium	0.2	0.02	<0.2	0.004	<0.2	0.0009	<0.2	0.04	<0.2	0.004	<0.2
Tin	0.2	0.06	<0.2	0.03	<0.2	0.03	<0.2	0.06	<0.2	0.03	<0.2
Antimony	0.5	0.006	<0.5	0.04	<0.5	0.03	<0.5	0.04	<0.5	0.03	<0.5
Barium	0.5	0.02	<0.5	0.006	<0.5	0.004	<0.5	0.07	<0.5	0.01	<0.5
Tungsten	1.0	0.05	<1.0	0.05	<1.0	0.04	<1.0	0.04	<1.0	0.04	<1.0
Thallium	0.2	0.04	<0.2	0.007	<0.2	0.001	<0.2	0.04	<0.2	0.007	<0.2
Lead	0.1	0.02	<0.1	0.005	<0.1	0.006	<0.1	0.03	<0.1	0.003	<0.1
Uranium	0.1	0.03	<0.1	0.01	<0.1	0.008	<0.1	0.04	<0.1	0.01	<0.1

CB SampleID	: CCB7
CB DataFileID	: F6E21066
CB DateTime	: 05/30/1917:01

PARAMETER	LOD	RESULT	< LOD >
Lithium	0	0.07	>0
Beryllium	0.1	0.01	<0.1
Boron	5.0	0.07	<5.0
Sodium	50	40	<50
Magnesium	10	8	<10
Aluminum	20	7	<20
Silicon	20	0.9	<20
Phosphorus	25	6	<25
Potassium	20	10	<20

Calcium		25	40	>25
Titanium		0.5	0.2	<0.5
Vanadium		0.5	0.05	<0.5
Chromium	T	0.2	0.01	<0.2
Manganese	T	0.2	0.03	<0.2
Iron		10	50	>10
Cobalt		0.2	0.01	<0.2
Nickel		0.2	0.009	<0.2
Copper		0.5	0.006	<0.5
Zinc		10	0.03	<10
Arsenic	T	0.2	0.02	<0.2
Selenium		0.3	0.04	<0.3
Strontium		1.0	0.009	<1.0
Zirconium		2.0	0.001	<2.0
Molybdenum		0.5	0.2	<0.5
Silver		0.2	0.002	<0.2
Cadmium		0.2	0.002	<0.2
Tin		0.2	0.03	<0.2
Antimony		0.5	0.04	<0.5
Barium		0.5	0.005	<0.5
Tungsten		1.0	0.07	<1.0
Thallium		0.2	0.003	<0.2
Lead		0.1	0.007	<0.1
Uranium		0.1	0.008	<0.1

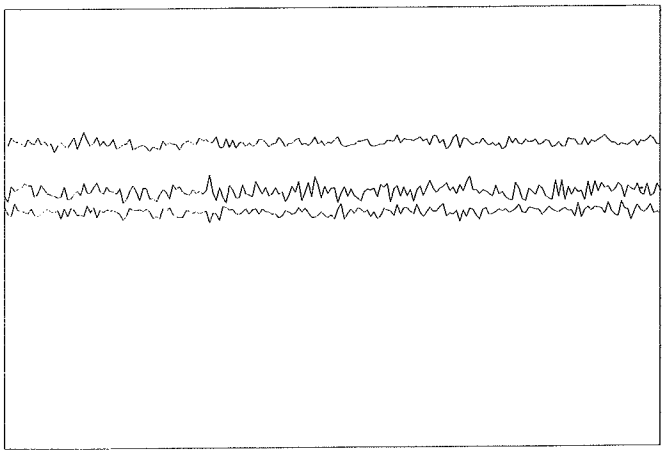
Unit: ug/L
CB: Calibration Blank
T: Target analyte
Acceptance Criteria: CCB Result <LOD
Comment:

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		TUNBEG	Start of TUNE						
2	C:\ICPCHEM\1\METHODS\TN6020_C.M	Tun6	1301	F6E21001	6020tunchk		1.000				
3	C:\ICPCHEM\1\METHODS\TN200_8C.M	Tun2	1302	F6E21002	2008tunchk		1.000				
4		Keyword		TUNEND	End of TUNE						
5		Keyword		CALBEG	Start of CALIB						
6	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalBlk	1101	F6E21003	BLNK		Level 1				
7	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalBlk	1102	F6E21004	S0		Level 1				
8	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalStd	1104	F6E21005	S1 0.5		Level 2				
9	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalStd	1105	F6E21006	S2 50		Level 3				
10	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalStd	1106	F6E21007	S3 250		Level 4				
11	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalStd	1107	F6E21008	S4 500		Level 5				
12	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICV1	1204	F6E21009	ICV		1.000				
13	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICB	1102	F6E21010	ICB		1.000				
14	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1305	F6E21011	MRLE3001 ✓	1/100/10 ppb	1.000				
15	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1306	F6E21012	MRLE3002	0.4/40/4 ppb	1.000				
16	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICS-A	1303	F6E21013	ICSA1 Be 1870 ✓	✓	1.000				
17	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICS-AB	1304	F6E21014	ICSAB1 ↓	✓	1.000				
18	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21015	CCV1		1.000				
19	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21016	CCB1		1.000				
20		Keyword		CALEND	End of CALIB						
21		Keyword		SMPLBEG	Start of SMPL						
22	C:\ICPCHEM\1\METHODS\EM6020R2.M	MBW	2101	F6E21017	IME027WB		1.000				
23	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCS	2102	F6E21018	IME027WL		1.000				
24	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCS	2103	F6E21019	IME027WC		1.000				
25	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2104	F6E21020	E562-01I		10.00				
26	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2105	F6E21021	E562-01M } ✓		10.00				
27	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2106	F6E21022	E562-01S }		10.00				
28	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2107	F6E21023	E562-02I		10.00				
29	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2108	F6E21024	E562-03I		10.00				
30	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21025	CCV2		1.000				
31	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21026	CCB2		1.000				
32	C:\ICPCHEM\1\METHODS\EM6020R2.M	MBS	2109	F6E21027	IME028SB		1.000				
33	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCSS	2110	F6E21028	IME028SL		1.000				
34	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCSS	2111	F6E21029	IME028SC		1.000				
35	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2112	F6E21030	E564-01		1.000				
36	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2201	F6E21031	E564-02		1.000				
37	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2202	F6E21032	E564-03		1.000				
38	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2203	F6E21033	E564-04		1.000				
39	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2204	F6E21034	E564-05		1.000				
40	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2205	F6E21035	E908-01		1.000				
41	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21036	CCV3		1.000				
42	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21037	CCB3		1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
43	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1305	F6E21038	MRLE3003 ✓	1/100/10 ppb	1.000				
44	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1306	F6E21039	MRLE3004	0.4/40/4 ppb	1.000				
45	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21040	CCV4		1.000				
46	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21041	CCB4		1.000				
47	C:\ICPCHEM\1\METHODS\EM6020R2.M	MBW	2206	F6E21042	IME026WB		1.000				
48	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCS	2207	F6E21043	IME026WL		1.000				
49	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCS	2208	F6E21044	IME026WC		1.000				
50	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2209	F6E21045	E197-02I		10.00				
51	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2210	F6E21046	E197-04I		10.00				
52	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2211	F6E21047	E197-06I		10.00				
53	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21048	CCV5		1.000				
54	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21049	CCB5		1.000				
55	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2212	F6E21050	E197-08M } Crv		10.00				
56	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2301	F6E21051	E197-08S }		10.00				
57	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2302	F6E21052	E197-08A		10.00				
58	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2303	F6E21053	E197-08I		10.00				
59	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2304	F6E21054	E197-08J		50.00				
60	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2305	F6E21055	E197-09I		10.00				
61	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2306	F6E21056	E197-10I		10.00				
62	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2307	F6E21057	E197-11I		10.00				
63	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2308	F6E21058	E197-12I		10.00				
64	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21059	CCV6		1.000				
65	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21060	CCB6		1.000				
66	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1305	F6E21061	MRLE3005 ✓	1/100/10 ppb	1.000				
67	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1306	F6E21062	MRLE3006	0.4/40/4 ppb	1.000				
68	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICS-A	1303	F6E21063	ICSA2		1.000				
69	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICS-AB	1304	F6E21064	ICSAB2		1.000				
70	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21065	CCV7		1.000				
71	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21066	CCB7		1.000				
72	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2309	F6E21067	E204-01M		1.000				
73	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2310	F6E21068	E204-01S		1.000				
74	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2311	F6E21069	E204-01A		1.000				
75	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2312	F6E21070	E204-01		1.000				
76	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2401	F6E21071	E204-01J		5.000				
77	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2402	F6E21072	E204-02		1.000				
78	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2403	F6E21073	E204-03		1.000				
79	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2404	F6E21074	E204-04		1.000				
80	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21075	CCV8		1.000				
81	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21076	CCB8		1.000				
82		Keyword		StandBy							
83		Keyword		SMPLEND	End of SMPL						
84		Keyword		End	End of Sequence						

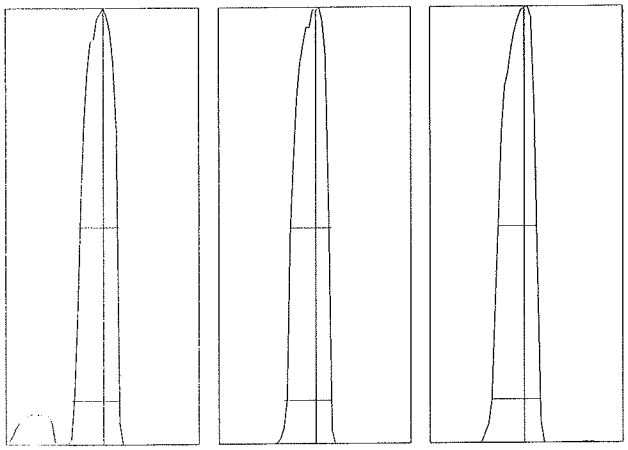
Tune Report

Tune File : NORM.U
Comment : IF6E21



Integration Time:	0.1000 sec	
Sampling Period:	0.6200 sec	
n:	200	
Oxide:	156/140	1.554%
Doubly Charged:	70/140	1.084%

m/z	Range	Count	Mean	RSD%	Background
7	50,000	29167.0	29229.1	2.24	1.80
89	100,000	52845.0	53818.0	1.63	2.60
205	50,000	34370.0	34710.5	1.15	5.30
156/140	2	1.540%	1.531%	4.69	
70/140	2	1.152%	1.072%	5.69	



m/z:	7	89	205
Height:	9,162	16,304	10,447
Axis:	7.05	89.05	205.00
W-50%:	0.65	0.65	0.60
W-10%:	0.7500	0.7500	0.7500

Integration Time:	0.0300 sec
Acquisition Time:	10.1600 sec

Y axis : Linear

Generated : May 30, 2019 11:39:16
Printed : May 30, 2019 11:39:18

Tune Report

Tune File : NORM.U
Comment : IF6E21

Tuning Parameters

===Plasma Condition===

RF Power	:	1500 W
RF Matching	:	1.74 V
Smpl Depth	:	8 mm
Torch-H	:	-0.6 mm
Torch-V	:	-0.1 mm
Carrier Gas	:	0.9 L/min
Makeup Gas	:	0.12 L/min
Optional Gas	:	--- %
Nebulizer Pump	:	0.1 rps
Sample Pump	:	--- rps
S/C Temp	:	2 degC

===Ion Lenses===

Extract 1	:	0 V
Extract 2	:	-140 V
Omega Bias-ce	:	-28 V
Omega Lens-ce	:	1.4 V
Cell Entrance	:	-30 V
QP Focus	:	2 V
Cell Exit	:	-30 V

===Octopole Parameters===

OctP RF	:	169 V
OctP Bias	:	-6 V

===Q-Pole Parameters===

AMU Gain	:	129
AMU Offset	:	125
Axis Gain	:	0.9995
Axis Offset	:	-0.03
QP Bias	:	-3 V

===Detector Parameters===

Discriminator	:	8 mV
Analog HV	:	2110 V
Pulse HV	:	1500 V

===Reaction Cell===

Reaction Mode	:	OFF						
H2 Gas	:	0 mL/min	He Gas	:	0 mL/min	Optional Gas	:	--- %

Generated : May 30, 2019 11:39:16
Printed : May 30, 2019 11:39:20

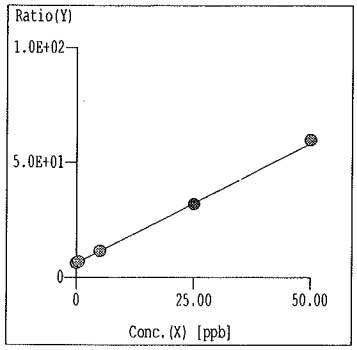
Last Calib: May 30, 2019 12:14 pm
Calibration Type: External Calibration Method
Calibration Title:
Weighting Method: 1/(SD*SD)
Mass Interpolation Fit for VIS: Point to Point
Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Multi Tune: #1 h2.u
#2 he.u
#3 norm.u

=== Standard Files ===
<Data Correction>
Bkg File: ---
Rejected Masses: ---
Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	c:\data\if62019\e\if6e21.b\f6e21004.d\f6e21004.d#	S0	May 30 2019 11:54 am
2	c:\data\if62019\e\if6e21.b\f6e21005.d\f6e21005.d#	S1 0.5	May 30 2019 11:58 am
3	c:\data\if62019\e\if6e21.b\f6e21006.d\f6e21006.d#	S2 50	May 30 2019 12:03 pm
4	c:\data\if62019\e\if6e21.b\f6e21007.d\f6e21007.d#	S3 250	May 30 2019 12:08 pm
5	c:\data\if62019\e\if6e21.b\f6e21008.d\f6e21008.d#	S4 500	May 30 2019 12:12 pm
6	---		
7	---		
8	---		
9	---		
10	---		
11	---		
12	---		
13	---		
14	---		
15	---		
16	---		
17	---		
18	---		
19	---		
20	---		

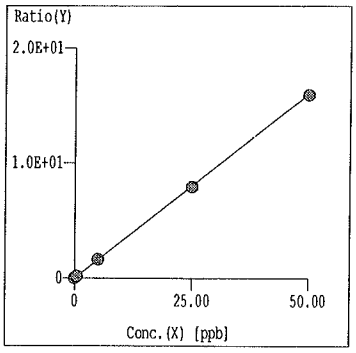
=== Graph Detail ===

Step Mass Element (3) 7 Li | ISTD 6 | Unit ppb



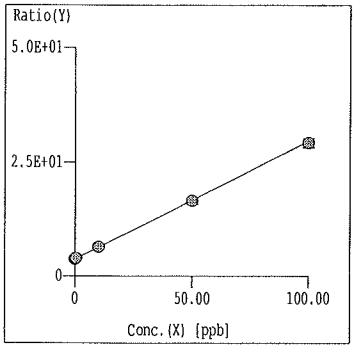
Curve Fit: Y=aX+b
r = 0.9998
Y = 1.040E+000*X +6.229E+000
X = 9.618E-001*Y -5.991E+000
DL = 1.021E-01 ppb
BEC = 5.991 ppb

Step Mass Element (3) 9 Be | ISTD 6 | Unit ppb



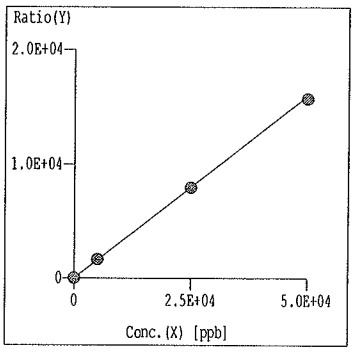
Curve Fit: Y=aX+b
r = 1.0000
Y = 3.211E-001*X +6.764E-003
X = 3.115E+000*Y -2.107E-002
DL = 1.546E-02 ppb
BEC = 2.107E-02 ppb

Step Mass Element (3) 11 B | ISTD 6 | Unit ppb



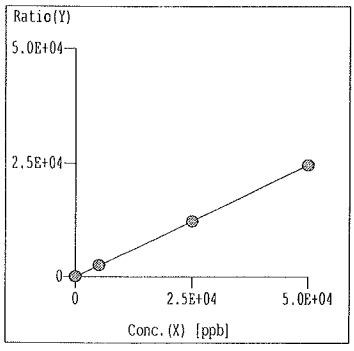
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.593E-001*X +3.736E+000
X = 3.857E+000*Y -1.441E+001
DL = 8.971E-01 ppb
BEC = 14.41 ppb

Step Mass Element (1) 23 Na | ISTD 45 | Unit ppb



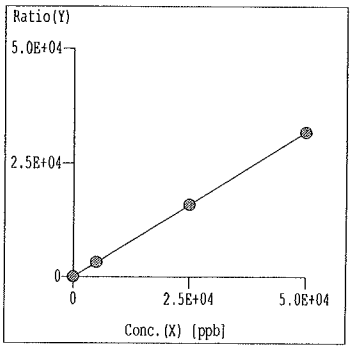
Curve Fit: Y=aX+b
r = 1.0000
Y = 3.201E-001*X +3.639E+000
X = 3.124E+000*Y -1.137E+001
DL = 6.082E-01 ppb
BEC = 11.37 ppb

Step Mass Element (3) 24 Mg | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 4.942E-001*X +9.251E-001
X = 2.024E+000*Y -1.872E+000
DL = 1.967E-01 ppb
BEC = 1.872 ppb

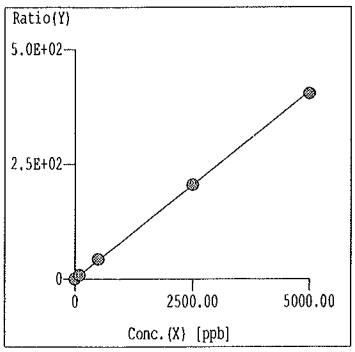
Step Mass Element (3) 27 Al | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 6.371E-001*X +8.973E-001
X = 1.570E+000*Y -1.408E+000
DL = 1.878E-01 ppb
BEC = 1.408 ppb

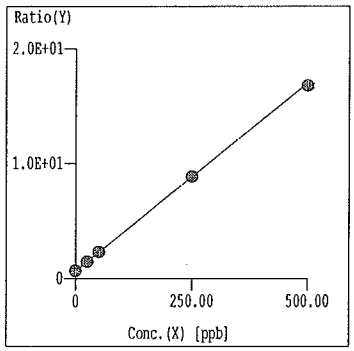
=== Graph Detail ===

Step Mass Element (1) 28 Si | ISTD 45 | Unit ppb



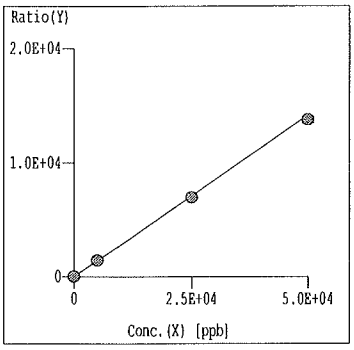
Curve Fit: Y=aX+b
r = 1.0000
Y = 8.153E-002*X +3.988E-001
X = 1.226E+001*Y -4.891E+000
DL = 1.653E-01 ppb
BEC = 4.891 ppb

Step Mass Element (3) 31 P | ISTD 45 | Unit ppb



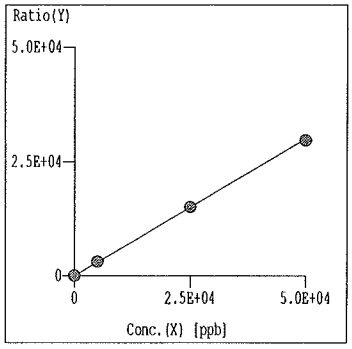
Curve Fit: Y=aX+b
r = 1.0000
Y = 3.277E-002*X +6.534E-001
X = 3.052E+001*Y -1.994E+001
DL = 1.222 ppb
BEC = 19.94 ppb

Step Mass Element (2) 39 K | ISTD 45 | Unit ppb



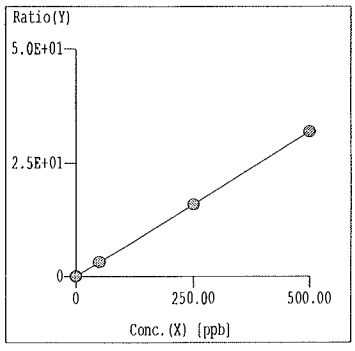
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.830E-001*X +1.756E+001
X = 3.533E+000*Y -6.204E+001
DL = 4.539 ppb
BEC = 62.04 ppb

Step Mass Element (1) 40 Ca | ISTD 45 | Unit ppb



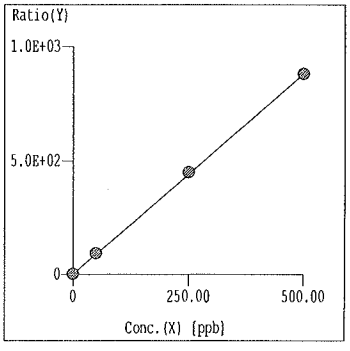
Curve Fit: Y=aX+b
r = 1.0000
Y = 6.011E-001*X +8.130E+000
X = 1.664E+000*Y -1.352E+001
DL = 3.268E-01 ppb
BEC = 13.52 ppb

Step Mass Element (3) 47 Ti | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 6.365E-002*X +4.861E-003
X = 1.571E+001*Y -7.637E-002
DL = 2.292E-02 ppb
BEC = 7.637E-02 ppb

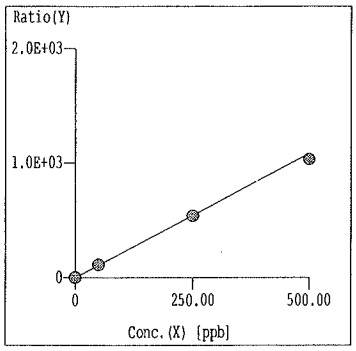
Step Mass Element (2) 51 V | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 1.760E+000*X +1.204E+000
X = 5.683E-001*Y -6.843E-001
DL = 5.518E-02 ppb
BEC = 6.843E-01 ppb

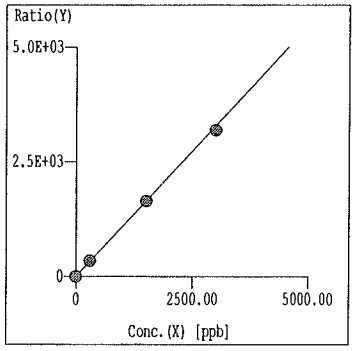
=== Graph Detail ===

Step Mass Element ISTD Unit
(2) 52 Cr 45 ppb



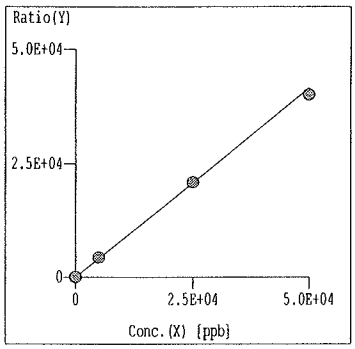
Curve Fit: Y=aX+b
r = 0.9998
Y = 2.159E+000*X +2.531E-001
X = 4.632E-001*Y -1.172E-001
DL = 1.014E-02 ppb
BEC = 1.172E-01 ppb

Step Mass Element ISTD Unit
(3) 55 Mn 45 ppb



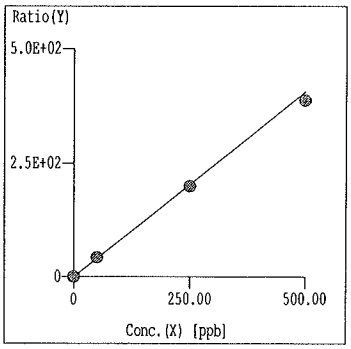
Curve Fit: Y=aX+b
r = 0.9999
Y = 1.095E+000*X +8.430E-002
X = 9.130E-001*Y -7.697E-002
DL = 5.306E-03 ppb
BEC = 7.697E-02 ppb

Step Mass Element ISTD Unit
(1) 56 Fe 45 ppb



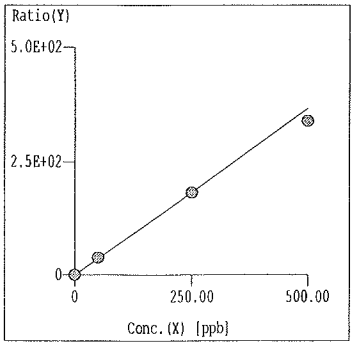
Curve Fit: Y=aX+b
r = 0.9998
Y = 8.317E-001*X +1.092E+000
X = 1.202E+000*Y -1.313E+000
DL = 1.759E-01 ppb
BEC = 1.313 ppb

Step Mass Element ISTD Unit
(3) 59 Co 45 ppb



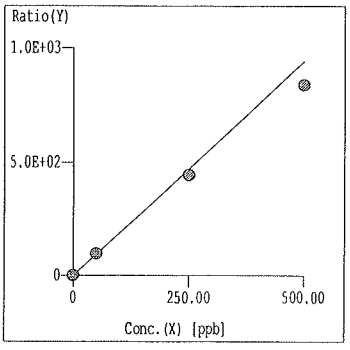
Curve Fit: Y=aX+b
r = 0.9999
Y = 8.130E-001*X +1.854E-002
X = 1.230E+000*Y -2.281E-002
DL = 2.758E-03 ppb
BEC = 2.281E-02 ppb

Step Mass Element ISTD Unit
(2) 60 Ni 45 ppb



Curve Fit: Y=aX+b
r = 0.9993
Y = 7.331E-001*X +1.739E-002
X = 1.364E+000*Y -2.373E-002
DL = 8.209E-03 ppb
BEC = 2.373E-02 ppb

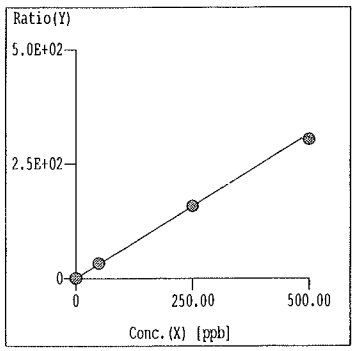
Step Mass Element ISTD Unit
(2) 63 Cu 45 ppb



Curve Fit: Y=aX+b
r = 0.9995
Y = 1.881E+000*X +6.225E-001
X = 5.316E-001*Y -3.310E-001
DL = 2.209E-02 ppb
BEC = 3.310E-01 ppb

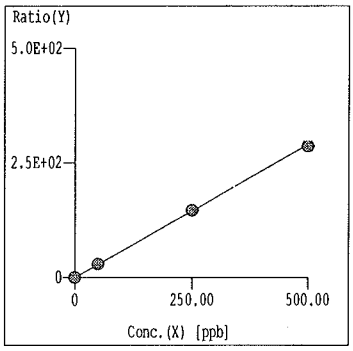
=== Graph Detail ===

Step Mass Element (3) 66 Zn | ISTD 72 | Unit ppb



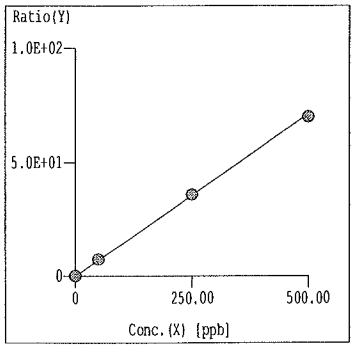
Curve Fit: Y=aX+b
r = 0.9998
Y = 6.297E-001*X +2.795E-001
X = 1.588E+000*Y -4.439E-001
DL = 3.833E-02 ppb
BEC = 4.439E-01 ppb

Step Mass Element (2) 75 As | ISTD 72 | Unit ppb



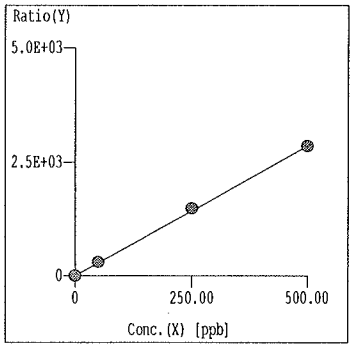
Curve Fit: Y=aX+b
r = 0.9999
Y = 5.787E-001*X +4.579E-002
X = 1.728E+000*Y -7.912E-002
DL = 1.095E-02 ppb
BEC = 7.912E-02 ppb

Step Mass Element (1) 78 Se | ISTD 72 | Unit ppb



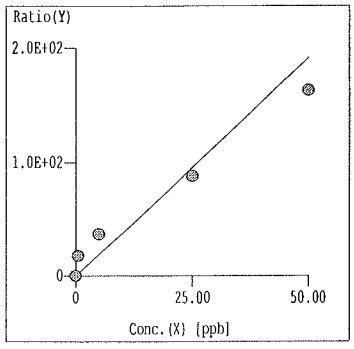
Curve Fit: Y=aX+b
r = 0.9999
Y = 1.426E-001*X +2.668E-003
X = 7.013E+000*Y -1.871E-002
DL = 1.481E-02 ppb
BEC = 1.871E-02 ppb

Step Mass Element (3) 88 Sr | ISTD 72 | Unit ppb



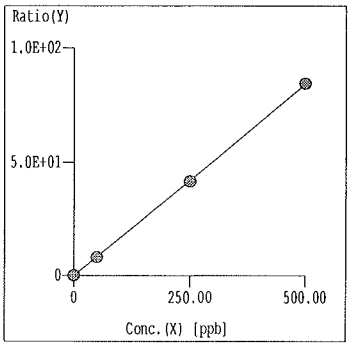
Curve Fit: Y=aX+b
r = 0.9998
Y = 5.702E+000*X +1.461E-001
X = 1.754E-001*Y -2.562E-002
DL = 5.755E-03 ppb
BEC = 2.562E-02 ppb

Step Mass Element (3) 90 Zr | ISTD 72 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9925
Y = 3.829E+000*X +3.381E-002
X = 2.612E-001*Y -8.831E-003
DL = 4.941E-03 ppb
BEC = 8.831E-03 ppb

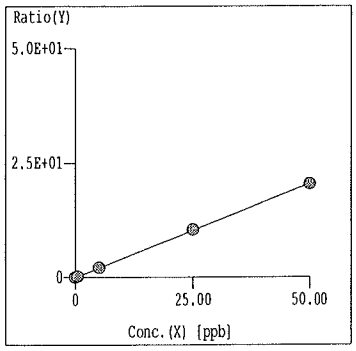
Step Mass Element (3) 95 Mo | ISTD 115 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 1.683E-001*X +4.684E-003
X = 5.941E+000*Y -2.783E-002
DL = 1.155E-02 ppb
BEC = 2.783E-02 ppb

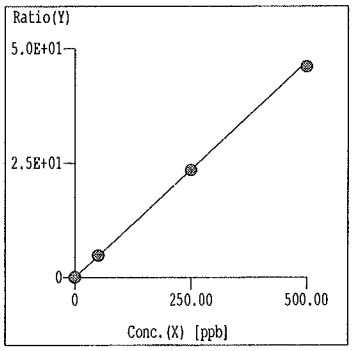
=== Graph Detail ===

Step Mass Element	ISTD	Unit
(3) 107 Ag	115	ppb



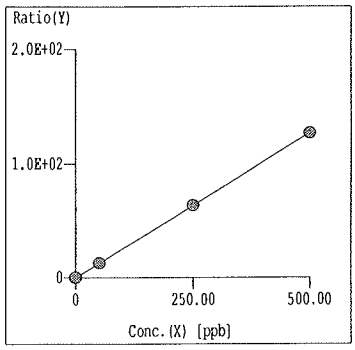
Curve Fit: Y=aX+b
r = 1.0000
Y = 4.079E-001*X +5.212E-004
X = 2.451E+000*Y -1.278E-003
DL = 1.265E-03 ppb
BEC = 1.278E-03 ppb

Step Mass Element	ISTD	Unit
(3) 111 Cd	115	ppb



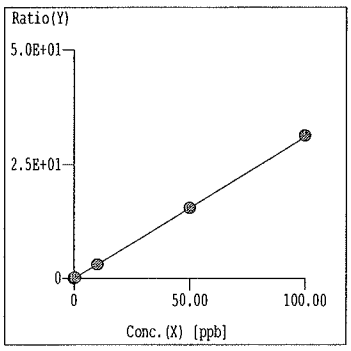
Curve Fit: Y=aX+b
r = 1.0000
Y = 9.443E-002*X +5.527E-004
X = 1.059E+001*Y -5.853E-003
DL = 5.138E-03 ppb
BEC = 5.853E-03 ppb

Step Mass Element	ISTD	Unit
(3) 118 Sn	115	ppb



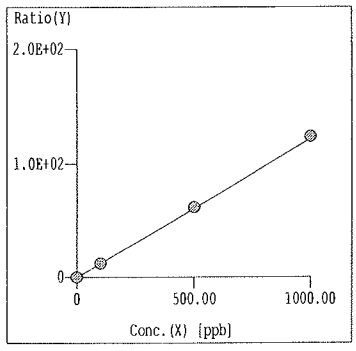
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.541E-001*X +8.520E-003
X = 3.935E+000*Y -3.353E-002
DL = 7.822E-03 ppb
BEC = 3.353E-02 ppb

Step Mass Element	ISTD	Unit
(3) 121 Sb	115	ppb



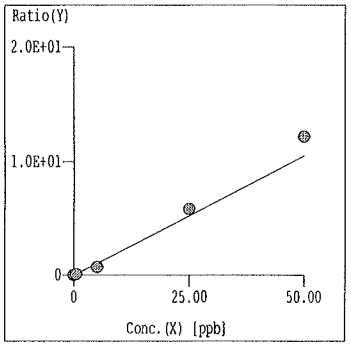
Curve Fit: Y=aX+b
r = 1.0000
Y = 3.103E-001*X +6.002E-003
X = 3.223E+000*Y -1.934E-002
DL = 2.144E-03 ppb
BEC = 1.934E-02 ppb

Step Mass Element	ISTD	Unit
(3) 137 Ba	115	ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 1.218E-001*X +1.824E-003
X = 8.213E+000*Y -1.498E-002
DL = 6.714E-03 ppb
BEC = 1.498E-02 ppb

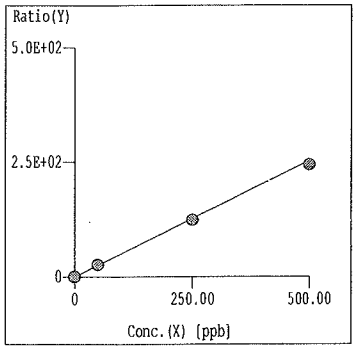
Step Mass Element	ISTD	Unit
(3) 182 W	159	ppb



Curve Fit: Y=aX+b
r = 0.9992
Y = 2.102E-001*X -4.761E-003
X = 4.757E+000*Y +2.265E-002
DL = 7.025E-03 ppb
BEC = -2.265E-02 ppb

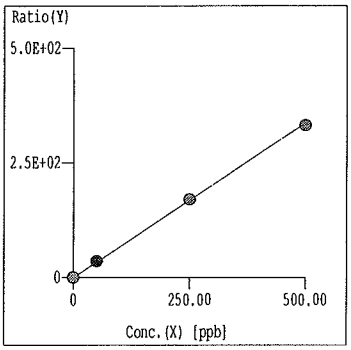
=== Graph Detail ===

Step Mass Element (3) 205 Tl | ISTD 159 | Unit ppb



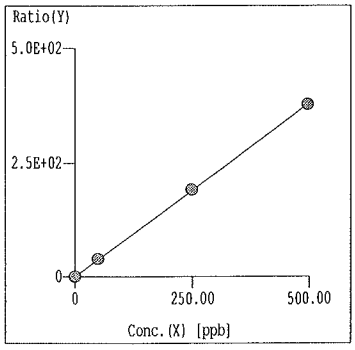
Curve Fit: Y=aX+b
r = 1.0000
Y = 5.059E-001*X +5.669E-003
X = 1.977E+000*Y -1.121E-002
DL = 2.327E-03 ppb
BEC = 1.121E-02 ppb

Step Mass Element (3) 208 Pb | ISTD 159 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 6.734E-001*X +1.752E-002
X = 1.485E+000*Y -2.601E-002
DL = 4.941E-03 ppb
BEC = 2.601E-02 ppb

Step Mass Element (3) 238 U | ISTD 159 | Unit ppb



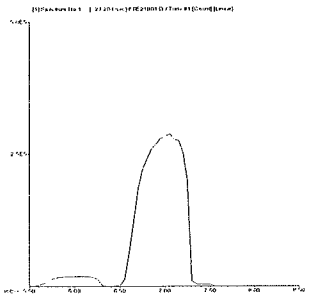
Curve Fit: Y=aX+b
r = 1.0000
Y = 7.612E-001*X +3.137E-003
X = 1.314E+000*Y -4.121E-003
DL = 7.655E-04 ppb
BEC = 4.121E-03 ppb

6020 QC Tune Report

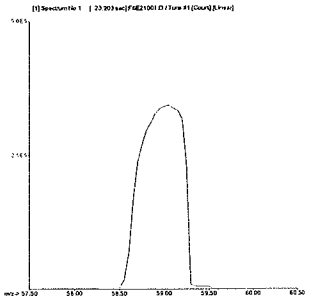
Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21001.D
Date Acquired: May 30 2019 11:41 am
Acq. Method: TN6020_C.M
Operator: LYaman
Sample Name: 6020tunchk
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020_C.M

RSD (%)

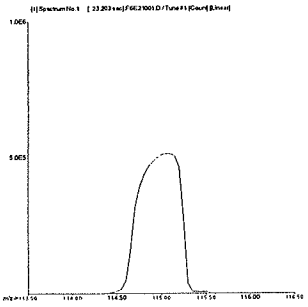
Element	Actual	Required	Flag
7 Li	1.73	5.00	
59 Co	0.45	5.00	
115 In	0.98	5.00	
205 Tl	0.69	5.00	



7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



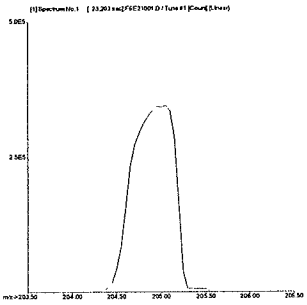
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width-10%

Actual:	0.60
Limit	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width-10%

Actual:	0.65
Limit	0.90
Flag:	

Calibration Blank QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21003
Date Acquired:	May 30 2019 11:49 am
Operator:	LYaman
Sample Name:	BLNK
Misc Info:	
Vial Number:	1101
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2
Last Cal Update:	May 30 2019 11:52 am
Sample Type:	CalBlk
Total Dil Factor:	1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	2410969.00	A	53310.00	2.21
7	Li	151100.30	P	1750.00	1.16
9	Be	84.45	P	3.85	4.56
11	B	86629.29	P	628.20	0.73
23	Na	68038.57	P	757.20	1.11
24	Mg	29557.35	P	164.10	0.56
27	Al	25144.83	P	38.52	0.15
28	Si	6359.30	P	213.30	3.35
31	P	24990.51	P	160.70	0.64
39	K	63407.65	P	770.50	1.22
40	Ca	134314.50	P	1081.00	0.80
45	Sc	1875343.00	A	21880.00	1.17
45	Sc	382072.69	P	2595.00	0.68
45	Sc	3842167.00	A	28120.00	0.73
47	Ti	154.45	P	17.11	11.08
51	V	4338.44	P	45.77	1.06
52	Cr	793.36	P	10.48	1.32
55	Mn	3517.21	P	118.40	3.37
56	Fe	20274.46	P	899.10	4.43
59	Co	357.80	P	25.24	7.05
60	Ni	43.56	P	8.70	19.98
63	Cu	2277.97	P	54.31	2.38
66	Zn	2386.94	P	14.52	0.61
72	Ge	414722.00	P	2032.00	0.49
72	Ge	176064.09	P	448.80	0.25
72	Ge	747278.50	P	2974.00	0.40
75	As	93.11	P	11.74	12.61
78	Se	8.67	P	4.67	53.85
88	Sr	663.37	P	65.66	9.90
90	Zr	166.67	P	6.67	4.00
95	Mo	213.34	P	8.82	4.13
107	Ag	31.11	P	3.85	12.37
111	Cd	30.91	P	9.65	31.22
115	In	5026592.00	A	51150.00	1.02
118	Sn	413.35	P	17.64	4.27
121	Sb	350.02	P	12.02	3.43
137	Ba	84.45	P	23.65	28.01
159	Tb	6585069.00	A	23490.00	0.36
182	W	116.67	P	12.02	10.30
205	Tl	260.01	P	27.29	10.50
208	Pb	808.93	P	58.72	7.26
209	Bi	3984699.00	A	27510.00	0.69
235	U	6.67	P	3.33	49.99
238	U	196.68	P	20.28	10.31

Calibration Blank QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21004
Date Acquired:	May 30 2019 11:54 am
Operator:	LYaman
Sample Name:	S0
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2
Last Cal Update:	May 30 2019 11:52 am
Sample Type:	CalBlk
Total Dil Factor:	1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	2345257.00	A	15300.00	0.65
7	Li	145719.20	P	720.90	0.49
9	Be	126.67	P	39.30	31.03
11	B	86422.17	P	1276.00	1.48
23	Na	65587.82	P	1056.00	1.61
24	Mg	34537.91	P	1069.00	3.10
27	Al	33463.49	P	1382.00	4.13
28	Si	7245.31	P	116.70	1.61
31	P	25586.17	P	389.50	1.52
39	K	65438.82	P	970.20	1.48
40	Ca	149498.09	P	1885.00	1.26
45	Sc	1818295.00	A	8755.00	0.48
45	Sc	382689.59	P	4378.00	1.14
45	Sc	3760094.00	A	17560.00	0.47
47	Ti	176.67	P	17.64	9.98
51	V	4446.03	P	97.08	2.18
52	Cr	794.03	P	25.33	3.19
55	Mn	3042.64	P	70.28	2.31
56	Fe	18147.22	P	970.50	5.35
59	Co	661.15	P	25.89	3.92
60	Ni	41.33	P	8.19	19.82
63	Cu	2297.08	P	27.01	1.18
66	Zn	2149.12	P	48.12	2.24
72	Ge	408604.41	P	2929.00	0.72
72	Ge	178049.91	P	299.60	0.17
72	Ge	739345.88	P	4143.00	0.56
75	As	81.11	P	3.67	4.53
78	Se	9.33	P	2.91	31.14
88	Sr	733.38	P	85.12	11.61
90	Zr	168.90	P	46.23	27.37
95	Mo	231.12	P	30.97	13.40
107	Ag	24.45	P	8.39	34.32
111	Cd	22.04	P	7.83	35.54
115	In	4894058.00	A	23290.00	0.48
118	Sn	413.35	P	33.83	8.18
121	Sb	293.35	P	11.55	3.94
137	Ba	75.56	P	13.47	17.83
159	Tb	6463656.00	A	13810.00	0.21
182	W	162.23	P	31.51	19.42
205	Tl	356.69	P	26.04	7.30
208	Pb	1050.06	P	69.60	6.63
209	Bi	3835370.00	A	18520.00	0.48
235	U	6.67	P	3.33	49.99
238	U	201.12	P	12.62	6.27

Calibration Standard QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21005.D\F6E21005.D#
Date Acquired: May 30 2019 11:58 am
Operator: LYaman
Sample Name: S1 0.5
Misc Info:
Vial Number: 1104
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 11:57 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	2222839.00	A	49010.00	2.20
7 Li	151581.20	P	4466.00	2.95
9 Be	3898.40	P	34.71	0.89
11 B	86812.60	P	1780.00	2.05
23 Na	379766.69	P	2158.00	0.57
24 Mg	1012078.00	A	19570.00	1.93
27 Al	1271964.00	A	24050.00	1.89
28 Si	159940.80	P	779.50	0.49
31 P	53388.59	P	379.90	0.71
39 K	119703.50	P	545.00	0.46
40 Ca	659202.38	P	5496.00	0.83
45 Sc	1827791.00	A	30350.00	1.66
45 Sc	374868.50	P	2584.00	0.69
45 Sc	3661405.00	A	6641.00	0.18
47 Ti	1489.02	P	87.02	5.84
51 V	7865.67	P	62.90	0.80
52 Cr	5339.65	P	48.03	0.90
55 Mn	25686.28	P	321.80	1.25
56 Fe	934116.63	P	7120.00	0.76
59 Co	16909.10	P	185.70	1.10
60 Ni	1586.99	P	11.50	0.72
63 Cu	6219.78	P	107.60	1.73
66 Zn	6064.78	P	67.45	1.11
72 Ge	405507.31	P	807.80	0.20
72 Ge	173989.59	P	1263.00	0.73
72 Ge	723323.88	P	7151.00	0.99
75 As	592.68	P	15.68	2.65
78 Se	316.45	P	9.90	3.13
88 Sr	23737.96	P	348.00	1.47
90 Zr	128632.60	P	2002.00	1.56
95 Mo	4215.20	P	28.35	0.67
107 Ag	10962.30	P	221.30	2.02
111 Cd	2775.65	P	33.10	1.19
115 In	4759540.00	A	79580.00	1.67
118 Sn	6558.39	P	265.40	4.05
121 Sb	7687.90	P	79.23	1.03
137 Ba	3040.44	P	43.35	1.43
159 Tb	6247776.00	A	57080.00	0.91
182 W	4818.81	P	127.00	2.64
205 Tl	17332.77	P	260.70	1.50
208 Pb	24201.60	P	155.20	0.64
209 Bi	3766598.00	A	28750.00	0.76
235 U	60.00	P	12.02	20.03
238 U	25192.53	P	130.60	0.52

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2222839.00	2.20	2345256.80	94.8	60 - 125	
45 Sc	1827790.60	1.66	1818295.10	100.5	60 - 125	
45 Sc	374868.47	0.69	382689.56	98.0	60 - 125	
45 Sc	3661405.30	0.18	3760093.80	97.4	60 - 125	
72 Ge	405507.28	0.20	408604.41	99.2	60 - 125	
72 Ge	173989.58	0.73	178049.86	97.7	60 - 125	
72 Ge	723323.88	0.99	739345.88	97.8	60 - 125	
115 In	4759540.50	1.67	4894058.00	97.3	60 - 125	
159 Tb	6247775.50	0.91	6463656.00	96.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21006.D\F6E21006.D#
Date Acquired:	May 30 2019 12:03 pm
Operator:	LYaman
Sample Name:	S2 50
Misc Info:	
Vial Number:	1105
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update:	May 30 2019 12:01 pm
Sample Type:	CalStd
Total Dil Factor:	1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	2154144.00	A	20850.00	0.97
7 Li	246629.30	P	2011.00	0.82
9 Be	34889.33	P	638.60	1.83
11 B	137122.30	P	2374.00	1.73
23 Na	29400630.00	A	39470.00	0.13
24 Mg	90863688.00	A	1452000.00	1.60
27 Al	115659100.00	A	1441000.00	1.25
28 Si	766662.81	P	1601.00	0.21
31 P	82608.08	P	310.20	0.38
39 K	5291890.00	A	15920.00	0.30
40 Ca	55448288.00	A	398300.00	0.72
45 Sc	1788444.00	A	11200.00	0.63
45 Sc	367006.19	P	1416.00	0.39
45 Sc	3598577.00	A	35370.00	0.98
47 Ti	114665.90	P	824.30	0.72
51 V	341310.09	P	795.40	0.23
52 Cr	405957.69	P	1636.00	0.40
55 Mn	12181250.00	A	64800.00	0.53
56 Fe	77316232.00	A	100900.00	0.13
59 Co	1529720.00	A	13770.00	0.90
60 Ni	141209.80	P	612.50	0.43
63 Cu	356704.09	P	683.30	0.19
66 Zn	228341.09	P	684.40	0.30
72 Ge	389478.41	P	1087.00	0.28
72 Ge	167764.59	P	1267.00	0.76
72 Ge	697412.38	P	3946.00	0.57
75 As	49068.54	P	337.20	0.69
78 Se	28535.62	P	67.28	0.24
88 Sr	2110138.00	A	13300.00	0.63
90 Zr	258031.20	P	3539.00	1.37
95 Mo	363583.50	P	3469.00	0.95
107 Ag	94962.51	P	784.00	0.83
111 Cd	212716.70	P	1307.00	0.61
115 In	4486413.00	A	16290.00	0.36
118 Sn	571240.50	P	4333.00	0.76
121 Sb	136543.59	P	1223.00	0.90
137 Ba	541883.81	P	1047.00	0.19
159 Tb	6035279.00	A	42290.00	0.70
182 W	42252.51	P	416.50	0.99
205 Tl	1562481.00	A	1663.00	0.11
208 Pb	2137669.00	M	9886.00	0.46
209 Bi	3456841.00	A	24400.00	0.71
235 U	4794.38	P	15.29	0.32
238 U	2340965.00	A	16550.00	0.71

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2154143.80	0.97	2345256.80	91.9	60 - 125	
45 Sc	1788443.90	0.63	1818295.10	98.4	60 - 125	
45 Sc	367006.19	0.39	382689.56	95.9	60 - 125	
45 Sc	3598576.50	0.98	3760093.80	95.7	60 - 125	
72 Ge	389478.44	0.28	408604.41	95.3	60 - 125	
72 Ge	167764.59	0.76	178049.86	94.2	60 - 125	
72 Ge	697412.38	0.57	739345.88	94.3	60 - 125	
115 In	4486413.00	0.36	4894058.00	91.7	60 - 125	
159 Tb	6035279.00	0.70	6463656.00	93.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21007.D\F6E21007.D#
Date Acquired: May 30 2019 12:08 pm
Operator: LYaman
Sample Name: S3 250
Misc Info:
Vial Number: 1106
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:06 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	2061517.00	A	38240.00	1.85
7 Li	654567.50	M	10860.00	1.66
9 Be	163042.80	P	1990.00	1.22
11 B	339902.91	P	8132.00	2.39
23 Na	132800600.00	A	452900.00	0.34
24 Mg	419655620.00	A	4853000.00	1.16
27 Al	545314500.00	A	6713000.00	1.23
28 Si	3416599.00	A	21700.00	0.64
31 P	302989.69	P	2002.00	0.66
39 K	23818200.00	A	117700.00	0.49
40 Ca	251628190.00	A	2289000.00	0.91
45 Sc	1671819.00	A	15250.00	0.91
45 Sc	342468.91	P	1084.00	0.32
45 Sc	3423034.00	A	20220.00	0.59
47 Ti	543759.69	P	5370.00	0.99
51 V	1539820.00	A	8633.00	0.56
52 Cr	1831991.00	A	8219.00	0.45
55 Mn	55982488.00	A	362000.00	0.65
56 Fe	348972190.00	A	3648000.00	1.05
59 Co	6817714.00	A	27550.00	0.40
60 Ni	624008.31	P	1926.00	0.31
63 Cu	1519831.00	A	13100.00	0.86
66 Zn	1022491.00	A	2993.00	0.29
72 Ge	356925.00	P	1743.00	0.49
72 Ge	154438.00	P	869.50	0.56
72 Ge	650361.88	P	1495.00	0.23
75 As	225037.59	P	476.80	0.21
78 Se	127968.10	P	464.20	0.36
88 Sr	9642255.00	A	75800.00	0.79
90 Zr	572467.50	P	7523.00	1.31
95 Mo	1702294.00	A	7197.00	0.42
107 Ag	424427.69	P	5940.00	1.40
111 Cd	961178.88	P	6237.00	0.65
115 In	4100624.00	A	61860.00	1.51
118 Sn	2606650.00	A	37900.00	1.45
121 Sb	635343.00	P	5371.00	0.85
137 Ba	2532492.00	A	15890.00	0.63
159 Tb	5699479.00	A	16050.00	0.28
182 W	333233.41	P	1146.00	0.34
205 Tl	7007117.00	A	61000.00	0.87
208 Pb	9663735.00	A	105500.00	1.09
209 Bi	3148462.00	A	28210.00	0.90
235 U	22549.86	P	434.40	1.93
238 U	10896040.00	A	88340.00	0.81

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2061516.60	1.85	2345256.80	87.9	60 - 125	
45 Sc	1671818.90	0.91	1818295.10	91.9	60 - 125	
45 Sc	342468.97	0.32	382689.56	89.5	60 - 125	
45 Sc	3423034.00	0.59	3760093.80	91.0	60 - 125	
72 Ge	356925.00	0.49	408604.41	87.4	60 - 125	
72 Ge	154437.97	0.56	178049.86	86.7	60 - 125	
72 Ge	650361.94	0.23	739345.88	88.0	60 - 125	
115 In	4100624.00	1.51	4894058.00	83.8	60 - 125	
159 Tb	5699479.50	0.28	6463656.00	88.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

--- :Element Failures
0 :ISTD Failures

--- :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21008.D\F6E21008.D#
Date Acquired: May 30 2019 12:12 pm
Operator: LYaman
Sample Name: S4 500
Misc Info:
Vial Number: 1107
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:10 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	2031983.00	A	46530.00	2.29
7 Li	1211818.00	A	33400.00	2.76
9 Be	323551.31	P	5083.00	1.57
11 B	592768.63	P	7428.00	1.25
23 Na	275122110.00	A	2826000.00	1.03
24 Mg	849089600.00	A	12270000.00	1.45
27 Al	1094914000.00	A	18250000.00	1.67
28 Si	7066111.00	A	79880.00	1.13
31 P	578840.50	P	3430.00	0.59
39 K	48492780.00	A	574200.00	1.18
40 Ca	519650300.00	A	5333000.00	1.03
45 Sc	1752569.00	A	15050.00	0.86
45 Sc	352525.59	P	3084.00	0.87
45 Sc	3451286.00	A	58800.00	1.70
47 Ti	1097868.00	A	19840.00	1.81
51 V	3102806.00	A	25000.00	0.81
52 Cr	3624939.00	A	31520.00	0.87
55 Mn	109815800.00	A	862600.00	0.79
56 Fe	702328580.00	A	3619000.00	0.52
59 Co	13366120.00	A	136000.00	1.02
60 Ni	1194102.00	A	4987.00	0.42
63 Cu	2949901.00	A	5928.00	0.20
66 Zn	1971605.00	A	16030.00	0.81
72 Ge	360309.81	P	2100.00	0.58
72 Ge	156270.70	P	584.70	0.37
72 Ge	651291.50	P	1013.00	0.16
75 As	446105.09	P	684.00	0.15
78 Se	251988.30	P	562.40	0.22
88 Sr	18551530.00	A	39550.00	0.21
90 Zr	1061942.00	A	10070.00	0.95
95 Mo	3356450.00	A	36100.00	1.08
107 Ag	809854.63	P	7888.00	0.97
111 Cd	1832376.00	A	27770.00	1.52
115 In	3979863.00	A	32640.00	0.82
118 Sn	5044692.00	A	28950.00	0.57
121 Sb	1246095.00	A	14300.00	1.15
137 Ba	4920528.00	A	50630.00	1.03
159 Tb	5623352.00	A	44720.00	0.80
182 W	683617.50	P	3394.00	0.50
205 Tl	13689160.00	A	184400.00	1.35
208 Pb	18653910.00	A	136800.00	0.73
209 Bi	3052174.00	A	14770.00	0.48
235 U	44552.37	P	349.70	0.78
238 U	21235910.00	A	160600.00	0.76

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2031982.90	2.29	2345256.80	86.6	60 - 125	
45 Sc	1752568.90	0.86	1818295.10	96.4	60 - 125	
45 Sc	352525.63	0.87	382689.56	92.1	60 - 125	
45 Sc	3451285.80	1.70	3760093.80	91.8	60 - 125	
72 Ge	360309.75	0.58	408604.41	88.2	60 - 125	
72 Ge	156270.73	0.37	178049.86	87.8	60 - 125	
72 Ge	651291.50	0.16	739345.88	88.1	60 - 125	
115 In	3979862.80	0.82	4894058.00	81.3	60 - 125	
159 Tb	5623352.50	0.80	6463656.00	87.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

ICV QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21009.D\F6E21009.D#
Date Acquired:	May 30 2019 12:16 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICV
Misc Info:	
Vial Number:	1204
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICV1
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc. RSD(%)	Expected	QC Range(%)	Flag
7 Li	31.84	ppb	863045.9	1.28	30.00	90 - 110	
9 Be	31.93	ppb	225069.5	1.12	30.00	90 - 110	
11 B	25.23	ppb	225436.0	4.46	30.00	90 - 110	Fail
23 Na	30190.00	ppb	174762590.0	0.73	30000.00	90 - 110	
24 Mg	30330.00	ppb	537265470.0	0.43	30000.00	90 - 110	
27 Al	30150.00	ppb	688564290.0	1.16	30000.00	90 - 110	
28 Si	3063.00	ppb	4521660.0	1.16	3000.00	90 - 110	
31 P	295.30	ppb	370256.3	0.61	300.00	90 - 110	
39 K	29330.00	ppb	30125740.0	1.22	30000.00	90 - 110	
40 Ca	30250.00	ppb	328876190.0	0.81	30000.00	90 - 110	
47 Ti	293.60	ppb	669927.4	0.17	300.00	90 - 110	
51 V	295.10	ppb	1884635.0	0.43	300.00	90 - 110	
52 Cr	285.90	ppb	2236019.0	1.29	300.00	90 - 110	
55 Mn	1927.00	ppb	75652576.0	0.17	2000.00	90 - 110	
56 Fe	29130.00	ppb	438109600.0	0.32	30000.00	90 - 110	
59 Co	284.20	ppb	8282645.0	0.55	300.00	90 - 110	
60 Ni	282.10	ppb	748880.2	1.28	300.00	90 - 110	
63 Cu	272.00	ppb	1855228.0	0.97	300.00	90 - 110	
66 Zn	290.70	ppb	1223683.0	1.56	300.00	90 - 110	
75 As	291.90	ppb	270611.1	0.73	300.00	90 - 110	
78 Se	292.10	ppb	156577.8	0.17	300.00	90 - 110	
88 Sr	309.70	ppb	11788930.0	0.71	300.00	90 - 110	
90 Zr	27.51	ppb	703362.6	0.56	30.00	90 - 110	
95 Mo	295.80	ppb	2085457.0	0.87	300.00	90 - 110	
107 Ag	32.18	ppb	549683.4	0.78	30.00	90 - 110	
111 Cd	288.00	ppb	1138669.0	0.58	300.00	90 - 110	
118 Sn	301.80	ppb	3212140.0	0.60	300.00	90 - 110	
121 Sb	59.89	ppb	778351.6	0.68	60.00	90 - 110	
137 Ba	305.00	ppb	1555084.0	1.38	300.00	90 - 110	
182 W	33.20	ppb	403893.0	1.04	30.00	90 - 110	Fail
205 Tl	289.50	ppb	8482582.0	0.48	300.00	90 - 110	
208 Pb	297.50	ppb	11604520.0	0.57	300.00	90 - 110	
235 U	1.93	ppb	26163.3	0.99	2.20	90 - 110	Fail
238 U	297.90	ppb	13134400.0	0.41	300.00	90 - 110	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2194177.3	1.31	2345256.80	93.6	60 - 125	
45 Sc	1807969.1	0.46	1818295.10	99.4	60 - 125	
45 Sc	362143.4	0.76	382689.56	94.6	60 - 125	
45 Sc	3584215.0	0.34	3760093.80	95.3	60 - 125	
72 Ge	375920.1	0.05	408604.41	92.0	60 - 125	
72 Ge	160142.6	0.46	178049.86	89.9	60 - 125	
72 Ge	667572.3	0.43	739345.88	90.3	60 - 125	
115 In	4187545.8	1.05	4894058.00	85.6	60 - 125	
159 Tb	5792105.0	0.60	6463656.00	89.6	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

3 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

ICB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21010.D\F6E21010.D#
Date Acquired:	May 30 2019 12:20 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICB
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.0644	ppb	146839.0	76.95	0.20	
9 Be	-0.0110	ppb	76.7	15.00	0.10	
11 B	-0.3563	ppb	86810.1	97.64	5.00	
23 Na	1.7200	ppb	74986.5	9.96	40.00	
24 Mg	1.6990	ppb	63934.4	4.13	10.00	
27 Al	1.5380	ppb	67987.4	7.93	20.00	
28 Si	2.2310	ppb	10396.1	1.99	20.00	
31 P	0.8460	ppb	24675.8	64.00	10.00	
39 K	1.2500	ppb	66822.8	66.02	20.00	
40 Ca	0.2784	ppb	148522.5	40.52	25.00	
47 Ti	0.0021	ppb	181.1	1256.90	0.50	
51 V	-0.0804	ppb	3963.7	19.97	0.50	
52 Cr	-0.0089	ppb	872.9	21.57	0.20	
55 Mn	0.1506	ppb	9027.5	3.90	0.20	
56 Fe	0.8087	ppb	31587.4	4.14	10.00	
59 Co	0.0099	ppb	962.3	6.10	0.20	
60 Ni	0.0042	ppb	76.4	106.06	0.20	
63 Cu	0.0304	ppb	2535.3	55.30	0.40	
66 Zn	0.0417	ppb	2171.3	22.79	2.00	
75 As	0.0351	ppb	112.0	21.14	0.20	
78 Se	0.0215	ppb	22.4	47.47	0.20	
90 Zr	0.0014	ppb	277.8	33.89	2.00	
95 Mo	0.0529	ppb	638.9	0.17	0.40	
107 Ag	0.0027	ppb	76.7	25.65	0.20	
111 Cd	0.0176	ppb	104.2	19.94	0.20	
118 Sn	0.0584	ppb	1099.0	14.75	0.20	
121 Sb	0.0062	ppb	373.4	19.96	0.40	
137 Ba	0.0190	ppb	194.5	31.09	0.20	
182 W	0.0503	ppb	356.7	6.53	1.00	
205 Tl	0.0385	ppb	1545.7	9.85	0.20	
208 Pb	0.0170	ppb	1779.0	7.33	0.10	
235 U	-0.0003	ppb	1.1	43.15	1.00	
238 U	0.0300	ppb	1596.8	6.23	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2383088.0	1.01	2345256.80	101.6	60 - 125	
45 Sc	1790153.3	0.71	1818295.10	98.5	60 - 125	
45 Sc	373009.4	0.18	382689.56	97.5	60 - 125	
45 Sc	3622358.8	1.09	3760093.80	96.3	60 - 125	
72 Ge	391390.8	1.02	408604.41	95.8	60 - 125	
72 Ge	169447.6	1.00	178049.86	95.2	60 - 125	
72 Ge	710076.6	1.15	739345.88	96.0	60 - 125	
115 In	4703190.0	0.24	4894058.00	96.1	60 - 125	
159 Tb	6146271.5	1.11	6463656.00	95.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed

0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes: Pass

ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21011.D\F6E21011.D#
Date Acquired: May 30 2019 12:25 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: MRLE3001
Misc Info: 1/100/10 ppb
Vial Number: 1305
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	171706.4	0.0000	0.9385	ppb	7.28	50.00	
9 Be	# 3	6	7146.4	0.0000	0.9129	ppb	3.44	50.00	
11 B	# 3	6	142722.1	0.0000	8.6910	ppb	7.16	100.00	
23 Na	# 1	45	661504.7	0.0000	103.1000	ppb	0.30	50000.00	
24 Mg	# 3	45	1950533.0	0.0000	103.6000	ppb	2.01	50000.00	
27 Al	# 3	45	2436219.0	0.0000	100.8000	ppb	2.27	50000.00	
28 Si	# 1	45	159547.1	0.0000	103.5000	ppb	0.48	5000.00	
31 P	# 3	45	82735.6	0.0000	47.5300	ppb	0.58	500.00	
39 K	# 2	45	172165.4	0.0000	96.4900	ppb	1.25	50000.00	
40 Ca	# 1	45	1251607.0	0.0000	101.8000	ppb	0.94	50000.00	
47 Ti	# 3	45	2565.9	0.0000	1.0010	ppb	4.21	500.00	
51 V	# 2	45	10406.8	0.0000	0.8571	ppb	1.47	500.00	
52 Cr	# 2	45	8891.1	0.0000	0.9562	ppb	2.40	500.00	
55 Mn	# 3	45	48280.7	0.0000	1.1010	ppb	2.84	3000.00	
56 Fe	# 1	45	1559741.0	0.0000	102.6000	ppb	1.24	50000.00	
59 Co	# 3	45	31302.7	0.0000	1.0060	ppb	1.78	500.00	
60 Ni	# 2	45	2807.4	0.0000	0.9745	ppb	1.28	500.00	
63 Cu	# 2	45	9632.3	0.0000	1.0040	ppb	1.07	500.00	
66 Zn	# 3	72	46834.9	0.0000	9.7410	ppb	1.51	500.00	
75 As	# 2	72	1021.2	0.0000	0.9373	ppb	1.96	500.00	
78 Se	# 1	72	537.6	0.0000	0.9280	ppb	1.57	500.00	
88 Sr	# 3	72	86351.5	0.0000	2.0480	ppb	1.53	500.00	
90 Zr	# 3	72	95231.9	0.0000	3.3970	ppb	0.21	50.00	
95 Mo	# 3	115	7590.0	0.0000	0.9097	ppb	1.21	500.00	
107 Ag	# 3	115	20174.8	0.0000	1.0270	ppb	2.26	50.00	
111 Cd	# 3	115	4582.5	0.0000	1.0030	ppb	3.04	500.00	
118 Sn	# 3	115	12077.7	0.0000	0.9547	ppb	1.25	500.00	
121 Sb	# 3	115	13992.9	0.0000	0.9183	ppb	3.56	500.00	
137 Ba	# 3	115	5592.4	0.0000	0.9401	ppb	2.90	1000.00	
182 W	# 3	159	29233.0	0.0000	2.2430	ppb	2.01	50.00	
205 Tl	# 3	159	31848.5	0.0000	0.9940	ppb	2.46	500.00	
208 Pb	# 3	159	43797.0	0.0000	1.0120	ppb	1.93	500.00	
235 U	# 3	159	98.9	0.0000	0.0063	ppb	12.73	30.00	
238 U	# 3	159	45402.2	0.0000	0.9482	ppb	1.98	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2383328.00	0.46	2345256.80	101.6	60 - 125	
45 Sc # 1	1805336.60	0.68	1818295.10	99.3	60 - 125	
45 Sc # 2	383690.34	0.79	382689.56	100.3	60 - 125	
45 Sc # 3	3742093.30	0.45	3760093.80	99.5	60 - 125	
72 Ge # 1	398274.72	0.64	408604.41	97.5	60 - 125	
72 Ge # 2	173613.13	0.69	178049.86	97.5	60 - 125	
72 Ge # 3	730229.81	0.42	739345.88	98.8	60 - 125	
115 In # 3	4809539.50	0.53	4894058.00	98.3	60 - 125	
159 Tb # 3	6264187.00	1.65	6463656.00	96.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21012.D\F6E21012.D#
Date Acquired: May 30 2019 12:29 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: MRLE3002
Misc Info: 0.4/40/4 ppb
Vial Number: 1306
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	165659.0	0.0000	0.2785	ppb	25.17	50.00	
9 Be	# 3	6	3104.9	0.0000	0.3594	ppb	3.27	50.00	
11 B	# 3	6	86463.3	0.0000	-1.2850	ppb	31.86	100.00	
23 Na	# 1	45	326716.7	0.0000	42.6400	ppb	1.79	50000.00	
24 Mg	# 3	45	861419.5	0.0000	42.4000	ppb	2.78	50000.00	
27 Al	# 3	45	1078217.0	0.0000	41.5700	ppb	0.38	50000.00	
28 Si	# 1	45	9302.3	0.0000	1.1480	ppb	63.89	5000.00	
31 P	# 3	45	23110.5	0.0000	-2.0300	ppb	24.37	500.00	
39 K	# 2	45	112639.4	0.0000	27.9300	ppb	3.42	50000.00	
40 Ca	# 1	45	545646.1	0.0000	34.5100	ppb	1.93	50000.00	
47 Ti	# 3	45	1173.4	0.0000	0.3918	ppb	1.59	500.00	
51 V	# 2	45	7152.6	0.0000	0.3368	ppb	3.39	500.00	
52 Cr	# 2	45	4523.6	0.0000	0.4091	ppb	2.03	500.00	
55 Mn	# 3	45	23749.6	0.0000	0.4737	ppb	1.40	3000.00	
56 Fe	# 1	45	738300.9	0.0000	45.6500	ppb	1.39	50000.00	
59 Co	# 3	45	13771.3	0.0000	0.4074	ppb	5.40	500.00	
60 Ni	# 2	45	1299.0	0.0000	0.4215	ppb	3.23	500.00	
63 Cu	# 2	45	5561.1	0.0000	0.4118	ppb	2.60	500.00	
66 Zn	# 3	72	20511.4	0.0000	3.8330	ppb	0.75	500.00	
75 As	# 2	72	506.7	0.0000	0.4017	ppb	5.37	500.00	
78 Se	# 1	72	249.3	0.0000	0.4020	ppb	3.06	500.00	
88 Sr	# 3	72	19369.0	0.0000	0.4204	ppb	0.34	500.00	
90 Zr	# 3	72	313.3	0.0000	0.0019	ppb	36.45	50.00	
95 Mo	# 3	115	3253.8	0.0000	0.3583	ppb	4.34	500.00	
107 Ag	# 3	115	9115.4	0.0000	0.4451	ppb	4.17	50.00	
111 Cd	# 3	115	1868.0	0.0000	0.3890	ppb	5.69	500.00	
118 Sn	# 3	115	5809.2	0.0000	0.4230	ppb	1.55	500.00	
121 Sb	# 3	115	6212.7	0.0000	0.3805	ppb	1.88	500.00	
137 Ba	# 3	115	2580.3	0.0000	0.4082	ppb	1.42	1000.00	
182 W	# 3	159	182.2	0.0000	0.0359	ppb	3.48	50.00	
205 Tl	# 3	159	14532.7	0.0000	0.4284	ppb	1.79	500.00	
208 Pb	# 3	159	20085.4	0.0000	0.4305	ppb	0.91	500.00	
235 U	# 3	159	51.1	0.0000	0.0030	ppb	15.42	30.00	
238 U	# 3	159	20674.6	0.0000	0.4116	ppb	1.11	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2541446.30	0.52	2345256.80	108.4	60 - 125	
45 Sc # 1	1890106.00	1.28	1818295.10	103.9	60 - 125	
45 Sc # 2	398086.06	1.13	382689.56	104.0	60 - 125	
45 Sc # 3	3937767.00	0.66	3760093.80	104.7	60 - 125	
72 Ge # 1	415601.28	0.34	408604.41	101.7	60 - 125	
72 Ge # 2	182078.30	0.63	178049.86	102.3	60 - 125	
72 Ge # 3	761635.44	1.10	739345.88	103.0	60 - 125	
115 In # 3	5007195.00	1.26	4894058.00	102.3	60 - 125	
159 Tb # 3	6533673.00	0.22	6463656.00	101.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

ICS-A QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21013.D\F6E21013.D#
Date Acquired:	May 30 2019 12:34 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICSA1
Misc Info:	
Vial Number:	1303
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICS-A
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.79	ppb	109902.6	6.47	---	
9 Be	-0.01	ppb	51.1	27.59	---	
11 B	-0.77	ppb	55105.2	22.22	---	
23 Na	98940.00	ppb	543778110.0	0.72	120000.00	
24 Mg	88890.00	ppb	1397830000.0	1.97	120000.00	
27 Al	90080.00	ppb	1826375000.0	0.46	120000.00	
28 Si	64.41	ppb	97015.5	0.38	---	
31 P	91680.00	ppb	95624272.0	1.31	---	
39 K	95250.00	ppb	95789632.0	0.29	120000.00	
40 Ca	101400.00	ppb	1046485000.0	1.37	120000.00	
47 Ti	2084.00	ppb	4222318.0	1.08	2400.00	
51 V	-0.11	ppb	3582.7	16.24	---	
52 Cr	0.28	ppb	3024.8	1.45	---	
55 Mn	1.45	ppb	53119.1	1.76	---	
56 Fe	97350.00	ppb	1390117000.0	0.66	120000.00	
59 Co	0.53	ppb	14176.1	1.28	---	
60 Ni	0.36	ppb	992.9	3.29	---	
63 Cu	0.12	ppb	3011.0	9.57	---	
66 Zn	5.07	ppb	22744.8	2.73	---	
75 As	0.19	ppb	249.1	6.39	---	
78 Se	0.13	ppb	78.2	6.73	---	
88 Sr	0.87	ppb	33304.5	0.66	---	
90 Zr	0.11	ppb	2880.4	0.92	---	
95 Mo	1982.00	ppb	13389020.0	1.41	2400.00	
107 Ag	0.02	ppb	312.2	3.14	---	
111 Cd	0.17	ppb	662.2	9.40	---	
118 Sn	0.30	ppb	3369.4	5.81	---	
121 Sb	0.17	ppb	2344.7	2.05	---	
137 Ba	0.24	ppb	1232.3	1.85	---	
182 W	0.24	ppb	2653.7	3.24	---	
205 Tl	0.01	ppb	527.8	37.07	---	
208 Pb	0.08	ppb	4070.4	4.81	---	
235 U	0.00	ppb	11.1	84.76	---	
238 U	0.01	ppb	617.8	12.39	---	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1558597.8	1.80	2345256.80	66.5	60 - 125	IS<70% ✓
45 Sc	1716844.5	0.28	1818295.10	94.4	60 - 125	
45 Sc	355074.7	0.90	382689.56	92.8	60 - 125	
45 Sc	3182534.3	0.94	3760093.80	84.6	60 - 125	
72 Ge	358224.6	0.69	408604.41	87.7	60 - 125	
72 Ge	161452.2	0.52	178049.86	90.7	60 - 125	
72 Ge	655441.1	0.56	739345.88	88.7	60 - 125	
115 In	4013612.5	0.76	4894058.00	82.0	60 - 125	
159 Tb	5738467.5	0.69	6463656.00	88.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

ICS-AB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21014.D\F6E21014.D#
Date Acquired:	May 30 2019 12:38 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICSAB1
Misc Info:	
Vial Number:	1304
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICS-AB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	Expected	QC Range(%)	Flag
7 Li	20.44	ppb	385145.9	2.26	20.00	80 - 120	
9 Be	21.84	ppb	98365.5	1.43	20.00	80 - 120	
11 B	18.62	ppb	119989.3	3.93	20.00	80 - 120	
23 Na	94930.00	ppb	484361790.0	0.56	100000.00	80 - 120	
24 Mg	86040.00	ppb	1267500000.0	0.99	100000.00	80 - 120	
27 Al	86980.00	ppb	1651881000.0	0.74	100000.00	80 - 120	
28 Si	220.70	ppb	293165.3	0.67	200.00	80 - 120	
31 P	89820.00	ppb	87754672.0	0.75	100000.00	80 - 120	
39 K	95760.00	ppb	88222272.0	0.13	100000.00	80 - 120	
40 Ca	100600.00	ppb	963601410.0	0.99	100000.00	80 - 120	
47 Ti	2118.00	ppb	4019422.0	1.06	2000.00	80 - 120	
51 V	20.37	ppb	120496.2	0.35	20.00	80 - 120	
52 Cr	19.81	ppb	139972.1	0.46	20.00	80 - 120	
55 Mn	20.84	ppb	682979.9	0.65	20.00	80 - 120	
56 Fe	100500.00	ppb	1332612000.0	0.39	100000.00	80 - 120	
59 Co	20.67	ppb	501455.7	1.04	20.00	80 - 120	
60 Ni	18.91	ppb	45143.0	0.53	20.00	80 - 120	
63 Cu	18.18	ppb	113250.9	0.68	20.00	80 - 120	
66 Zn	22.22	ppb	88925.6	0.26	20.00	80 - 120	
75 As	20.33	ppb	17864.4	0.06	20.00	80 - 120	
78 Se	21.83	ppb	10665.2	0.86	20.00	80 - 120	
88 Sr	21.44	ppb	762598.5	0.89	20.00	80 - 120	
90 Zr	6.55	ppb	156506.8	0.92	20.00	80 - 120	Fail
95 Mo	2013.00	ppb	13262270.0	0.82	2000.00	80 - 120	
107 Ag	18.83	ppb	300725.6	0.33	20.00	80 - 120	
111 Cd	19.06	ppb	70475.1	0.85	20.00	80 - 120	
118 Sn	19.96	ppb	198857.8	1.18	20.00	80 - 120	
121 Sb	20.33	ppb	247207.7	0.74	20.00	80 - 120	
137 Ba	20.91	ppb	99760.8	0.84	20.00	80 - 120	
182 W	21.18	ppb	249209.5	0.38	20.00	80 - 120	
205 Tl	19.52	ppb	553856.7	0.06	20.00	80 - 120	
208 Pb	19.93	ppb	753134.1	0.25	20.00	80 - 120	
235 U	0.13	ppb	1693.5	5.80	0.14	80 - 120	
238 U	20.31	ppb	866825.2	0.45	19.86	80 - 120	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1401492.0	1.63	2345256.80	59.8	60 - 125	ISFail
45 Sc	1593894.4	0.50	1818295.10	87.7	60 - 125	
45 Sc	325272.0	0.35	382689.56	85.0	60 - 125	
45 Sc	2981111.5	0.72	3760093.80	79.3	60 - 125	
72 Ge	342366.8	0.60	408604.41	83.8	60 - 125	
72 Ge	151272.8	0.35	178049.86	85.0	60 - 125	
72 Ge	623110.1	0.47	739345.88	84.3	60 - 125	
115 In	3914886.3	0.87	4894058.00	80.0	60 - 125	
159 Tb	5604637.0	0.55	6463656.00	86.7	60 - 125	

IS < 70%. LY 05/30/19

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

1 :Element Failures — 0 :Max. Number of Failures Allowed
1 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail
ISTD: Fail

CCV QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21015.D\F6E21015.D#
Date Acquired: May 30 2019 12:43 pm
Operator: LYaman
Sample Name: CCV1
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IFGA01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:14 pm
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	25.18 ppb	1.01	25.00	90 - 110	
9 Be	25.06 ppb	1.89	25.00	90 - 110	
11 B	48.87 ppb	2.94	50.00	90 - 110	
23 Na	23670.00 ppb	0.22	25000.00	90 - 110	
24 Mg	23680.00 ppb	3.65	25000.00	90 - 110	
27 Al	23860.00 ppb	2.03	25000.00	90 - 110	
28 Si	2372.00 ppb	0.98	2500.00	90 - 110	
31 P	263.30 ppb	14.30	250.00	90 - 110	
39 K	24410.00 ppb	0.23	25000.00	90 - 110	
40 Ca	25080.00 ppb	0.55	25000.00	90 - 110	
47 Ti	249.00 ppb	1.29	250.00	90 - 110	
51 V	259.80 ppb	0.57	250.00	90 - 110	
52 Cr	251.80 ppb	1.69	250.00	90 - 110	
55 Mn	1532.00 ppb	2.10	1500.00	90 - 110	
56 Fe	26090.00 ppb	0.17	25000.00	90 - 110	
59 Co	250.20 ppb	1.84	250.00	90 - 110	
60 Ni	252.90 ppb	0.47	250.00	90 - 110	
63 Cu	244.40 ppb	1.17	250.00	90 - 110	
66 Zn	245.30 ppb	1.96	250.00	90 - 110	
75 As	253.50 ppb	0.52	250.00	90 - 110	
78 Se	257.90 ppb	0.91	250.00	90 - 110	
88 Sr	270.70 ppb	0.58	250.00	90 - 110	
90 Zr	23.82 ppb	1.82	25.00	90 - 110	
95 Mo	249.30 ppb	0.52	250.00	90 - 110	
107 Ag	25.29 ppb	1.85	25.00	90 - 110	
111 Cd	248.60 ppb	2.11	250.00	90 - 110	
118 Sn	253.40 ppb	0.55	250.00	90 - 110	
121 Sb	49.80 ppb	1.51	50.00	90 - 110	
137 Ba	515.60 ppb	1.30	500.00	90 - 110	
182 W	27.81 ppb	0.68	25.00	90 - 110	Fail
205 Tl	247.20 ppb	0.67	250.00	90 - 110	
208 Pb	254.20 ppb	1.83	250.00	90 - 110	
235 U	1.72 ppb	4.22	1.80	90 - 110	
238 U	254.40 ppb	3.17	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1812206.90	7.60	2345256.80	77.3	60 - 125	
45 Sc	1632894.60	0.53	1818295.10	89.8	60 - 125	
45 Sc	329653.53	0.90	382689.56	86.1	60 - 125	
45 Sc	3349994.80	3.25	3760093.80	89.1	60 - 125	
72 Ge	359198.63	0.57	408604.41	87.9	60 - 125	
72 Ge	154537.75	0.47	178049.86	86.8	60 - 125	
72 Ge	654132.44	3.57	739345.88	88.5	60 - 125	
115 In	4283256.00	2.28	4894058.00	87.5	60 - 125	
159 Tb	5965979.00	2.56	6463656.00	92.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21016.D\F6E21016.D#
Date Acquired:	May 30 2019 12:47 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	CCB1
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements				Conc		
Element	Conc.		CPS	RSD(%)	High Limit	Flag
7 Li	0.0250	ppb	123575.2	140.87	0.20	
9 Be	-0.0120	ppb	57.8	9.62	0.10	
11 B	0.0977	ppb	74304.8	57.17	5.00	
23 Na	21.2100	ppb	173396.9	21.35	40.00	
24 Mg	7.5190	ppb	157449.6	18.83	10.00	
27 Al	7.4070	ppb	190517.7	19.16	20.00	
28 Si	1.7540	ppb	9004.1	6.06	20.00	
31 P	6.4870	ppb	29401.2	27.47	10.00	
39 K	17.4500	ppb	76620.1	22.34	20.00	
40 Ca	14.7800	ppb	282883.4	29.83	25.00	
47 Ti	0.1562	ppb	502.2	22.23	0.50	
51 V	-0.0871	ppb	3578.5	10.43	0.50	
52 Cr	-0.0100	ppb	788.7	32.38	0.20	
55 Mn	0.0241	ppb	3758.4	12.98	0.20	
56 Fe	15.8100	ppb	236984.1	29.08	10.00	Fail LY 05/30/19
59 Co	-0.0104	ppb	343.3	4.50	0.20	
60 Ni	0.0067	ppb	76.0	79.56	0.20	
63 Cu	0.0234	ppb	2270.0	23.61	0.40	
66 Zn	0.0360	ppb	2124.7	21.07	2.00	
75 As	0.0238	ppb	96.9	32.01	0.20	
78 Se	0.0362	ppb	29.6	19.21	0.20	
88 Sr	-0.0049	ppb	830.1	55.17	0.20	
90 Zr	-0.0021	ppb	182.2	59.94	2.00	
95 Mo	0.2114	ppb	1941.3	14.12	0.40	
107 Ag	0.0026	ppb	76.7	29.99	0.20	
111 Cd	0.0038	ppb	44.0	95.23	0.20	
118 Sn	0.0263	ppb	733.4	23.79	0.20	
121 Sb	0.0390	ppb	873.4	12.05	0.40	
137 Ba	0.0062	ppb	124.4	20.20	0.20	
182 W	0.0463	ppb	313.3	8.13	1.00	
205 Tl	0.0073	ppb	590.0	13.96	0.20	
208 Pb	-0.0049	ppb	895.6	37.16	0.10	
235 U	-0.0002	ppb	3.3	145.93	1.00	
238 U	0.0102	ppb	687.8	11.87	0.10	

ISTD Elements		CPS				
Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1975642.3	0.85	2345256.80	84.2	60 - 125	
45 Sc	1661846.8	0.65	1818295.10	91.4	60 - 125	
45 Sc	340529.4	0.06	382689.56	89.0	60 - 125	
45 Sc	3397381.8	1.38	3760093.80	90.4	60 - 125	
72 Ge	377267.0	0.31	408604.41	92.3	60 - 125	
72 Ge	162647.0	0.27	178049.86	91.3	60 - 125	
72 Ge	703032.1	0.83	739345.88	95.1	60 - 125	
115 In	4823626.0	0.59	4894058.00	98.6	60 - 125	
159 Tb	6298530.5	0.59	6463656.00	97.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

1 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21040.D\F6E21040.D#
Date Acquired: May 30 2019 02:42 pm
Operator: LYaman
Sample Name: CCV4
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:14 pm
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	25.32 ppb	1.68	25.00	90 - 110	
9 Be	24.62 ppb	1.75	25.00	90 - 110	
11 B	50.26 ppb	1.63	50.00	90 - 110	
23 Na	24970.00 ppb	0.43	25000.00	90 - 110	
24 Mg	25620.00 ppb	1.33	25000.00	90 - 110	
27 Al	25350.00 ppb	1.02	25000.00	90 - 110	
28 Si	2500.00 ppb	0.51	2500.00	90 - 110	
31 P	248.70 ppb	0.72	250.00	90 - 110	
39 K	24900.00 ppb	1.02	25000.00	90 - 110	
40 Ca	25320.00 ppb	0.89	25000.00	90 - 110	
47 Ti	251.10 ppb	1.37	250.00	90 - 110	
51 V	258.00 ppb	0.33	250.00	90 - 110	
52 Cr	249.80 ppb	0.20	250.00	90 - 110	
55 Mn	1539.00 ppb	2.14	1500.00	90 - 110	
56 Fe	25500.00 ppb	0.49	25000.00	90 - 110	
59 Co	252.00 ppb	2.31	250.00	90 - 110	
60 Ni	248.10 ppb	0.46	250.00	90 - 110	
63 Cu	236.30 ppb	0.19	250.00	90 - 110	
66 Zn	251.10 ppb	1.42	250.00	90 - 110	
75 As	251.80 ppb	0.13	250.00	90 - 110	
78 Se	256.30 ppb	0.21	250.00	90 - 110	
88 Sr	264.20 ppb	0.38	250.00	90 - 110	
90 Zr	21.96 ppb	2.22	25.00	90 - 110	Fail
95 Mo	248.70 ppb	1.91	250.00	90 - 110	
107 Ag	25.66 ppb	3.08	25.00	90 - 110	
111 Cd	252.40 ppb	0.39	250.00	90 - 110	
118 Sn	249.50 ppb	1.47	250.00	90 - 110	
121 Sb	49.52 ppb	1.42	50.00	90 - 110	
137 Ba	515.00 ppb	1.37	500.00	90 - 110	
182 W	27.84 ppb	0.50	25.00	90 - 110	Fail
205 Tl	248.30 ppb	0.19	250.00	90 - 110	
208 Pb	252.10 ppb	0.56	250.00	90 - 110	
235 U	1.66 ppb	2.30	1.80	90 - 110	
238 U	245.20 ppb	1.55	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2102657.00	0.64	2345256.80	89.7	60 - 125	
45 Sc	1770309.80	0.53	1818295.10	97.4	60 - 125	
45 Sc	355107.66	0.36	382689.56	92.8	60 - 125	
45 Sc	3579878.30	1.19	3760093.80	95.2	60 - 125	
72 Ge	372877.53	0.26	408604.41	91.3	60 - 125	
72 Ge	160848.39	0.46	178049.86	90.3	60 - 125	
72 Ge	684528.50	0.62	739345.88	92.6	60 - 125	
115 In	4350674.00	0.71	4894058.00	88.9	60 - 125	
159 Tb	6023798.50	1.35	6463656.00	93.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21041.D\F6E21041.D#
Date Acquired:	May 30 2019 02:47 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	CCB4
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.1239	ppb	144627.9	39.67	0.20	
9 Be	-0.0151	ppb	45.6	7.08	0.10	
11 B	-0.5775	ppb	85021.0	27.53	5.00	
23 Na	-0.9417	ppb	58541.2	15.81	40.00	
24 Mg	-0.3852	ppb	27803.9	3.09	10.00	
27 Al	-0.3549	ppb	25391.0	11.45	20.00	
28 Si	-1.1350	ppb	5372.2	9.30	20.00	
31 P	-1.2330	ppb	23194.8	13.18	10.00	
39 K	-2.6410	ppb	63299.5	8.25	20.00	
40 Ca	-0.8610	ppb	133473.4	163.53	25.00	
47 Ti	0.0012	ppb	186.7	393.14	0.50	
51 V	-0.0510	ppb	4194.8	15.86	0.50	
52 Cr	-0.0154	ppb	827.8	3.70	0.20	
55 Mn	0.0240	ppb	4184.0	5.31	0.20	
56 Fe	0.6206	ppb	28208.7	7.33	10.00	
59 Co	-0.0120	ppb	332.2	2.45	0.20	
60 Ni	-0.0044	ppb	53.3	85.26	0.20	
63 Cu	-0.0265	ppb	2156.4	24.55	0.40	
66 Zn	-0.0197	ppb	2016.9	52.01	2.00	
75 As	0.0217	ppb	101.8	33.75	0.20	
78 Se	0.0041	ppb	12.7	194.06	0.20	
88 Sr	0.0265	ppb	2244.7	5.00	0.20	
90 Zr	0.0023	ppb	320.1	193.11	2.00	
95 Mo	0.0062	ppb	290.0	76.39	0.40	
107 Ag	0.0008	ppb	43.3	35.83	0.20	
111 Cd	0.0009	ppb	32.0	383.38	0.20	
118 Sn	0.0308	ppb	826.7	10.12	0.20	
121 Sb	0.0313	ppb	795.6	15.18	0.40	
137 Ba	0.0045	ppb	120.0	32.45	0.20	
182 W	0.0398	ppb	234.5	8.30	1.00	
205 Tl	0.0014	ppb	415.6	54.72	0.20	
208 Pb	-0.0064	ppb	860.0	24.57	0.10	
235 U	-0.0002	ppb	3.3	133.60	1.00	
238 U	0.0084	ppb	623.4	21.60	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2370903.8	0.71	2345256.80	101.1	60 - 125	
45 Sc	1754403.8	1.00	1818295.10	96.5	60 - 125	
45 Sc	376501.1	1.22	382689.56	98.4	60 - 125	
45 Sc	3784403.8	1.38	3760093.80	100.6	60 - 125	
72 Ge	390472.0	1.00	408604.41	95.6	60 - 125	
72 Ge	174577.6	0.90	178049.86	98.0	60 - 125	
72 Ge	755124.3	0.97	739345.88	102.1	60 - 125	
115 In	5062705.0	0.92	4894058.00	103.4	60 - 125	
159 Tb	6526956.5	0.46	6463656.00	101.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed

0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes: Pass

ISTD: Pass

CCB QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21042.D\F6E21042.D#
Date Acquired: May 30 2019 02:51 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: IME026WB
Misc Info:
Vial Number: 2206
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: MBW
Dilution Factor: 1.00

QC Elements Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.1056	ppb	140740.4	65.77	1.00	
9 Be	-0.0180	ppb	22.2	7.46	0.50	
11 B	-0.0881	ppb	85385.4	528.27	5.00	
23 Na	-1.2690	ppb	56632.9	6.68	50.00	
24 Mg	0.3508	ppb	40978.6	29.30	50.00	
27 Al	0.2469	ppb	39344.3	25.52	50.00	
28 Si	-2.3030	ppb	3697.3	5.21	25.00	
31 P	1.0640	ppb	25678.7	50.87	25.00	
39 K	0.1016	ppb	65257.0	569.19	50.00	
40 Ca	-1.0150	ppb	131734.1	60.37	50.00	
47 Ti	0.0322	ppb	257.8	46.71	1.00	
51 V	0.0084	ppb	4522.1	109.92	0.50	
52 Cr	-0.0085	ppb	870.9	20.73	0.50	
55 Mn	0.0260	ppb	4207.4	15.43	0.50	
56 Fe	-0.2941	ppb	14841.3	36.82	50.00	
59 Co	-0.0135	ppb	282.2	4.05	0.50	
60 Ni	0.0013	ppb	68.0	83.33	0.50	
63 Cu	-0.0193	ppb	2175.1	27.99	0.50	
66 Zn	0.0072	ppb	2104.7	385.35	10.00	
75 As	0.0206	ppb	98.9	19.88	0.50	
78 Se	-0.0033	ppb	8.7	70.87	0.50	
88 Sr	0.0941	ppb	5057.7	7.27	1.00	
90 Zr	-0.0001	ppb	247.8	859.80	2.50	
95 Mo	-0.0114	ppb	135.6	15.37	1.00	
107 Ag	0.0002	ppb	28.9	341.04	0.50	
111 Cd	-0.0003	ppb	25.7	676.91	0.50	
118 Sn	0.0148	ppb	600.0	22.92	0.50	
121 Sb	0.0116	ppb	468.9	9.59	0.50	
137 Ba	0.0227	ppb	224.5	7.24	0.50	
182 W	0.0328	ppb	135.6	8.85	1.00	
205 Tl	-0.0031	ppb	260.0	13.88	0.50	
208 Pb	-0.0083	ppb	760.0	3.52	0.50	
235 U	0.0002	ppb	8.9	120.61	---	
238 U	0.0035	ppb	366.7	25.30	0.50	

ISTD Elements Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2300226.5	1.16	2345256.80	98.1	60 - 125	
45 Sc	1752214.8	0.39	1818295.10	96.4	60 - 125	
45 Sc	371011.4	0.95	382689.56	96.9	60 - 125	
45 Sc	3731790.8	1.09	3760093.80	99.2	60 - 125	
72 Ge	394258.1	0.49	408604.41	96.5	60 - 125	
72 Ge	171327.0	0.88	178049.86	96.2	60 - 125	
72 Ge	741180.8	0.77	739345.88	100.2	60 - 125	
115 In	4887184.5	0.84	4894058.00	99.9	60 - 125	
159 Tb	6363183.5	0.80	6463656.00	98.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

LCS QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21043.D\F6E21043.D#
Date Acquired:	May 30 2019 02:56 pm
Operator:	LYaman
Sample Name:	IME026WL
Misc Info:	
Vial Number:	2207
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	LCS
Final Dil Factor:	1.00

Analyte Elements

Element	CPS Mean	Conc.		RSD(%)	Expected	QC Range(%)	Flag
7 Li	857065.69	30.15	ppb	1.07	30.00	80 - 120	
9 Be	217569.20	29.69	ppb	0.44	30.00	80 - 120	
11 B	278706.59	32.73	ppb	2.42	30.00	80 - 120	
23 Na	19363960.00	3365.00	ppb	1.32	3000.00	80 - 120	
24 Mg	60493260.00	3265.00	ppb	1.41	3000.00	80 - 120	
27 Al	76005408.00	3182.00	ppb	1.06	3000.00	80 - 120	
28 Si	32559.79	17.39	ppb	0.87	3000.00	80 - 120	Fail
31 P	23517.17	-0.78	ppb	77.28	300.00	80 - 120	Fail
39 K	3368439.00	3119.00	ppb	0.59	3000.00	80 - 120	
40 Ca	36211520.00	3348.00	ppb	0.82	3000.00	80 - 120	
47 Ti	73410.55	30.71	ppb	0.48	30.00	80 - 120	
51 V	207579.20	30.86	ppb	1.49	30.00	80 - 120	
52 Cr	247999.50	30.59	ppb	1.39	30.00	80 - 120	
55 Mn	1350946.00	32.84	ppb	1.19	30.00	80 - 120	
56 Fe	47906020.00	3212.00	ppb	0.97	3000.00	80 - 120	
59 Co	969118.81	31.79	ppb	0.20	30.00	80 - 120	
60 Ni	85148.93	31.03	ppb	0.93	30.00	80 - 120	
63 Cu	219649.30	30.89	ppb	1.25	30.00	80 - 120	
66 Zn	301250.09	64.38	ppb	0.26	60.00	80 - 120	
75 As	30089.96	30.18	ppb	0.25	30.00	80 - 120	
78 Se	17573.88	31.04	ppb	1.21	30.00	80 - 120	
88 Sr	1449082.00	34.41	ppb	0.34	30.00	80 - 120	
90 Zr	1255.66	0.04	ppb	1.11	20.00	80 - 120	Fail
95 Mo	237648.80	29.13	ppb	1.08	30.00	80 - 120	
107 Ag	626006.81	31.69	ppb	0.88	30.00	80 - 120	
111 Cd	137701.09	30.11	ppb	0.54	30.00	80 120	
118 Sn	369666.91	30.01	ppb	0.11	30.00	80 - 120	
121 Sb	448034.41	29.80	ppb	0.78	30.00	80 - 120	
137 Ba	178797.70	30.31	ppb	0.83	30.00	80 - 120	
182 W	200.01	0.04	ppb	1.69	30.00	80 - 120	Fail
205 Tl	1003803.00	31.09	ppb	1.13	30.00	80 - 120	
208 Pb	1360233.00	31.64	ppb	1.11	30.00	80 - 120	
235 U	2887.09	0.19	ppb	2.73	0.21	80 - 120	
238 U	1453279.00	29.92	ppb	0.82	29.79	80 - 120	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2280500.50	0.52	2345256.80	97.2	60 - 125	
45 Sc	1792172.60	0.54	1818295.10	98.6	60 - 125	
45 Sc	374061.28	1.33	382689.56	97.7	60 - 125	
45 Sc	3747228.80	0.90	3760093.80	99.7	60 - 125	
72 Ge	396794.44	0.24	408604.41	97.1	60 - 125	
72 Ge	171812.33	0.44	178049.86	96.5	60 - 125	
72 Ge	738070.50	0.32	739345.88	99.8	60 - 125	
115 In	4842124.50	0.49	4894058.00	98.9	60 - 125	
159 Tb	6380143.00	1.53	6463656.00	98.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

4 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

LCS QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21044.D\F6E21044.D#
Date Acquired:	May 30 2019 03:00 pm
Operator:	LYaman
Sample Name:	IME026WC
Misc Info:	
Vial Number:	2208
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	LCS
Final Dil Factor:	1.00

Analyte Elements

Element	CPS Mean	Conc.		RSD(%)	Expected	QC Range(%)	Flag
7 Li	851013.38	30.43	ppb	1.02	30.00	80 - 120	
9 Be	216848.00	30.03	ppb	1.02	30.00	80 - 120	
11 B	279012.19	33.48	ppb	1.89	30.00	80 - 120	
23 Na	18624660.00	3327.00	ppb	0.51	3000.00	80 - 120	
24 Mg	61183112.00	3318.00	ppb	1.61	3000.00	80 - 120	
27 Al	77807272.00	3274.00	ppb	1.41	3000.00	80 - 120	
28 Si	24635.94	12.44	ppb	9.72	3000.00	80 - 120	Fail
31 P	24211.35	-0.12	ppb	288.85	300.00	80 - 120	Fail
39 K	3425086.00	3174.00	ppb	0.56	3000.00	80 - 120	
40 Ca	35726200.00	3396.00	ppb	0.46	3000.00	80 - 120	
47 Ti	74719.09	31.41	ppb	1.20	30.00	80 - 120	
51 V	210826.50	31.36	ppb	0.29	30.00	80 - 120	
52 Cr	253661.30	31.30	ppb	0.43	30.00	80 - 120	
55 Mn	1352107.00	33.03	ppb	0.90	30.00	80 - 120	
56 Fe	48035888.00	3312.00	ppb	0.03	3000.00	80 - 120	
59 Co	972033.38	32.04	ppb	1.25	30.00	80 - 120	
60 Ni	87114.68	31.76	ppb	0.61	30.00	80 - 120	
63 Cu	222210.30	31.26	ppb	0.66	30.00	80 - 120	
66 Zn	313886.69	67.64	ppb	0.43	60.00	80 - 120	
75 As	30689.42	30.86	ppb	1.29	30.00	80 - 120	
78 Se	17378.53	31.38	ppb	0.74	30.00	80 - 120	
88 Sr	1432100.00	34.28	ppb	0.31	30.00	80 - 120	
90 Zr	944.51	0.02	ppb	12.61	20.00	80 - 120	Fail
95 Mo	240386.70	29.82	ppb	1.51	30.00	80 - 120	
107 Ag	637867.88	32.68	ppb	0.70	30.00	80 - 120	
111 Cd	139726.20	30.92	ppb	0.36	30.00	80 - 120	
118 Sn	377987.91	31.06	ppb	0.27	30.00	80 - 120	
121 Sb	458075.31	30.84	ppb	0.12	30.00	80 - 120	
137 Ba	181518.91	31.15	ppb	0.47	30.00	80 - 120	
182 W	187.79	0.04	ppb	5.67	30.00	80 - 120	Fail
205 Tl	1019645.00	31.82	ppb	0.83	30.00	80 - 120	
208 Pb	1383430.00	32.42	ppb	0.63	30.00	80 - 120	
235 U	2932.67	0.20	ppb	2.67	0.21	80 - 120	
238 U	1491528.00	30.94	ppb	1.52	29.79	80 - 120	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2247199.30	0.17	2345256.80	95.8	60 - 125	
45 Sc	1743125.30	0.41	1818295.10	95.9	60 - 125	
45 Sc	373929.72	0.30	382689.56	97.7	60 - 125	
45 Sc	3729149.00	1.03	3760093.80	99.2	60 - 125	
72 Ge	388127.66	0.13	408604.41	95.0	60 - 125	
72 Ge	171433.06	1.07	178049.86	96.3	60 - 125	
72 Ge	732157.94	0.52	739345.88	99.0	60 - 125	
115 In	4784258.00	0.63	4894058.00	97.8	60 - 125	
159 Tb	6331540.50	0.58	6463656.00	98.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

4 :Element Failures — 0 :Max. Number of Failures Allowed

0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail

ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21045.D\F6E21045.D#
Date Acquired: May 30 2019 03:05 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-02I
Misc Info:
Vial Number: 2209
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	2252059.0	0.0000	96.7700	ppb	1.39	50.00	>LRS
9 Be	# 3	6	93.3	0.0000	-0.0073	ppb	9.16	50.00	
11 B	# 3	6	1528832.0	0.0000	265.3000	ppb	1.43	100.00	>LRS
23 Na	# 1	45	2228444900.0	0.0000	411100.0000	ppb	0.47	50000.00	>LRS
24 Mg	# 3	45	8394887.0	0.0000	463.3000	ppb	0.73	50000.00	
27 Al	# 3	45	101627.0	0.0000	2.9660	ppb	22.25	50000.00	
28 Si	# 1	45	1238949.0	0.0000	892.4000	ppb	1.29	5000.00	
31 P	# 3	45	25778.1	0.0000	1.6010	ppb	7.45	500.00	
39 K	# 2	45	3246511.0	0.0000	3059.0000	ppb	0.41	50000.00	
40 Ca	# 1	45	123425200.0	0.0000	12110.0000	ppb	0.53	50000.00	
47 Ti	# 3	45	840.1	0.0000	0.2851	ppb	13.38	500.00	
51 V	# 2	45	4711.9	0.0000	0.0445	ppb	38.89	500.00	
52 Cr	# 2	45	12896.0	0.0000	1.5080	ppb	1.12	500.00	
55 Mn	# 3	45	1096689.0	0.0000	27.3400	ppb	0.44	3000.00	
56 Fe	# 1	45	304133.2	0.0000	20.2800	ppb	0.78	50000.00	
59 Co	# 3	45	2122.5	0.0000	0.0487	ppb	5.21	500.00	
60 Ni	# 2	45	2043.5	0.0000	0.7349	ppb	0.95	500.00	
63 Cu	# 2	45	3894.3	0.0000	0.2324	ppb	4.35	500.00	
66 Zn	# 3	72	6703.9	0.0000	1.1890	ppb	1.63	500.00	
75 As	# 2	72	190.2	0.0000	0.1287	ppb	5.45	500.00	
78 Se	# 1	72	17.8	0.0000	0.0166	ppb	43.56	500.00	
88 Sr	# 3	72	11876740.0	0.0000	319.5000	ppb	0.51	500.00	
90 Zr	# 3	72	431.1	0.0000	0.0084	ppb	13.63	50.00	
95 Mo	# 3	115	76631.6	0.0000	11.1600	ppb	0.92	500.00	
107 Ag	# 3	115	206.7	0.0000	0.0112	ppb	11.73	50.00	
111 Cd	# 3	115	-52.0	0.0000	-0.0194	ppb	92.95	500.00	
118 Sn	# 3	115	707.8	0.0000	0.0349	ppb	13.81	500.00	
121 Sb	# 3	115	959.0	0.0000	0.0566	ppb	9.40	500.00	
137 Ba	# 3	115	20363.0	0.0000	4.0940	ppb	0.58	1000.00	
182 W	# 3	159	2210.3	0.0000	0.2099	ppb	7.82	50.00	
205 Tl	# 3	159	412.2	0.0000	0.0033	ppb	58.93	500.00	
208 Pb	# 3	159	1543.4	0.0000	0.0148	ppb	11.42	500.00	
235 U	# 3	159	35.6	0.0000	0.0023	ppb	34.47	30.00	
238 U	# 3	159	4555.4	0.0000	0.1025	ppb	1.49	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2107793.00	1.78	2345256.80	89.9	60 - 125	
45 Sc # 1	1693634.50	1.24	1818295.10	93.1	60 - 125	
45 Sc # 2	367448.16	1.21	382689.56	96.0	60 - 125	
45 Sc # 3	3652362.80	1.62	3760093.80	97.1	60 - 125	
72 Ge # 1	353359.19	0.58	408604.41	86.5	60 - 125	
72 Ge # 2	158153.53	0.97	178049.86	88.8	60 - 125	
72 Ge # 3	651964.81	0.71	739345.88	88.2	60 - 125	
115 In # 3	4070122.00	0.86	4894058.00	83.2	60 - 125	
159 Tb # 3	5615180.50	0.72	6463656.00	86.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21046.D\F6E21046.D#
Date Acquired: May 30 2019 03:09 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-04I
Misc Info:
Vial Number: 2210
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	914608.6	0.0000	30.3700	ppb	1.54	50.00	
9 Be	# 3	6	74.4	0.0000	-0.0115	ppb	12.71	50.00	
11 B	# 3	6	737531.9	0.0000	103.2000	ppb	2.21	100.00	>LRS
23 Na	# 1	45	926796220.0	0.0000	161200.0000	ppb	0.73	50000.00	>LRS
24 Mg	# 3	45	119989200.0	0.0000	6463.0000	ppb	0.71	50000.00	
27 Al	# 3	45	70487.9	0.0000	1.5380	ppb	9.80	50000.00	
28 Si	# 1	45	2147857.0	0.0000	1462.0000	ppb	0.85	5000.00	
31 P	# 3	45	28601.6	0.0000	3.2980	ppb	18.50	500.00	
39 K	# 2	45	1217073.0	0.0000	1074.0000	ppb	0.57	50000.00	
40 Ca	# 1	45	132555100.0	0.0000	12270.0000	ppb	0.86	50000.00	
47 Ti	# 3	45	1063.4	0.0000	0.3684	ppb	6.46	500.00	
51 V	# 2	45	6359.2	0.0000	0.2701	ppb	5.84	500.00	
52 Cr	# 2	45	1642.1	0.0000	0.0837	ppb	6.40	500.00	
55 Mn	# 3	45	2185714.0	0.0000	53.0500	ppb	0.64	3000.00	
56 Fe	# 1	45	148172.2	0.0000	8.6060	ppb	2.07	50000.00	
59 Co	# 3	45	2338.0	0.0000	0.0538	ppb	4.62	500.00	
60 Ni	# 2	45	604.7	0.0000	0.1942	ppb	3.43	500.00	
63 Cu	# 2	45	2472.4	0.0000	0.0162	ppb	47.78	500.00	
66 Zn	# 3	72	7377.6	0.0000	1.2510	ppb	2.15	500.00	
75 As	# 2	72	546.7	0.0000	0.4919	ppb	4.90	500.00	
78 Se	# 1	72	17.8	0.0000	0.0140	ppb	43.15	500.00	
88 Sr	# 3	72	12166930.0	0.0000	308.7000	ppb	0.62	500.00	
90 Zr	# 3	72	315.6	0.0000	0.0031	ppb	43.43	50.00	
95 Mo	# 3	115	35945.3	0.0000	4.8770	ppb	1.64	500.00	
107 Ag	# 3	115	130.0	0.0000	0.0060	ppb	22.04	50.00	
111 Cd	# 3	115	-7.9	0.0000	-0.0077	ppb	177.66	500.00	
118 Sn	# 3	115	525.6	0.0000	0.0140	ppb	22.99	500.00	
121 Sb	# 3	115	864.5	0.0000	0.0447	ppb	7.16	500.00	
137 Ba	# 3	115	21380.2	0.0000	4.0180	ppb	2.48	1000.00	
182 W	# 3	159	3746.2	0.0000	0.3284	ppb	4.24	50.00	
205 Tl	# 3	159	1305.7	0.0000	0.0331	ppb	5.71	500.00	
208 Pb	# 3	159	1057.8	0.0000	0.0009	ppb	21.60	500.00	
235 U	# 3	159	114.4	0.0000	0.0080	ppb	26.49	30.00	
238 U	# 3	159	13222.6	0.0000	0.2937	ppb	1.18	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2419834.50	1.42	2345256.80	103.2	60 - 125	
45 Sc # 1	1795832.30	1.74	1818295.10	98.8	60 - 125	
45 Sc # 2	378627.81	0.86	382689.56	98.9	60 - 125	
45 Sc # 3	3755987.00	0.56	3760093.80	99.9	60 - 125	
72 Ge # 1	380986.38	0.70	408604.41	93.2	60 - 125	
72 Ge # 2	165468.86	1.44	178049.86	92.9	60 - 125	
72 Ge # 3	691237.88	0.43	739345.88	93.5	60 - 125	
115 In # 3	4354302.00	1.04	4894058.00	89.0	60 - 125	
159 Tb # 3	5831676.50	1.07	6463656.00	90.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21047.D\F6E21047.D#
Date Acquired: May 30 2019 03:14 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-06I
Misc Info:
Vial Number: 2211
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1847727.0	0.0000	69.2500	ppb	1.45	50.00	>LRS
9 Be	# 3	6	50.0	0.0000	-0.0145	ppb	8.93	50.00	
11 B	# 3	6	1055795.0	0.0000	158.0000	ppb	1.86	100.00	>LRS
23 Na	# 1	45	1492989100.0	0.0000	259300.0000	ppb	1.30	50000.00	>LRS
24 Mg	# 3	45	34094888.0	0.0000	1863.0000	ppb	0.76	50000.00	
27 Al	# 3	45	52203.9	0.0000	0.8070	ppb	17.94	50000.00	
28 Si	# 1	45	1958715.0	0.0000	1330.0000	ppb	1.15	5000.00	
31 P	# 3	45	28719.8	0.0000	3.7540	ppb	6.75	500.00	
39 K	# 2	45	2152245.0	0.0000	1969.0000	ppb	1.92	50000.00	
40 Ca	# 1	45	157880990.0	0.0000	14580.0000	ppb	0.64	50000.00	
47 Ti	# 3	45	992.3	0.0000	0.3451	ppb	11.06	500.00	
51 V	# 2	45	6536.4	0.0000	0.3080	ppb	5.03	500.00	
52 Cr	# 2	45	1799.7	0.0000	0.1054	ppb	2.29	500.00	
55 Mn	# 3	45	394885.6	0.0000	9.6700	ppb	0.87	3000.00	
56 Fe	# 1	45	52919.6	0.0000	2.2240	ppb	1.82	50000.00	
59 Co	# 3	45	1848.0	0.0000	0.0386	ppb	2.14	500.00	
60 Ni	# 2	45	430.9	0.0000	0.1333	ppb	2.10	500.00	
63 Cu	# 2	45	2304.4	0.0000	-0.0038	ppb	109.28	500.00	
66 Zn	# 3	72	7467.7	0.0000	1.3290	ppb	0.72	500.00	
75 As	# 2	72	368.0	0.0000	0.3165	ppb	3.29	500.00	
78 Se	# 1	72	19.8	0.0000	0.0186	ppb	25.93	500.00	
88 Sr	# 3	72	12360670.0	0.0000	324.0000	ppb	0.22	500.00	
90 Zr	# 3	72	265.6	0.0000	0.0015	ppb	7.89	50.00	
95 Mo	# 3	115	33067.5	0.0000	4.6870	ppb	0.43	500.00	
107 Ag	# 3	115	42.2	0.0000	0.0012	ppb	56.38	50.00	
111 Cd	# 3	115	-25.9	0.0000	-0.0123	ppb	140.15	500.00	
118 Sn	# 3	115	496.7	0.0000	0.0134	ppb	67.68	500.00	
121 Sb	# 3	115	608.9	0.0000	0.0278	ppb	7.40	500.00	
137 Ba	# 3	115	23240.9	0.0000	4.5660	ppb	0.75	1000.00	
182 W	# 3	159	1696.8	0.0000	0.1642	ppb	4.29	50.00	
205 Tl	# 3	159	1560.1	0.0000	0.0429	ppb	6.97	500.00	
208 Pb	# 3	159	1134.5	0.0000	0.0035	ppb	54.16	500.00	
235 U	# 3	159	392.2	0.0000	0.0290	ppb	1.35	30.00	
238 U	# 3	159	56026.3	0.0000	1.2870	ppb	0.62	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2361922.30	0.68	2345256.80	100.7	60 - 125	
45 Sc # 1	1799112.00	0.87	1818295.10	98.9	60 - 125	
45 Sc # 2	374401.69	0.85	382689.56	97.8	60 - 125	
45 Sc # 3	3699185.30	0.52	3760093.80	98.4	60 - 125	
72 Ge # 1	372081.75	0.34	408604.41	91.1	60 - 125	
72 Ge # 2	160705.81	0.97	178049.86	90.3	60 - 125	
72 Ge # 3	668932.63	0.92	739345.88	90.5	60 - 125	
115 In # 3	4166726.30	0.82	4894058.00	85.1	60 - 125	
159 Tb # 3	5701407.00	0.82	6463656.00	88.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21048.D\F6E21048.D#
Date Acquired: May 30 2019 03:18 pm
Operator: LYaman
Sample Name: CCV5
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File. C.\DATA\IFG2017\A\IFGA01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:14 pm
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	24.75 ppb	1.11	25.00	90 - 110	
9 Be	23.30 ppb	2.52	25.00	90 - 110	
11 B	47.71 ppb	4.16	50.00	90 - 110	
23 Na	25720.00 ppb	0.94	25000.00	90 - 110	
24 Mg	27040.00 ppb	1.11	25000.00	90 - 110	
27 Al	26840.00 ppb	1.65	25000.00	90 - 110	
28 Si	2577.00 ppb	0.78	2500.00	90 - 110	
31 P	264.40 ppb	0.93	250.00	90 - 110	
39 K	25320.00 ppb	1.47	25000.00	90 - 110	
40 Ca	25340.00 ppb	0.36	25000.00	90 - 110	
47 Ti	250.30 ppb	1.25	250.00	90 - 110	
51 V	254.80 ppb	0.32	250.00	90 - 110	
52 Cr	243.30 ppb	1.00	250.00	90 - 110	
55 Mn	1502.00 ppb	0.72	1500.00	90 - 110	
56 Fe	24960.00 ppb	0.40	25000.00	90 - 110	
59 Co	245.70 ppb	0.96	250.00	90 - 110	
60 Ni	242.80 ppb	0.74	250.00	90 - 110	
63 Cu	229.40 ppb	1.06	250.00	90 - 110	
66 Zn	250.70 ppb	0.74	250.00	90 - 110	
75 As	252.50 ppb	0.88	250.00	90 - 110	
78 Se	250.80 ppb	0.53	250.00	90 - 110	
88 Sr	260.90 ppb	0.92	250.00	90 - 110	
90 Zr	22.27 ppb	0.40	25.00	90 - 110	Fail
95 Mo	247.70 ppb	0.68	250.00	90 - 110	
107 Ag	25.27 ppb	0.07	25.00	90 - 110	
111 Cd	249.00 ppb	0.37	250.00	90 - 110	
118 Sn	249.30 ppb	0.42	250.00	90 - 110	
121 Sb	49.23 ppb	0.43	50.00	90 - 110	
137 Ba	512.50 ppb	1.23	500.00	90 - 110	
182 W	27.67 ppb	0.79	25.00	90 - 110	Fail
205 Tl	246.30 ppb	1.03	250.00	90 - 110	
208 Pb	253.10 ppb	0.26	250.00	90 - 110	
235 U	1.69 ppb	2.03	1.80	90 - 110	
238 U	247.80 ppb	0.46	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2450348.80	3.19	2345256.80	104.5	60 - 125	
45 Sc	1829268.50	1.45	1818295.10	100.6	60 - 125	
45 Sc	375587.66	0.56	382689.56	98.1	60 - 125	
45 Sc	3798163.80	1.74	3760093.80	101.0	60 - 125	
72 Ge	380734.38	0.52	408604.41	93.2	60 - 125	
72 Ge	165761.00	0.58	178049.86	93.1	60 - 125	
72 Ge	702227.88	0.24	739345.88	95.0	60 - 125	
115 In	4425632.50	0.49	4894058.00	90.4	60 - 125	
159 Tb	6005675.50	1.16	6463656.00	92.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21049.D\F6E21049.D#
Date Acquired:	May 30 2019 03:23 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	CCB5
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements				Conc		
Element	Conc.		CPS	RSD(%)	High Limit	Flag
7 Li	-0.1233	ppb	162226.1	31.13	0.20	
9 Be	-0.0121	ppb	76.7	20.80	0.10	
11 B	-0.4806	ppb	96024.0	45.34	5.00	
23 Na	56.1300	ppb	398503.8	11.74	40.00	Fail
24 Mg	3.7530	ppb	111335.9	30.08	10.00	
27 Al	3.2070	ppb	117774.6	30.75	20.00	
28 Si	2.6020	ppb	11267.9	14.68	20.00	
31 P	0.5529	ppb	26927.9	26.62	10.00	
39 K	17.6200	ppb	88518.7	26.20	20.00	
40 Ca	34.0200	ppb	527149.2	11.14	25.00	Fail
47 Ti	0.0268	ppb	263.3	23.67	0.50	
51 V	0.1538	ppb	5789.6	25.08	0.50	
52 Cr	0.1499	ppb	2262.4	34.80	0.20	
55 Mn	0.2353	ppb	13701.3	22.89	0.20	Fail
56 Fe	40.0200	ppb	634247.6	10.82	10.00	Fail
59 Co	0.0239	ppb	1519.0	53.35	0.20	
60 Ni	0.1673	ppb	549.3	29.98	0.20	
63 Cu	0.1444	ppb	3509.5	33.38	0.40	
66 Zn	-0.0098	ppb	2119.1	86.24	2.00	
75 As	0.1737	ppb	261.3	24.82	0.20	
78 Se	0.3730	ppb	225.6	2.56	0.20	Fail
88 Sr	0.0843	ppb	4855.4	13.89	0.20	
90 Zr	0.0014	ppb	303.3	65.92	2.00	
95 Mo	0.0356	ppb	552.3	11.86	0.40	
107 Ag	0.0050	ppb	132.2	53.85	0.20	
111 Cd	0.0410	ppb	228.6	17.10	0.20	
118 Sn	0.0571	ppb	1190.1	21.96	0.20	
121 Sb	0.0364	ppb	893.4	2.87	0.40	
137 Ba	0.0675	ppb	518.9	22.58	0.20	
182 W	0.0406	ppb	244.5	6.70	1.00	
205 Tl	0.0418	ppb	1736.8	23.60	0.20	
208 Pb	0.0264	ppb	2286.8	35.85	0.10	
235 U	0.0003	ppb	10.0	158.92	1.00	
238 U	0.0385	ppb	2103.6	25.95	0.10	

LY 05/30/19

ISTD Elements		CPS				
Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2659269.8	0.88	2345256.80	113.4	60 - 125	
45 Sc	1843617.5	0.89	1818295.10	101.4	60 - 125	
45 Sc	392659.5	0.73	382689.56	102.6	60 - 125	
45 Sc	4010328.8	0.95	3760093.80	106.7	60 - 125	
72 Ge	403831.4	0.30	408604.41	98.8	60 - 125	
72 Ge	178736.3	0.71	178049.86	100.4	60 - 125	
72 Ge	775394.0	0.99	739345.88	104.9	60 - 125	
115 In	5170036.5	0.01	4894058.00	105.6	60 - 125	
159 Tb	6485199.0	0.67	6463656.00	100.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

5 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

CCV QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21059.D\F6E21059.D#
Date Acquired: May 30 2019 04:08 pm
Operator: LYaman
Sample Name: CCV6
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:14 pm
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	24.43 ppb	2.07	25.00	90 - 110	
9 Be	22.65 ppb	1.68	25.00	90 - 110	
11 B	46.55 ppb	1.81	50.00	90 - 110	
23 Na	26280.00 ppb	0.27	25000.00	90 - 110	
24 Mg	27480.00 ppb	0.33	25000.00	90 - 110	
27 Al	27140.00 ppb	0.56	25000.00	90 - 110	
28 Si	2660.00 ppb	0.25	2500.00	90 - 110	
31 P	266.60 ppb	0.26	250.00	90 - 110	
39 K	25380.00 ppb	0.82	25000.00	90 - 110	
40 Ca	25750.00 ppb	0.42	25000.00	90 - 110	
47 Ti	249.90 ppb	1.15	250.00	90 - 110	
51 V	253.10 ppb	1.22	250.00	90 - 110	
52 Cr	241.30 ppb	1.02	250.00	90 - 110	
55 Mn	1472.00 ppb	1.42	1500.00	90 - 110	
56 Fe	25010.00 ppb	0.38	25000.00	90 - 110	
59 Co	241.40 ppb	1.14	250.00	90 - 110	
60 Ni	240.10 ppb	0.26	250.00	90 - 110	
63 Cu	228.30 ppb	0.58	250.00	90 - 110	
66 Zn	251.20 ppb	0.32	250.00	90 - 110	
75 As	252.20 ppb	0.24	250.00	90 - 110	
78 Se	249.90 ppb	0.11	250.00	90 - 110	
88 Sr	265.20 ppb	0.74	250.00	90 - 110	
90 Zr	22.42 ppb	0.63	25.00	90 - 110	Fail
95 Mo	247.40 ppb	1.77	250.00	90 - 110	
107 Ag	25.31 ppb	0.83	25.00	90 - 110	
111 Cd	248.20 ppb	0.42	250.00	90 - 110	
118 Sn	250.40 ppb	0.82	250.00	90 - 110	
121 Sb	49.13 ppb	1.50	50.00	90 - 110	
137 Ba	514.60 ppb	1.59	500.00	90 - 110	
182 W	27.52 ppb	0.77	25.00	90 - 110	Fail
205 Tl	245.30 ppb	0.49	250.00	90 - 110	
208 Pb	253.10 ppb	0.04	250.00	90 - 110	
235 U	1.64 ppb	1.88	1.80	90 - 110	
238 U	245.30 ppb	0.77	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2576933.80	1.08	2345256.80	109.9	60 - 125	
45 Sc	1784621.90	1.08	1818295.10	98.1	60 - 125	
45 Sc	381186.22	0.30	382689.56	99.6	60 - 125	
45 Sc	3866386.30	0.77	3760093.80	102.8	60 - 125	
72 Ge	373163.78	0.68	408604.41	91.3	60 - 125	
72 Ge	166124.23	0.50	178049.86	93.3	60 - 125	
72 Ge	707590.38	0.62	739345.88	95.7	60 - 125	
115 In	4464455.50	1.67	4894058.00	91.2	60 - 125	
159 Tb	6028987.00	1.26	6463656.00	93.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21060.D\F6E21060.D#
Date Acquired:	May 30 2019 04:12 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	CCB6
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements				Conc		
Element	Conc.		CPS	RSD(%)	High Limit	Flag
7 Li	-0.2550	ppb	169381.8	9.55	0.20	Fail
9 Be	-0.0146	ppb	58.9	10.81	0.10	
11 B	-0.7001	ppb	100938.8	19.14	5.00	
23 Na	58.2700	ppb	414856.4	2.48	40.00	Fail
24 Mg	0.5819	ppb	49050.3	42.14	10.00	
27 Al	0.0827	ppb	38418.6	200.05	20.00	
28 Si	-0.1698	ppb	7165.3	113.13	20.00	
31 P	1.1540	ppb	27991.7	19.97	10.00	
39 K	-0.5142	ppb	70222.3	154.08	20.00	
40 Ca	8.0410	ppb	241274.9	12.78	25.00	
47 Ti	-0.0182	ppb	150.0	44.20	0.50	
51 V	0.0433	ppb	5162.5	19.58	0.50	
52 Cr	0.0079	ppb	1088.9	80.83	0.20	
55 Mn	0.0505	ppb	5644.6	25.84	0.20	
56 Fe	7.0860	ppb	130009.3	11.90	10.00	
59 Co	-0.0066	ppb	533.4	28.05	0.20	
60 Ni	0.0153	ppb	115.3	29.86	0.20	
63 Cu	-0.0131	ppb	2410.7	82.57	0.40	
66 Zn	-0.0325	ppb	2012.4	25.81	2.00	
75 As	0.0397	ppb	123.1	12.70	0.20	
78 Se	0.0857	ppb	60.7	11.37	0.20	
88 Sr	0.0579	ppb	3696.2	10.91	0.20	
90 Zr	-0.0012	ppb	226.7	115.02	2.00	
95 Mo	0.0144	ppb	362.2	27.16	0.40	
107 Ag	0.0014	ppb	55.6	20.12	0.20	
111 Cd	0.0036	ppb	45.6	43.53	0.20	
118 Sn	0.0307	ppb	832.3	9.95	0.20	
121 Sb	0.0259	ppb	715.6	4.86	0.40	
137 Ba	0.0126	ppb	171.1	9.53	0.20	
182 W	0.0415	ppb	256.7	4.25	1.00	
205 Tl	0.0073	ppb	607.8	35.47	0.20	
208 Pb	-0.0029	ppb	1010.1	49.73	0.10	
235 U	-0.0002	ppb	3.3	133.56	1.00	
238 U	0.0121	ppb	803.4	15.73	0.10	

ISTD Elements		CPS				
Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2840215.3	1.33	2345256.80	121.1	60 - 125	IS 120%
45 Sc	1861447.9	0.35	1818295.10	102.4	60 - 125	
45 Sc	403247.6	0.79	382689.56	105.4	60 - 125	
45 Sc	4050497.5	2.29	3760093.80	107.7	60 - 125	
72 Ge	407363.5	0.11	408604.41	99.7	60 - 125	
72 Ge	179048.2	0.79	178049.86	100.6	60 - 125	
72 Ge	776761.8	0.46	739345.88	105.1	60 - 125	
115 In	5101352.0	1.47	4894058.00	104.2	60 - 125	
159 Tb	6497889.5	0.51	6463656.00	100.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21061.D\F6E21061.D#
Date Acquired: May 30 2019 04:17 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: MRLE3005
Misc Info: 1/100/10 ppb
Vial Number: 1305
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	192863.5	0.0000	0.6012	ppb	15.71	50.00	
9 Be	# 3	6	7710.0	0.0000	0.8321	ppb	2.34	50.00	
11 B	# 3	6	158387.6	0.0000	7.3000	ppb	1.32	100.00	
23 Na	# 1	45	758167.1	0.0000	114.9000	ppb	0.91	50000.00	
24 Mg	# 3	45	2206757.0	0.0000	109.6000	ppb	1.02	50000.00	
27 Al	# 3	45	2739513.0	0.0000	105.9000	ppb	1.06	50000.00	
28 Si	# 1	45	174015.4	0.0000	108.9000	ppb	0.74	5000.00	
31 P	# 3	45	93291.6	0.0000	51.1400	ppb	2.08	500.00	
39 K	# 2	45	181864.0	0.0000	97.8000	ppb	1.40	50000.00	
40 Ca	# 1	45	1308082.0	0.0000	102.5000	ppb	1.52	50000.00	
47 Ti	# 3	45	2669.2	0.0000	0.9706	ppb	0.69	500.00	
51 V	# 2	45	11295.0	0.0000	0.9126	ppb	1.95	500.00	
52 Cr	# 2	45	9111.3	0.0000	0.9325	ppb	1.70	500.00	
55 Mn	# 3	45	48684.9	0.0000	1.0330	ppb	0.57	3000.00	
56 Fe	# 1	45	1602572.0	0.0000	101.4000	ppb	1.07	50000.00	
59 Co	# 3	45	33464.1	0.0000	1.0050	ppb	1.01	500.00	
60 Ni	# 2	45	2882.3	0.0000	0.9544	ppb	0.74	500.00	
63 Cu	# 2	45	9731.0	0.0000	0.9560	ppb	0.80	500.00	
66 Zn	# 3	72	48771.1	0.0000	9.5740	ppb	0.98	500.00	
75 As	# 2	72	1041.8	0.0000	0.9204	ppb	1.25	500.00	
78 Se	# 1	72	555.3	0.0000	0.9313	ppb	2.97	500.00	
88 Sr	# 3	72	93406.6	0.0000	2.0930	ppb	0.59	500.00	
90 Zr	# 3	72	99347.0	0.0000	3.3470	ppb	1.70	50.00	
95 Mo	# 3	115	7692.3	0.0000	0.8765	ppb	1.97	500.00	
107 Ag	# 3	115	20975.9	0.0000	1.0170	ppb	1.57	50.00	
111 Cd	# 3	115	4770.7	0.0000	0.9941	ppb	4.92	500.00	
118 Sn	# 3	115	12616.0	0.0000	0.9491	ppb	2.22	500.00	
121 Sb	# 3	115	14676.9	0.0000	0.9170	ppb	2.15	500.00	
137 Ba	# 3	115	5852.5	0.0000	0.9366	ppb	3.81	1000.00	
182 W	# 3	159	29431.3	0.0000	2.1960	ppb	1.38	50.00	
205 Tl	# 3	159	31655.6	0.0000	0.9598	ppb	0.81	500.00	
208 Pb	# 3	159	44724.9	0.0000	1.0050	ppb	1.14	500.00	
235 U	# 3	159	92.2	0.0000	0.0057	ppb	10.19	30.00	
238 U	# 3	159	44644.1	0.0000	0.9063	ppb	1.82	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2814227.00	1.14	2345256.80	120.0	60 - 125	
45 Sc # 1	1875852.90	0.50	1818295.10	103.2	60 - 125	
45 Sc # 2	402006.75	1.19	382689.56	105.0	60 - 125	
45 Sc # 3	4005874.00	0.85	3760093.80	106.5	60 - 125	
72 Ge # 1	409987.78	0.01	408604.41	100.3	60 - 125	
72 Ge # 2	180102.61	0.97	178049.86	101.2	60 - 125	
72 Ge # 3	773157.50	0.45	739345.88	104.6	60 - 125	
115 In # 3	5052841.00	1.37	4894058.00	103.2	60 - 125	
159 Tb # 3	6443173.50	1.30	6463656.00	99.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21062.D\F6E21062.D#
Date Acquired: May 30 2019 04:21 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: MRLE3006
Misc Info: 0.4/40/4 ppb
Vial Number: 1306
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	180194.8	0.0000	0.1883	ppb	33.36	50.00	
9 Be	# 3	6	3301.6	0.0000	0.3456	ppb	4.05	50.00	
11 B	# 3	6	95848.0	0.0000	-1.2270	ppb	28.11	100.00	
23 Na	# 1	45	355603.6	0.0000	46.6300	ppb	0.70	50000.00	
24 Mg	# 3	45	950960.7	0.0000	45.1500	ppb	0.35	50000.00	
27 Al	# 3	45	1189029.0	0.0000	44.2000	ppb	1.55	50000.00	
28 Si	# 1	45	9185.3	0.0000	0.9897	ppb	15.54	5000.00	
31 P	# 3	45	27623.2	0.0000	0.6632	ppb	65.27	500.00	
39 K	# 2	45	115831.1	0.0000	37.9800	ppb	0.95	50000.00	
40 Ca	# 1	45	558254.1	0.0000	34.9500	ppb	0.25	50000.00	
47 Ti	# 3	45	1206.8	0.0000	0.3869	ppb	2.50	500.00	
51 V	# 2	45	7647.3	0.0000	0.3780	ppb	3.61	500.00	
52 Cr	# 2	45	4537.4	0.0000	0.3964	ppb	0.47	500.00	
55 Mn	# 3	45	23002.9	0.0000	0.4362	ppb	1.13	3000.00	
56 Fe	# 1	45	730763.4	0.0000	44.5500	ppb	1.07	50000.00	
59 Co	# 3	45	14569.8	0.0000	0.4151	ppb	1.15	500.00	
60 Ni	# 2	45	1280.7	0.0000	0.4033	ppb	0.59	500.00	
63 Cu	# 2	45	5433.0	0.0000	0.3751	ppb	4.24	500.00	
66 Zn	# 3	72	21186.9	0.0000	3.8340	ppb	1.02	500.00	
75 As	# 2	72	539.6	0.0000	0.4313	ppb	2.13	500.00	
78 Se	# 1	72	257.6	0.0000	0.4129	ppb	5.86	500.00	
88 Sr	# 3	72	20529.6	0.0000	0.4322	ppb	1.35	500.00	
90 Zr	# 3	72	346.7	0.0000	0.0027	ppb	31.94	50.00	
95 Mo	# 3	115	3337.2	0.0000	0.3493	ppb	2.18	500.00	
107 Ag	# 3	115	9615.8	0.0000	0.4472	ppb	1.06	50.00	
111 Cd	# 3	115	2035.3	0.0000	0.4042	ppb	1.95	500.00	
118 Sn	# 3	115	5949.2	0.0000	0.4119	ppb	2.62	500.00	
121 Sb	# 3	115	6624.0	0.0000	0.3868	ppb	1.14	500.00	
137 Ba	# 3	115	2694.8	0.0000	0.4061	ppb	1.80	1000.00	
182 W	# 3	159	122.2	0.0000	0.0314	ppb	0.93	50.00	
205 Tl	# 3	159	14006.6	0.0000	0.4056	ppb	1.46	500.00	
208 Pb	# 3	159	20342.3	0.0000	0.4289	ppb	1.77	500.00	
235 U	# 3	159	46.7	0.0000	0.0026	ppb	9.05	30.00	
238 U	# 3	159	19736.5	0.0000	0.3863	ppb	0.66	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2804768.30	0.87	2345256.80	119.6	60 - 125	
45 Sc # 1	1915658.90	0.30	1818295.10	105.4	60 - 125	
45 Sc # 2	409152.72	0.76	382689.56	106.9	60 - 125	
45 Sc # 3	4092397.80	1.06	3760093.80	108.8	60 - 125	
72 Ge # 1	418514.78	0.29	408604.41	102.4	60 - 125	
72 Ge # 2	182643.69	1.08	178049.86	102.6	60 - 125	
72 Ge # 3	786542.56	0.29	739345.88	106.4	60 - 125	
115 In # 3	5256028.00	0.71	4894058.00	107.4	60 - 125	
159 Tb # 3	6641188.50	0.77	6463656.00	102.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

ICS-A QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21063.D\F6E21063.D#
Date Acquired:	May 30 2019 04:35 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICSA2
Misc Info:	
Vial Number:	1303
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICS-A
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.65	ppb	95872.0	13.80	---	
9 Be	-0.01	ppb	61.1	59.61	---	
11 B	-1.11	ppb	47882.7	22.22	---	
23 Na	95230.00	ppb	442757790.0	1.27	120000.00	
24 Mg	88500.00	ppb	1293031900.0	1.11	120000.00	
27 Al	90460.00	ppb	1704026000.0	1.34	120000.00	
28 Si	4.81	ppb	11491.6	3.96	---	
31 P	91120.00	ppb	88310224.0	0.36	---	
39 K	96800.00	ppb	84193480.0	0.26	120000.00	
40 Ca	101100.00	ppb	882660480.0	0.91	120000.00	
47 Ti	2112.00	ppb	3974613.0	0.44	2400.00	
51 V	0.02	ppb	3798.3	43.13	---	
52 Cr	0.26	ppb	2494.2	1.82	---	
55 Mn	0.28	ppb	11574.9	1.90	---	
56 Fe	101900.00	ppb	1231597100.0	0.76	120000.00	
59 Co	0.51	ppb	12920.5	1.67	---	
60 Ni	0.34	ppb	814.2	3.66	---	
63 Cu	0.05	ppb	2187.3	10.52	---	
66 Zn	1.91	ppb	8983.0	1.68	---	
75 As	0.23	ppb	254.9	6.62	---	
78 Se	0.13	ppb	66.9	12.41	---	
88 Sr	0.88	ppb	31392.4	0.44	---	
90 Zr	0.05	ppb	1297.9	2.27	---	
95 Mo	1959.00	ppb	13113460.0	0.95	2400.00	
107 Ag	0.02	ppb	303.3	19.87	---	
111 Cd	0.13	ppb	524.6	58.77	---	
118 Sn	0.05	ppb	868.9	3.68	---	
121 Sb	0.17	ppb	2353.6	3.36	---	
137 Ba	0.17	ppb	903.4	5.69	---	
182 W	0.26	ppb	2867.1	2.48	---	
205 Tl	0.00	ppb	382.2	74.08	---	
208 Pb	0.06	ppb	3246.9	8.71	---	
235 U	0.00	ppb	6.7	209.16	---	
238 U	0.00	ppb	357.8	53.48	---	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1388745.1	0.96	2345256.80	59.2	60 - 125	ISFail
45 Sc	1452480.5	0.85	1818295.10	79.9	60 - 125	
45 Sc	307081.7	0.42	382689.56	80.2	60 - 125	
45 Sc	2956957.8	0.94	3760093.80	78.6	60 - 125	
72 Ge	317248.0	0.72	408604.41	77.6	60 - 125	
72 Ge	144310.9	0.67	178049.86	81.1	60 - 125	
72 Ge	606100.9	0.40	739345.88	82.0	60 - 125	
115 In	3977006.3	0.44	4894058.00	81.3	60 - 125	
159 Tb	5651918.0	0.44	6463656.00	87.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Fail

ICS-AB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21064.D\F6E21064.D#
Date Acquired:	May 30 2019 04:52 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICSAB2
Misc Info:	
Vial Number:	1304
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICS-AB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	Expected	QC Range(%)	Flag
7 Li	19.79	ppb	385050.9	1.74	20.00	80 - 120	
9 Be	19.97	ppb	92178.0	1.80	20.00	80 - 120	
11 B	17.50	ppb	118802.7	4.01	20.00	80 - 120	
23 Na	94980.00	ppb	440286780.0	0.75	100000.00	80 - 120	
24 Mg	86970.00	ppb	1283083000.0	0.72	100000.00	80 - 120	
27 Al	89330.00	ppb	1699215000.0	0.43	100000.00	80 - 120	
28 Si	200.20	ppb	242204.5	0.38	200.00	80 - 120	
31 P	89730.00	ppb	87806416.0	0.40	100000.00	80 - 120	
39 K	96590.00	ppb	83905072.0	0.43	100000.00	80 - 120	
40 Ca	101000.00	ppb	879053310.0	0.40	100000.00	80 - 120	
47 Ti	2097.00	ppb	3985725.0	0.28	2000.00	80 - 120	
51 V	19.84	ppb	110759.4	0.55	20.00	80 - 120	
52 Cr	19.42	ppb	129375.3	0.29	20.00	80 - 120	
55 Mn	20.47	ppb	672033.8	1.15	20.00	80 - 120	
56 Fe	100500.00	ppb	1210658900.0	0.29	100000.00	80 - 120	
59 Co	19.97	ppb	485379.9	0.79	20.00	80 - 120	
60 Ni	18.44	ppb	41508.1	0.42	20.00	80 - 120	
63 Cu	17.57	ppb	103279.8	0.75	20.00	80 - 120	
66 Zn	19.86	ppb	77054.0	0.33	20.00	80 - 120	
75 As	19.78	ppb	16483.9	0.76	20.00	80 - 120	
78 Se	21.32	ppb	9661.0	1.06	20.00	80 - 120	
88 Sr	21.96	ppb	755816.7	0.41	20.00	80 - 120	
90 Zr	18.85	ppb	435295.6	0.63	20.00	80 - 120	
95 Mo	1948.00	ppb	12979850.0	0.36	2000.00	80 - 120	
107 Ag	18.51	ppb	298880.0	0.34	20.00	80 - 120	
111 Cd	18.95	ppb	70853.7	0.37	20.00	80 - 120	
118 Sn	19.65	ppb	198014.9	0.18	20.00	80 - 120	
121 Sb	19.83	ppb	243783.2	0.56	20.00	80 - 120	
137 Ba	20.33	ppb	98050.1	1.28	20.00	80 - 120	
182 W	20.59	ppb	242510.1	0.95	20.00	80 - 120	
205 Tl	19.18	ppb	544606.4	0.68	20.00	80 - 120	
208 Pb	19.51	ppb	737871.2	0.41	20.00	80 - 120	
235 U	0.13	ppb	1732.4	2.21	0.14	80 - 120	
238 U	19.30	ppb	824291.2	0.99	19.86	80 - 120	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1436411.4	1.87	2345256.80	61.2	60 - 125	IS 70%
45 Sc	1448108.9	0.52	1818295.10	79.6	60 - 125	
45 Sc	306700.8	0.70	382689.56	80.1	60 - 125	
45 Sc	2985551.8	0.63	3760093.80	79.4	60 - 125	
72 Ge	317593.8	0.63	408604.41	77.7	60 - 125	
72 Ge	143389.7	1.06	178049.86	80.5	60 - 125	
72 Ge	602809.2	0.25	739345.88	81.5	60 - 125	
115 In	3958346.5	0.82	4894058.00	80.9	60 - 125	
159 Tb	5609019.5	0.47	6463656.00	86.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21065.D\F6E21065.D#
Date Acquired: May 30 2019 04:57 pm
Operator: LYaman
Sample Name: CCV7
Misc Info:
Vial Number: 1306
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IFG2017\A\IFGA01.D\EMG020R2.C
Last Cal Update: May 30 2019 12:14 pm
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	24.14 ppb	1.66	25.00	90 - 110	
9 Be	24.13 ppb	0.29	25.00	90 - 110	
11 B	48.35 ppb	0.69	50.00	90 - 110	
23 Na	23290.00 ppb	0.44	25000.00	90 - 110	
24 Mg	24160.00 ppb	0.32	25000.00	90 - 110	
27 Al	24300.00 ppb	0.68	25000.00	90 - 110	
28 Si	2362.00 ppb	0.21	2500.00	90 - 110	
31 P	242.10 ppb	1.21	250.00	90 - 110	
39 K	24780.00 ppb	0.51	25000.00	90 - 110	
40 Ca	24980.00 ppb	0.67	25000.00	90 - 110	
47 Ti	247.50 ppb	0.55	250.00	90 - 110	
51 V	260.50 ppb	0.59	250.00	90 - 110	
52 Cr	252.40 ppb	0.93	250.00	90 - 110	
55 Mn	1548.00 ppb	0.38	1500.00	90 - 110	
56 Fe	26140.00 ppb	0.93	25000.00	90 - 110	
59 Co	252.40 ppb	0.67	250.00	90 - 110	
60 Ni	251.70 ppb	0.86	250.00	90 - 110	
63 Cu	242.40 ppb	0.98	250.00	90 - 110	
66 Zn	247.30 ppb	1.23	250.00	90 - 110	
75 As	250.50 ppb	0.79	250.00	90 - 110	
78 Se	256.50 ppb	0.16	250.00	90 - 110	
88 Sr	282.70 ppb	0.66	250.00	90 - 110	Fail
90 Zr	23.51 ppb	0.58	25.00	90 - 110	
95 Mo	238.70 ppb	1.16	250.00	90 - 110	
107 Ag	24.72 ppb	1.33	25.00	90 - 110	
111 Cd	248.20 ppb	0.53	250.00	90 - 110	
118 Sn	250.90 ppb	0.62	250.00	90 - 110	
121 Sb	49.87 ppb	0.47	50.00	90 - 110	
137 Ba	512.60 ppb	1.10	500.00	90 - 110	
182 W	27.70 ppb	0.69	25.00	90 - 110	Fail
205 Tl	245.70 ppb	0.37	250.00	90 - 110	
208 Pb	253.30 ppb	0.21	250.00	90 - 110	
235 U	1.65 ppb	0.24	1.80	90 - 110	
238 U	244.80 ppb	0.48	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1706344.50	0.80	2345256.80	72.8	60 - 125	
45 Sc	1498763.80	0.70	1818295.10	82.4	60 - 125	
45 Sc	305419.06	0.65	382689.56	79.8	60 - 125	
45 Sc	3211586.80	0.74	3760093.80	85.4	60 - 125	
72 Ge	334856.19	0.47	408604.41	82.0	60 - 125	
72 Ge	146004.61	0.83	178049.86	82.0	60 - 125	
72 Ge	650589.44	0.16	739345.88	88.0	60 - 125	
115 In	4460667.50	0.83	4894058.00	91.1	60 - 125	
159 Tb	6005907.50	0.25	6463656.00	92.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21066.D\F6E21066.D#
Date Acquired: May 30 2019 05:01 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: CCB7
Misc Info:
Vial Number: 1102
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: CCB
Dilution Factor: 1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.0720	ppb	111617.9	42.48	0.20	
9 Be	-0.0144	ppb	38.9	8.28	0.10	
11 B	0.0719	ppb	68096.1	36.16	5.00	
23 Na	40.9100	ppb	252479.8	11.47	40.00	Fail
24 Mg	7.6120	ppb	153671.1	12.51	10.00	
27 Al	6.9830	ppb	175262.0	14.98	20.00	
28 Si	-0.9221	ppb	4884.3	21.04	20.00	
31 P	6.0860	ppb	27968.2	24.99	10.00	
39 K	11.2100	ppb	67049.1	29.29	20.00	
40 Ca	36.4800	ppb	453420.4	13.62	25.00	Fail
47 Ti	0.1708	ppb	515.6	26.03	0.50	
51 V	-0.0459	ppb	3634.0	14.52	0.50	
52 Cr	-0.0145	ppb	717.4	24.66	0.20	
55 Mn	0.0253	ppb	3671.7	22.63	0.20	
56 Fe	45.5600	ppb	588020.2	13.04	10.00	Fail
59 Co	-0.0104	ppb	332.2	11.04	0.20	
60 Ni	0.0091	ppb	77.8	40.62	0.20	
63 Cu	0.0057	ppb	2048.4	151.45	0.40	
66 Zn	-0.0340	ppb	1797.9	56.26	2.00	
75 As	0.0166	ppb	87.3	76.46	0.20	
78 Se	0.0430	ppb	31.1	14.37	0.20	
88 Sr	0.0094	ppb	1391.2	14.47	0.20	
90 Zr	-0.0014	ppb	197.8	85.98	2.00	
95 Mo	0.1925	ppb	1879.1	9.06	0.40	
107 Ag	0.0019	ppb	65.6	13.11	0.20	
111 Cd	0.0025	ppb	39.7	179.74	0.20	
118 Sn	0.0268	ppb	776.7	4.38	0.20	
121 Sb	0.0408	ppb	945.6	2.33	0.40	
137 Ba	0.0052	ppb	124.4	72.03	0.20	
182 W	0.0688	ppb	630.0	8.13	1.00	
205 Tl	0.0033	ppb	475.6	75.60	0.20	
208 Pb	-0.0066	ppb	847.8	27.82	0.10	
235 U	0.0000	ppb	5.6	699.72	1.00	
238 U	0.0082	ppb	608.9	18.27	0.10	

LY 05/30/19

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1813788.5	0.35	2345256.80	77.3	60 - 125	
45 Sc	1509817.0	1.20	1818295.10	83.0	60 - 125	
45 Sc	323531.0	1.55	382689.56	84.5	60 - 125	
45 Sc	3280596.5	0.79	3760093.80	87.2	60 - 125	
72 Ge	353548.2	0.62	408604.41	86.5	60 - 125	
72 Ge	157711.9	1.62	178049.86	88.6	60 - 125	
72 Ge	696670.4	0.35	739345.88	94.2	60 - 125	
115 In	5066817.5	0.37	4894058.00	103.5	60 - 125	
159 Tb	6498059.0	0.71	6463656.00	100.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

3 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

EMAX LABORATORIES, INC.

DIGESTION LOG
for
ICP-MS METALS

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments:

Digestion Vessel Lot # 1812117

All samples pH<2

Book #: EIM-073
Batch: IME026W
Matrix: water
Digestor ID: E

SOP #	Rev. #
☐ EMAX-200.8	6
☑ EMAX-6020	10
☐ EMAX-	

Start	Temp	End	Temp
	93.4 °C		93.6 °C

Standards	ID	Amount Added (ml/g)
LCS-1	SMGA-007-05-25	0.15
LCS-2	↓ -05-26	0.15
MS	same spike soln and vol. as	LCS 1 and 2
Blank Soil (Bead)	N/A	N/A
Reagent	**Lot# / ID** MC 5/28/19	**Amount Added (ml)**
HNO_3	SWA-08 ~~-09-03~~ -12-04	0.5+1.0
HCl	-12-01	0.25+0.25
H_2O_2	N/A	N/A
HNO_3(1:1)	N/A	N/A
pH Strip (0-14)	HC857466	N/A
Digestate Location	Metals	
Extract Location	N/A	

☑ Reagent Water ID: SMSA-04-03-02
☑ Thermometer ID: 181292128 / E28
☑ Pipette ID: 239360318
☐ Pipette ID:
☐ Pipette ID:
☐ HNO_3 dispenser checked @ 5.0 ml with Class A volumetric flask
☐ HCl dispenser checked @ 5.0 ml with Class A volumetric flask

Prepared By: MC
Standard Added By: MC Witnessed By: LY
Extract Rcvd By: LY Checked By: MC

EMAX LABORATORIES, INC.

DIGESTION LOG FOR METALS

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
19IME026W01	IME026WB	50	ml	5/28/19 14:12	50	50	50	1	
19IME026W02	IME026WL	50	ml	5/28/19 14:12	50	50	50	1	
19IME026W03	IME026WC	50	ml	5/28/19 14:12	50	50	50	1	
19IME026W04	E197-02	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W05	E197-04	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W06	E197-06	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W07	E197-08	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W08	E197-08M	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W09	E197-08S	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W10	E197-09	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W11	E197-10	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W12	E197-11	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W13	E197-12	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED

MC
5/28/19

Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 5/28/19 14:22 Prepared By: MCande

☑ Digestion Ended @ 5/28/19 16:47 Checked By: LY

Comments: Date 5/28/19

SOP EMAX-6020 Rev. 10

CASE NARRATIVE

Client : ARCADIS

Project: PG&E TOPOCK-GMP

SDG : 19E197

METHOD SW6020A
DISSOLVED METALS BY ICP-MS (CHROMIUM)

A total of five (5) water samples were received on 05/24/19 to be analyzed for Dissolved Metals by ICP-MS in accordance with Method SW6020A and project specific requirements.

Holding Time
Samples were digested and analyzed within the prescribed holding time.

Calibration
Initial Calibration was established as prescribed by the method and was verified using a secondary source(ICV). Interference checks were performed and results were within required limits. Continuing calibration verifications and continuing calibration blanks were carried out at the frequency specified by the project. All calibration requirements were satisfied. MRL was analyzed as required by the project.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. IME026WB - result was compliant to project requirement. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. IME026WL/IME026WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of MS/MSD was analyzed. Chromium was within MS QC limits in E197-08M/S. Refer to Matrix QC summary form for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

Samples were reported from dilution due to internal-standard deficiencies at non-dilution run. Matrix interference was suspected.

LAB CHRONICLE
DISSOLVED METALS BY ICP-MS

Client : ARCADIS
Project : PG&E TOPOCK-GMP

SDG NO. : 19E197
Instrument ID : T-IF6

WATER

Client Sample ID	Laboratory Sample ID	Dilution Factor	% Moist	Analysis DateTime	Extraction DateTime	Sample Data FN	Calibration Data FN	Prep. Batch	Notes
MBLK1W	IME026WB	1.00	NA	05/30/1914:51	05/28/1914:22	F6E21042	F6E21040	IME026W	Method Blank
LCS1W	IME026WL	1.00	NA	05/30/1914:56	05/28/1914:22	F6E21043	F6E21040	IME026W	Lab Control Sample (LCS)
LCD1W	IME026WC	1.00	NA	05/30/1915:00	05/28/1914:22	F6E21044	F6E21040	IME026W	LCS Duplicate
MW-55-045-Q219MS	E197-08M	10.00	NA	05/30/1915:27	05/28/1914:22	F6E21050	F6E21048	IME026W	Matrix Spike Sample (MS)
MW-55-045-Q219MSD	E197-08S	10.00	NA	05/30/1915:32	05/28/1914:22	F6E21051	F6E21048	IME026W	MS Duplicate (MSD)
MW-55-045-Q219	E197-08I	10.00	NA	05/30/1915:41	05/28/1914:22	F6E21053	F6E21048	IME026W	Diluted Sample
MW-55-120-Q219	E197-09I	10.00	NA	05/30/1915:50	05/28/1914:22	F6E21055	F6E21048	IME026W	Diluted Sample
MW-56D-Q219	E197-10I	10.00	NA	05/30/1915:54	05/28/1914:22	F6E21056	F6E21048	IME026W	Diluted Sample
MW-56M-Q219	E197-11I	10.00	NA	05/30/1915:59	05/28/1914:22	F6E21057	F6E21048	IME026W	Diluted Sample
MW-56S-Q219	E197-12I	10.00	NA	05/30/1916:03	05/28/1914:22	F6E21058	F6E21048	IME026W	Diluted Sample

FN - Filename
% Moist - Percent Moisture

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	05/23/19 11:10
Project	: PG&E TOPOCK-GMP	Date Received:	05/24/19
SDG NO.	: 19E197	Date Extracted:	05/28/19 14:22
Sample ID:	MW-55-045-Q219	Date Analyzed:	05/30/19 15:41
Lab Samp ID:	E197-08I	Dilution Factor:	10
Lab File ID:	F6E21053	Matrix:	WATER
Ext Btch ID:	IME026W	% Moisture:	NA
Calib. Ref.:	F6E21048	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	10.0	2.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	05/23/19 11:49
Project	: PG&E TOPOCK-GMP	Date Received:	05/24/19
SDG NO.	: 19E197	Date Extracted:	05/28/19 14:22
Sample ID:	MW-55-120-Q219	Date Analyzed:	05/30/19 15:50
Lab Samp ID:	E197-09I	Dilution Factor:	10
Lab File ID:	F6E21055	Matrix:	WATER
Ext Btch ID:	IME026W	% Moisture:	NA
Calib. Ref.:	F6E21048	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	10.0	2.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	05/23/19 13:23
Project	: PG&E TOPOCK-GMP	Date Received:	05/24/19
SDG NO.	: 19E197	Date Extracted:	05/28/19 14:22
Sample ID:	MW-56D-Q219	Date Analyzed:	05/30/19 15:54
Lab Samp ID:	E197-10I	Dilution Factor:	10
Lab File ID:	F6E21056	Matrix:	WATER
Ext Btch ID:	IME026W	% Moisture:	NA
Calib. Ref.:	F6E21048	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	10.0	2.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	05/23/19 13:02
Project	: PG&E TOPOCK-GMP	Date Received:	05/24/19
SDG NO.	: 19E197	Date Extracted:	05/28/19 14:22
Sample ID:	MW-56M-Q219	Date Analyzed:	05/30/19 15:59
Lab Samp ID:	E197-11I	Dilution Factor:	10
Lab File ID:	F6E21057	Matrix:	WATER
Ext Btch ID:	IME026W	% Moisture:	NA
Calib. Ref.:	F6E21048	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	10.0	2.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	05/23/19 12:40
Project	: PG&E TOPOCK-GMP	Date Received:	05/24/19
SDG NO.	: 19E197	Date Extracted:	05/28/19 14:22
Sample ID:	MW-56S-Q219	Date Analyzed:	05/30/19 16:03
Lab Samp ID:	E197-12I	Dilution Factor:	10
Lab File ID:	F6E21058	Matrix:	WATER
Ext Btch ID:	IME026W	% Moisture:	NA
Calib. Ref.:	F6E21048	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	10.0	2.00

Note: Detection limits are reported relative to sample result significant figures.

Sample Amount	: 50ml	Final Volume:	50ml
Prepared by	: MCande	Analyzed by:	LYaman

METHOD SW6020A
DISSOLVED METALS BY ICP-MS

Client	: ARCADIS	Date Collected:	NA
Project	: PG&E TOPOCK-GMP	Date Received:	NA
SDG NO.	: 19E197	Date Extracted:	05/28/19 14:22
Sample ID:	MBLK1W	Date Analyzed:	05/30/19 14:51
Lab Samp ID:	IME026WB	Dilution Factor:	1
Lab File ID:	F6E21042	Matrix:	WATER
Ext Btch ID:	IME026W	% Moisture:	NA
Calib. Ref.:	F6E21040	Instrument ID:	F6

PARAMETERS	Result (ug/L)	RL (ug/L)	MDL (ug/L)
Chromium	ND	1.00	0.200

Note: Detection limits are reported relative to sample result significant figures.
Sample Amount : 50ml Final Volume:50ml
Prepared by : MCande Analyzed by:LYaman

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : SW6020A

MATRIX	: WATER		% MOISTURE:NA
DILUTION FACTOR	: 1.00	1.00	1.00
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: IME026WB	IME026WL	IME026WC
LAB FILE ID	: F6E21042	F6E21043	F6E21044
DATE PREPARED	: 05/28/19 14:22	05/28/19 14:22	05/28/19 14:22
DATE ANALYZED	: 05/30/19 14:51	05/30/19 14:56	05/30/19 15:00
PREP BATCH	: IME026W	IME026W	IME026W
CALIBRATION REF	: F6E21040	F6E21040	F6E21040

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpikeAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Chromium	ND	30	30.6	102	30	31.3	104	2	85-115	20

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : SW6020A

MATRIX	: WATER		% MOISTURE: NA
DILUTION FACTOR	: 10	10	10
SAMPLE ID	: MW-55-045-Q219	MW-55-045-Q219MS	MW-55-045-Q219MSD
LAB SAMPLE ID	: E197-08I	E197-08M	E197-08S
LAB FILE ID	: F6E21053	F6E21050	F6E21051
DATE PREPARED	: 05/28/19 14:22	05/28/19 14:22	05/28/19 14:22
DATE ANALYZED	: 05/30/19 15:41	05/30/19 15:27	05/30/19 15:32
PREP BATCH	: IME026W	IME026W	IME026W
CALIBRATION REF	: F6E21048	F6E21048	F6E21048

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpikeAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
Chromium	ND	30	30.9	103	30	31.0	103	0	75-125	20

PSResult - Parent Sample Result

ICP-MS QC CHECK TABLE

QC	S4	ICV	CCV	ICSAB	ICSA
Limit%		90-110	90-110	80-120	80-120
Comp	ug/L	ug/L	ug/L	ug/L	ug/L
Al	50000	30000	25000	100000	100000
Sb	100	60	50	20	0
As	500	300	250	20	0
Ba	1000	300	500	20	0
Be	50	30	25	20	0
B	100	30	50	20	0
Cd	500	300	250	20	0
Ca	50000	30000	25000	100000	100000
Cr	500	300	250	20	0
Co	500	300	250	20	0
Cu	500	300	250	20	0
Fe	50000	30000	25000	100000	100000
Li	50	30	25	20	0
Pb	500	300	250	20	0
Mg	50000	30000	25000	100000	100000
Mn	3000	2000	1500	20	0
Mo	500	300	250	2000	2000
Ni	500	300	250	20	0
P	500	300	250	100000	100000
K	50000	30000	25000	100000	100000
Se	500	300	250	20	0
Si	5000	3000	2500	200	0
Ag	50	30	25	20	0
Na	50000	30000	25000	100000	100000
Sr	500	300	250	20	0
Tl	500	300	250	20	0
Sn	500	300	250	20	0
Ti	500	300	250	2000	2000
W	50	30	25	20	0
V	500	300	250	20	0
U	500	300	250	20	0
Zn	500	300	250	20	0
Zr	50	30	25	20	0

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Start Date: 05|30|19 11:49

End Date: 05|30|19 17:45

Comments:

All soil/solid samples are diluted at 10x dilution prior to analysis.

Filter Lot #: NA

ICSA1 Be 16<70%.

ICSAB1 ↓

Book #: AF6-024

Instrument No.: F6

Analytical Batch: IF6E21

Analytical Sequence: F6E21

Method File: EM6020R2

Micropipette ID: ☐ 142781004

Micropipette ID: ☑ ICP-06

Micropipette ID: ☑ 339362028

Micropipette ID: ☑ GFAA-07

Micropipette ID: ☐ 339342032

Micropipette ID: ☑ 542780515

Micropipette ID: ☐ 542761827

Micropipette ID: ☐

SOP #	Rev. #
☑ EMAX-6020	10
☑ EMAX-200.8	6
☐ EMAX-	
☐ EMAX-	
☐ EMAX-	

STANDARDS ID		STANDARDS ID	
S0	SM6B-17-32-02	MRL1	SM6B-17-21-02
S1	33-01	MRL2	↓ 04-01
S2	33-02	MRL3	NA
S3	34-01	MRL4	↓
S4	↓ 34-02	MRL5	
S5	NA	MRL6	↓
S6	↓	Internal Standard	SM6B-17-12-02
S7	↓	Post-Spike 1	SM6A-007-05-25
ICV	SM6B-17-31-02	Post-Spike 2	↓ 05-26
CCV	↓ 35-01	Post-Spike 3	NA
ICSA	↓ 35-02	Post-Spike 4	↓
ICSAB	↓ 36-01		
6020 TUNE SOLN.	SM6B-16-91-02		
200.8 TUNE SOLN.	↓ 92-01		

Analyzed By: LY

Date: 05|30|19

INITIAL CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG NO. : 19E197
Method : METHOD SW6020A
Sequence : IF6E21
InstrumentID: F6

Lab Samp ID :	ICV	ICSA1	ICSAB1
QC Limit :	%R:90-110/RSD:<5	%R:80-120/<LOD	%R:80-120
Lab File ID :	F6E21009	F6E21013	F6E21014
DateAnalyed :	05/30/1912:16	05/30/1912:34	05/30/1912:38

Parameter	Result	ICV EV	RSD	%Recovery	Result	ICSA EV	%Rec/LOD	Result	ICSAB EV	%Recovery
Lithium	31.84	30	1.28	106	.7906	0	>0	20.44	20	102
Beryllium	31.93	30	1.12	106	-.01081	0	<0.1	21.84	20	109
Boron	25.23	30	4.46	84*	-.7736	0	<5.0	18.62	20	93
Sodium	30190	30000	0.73	101	98940	100000	99	94930	100000	95
Magnesium	30330	30000	0.43	101	88890	100000	89	86040	100000	86
Aluminum	30150	30000	1.16	100	90080	100000	90	86980	100000	87
Silicon	3063	3000	1.16	102	64.41	0	>20	220.7	200	110
Phosphorus	295.3	300	0.61	98	91680	100000	92	89820	100000	90
Potassium	29330	30000	1.22	98	95250	100000	95	95760	100000	96
Calcium	30250	30000	0.81	101	101400	100000	101	100600	100000	101
Titanium	293.6	300	0.17	98	2084	2000	104	2118	2000	106
Vanadium	295.1	300	0.43	98	-.1108	0	<0.5	20.37	20	102
Chromium T	285.9	300	1.29	95	.2773	0	>0.2	19.81	20	99
Manganese	1927	2000	0.17	96	1.447	0	>0.2	20.84	20	104
Iron	29130	30000	0.32	97	97300	100000	97	100500	100000	100
Cobalt	284.2	300	0.55	95	.525	0	>0.2	20.67	20	103
Nickel	282.1	300	1.28	94	.3578	0	>0.2	18.91	20	95
Copper	272	300	0.97	91	.1199	0	<0.5	18.18	20	91
Zinc	290.7	300	1.56	97	5.067	0	<10	22.22	20	111
Arsenic	291.9	300	0.73	97	.1875	0	<0.2	20.33	20	102
Selenium	292.1	300	0.17	97	.1345	0	<0.3	21.83	20	109
Strontium	309.7	300	0.71	103	.8655	0	<1.0	21.44	20	107
Zirconium	27.51	30	0.56	92	.106	0	<2.0	6.552	20	33*
Molybdenum	295.8	300	0.87	99	1982	2000	99	2013	2000	101
Silver	32.18	30	0.78	107	.01779	0	<0.2	18.83	20	94
Cadmium	288	300	0.58	96	.1689	0	<0.2	19.06	20	95
Tin	301.8	300	0.60	101	.2969	0	>0.2	19.96	20	100
Antimony	59.89	60	0.68	100	.169	0	<0.5	20.33	20	102
Barium	305	300	1.38	102	.2372	0	<0.5	20.91	20	105
Tungsten	33.2	30	1.04	111*	.2427	0	<1.0	21.18	20	106
Thallium	289.5	300	0.48	96	.006968	0	<0.2	19.52	20	98
Lead	297.5	300	0.57	99	.07933	0	<0.1	19.93	20	100
Uranium	297.9	300	0.41	99	.01003	0	<0.1	20.31	20	102

Unit:	ug/L
T:	Target analyte
EV:	Expected Value
Comment:	* Out of QC limit

CONTINUING CALIBRATION VERIFICATION SUMMARY FORM

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG NO. : 19E197
Method : METHOD SW6020A
Sequence : IF6E21
Instrument ID: F6

CCV SampleID		CCV1			CCV4			CCV5			CCV6			CCV7		
CCV DataFileID		F6E21015			F6E21040			F6E21048			F6E21059			F6E21065		
CCV DateTime		05/30/19 12:43			05/30/19 14:42			05/30/19 15:18			05/30/19 16:08			05/30/19 16:57		
PARAMETER		CCV EV	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD	RESULT	%REC	RSD
Lithium		25	25.2	101	1.01	25.3	101	1.68	24.7	99	1.11	24.4	98	2.07	24.1	97	1.66
Beryllium		25	25.1	100	1.89	24.6	98	1.75	23.3	93	2.52	22.7	91	1.68	24.1	97	0.29
Boron		50	48.9	98	2.94	50.3	101	1.63	47.7	95	4.16	46.5	93	1.81	48.3	97	0.69
Sodium		25000	23700	95	0.22	25000	100	0.43	25700	103	0.94	26300	105	0.27	23300	93	0.44
Magnesium		25000	23700	95	3.65	25600	102	1.33	27000	108	1.11	27500	110	0.33	24200	97	0.32
Aluminum		25000	23900	95	2.03	25300	101	1.02	26800	107	1.65	27100	109	0.56	24300	97	0.68
Silicon		2500	2370	95	0.98	2500	100	0.51	2580	103	0.78	2660	106	0.25	2360	94	0.21
Phosphorus		250	263	105	14.30	249	99	0.72	264	106	0.93	267	107	0.26	242	97	1.21
Potassium		25000	24400	98	0.23	24900	100	1.02	25300	101	1.47	25400	102	0.82	24800	99	0.51
Calcium		25000	25100	100	0.55	25300	101	0.89	25300	101	0.36	25700	103	0.42	25000	100	0.67
Titanium		250	249	100	1.29	251	100	1.37	250	100	1.25	250	100	1.15	247	99	0.55
Vanadium		250	260	104	0.57	258	103	0.33	255	102	0.32	253	101	1.22	261	104	0.59
Chromium	T	250	252	101	1.69	250	100	0.20	243	97	1.00	241	97	1.02	252	101	0.93
Manganese		1500	1530	102	2.10	1540	103	2.14	1500	100	0.72	1470	98	1.42	1550	103	0.38
Iron		25000	26100	104	0.17	25500	102	0.49	25000	100	0.40	25000	100	0.38	26100	105	0.93
Cobalt		250	250	100	1.84	252	101	2.31	246	98	0.96	241	97	1.14	252	101	0.67
Nickel		250	253	101	0.47	248	99	0.46	243	97	0.74	240	96	0.26	252	101	0.08
Copper		250	244	98	1.17	236	95	0.19	229	92	1.06	228	91	0.58	242	97	0.98
Zinc		250	245	98	1.96	251	100	1.42	251	100	0.74	251	100	0.32	247	99	1.23
Arsenic		250	253	101	0.52	252	101	0.13	252	101	0.88	252	101	0.24	251	100	0.79
Selenium		250	258	103	0.91	256	103	0.21	251	100	0.53	250	100	0.11	257	103	0.16
Strontium		250	271	108	0.58	264	106	0.38	261	104	0.92	265	106	0.74	283	113*	0.66
Zirconium		25	23.8	95	1.82	22.0	88*	2.22	22.3	89*	0.40	22.4	90	0.63	23.5	94	0.58
Molybdenum		250	249	100	0.52	249	99	1.91	248	99	0.68	247	99	1.77	239	95	1.16
Silver		25	25.3	101	1.85	25.7	103	3.08	25.3	101	0.07	25.3	101	0.83	24.7	99	1.33
Cadmium		250	249	99	2.11	252	101	0.39	249	100	0.37	248	99	0.42	248	99	0.53
Tin		250	253	101	0.55	249	100	1.47	249	100	0.42	250	100	0.82	251	100	0.62
Antimony		50	49.8	100	1.51	49.5	99	1.42	49.2	98	0.43	49.1	98	1.50	49.9	100	0.47
Barium		500	516	103	1.30	515	103	1.37	513	102	1.22	515	103	1.59	513	103	1.10
Tungsten		25	27.8	111*	0.68	27.8	111*	0.50	27.7	111*	0.79	27.5	110	0.77	27.7	111*	0.69
Thallium		250	247	99	0.67	248	99	0.19	246	99	1.03	245	98	0.49	246	98	0.37
Lead		250	254	102	1.83	252	101	0.56	253	101	0.26	253	101	0.04	253	101	0.21
Uranium		250	254	102	3.17	245	98	1.55	248	99	0.46	245	98	0.77	245	98	0.48

| Unit: ug/L
| T: Target analyte
|%Rec QC Limit: 90-110
| RSD QC Limit: <5
| CCV EV: CCV Expected Value ug/L
| Comment: * Out of QC limit

CONTINUING CALIBRATION BLANK SUMMARY FORM

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG NO. : 19E197
Method : SW6020A
Sequence : IF6E21
Instrument ID: F6

CB SampleID	: ICB	CCB1	CCB4	CCB5	CCB6
CB DataFileID	: F6E21010	F6E21016	F6E21041	F6E21049	F6E21060
CB DateTime	: 05/30/1912:20	05/30/1912:47	05/30/1914:47	05/30/1915:23	05/30/1916:12

PARAMETER	LOD	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >	RESULT	< LOD >
Lithium	0	0.06	>0	0.03	>0	0.1	>0	0.1	>0	0.3	>0
Beryllium	0.1	0.01	<0.1	0.01	<0.1	0.02	<0.1	0.01	<0.1	0.01	<0.1
Boron	5.0	0.4	<5.0	0.10	<5.0	0.6	<5.0	0.5	<5.0	0.7	<5.0
Sodium	50	2	<50	20	<50	0.9	<50	60	>50	60	>50
Magnesium	10	2	<10	8	<10	0.4	<10	4	<10	0.6	<10
Aluminum	20	2	<20	7	<20	0.4	<20	3	<20	0.08	<20
Silicon	20	2	<20	2	<20	1	<20	3	<20	0.2	<20
Phosphorus	25	0.8	<25	6	<25	1	<25	0.6	<25	1	<25
Potassium	20	1	<20	20	<20	3	<20	20	<20	0.5	<20
Calcium	25	0.3	<25	10	<25	0.9	<25	30	>25	8	<25
Titanium	0.5	0.002	<0.5	0.2	<0.5	0.001	<0.5	0.03	<0.5	0.02	<0.5
Vanadium	0.5	0.08	<0.5	0.09	<0.5	0.05	<0.5	0.2	<0.5	0.04	<0.5
Chromium T	0.2	0.009	<0.2	0.010	<0.2	0.02	<0.2	0.1	<0.2	0.008	<0.2
Manganese	0.2	0.2	<0.2	0.02	<0.2	0.02	<0.2	0.2	>0.2	0.05	<0.2
Iron	10	0.8	<10	20	>10	0.6	<10	40	>10	7	<10
Cobalt	0.2	[illegible]	<0.2	0.01	<0.2	0.01	<0.2	0.02	<0.2	[illegible]	<0.2
Nickel	0.2	0.004	<0.2	0.007	<0.2	0.004	<0.2	0.2	<0.2	0.02	<0.2
Copper	0.5	0.03	<0.5	0.02	<0.5	0.03	<0.5	0.1	<0.5	0.01	<0.5
Zinc	10	0.04	<10	0.04	<10	0.02	<10	0.010	<10	0.03	<10
Arsenic	0.2	0.04	<0.2	0.02	<0.2	0.02	<0.2	0.2	<0.2	0.04	<0.2
Selenium	0.3	0.02	<0.3	0.04	<0.3	0.004	<0.3	0.4	>0.3	0.09	<0.3
Strontium	1.0	0.01	<1.0	0.005	<1.0	0.03	<1.0	0.08	<1.0	0.06	<1.0
Zirconium	2.0	0.001	<2.0	0.002	<2.0	0.002	<2.0	0.001	<2.0	0.001	<2.0
Molybdenum	0.5	0.05	<0.5	0.2	<0.5	0.006	<0.5	0.04	<0.5	0.01	<0.5
Silver	0.2	0.003	<0.2	0.003	<0.2	0.0008	<0.2	0.005	<0.2	0.001	<0.2
Cadmium	0.2	0.02	<0.2	0.004	<0.2	0.0009	<0.2	0.04	<0.2	0.004	<0.2
Tin	0.2	0.06	<0.2	0.03	<0.2	0.03	<0.2	0.06	<0.2	0.03	<0.2
Antimony	0.5	0.006	<0.5	0.04	<0.5	0.03	<0.5	0.04	<0.5	0.03	<0.5
Barium	0.5	0.02	<0.5	0.006	<0.5	0.004	<0.5	0.07	<0.5	0.01	<0.5
Tungsten	1.0	0.05	<1.0	0.05	<1.0	0.04	<1.0	0.04	<1.0	0.04	<1.0
Thallium	0.2	0.04	<0.2	0.007	<0.2	0.001	<0.2	0.04	<0.2	0.007	<0.2
Lead	0.1	0.02	<0.1	0.005	<0.1	0.006	<0.1	0.03	<0.1	0.003	<0.1
Uranium	0.1	0.03	<0.1	0.01	<0.1	0.008	<0.1	0.04	<0.1	0.01	<0.1

CB SampleID	: CCB7
CB DataFileID	: F6E21066
CB DateTime	: 05/30/1917:01

PARAMETER	LOD	RESULT	< LOD >
Lithium	0	0.07	>0
Beryllium	0.1	0.01	<0.1
Boron	5.0	0.07	<5.0
Sodium	50	40	<50
Magnesium	10	8	<10
Aluminum	20	7	<20
Silicon	20	0.9	<20
Phosphorus	25	6	<25
Potassium	20	10	<20

Calcium		25	40	>25
Titanium		0.5	0.2	<0.5
Vanadium		0.5	0.05	<0.5
Chromium	T	0.2	0.01	<0.2
Manganese		0.2	0.03	<0.2
Iron		10	50	>10
Cobalt		0.2	0.01	<0.2
Nickel		0.2	0.009	<0.2
Copper		0.5	0.006	<0.5
Zinc		10	0.03	<10
Arsenic		0.2	0.02	<0.2
Selenium		0.3	0.04	<0.3
Strontium		1.0	0.009	<1.0
Zirconium		2.0	0.001	<2.0
Molybdenum		0.5	0.2	<0.5
Silver		0.2	0.002	<0.2
Cadmium		0.2	0.002	<0.2
Tin		0.2	0.03	<0.2
Antimony		0.5	0.04	<0.5
Barium		0.5	0.005	<0.5
Tungsten		1.0	0.07	<1.0
Thallium		0.2	0.003	<0.2
Lead		0.1	0.007	<0.1
Uranium		0.1	0.008	<0.1

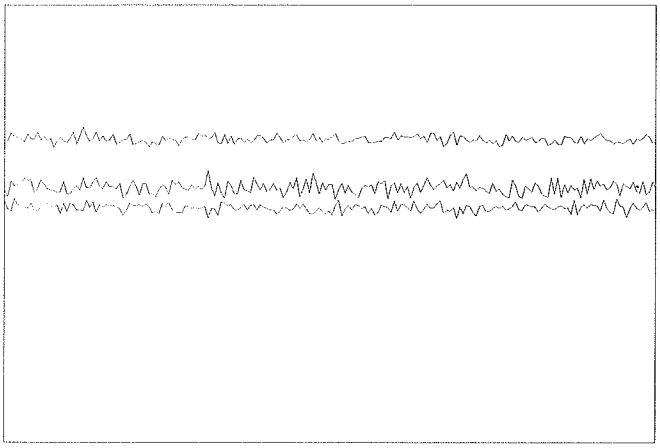
Unit: ug/L
CB: Calibration Blank
T: Target analyte
Acceptance Criteria: CCB Result <LOD
Comment:

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
1		Keyword		TUNBEG	Start of TUNE						
2	C:\ICPCHEM\1\METHODS\TN6020_C.M	Tun6	1301	F6E21001	6020tunchk		1.000				
3	C:\ICPCHEM\1\METHODS\TN200_8C.M	Tun2	1302	F6E21002	2008tunchk		1.000				
4		Keyword		TUNEND	End of TUNE						
5		Keyword		CALBEG	Start of CALIB						
6	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalBlk	1101	F6E21003	BLNK		Level 1				
7	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalBlk	1102	F6E21004	S0		Level 1				
8	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalStd	1104	F6E21005	S1 0.5		Level 2				
9	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalStd	1105	F6E21006	S2 50		Level 3				
10	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalStd	1106	F6E21007	S3 250		Level 4				
11	C:\ICPCHEM\1\METHODS\EM6020R2.M	CalStd	1107	F6E21008	S4 500		Level 5				
12	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICV1	1204	F6E21009	ICV		1.000				
13	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICB	1102	F6E21010	ICB		1.000				
14	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1305	F6E21011	MRLE3001 ✓	1/100/10 ppb	1.000				
15	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1306	F6E21012	MRLE3002	0.4/40/4 ppb	1.000				
16	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICS-A	1303	F6E21013	ICSA1 80 IS < 70%		1.000				
17	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICS-AB	1304	F6E21014	ICSAB1 ↓		1.000				
18	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21015	CCV1		1.000				
19	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21016	CCB1		1.000				
20		Keyword		CALEND	End of CALIB						
21		Keyword		SMPLBEG	Start of SMPL						
22	C:\ICPCHEM\1\METHODS\EM6020R2.M	MBW	2101	F6E21017	IME027WB		1.000				
23	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCS	2102	F6E21018	IME027WL		1.000				
24	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCS	2103	F6E21019	IME027WC		1.000				
25	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2104	F6E21020	E562-01I		10.00				
26	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2105	F6E21021	E562-01M } ✓		10.00				
27	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2106	F6E21022	E562-01S }		10.00				
28	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2107	F6E21023	E562-02I		10.00				
29	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2108	F6E21024	E562-03I		10.00				
30	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21025	CCV2		1.000				
31	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21026	CCB2		1.000				
32	C:\ICPCHEM\1\METHODS\EM6020R2.M	MBS	2109	F6E21027	IME028SB		1.000				
33	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCSS	2110	F6E21028	IME028SL		1.000				
34	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCSS	2111	F6E21029	IME028SC		1.000				
35	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2112	F6E21030	E564-01		1.000				
36	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2201	F6E21031	E564-02		1.000				
37	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2202	F6E21032	E564-03		1.000				
38	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2203	F6E21033	E564-04		1.000				
39	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2204	F6E21034	E564-05		1.000				
40	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2205	F6E21035	E908-01		1.000				
41	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21036	CCV3		1.000				
42	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21037	CCB3		1.000				

	Method	Type	Vial	Data File	Sample	Comment	Dil/Lvl	ISTD Conc	Action on Failure	Skip	Result
43	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1305	F6E21038	MRLE3003 ✓	1/100/10 ppb	1.000				
44	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1306	F6E21039	MRLE3004	0.4/40/4 ppb	1.000				
45	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21040	CCV4		1.000				
46	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21041	CCB4		1.000				
47	C:\ICPCHEM\1\METHODS\EM6020R2.M	MBW	2206	F6E21042	IME026WB		1.000				
48	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCS	2207	F6E21043	IME026WL		1.000				
49	C:\ICPCHEM\1\METHODS\EM6020R2.M	LCS	2208	F6E21044	IME026WC		1.000				
50	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2209	F6E21045	E197-02I		10.00				
51	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2210	F6E21046	E197-04I		10.00				
52	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2211	F6E21047	E197-06I		10.00				
53	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21048	CCV5		1.000				
54	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21049	CCB5		1.000				
55	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2212	F6E21050	E197-08M } or ✓		10.00				
56	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2301	F6E21051	E197-08S }		10.00				
57	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2302	F6E21052	E197-08A		10.00				
58	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2303	F6E21053	E197-08I		10.00				
59	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2304	F6E21054	E197-08J		50.00				
60	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2305	F6E21055	E197-09I		10.00				
61	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2306	F6E21056	E197-10I		10.00				
62	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2307	F6E21057	E197-11I		10.00				
63	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2308	F6E21058	E197-12I		10.00				
64	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21059	CCV6		1.000				
65	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21060	CCB6		1.000				
66	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1305	F6E21061	MRLE3005 ✓	1/100/10 ppb	1.000				
67	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	1306	F6E21062	MRLE3006	0.4/40/4 ppb	1.000				
68	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICS-A	1303	F6E21063	ICSA2		1.000				
69	C:\ICPCHEM\1\METHODS\EM6020R2.M	ICS-AB	1304	F6E21064	ICSAB2		1.000				
70	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21065	CCV7		1.000				
71	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21066	CCB7		1.000				
72	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2309	F6E21067	E204-01M		1.000				
73	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2310	F6E21068	E204-01S		1.000				
74	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2311	F6E21069	E204-01A		1.000				
75	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2312	F6E21070	E204-01		1.000				
76	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2401	F6E21071	E204-01J		5.000				
77	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2402	F6E21072	E204-02		1.000				
78	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2403	F6E21073	E204-03		1.000				
79	C:\ICPCHEM\1\METHODS\EM6020R2.M	Sample	2404	F6E21074	E204-04		1.000				
80	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCV	1206	F6E21075	CCV8		1.000				
81	C:\ICPCHEM\1\METHODS\EM6020R2.M	CCB	1102	F6E21076	CCB8		1.000				
82		Keyword		StandBy							
83		Keyword		SMPLEND	End of SMPL						
84		Keyword		End	End of Sequence						

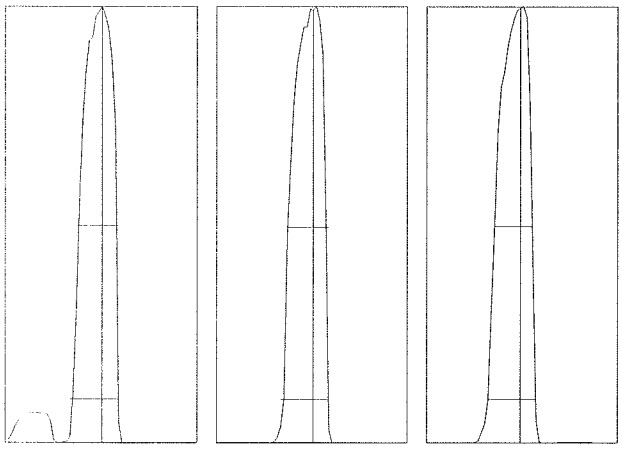
Tune Report

Tune File : NORM.U
Comment : IF6E21



Integration Time:	0.1000 sec	
Sampling Period:	0.6200 sec	
n:	200	
Oxide:	156/140	1.554%
Doubly Charged:	70/140	1.084%

m/z	Range	Count	Mean	RSD%	Background
7	50,000	29167.0	29229.1	2.24	1.80
89	100,000	52845.0	53818.0	1.63	2.60
205	50,000	34370.0	34710.5	1.15	5.30
156/140	2	1.540%	1.531%	4.69	
70/140	2	1.152%	1.072%	5.69	



m/z:	7	89	205
Height:	9,162	16,304	10,447
Axis:	7.05	89.05	205.00
W-50%:	0.65	0.65	0.60
W-10%:	0.7500	0.7500	0.7500

Integration Time:	0.0300 sec
Acquisition Time:	10.1600 sec

Y axis : Linear

Generated : May 30, 2019 11:39:16
Printed : May 30, 2019 11:39:18

Tune Report

Tune File : NORM.U
Comment : IF6E21

Tuning Parameters

===Plasma Condition===			===Ion Lenses===			===Q-Pole Parameters===		
RF Power	:	1500 W	Extract 1	:	0 V	AMU Gain	:	129
RF Matching	:	1.74 V	Extract 2	:	-140 V	AMU Offset	:	125
Smpl Depth	:	8 mm	Omega Bias-ce	:	-28 V	Axis Gain	:	0.9995
Torch-H	:	-0.6 mm	Omega Lens-ce	:	1.4 V	Axis Offset	:	-0.03
Torch-V	:	-0.1 mm	Cell Entrance	:	-30 V	QP Bias	:	-3 V
Carrier Gas	:	0.9 L/min	QP Focus	:	2 V			
Makeup Gas	:	0.12 L/min	Cell Exit	:	-30 V	===Detector Parameters===		
Optional Gas	:	--- %				Discriminator	:	8 mV
Nebulizer Pump	:	0.1 rps	===Octopole Parameters===			Analog HV	:	2110 V
Sample Pump	:	--- rps	OctP RF	:	169 V	Pulse HV	:	1500 V
S/C Temp	:	2 degC	OctP Bias	:	-6 V			

===Reaction Cell===								
Reaction Mode	:	OFF						
H2 Gas	:	0 mL/min	He Gas	:	0 mL/min	Optional Gas	:	--- %

Generated : May 30, 2019 11:39:16
Printed : May 30, 2019 11:39:20

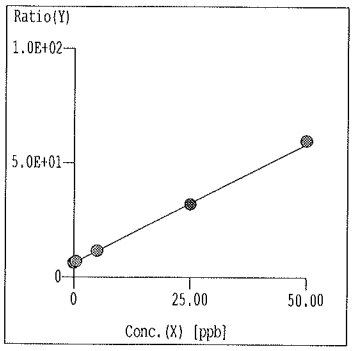
Last Calib: May 30, 2019 12:14 pm
Calibration Type: External Calibration Method
Calibration Title:
Weighting Method: 1/(SD*SD)
Mass Interpolation Fit for VIS: Point to Point
Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Multi Tune: #1 h2.u
#2 he.u
#3 norm.u

=== Standard Files ===
<Data Correction>
Bkg File: ---
Rejected Masses: ---
Interference Correction: ON

	Data File	Sample Name	Date Acquired
1	c:\data\if62019\e\if6e21.b\f6e21004.d\f6e21004.d#	S0	May 30 2019 11:54 am
2	c:\data\if62019\e\if6e21.b\f6e21005.d\f6e21005.d#	S1 0.5	May 30 2019 11:58 am
3	c:\data\if62019\e\if6e21.b\f6e21006.d\f6e21006.d#	S2 50	May 30 2019 12:03 pm
4	c:\data\if62019\e\if6e21.b\f6e21007.d\f6e21007.d#	S3 250	May 30 2019 12:08 pm
5	c:\data\if62019\e\if6e21.b\f6e21008.d\f6e21008.d#	S4 500	May 30 2019 12:12 pm
6	---		
7	---		
8	---		
9	---		
10	---		
11	---		
12	---		
13	---		
14	---		
15	---		
16	---		
17	---		
18	---		
19	---		
20	---		

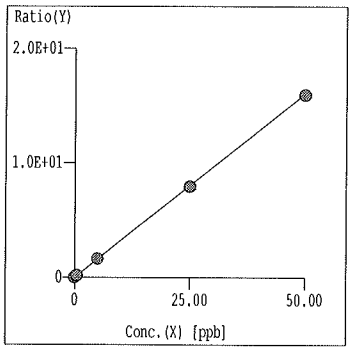
=== Graph Detail ===

Step Mass Element (3) 7 Li | ISTD 6 | Unit ppb



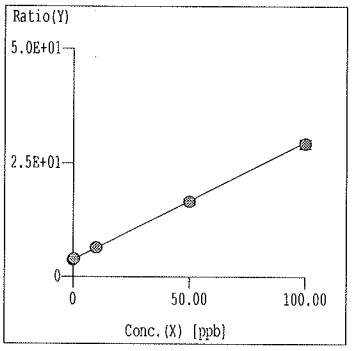
Curve Fit: Y=aX+b
r = 0.9998
Y = 1.040E+000*X +6.229E+000
X = 9.618E-001*Y -5.991E+000
DL = 1.021E-01 ppb
BEC = 5.991 ppb

Step Mass Element (3) 9 Be | ISTD 6 | Unit ppb



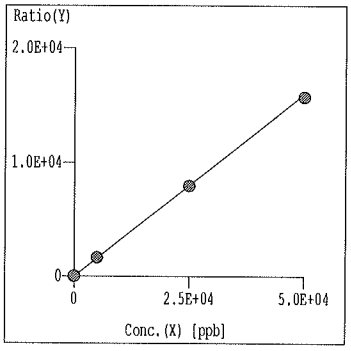
Curve Fit: Y=aX+b
r = 1.0000
Y = 3.211E-001*X +6.764E-003
X = 3.115E+000*Y -2.107E-002
DL = 1.546E-02 ppb
BEC = 2.107E-02 ppb

Step Mass Element (3) 11 B | ISTD 6 | Unit ppb



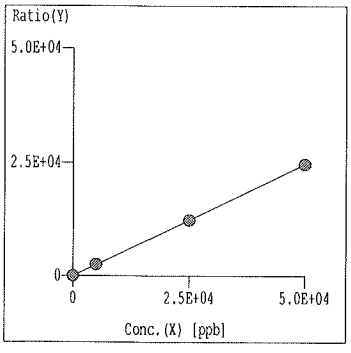
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.593E-001*X +3.736E+000
X = 3.857E+000*Y -1.441E+001
DL = 8.971E-01 ppb
BEC = 14.41 ppb

Step Mass Element (1) 23 Na | ISTD 45 | Unit ppb



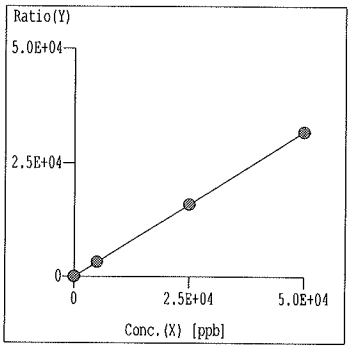
Curve Fit: Y=aX+b
r = 1.0000
Y = 3.201E-001*X +3.639E+000
X = 3.124E+000*Y -1.137E+001
DL = 6.082E-01 ppb
BEC = 11.37 ppb

Step Mass Element (3) 24 Mg | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 4.942E-001*X +9.251E-001
X = 2.024E+000*Y -1.872E+000
DL = 1.967E-01 ppb
BEC = 1.872 ppb

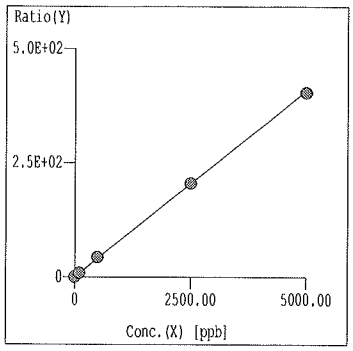
Step Mass Element (3) 27 Al | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 6.371E-001*X +8.973E-001
X = 1.570E+000*Y -1.408E+000
DL = 1.878E-01 ppb
BEC = 1.408 ppb

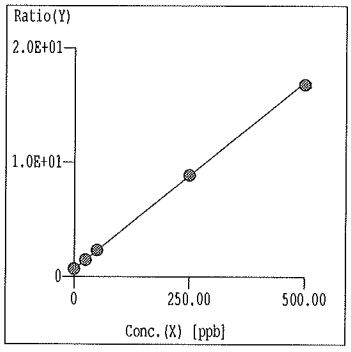
=== Graph Detail ===

Step Mass Element (1) 28 Si | ISTD 45 | Unit ppb



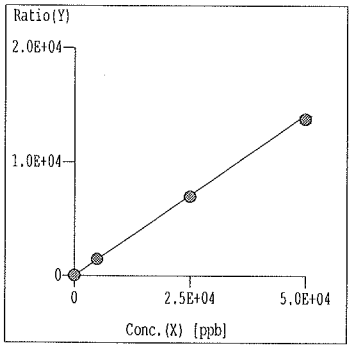
Curve Fit: Y=aX+b
r = 1.0000
Y = 8.153E-002*X +3.988E-001
X = 1.226E+001*Y -4.891E+000
DL = 1.653E-01 ppb
BEC = 4.891 ppb

Step Mass Element (3) 31 P | ISTD 45 | Unit ppb



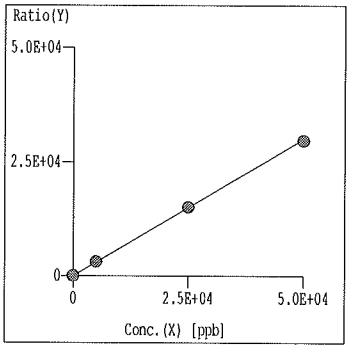
Curve Fit: Y=aX+b
r = 1.0000
Y = 3.277E-002*X +6.534E-001
X = 3.052E+001*Y -1.994E+001
DL = 1.222 ppb
BEC = 19.94 ppb

Step Mass Element (2) 39 K | ISTD 45 | Unit ppb



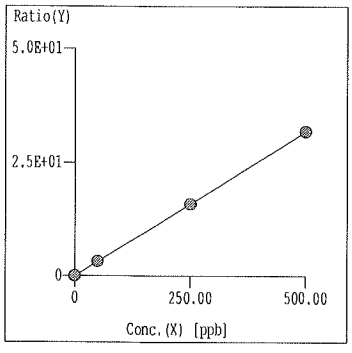
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.830E-001*X +1.756E+001
X = 3.533E+000*Y -6.204E+001
DL = 4.539 ppb
BEC = 62.04 ppb

Step Mass Element (1) 40 Ca | ISTD 45 | Unit ppb



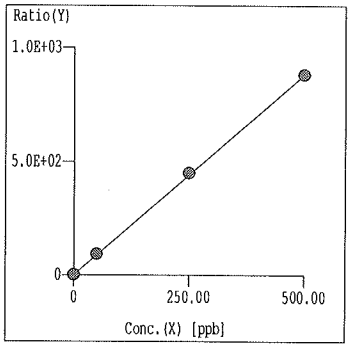
Curve Fit: Y=aX+b
r = 1.0000
Y = 6.011E-001*X +8.130E+000
X = 1.664E+000*Y -1.352E+001
DL = 3.268E-01 ppb
BEC = 13.52 ppb

Step Mass Element (3) 47 Ti | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 6.365E-002*X +4.861E-003
X = 1.571E+001*Y -7.637E-002
DL = 2.292E-02 ppb
BEC = 7.637E-02 ppb

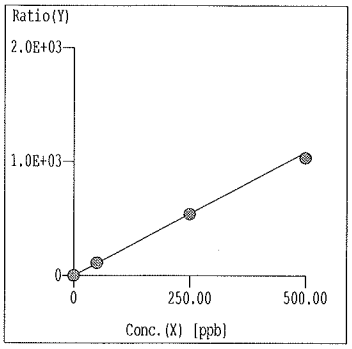
Step Mass Element (2) 51 V | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 1.760E+000*X +1.204E+000
X = 5.683E-001*Y -6.843E-001
DL = 5.518E-02 ppb
BEC = 6.843E-01 ppb

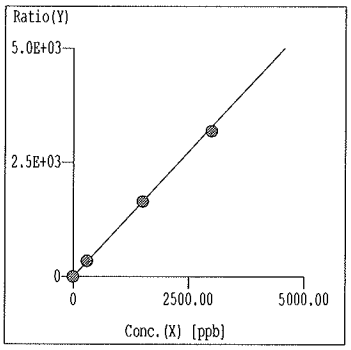
=== Graph Detail ===

Step Mass Element (2) 52 Cr | ISTD 45 | Unit ppb



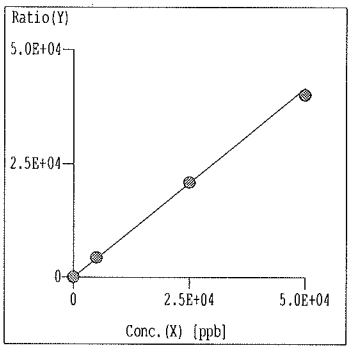
Curve Fit: Y=aX+b
r = 0.9998
Y = 2.159E+000*X +2.531E-001
X = 4.632E-001*Y -1.172E-001
DL = 1.014E-02 ppb
BEC = 1.172E-01 ppb

Step Mass Element (3) 55 Mn | ISTD 45 | Unit ppb



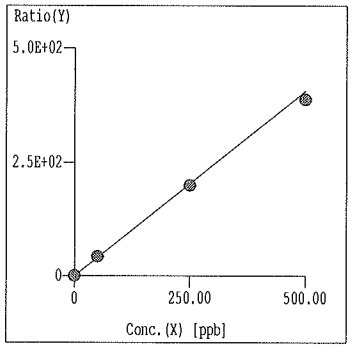
Curve Fit: Y=aX+b
r = 0.9999
Y = 1.095E+000*X +8.430E-002
X = 9.130E-001*Y -7.697E-002
DL = 5.306E-03 ppb
BEC = 7.697E-02 ppb

Step Mass Element (1) 56 Fe | ISTD 45 | Unit ppb



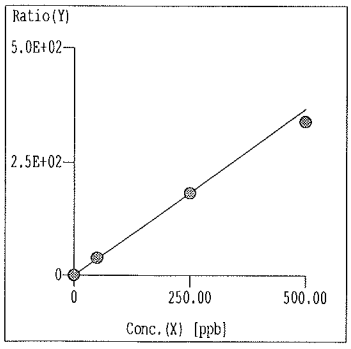
Curve Fit: Y=aX+b
r = 0.9998
Y = 8.317E-001*X +1.092E+000
X = 1.202E+000*Y -1.313E+000
DL = 1.759E-01 ppb
BEC = 1.313 ppb

Step Mass Element (3) 59 Co | ISTD 45 | Unit ppb



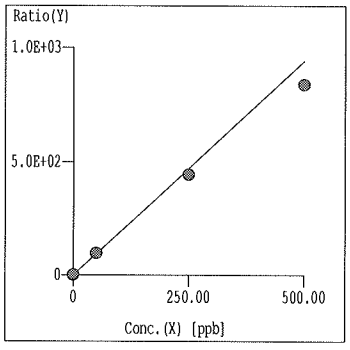
Curve Fit: Y=aX+b
r = 0.9999
Y = 8.130E-001*X +1.854E-002
X = 1.230E+000*Y -2.281E-002
DL = 2.758E-03 ppb
BEC = 2.281E-02 ppb

Step Mass Element (2) 60 Ni | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9993
Y = 7.331E-001*X +1.739E-002
X = 1.364E+000*Y -2.373E-002
DL = 8.209E-03 ppb
BEC = 2.373E-02 ppb

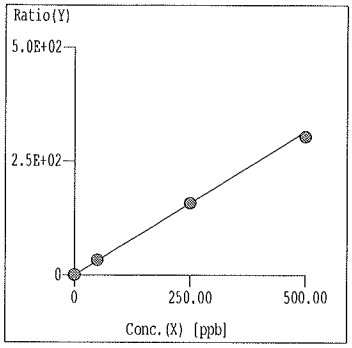
Step Mass Element (2) 63 Cu | ISTD 45 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9995
Y = 1.881E+000*X +6.225E-001
X = 5.316E-001*Y -3.310E-001
DL = 2.209E-02 ppb
BEC = 3.310E-01 ppb

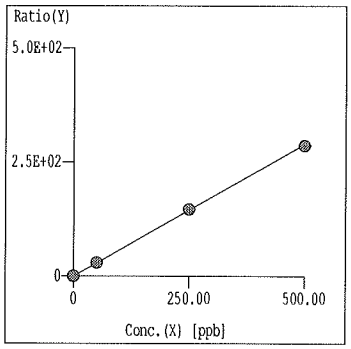
=== Graph Detail ===

Step Mass Element (3) 66 Zn | ISTD 72 | Unit ppb



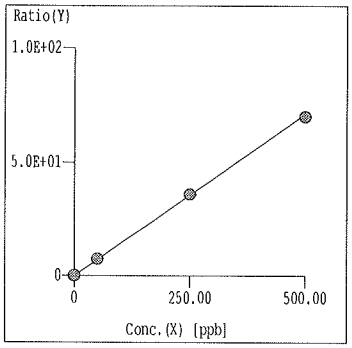
Curve Fit: Y=aX+b
r = 0.9998
Y = 6.297E-001*X +2.795E-001
X = 1.588E+000*Y -4.439E-001
DL = 3.833E-02 ppb
BEC = 4.439E-01 ppb

Step Mass Element (2) 75 As | ISTD 72 | Unit ppb



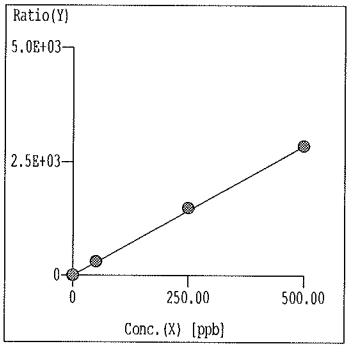
Curve Fit: Y=aX+b
r = 0.9999
Y = 5.787E-001*X +4.579E-002
X = 1.728E+000*Y -7.912E-002
DL = 1.095E-02 ppb
BEC = 7.912E-02 ppb

Step Mass Element (1) 78 Se | ISTD 72 | Unit ppb



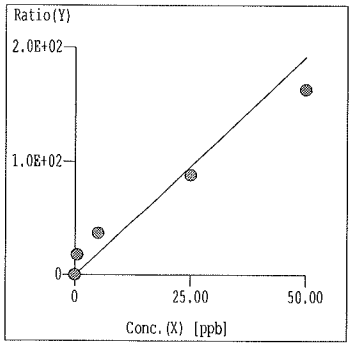
Curve Fit: Y=aX+b
r = 0.9999
Y = 1.426E-001*X +2.668E-003
X = 7.013E+000*Y -1.871E-002
DL = 1.481E-02 ppb
BEC = 1.871E-02 ppb

Step Mass Element (3) 88 Sr | ISTD 72 | Unit ppb



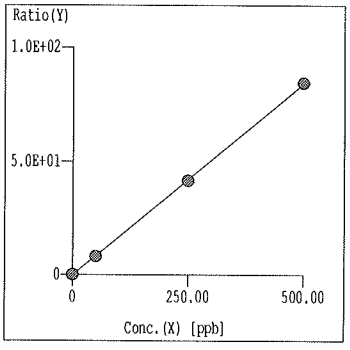
Curve Fit: Y=aX+b
r = 0.9998
Y = 5.702E+000*X +1.461E-001
X = 1.754E-001*Y -2.562E-002
DL = 5.755E-03 ppb
BEC = 2.562E-02 ppb

Step Mass Element (3) 90 Zr | ISTD 72 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9925
Y = 3.829E+000*X +3.381E-002
X = 2.612E-001*Y -8.831E-003
DL = 4.941E-03 ppb
BEC = 8.831E-03 ppb

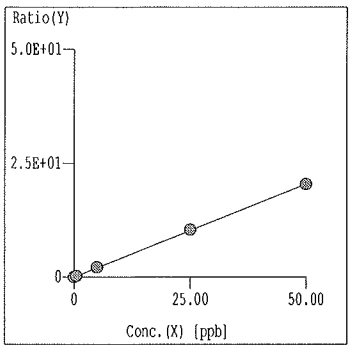
Step Mass Element (3) 95 Mo | ISTD 115 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 1.683E-001*X +4.684E-003
X = 5.941E+000*Y -2.783E-002
DL = 1.155E-02 ppb
BEC = 2.783E-02 ppb

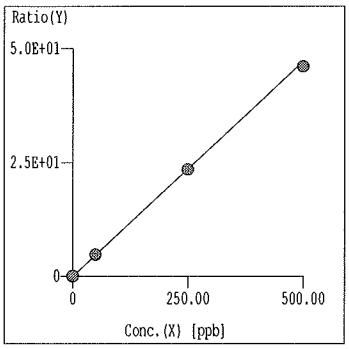
=== Graph Detail ===

Step Mass Element (3) 107 Ag | ISTD 115 | Unit ppb



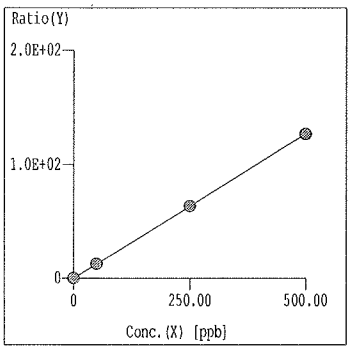
Curve Fit: Y=aX+b
r = 1.0000
Y = 4.079E-001*X +5.212E-004
X = 2.451E+000*Y -1.278E-003
DL = 1.265E-03 ppb
BEC = 1.278E-03 ppb

Step Mass Element (3) 111 Cd | ISTD 115 | Unit ppb



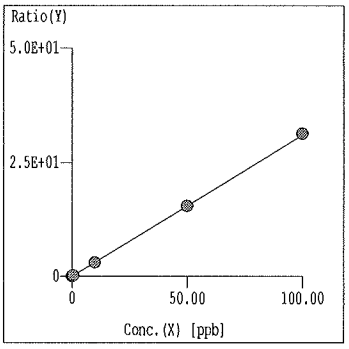
Curve Fit: Y=aX+b
r = 1.0000
Y = 9.443E-002*X +5.527E-004
X = 1.059E+001*Y -5.853E-003
DL = 5.138E-03 ppb
BEC = 5.853E-03 ppb

Step Mass Element (3) 118 Sn | ISTD 115 | Unit ppb



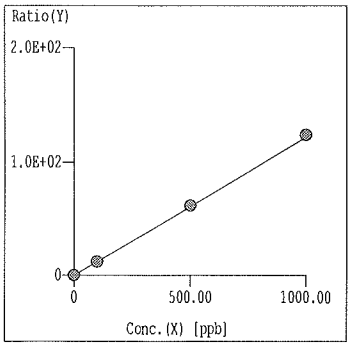
Curve Fit: Y=aX+b
r = 1.0000
Y = 2.541E-001*X +8.520E-003
X = 3.935E+000*Y -3.353E-002
DL = 7.822E-03 ppb
BEC = 3.353E-02 ppb

Step Mass Element (3) 121 Sb | ISTD 115 | Unit ppb



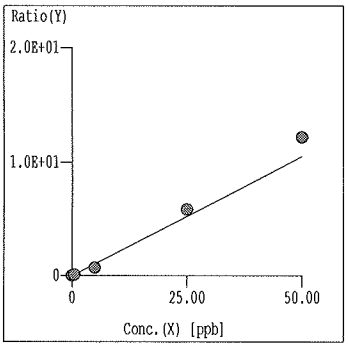
Curve Fit: Y=aX+b
r = 1.0000
Y = 3.103E-001*X +6.002E-003
X = 3.223E+000*Y -1.934E-002
DL = 2.144E-03 ppb
BEC = 1.934E-02 ppb

Step Mass Element (3) 137 Ba | ISTD 115 | Unit ppb



Curve Fit: Y=aX+b
r = 1.0000
Y = 1.218E-001*X +1.824E-003
X = 8.213E+000*Y -1.498E-002
DL = 6.714E-03 ppb
BEC = 1.498E-02 ppb

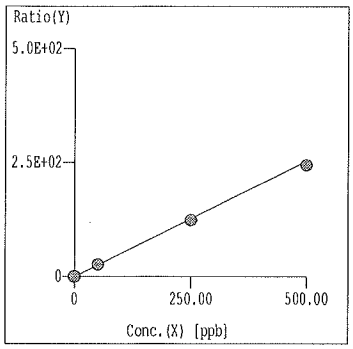
Step Mass Element (3) 182 W | ISTD 159 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9992
Y = 2.102E-001*X -4.761E-003
X = 4.757E+000*Y +2.265E-002
DL = 7.025E-03 ppb
BEC = -2.265E-02 ppb

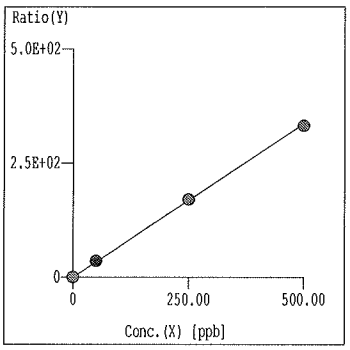
=== Graph Detail ===

Step Mass Element (3) 205 Tl | ISTD 159 | Unit ppb



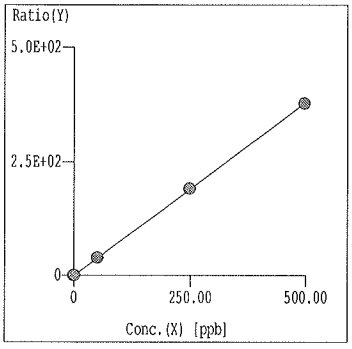
Curve Fit: Y=aX+b
r = 1.0000
Y = 5.059E-001*X +5.669E-003
X = 1.977E+000*Y -1.121E-002
DL = 2.327E-03 ppb
BEC = 1.121E-02 ppb

Step Mass Element (3) 208 Pb | ISTD 159 | Unit ppb



Curve Fit: Y=aX+b
r = 0.9999
Y = 6.734E-001*X +1.752E-002
X = 1.485E+000*Y -2.601E-002
DL = 4.941E-03 ppb
BEC = 2.601E-02 ppb

Step Mass Element (3) 238 U | ISTD 159 | Unit ppb



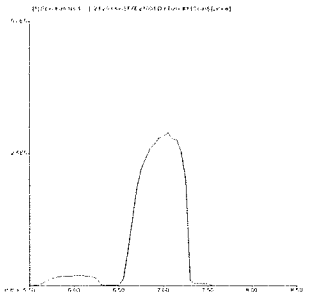
Curve Fit: Y=aX+b
r = 1.0000
Y = 7.612E-001*X +3.137E-003
X = 1.314E+000*Y -4.121E-003
DL = 7.655E-04 ppb
BEC = 4.121E-03 ppb

6020 QC Tune Report

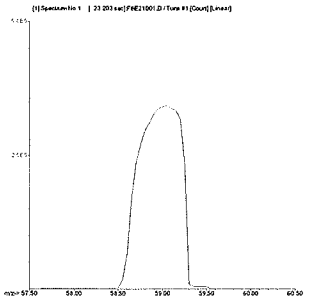
Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21001.D
Date Acquired: May 30 2019 11:41 am
Acq. Method: TN6020_C.M
Operator: LYaman
Sample Name: 6020tunchk
Misc Info:
Vial Number: 1301
Current Method: C:\ICPCHEM\1\METHODS\TN6020_C.M

RSD (%)

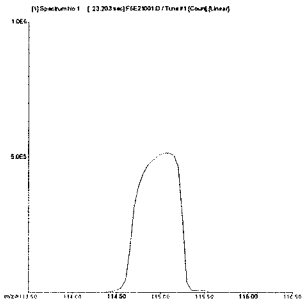
Element	Actual	Required	Flag
7 Li	1.73	5.00	
59 Co	0.45	5.00	
115 In	0.98	5.00	
205 Tl	0.69	5.00	



7 Li
Mass Calib.
Actual: 7.05
Required: 6.90 - 7.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



59 Co
Mass Calib.
Actual: 59.05
Required: 58.90 - 59.10
Flag:
Peak Width-10%
Actual: 0.65
Limit 0.90
Flag:



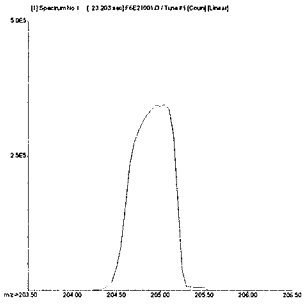
115 In

Mass Calib.

Actual:	115.05	
Required:	114.90 -	115.10
Flag:		

Peak Width-10%

Actual:	0.60
Limit	0.90
Flag:	



205 Tl

Mass Calib.

Actual:	205.00	
Required:	204.90 -	205.10
Flag:		

Peak Width-10%

Actual:	0.65
Limit	0.90
Flag:	

Calibration Blank QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21003
Date Acquired:	May 30 2019 11:49 am
Operator:	LYaman
Sample Name:	BLNK
Misc Info:	
Vial Number:	1101
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2
Last Cal Update:	May 30 2019 11:52 am
Sample Type:	CalBlk
Total Dil Factor:	1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	2410969.00	A	53310.00	2.21
7	Li	151100.30	P	1750.00	1.16
9	Be	84.45	P	3.85	4.56
11	B	86629.29	P	628.20	0.73
23	Na	68038.57	P	757.20	1.11
24	Mg	29557.35	P	164.10	0.56
27	Al	25144.83	P	38.52	0.15
28	Si	6359.30	P	213.30	3.35
31	P	24990.51	P	160.70	0.64
39	K	63407.65	P	770.50	1.22
40	Ca	134314.50	P	1081.00	0.80
45	Sc	1875343.00	A	21880.00	1.17
45	Sc	382072.69	P	2595.00	0.68
45	Sc	3842167.00	A	28120.00	0.73
47	Ti	154.45	P	17.11	11.08
51	V	4338.44	P	45.77	1.06
52	Cr	793.36	P	10.48	1.32
55	Mn	3517.21	P	118.40	3.37
56	Fe	20274.46	P	899.10	4.43
59	Co	357.80	P	25.24	7.05
60	Ni	43.56	P	8.70	19.98
63	Cu	2277.97	P	54.31	2.38
66	Zn	2386.94	P	14.52	0.61
72	Ge	414722.00	P	2032.00	0.49
72	Ge	176064.09	P	448.80	0.25
72	Ge	747278.50	P	2974.00	0.40
75	As	93.11	P	11.74	12.61
78	Se	8.67	P	4.67	53.85
88	Sr	663.37	P	65.66	9.90
90	Zr	166.67	P	6.67	4.00
95	Mo	213.34	P	8.82	4.13
107	Ag	31.11	P	3.85	12.37
111	Cd	30.91	P	9.65	31.22
115	In	5026592.00	A	51150.00	1.02
118	Sn	413.35	P	17.64	4.27
121	Sb	350.02	P	12.02	3.43
137	Ba	84.45	P	23.65	28.01
159	Tb	6585069.00	A	23490.00	0.36
182	W	116.67	P	12.02	10.30
205	Tl	260.01	P	27.29	10.50
208	Pb	808.93	P	58.72	7.26
209	Bi	3984699.00	A	27510.00	0.69
235	U	6.67	P	3.33	49.99
238	U	196.68	P	20.28	10.31

Calibration Blank QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21004
Date Acquired:	May 30 2019 11:54 am
Operator:	LYaman
Sample Name:	S0
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2
Last Cal Update:	May 30 2019 11:52 am
Sample Type:	CalBlk
Total Dil Factor:	1.00

QC&ISTD Elements

Element		CPS Mean		SD	RSD(%)
6	Li	2345257.00	A	15300.00	0.65
7	Li	145719.20	P	720.90	0.49
9	Be	126.67	P	39.30	31.03
11	B	86422.17	P	1276.00	1.48
23	Na	65587.82	P	1056.00	1.61
24	Mg	34537.91	P	1069.00	3.10
27	Al	33463.49	P	1382.00	4.13
28	Si	7245.31	P	116.70	1.61
31	P	25586.17	P	389.50	1.52
39	K	65438.82	P	970.20	1.48
40	Ca	149498.09	P	1885.00	1.26
45	Sc	1818295.00	A	8755.00	0.48
45	Sc	382689.59	P	4378.00	1.14
45	Sc	3760094.00	A	17560.00	0.47
47	Ti	176.67	P	17.64	9.98
51	V	4446.03	P	97.08	2.18
52	Cr	794.03	P	25.33	3.19
55	Mn	3042.64	P	70.28	2.31
56	Fe	18147.22	P	970.50	5.35
59	Co	661.15	P	25.89	3.92
60	Ni	41.33	P	8.19	19.82
63	Cu	2297.08	P	27.01	1.18
66	Zn	2149.12	P	48.12	2.24
72	Ge	408604.41	P	2929.00	0.72
72	Ge	178049.91	P	299.60	0.17
72	Ge	739345.88	P	4143.00	0.56
75	As	81.11	P	3.67	4.53
78	Se	9.33	P	2.91	31.14
88	Sr	733.38	P	85.12	11.61
90	Zr	168.90	P	46.23	27.37
95	Mo	231.12	P	30.97	13.40
107	Ag	24.45	P	8.39	34.32
111	Cd	22.04	P	7.83	35.54
115	In	4894058.00	A	23290.00	0.48
118	Sn	413.35	P	33.83	8.18
121	Sb	293.35	P	11.55	3.94
137	Ba	75.56	P	13.47	17.83
159	Tb	6463656.00	A	13810.00	0.21
182	W	162.23	P	31.51	19.42
205	Tl	356.69	P	26.04	7.30
208	Pb	1050.06	P	69.60	6.63
209	Bi	3835370.00	A	18520.00	0.48
235	U	6.67	P	3.33	49.99
238	U	201.12	P	12.62	6.27

Calibration Standard QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21005.D\F6E21005.D#
Date Acquired: May 30 2019 11:58 am
Operator: LYaman
Sample Name: S1 0.5
Misc Info:
Vial Number: 1104
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 11:57 am
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	2222839.00	A	49010.00	2.20
7 Li	151581.20	P	4466.00	2.95
9 Be	3898.40	P	34.71	0.89
11 B	86812.60	P	1780.00	2.05
23 Na	379766.69	P	2158.00	0.57
24 Mg	1012078.00	A	19570.00	1.93
27 Al	1271964.00	A	24050.00	1.89
28 Si	159940.80	P	779.50	0.49
31 P	53388.59	P	379.90	0.71
39 K	119703.50	P	545.00	0.46
40 Ca	659202.38	P	5496.00	0.83
45 Sc	1827791.00	A	30350.00	1.66
45 Sc	374868.50	P	2584.00	0.69
45 Sc	3661405.00	A	6641.00	0.18
47 Ti	1489.02	P	87.02	5.84
51 V	7865.67	P	62.90	0.80
52 Cr	5339.65	P	48.03	0.90
55 Mn	25686.28	P	321.80	1.25
56 Fe	934116.63	P	7120.00	0.76
59 Co	16909.10	P	185.70	1.10
60 Ni	1586.99	P	11.50	0.72
63 Cu	6219.78	P	107.60	1.73
66 Zn	6064.78	P	67.45	1.11
72 Ge	405507.31	P	807.80	0.20
72 Ge	173989.59	P	1263.00	0.73
72 Ge	723323.88	P	7151.00	0.99
75 As	592.68	P	15.68	2.65
78 Se	316.45	P	9.90	3.13
88 Sr	23737.96	P	348.00	1.47
90 Zr	128632.60	P	2002.00	1.56
95 Mo	4215.20	P	28.35	0.67
107 Ag	10962.30	P	221.30	2.02
111 Cd	2775.65	P	33.10	1.19
115 In	4759540.00	A	79580.00	1.67
118 Sn	6558.39	P	265.40	4.05
121 Sb	7687.90	P	79.23	1.03
137 Ba	3040.44	P	43.35	1.43
159 Tb	6247776.00	A	57080.00	0.91
182 W	4818.81	P	127.00	2.64
205 Tl	17332.77	P	260.70	1.50
208 Pb	24201.60	P	155.20	0.64
209 Bi	3766598.00	A	28750.00	0.76
235 U	60.00	P	12.02	20.03
238 U	25192.53	P	130.60	0.52

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2222839.00	2.20	2345256.80	94.8	60 - 125	
45 Sc	1827790.60	1.66	1818295.10	100.5	60 - 125	
45 Sc	374868.47	0.69	382689.56	98.0	60 - 125	
45 Sc	3661405.30	0.18	3760093.80	97.4	60 - 125	
72 Ge	405507.28	0.20	408604.41	99.2	60 - 125	
72 Ge	173989.58	0.73	178049.86	97.7	60 - 125	
72 Ge	723323.88	0.99	739345.88	97.8	60 - 125	
115 In	4759540.50	1.67	4894058.00	97.3	60 - 125	
159 Tb	6247775.50	0.91	6463656.00	96.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21006.D\F6E21006.D#
Date Acquired: May 30 2019 12:03 pm
Operator: LYaman
Sample Name: S2 50
Misc Info:
Vial Number: 1105
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:01 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	2154144.00	A	20850.00	0.97
7 Li	246629.30	P	2011.00	0.82
9 Be	34889.33	P	638.60	1.83
11 B	137122.30	P	2374.00	1.73
23 Na	29400630.00	A	39470.00	0.13
24 Mg	90863688.00	A	1452000.00	1.60
27 Al	115659100.00	A	1441000.00	1.25
28 Si	766662.81	P	1601.00	0.21
31 P	82608.08	P	310.20	0.38
39 K	5291890.00	A	15920.00	0.30
40 Ca	55448288.00	A	398300.00	0.72
45 Sc	1788444.00	A	11200.00	0.63
45 Sc	367006.19	P	1416.00	0.39
45 Sc	3598577.00	A	35370.00	0.98
47 Ti	114665.90	P	824.30	0.72
51 V	341310.09	P	795.40	0.23
52 Cr	405957.69	P	1636.00	0.40
55 Mn	12181250.00	A	64800.00	0.53
56 Fe	77316232.00	A	100900.00	0.13
59 Co	1529720.00	A	13770.00	0.90
60 Ni	141209.80	P	612.50	0.43
63 Cu	356704.09	P	683.30	0.19
66 Zn	228341.09	P	684.40	0.30
72 Ge	389478.41	P	1087.00	0.28
72 Ge	167764.59	P	1267.00	0.76
72 Ge	697412.38	P	3946.00	0.57
75 As	49068.54	P	337.20	0.69
78 Se	28535.62	P	67.28	0.24
88 Sr	2110138.00	A	13300.00	0.63
90 Zr	258031.20	P	3539.00	1.37
95 Mo	363583.50	P	3469.00	0.95
107 Ag	94962.51	P	784.00	0.83
111 Cd	212716.70	P	1307.00	0.61
115 In	4486413.00	A	16290.00	0.36
118 Sn	571240.50	P	4333.00	0.76
121 Sb	136543.59	P	1223.00	0.90
137 Ba	541883.81	P	1047.00	0.19
159 Tb	6035279.00	A	42290.00	0.70
182 W	42252.51	P	416.50	0.99
205 Tl	1562481.00	A	1663.00	0.11
208 Pb	2137669.00	M	9886.00	0.46
209 Bi	3456841.00	A	24400.00	0.71
235 U	4794.38	P	15.29	0.32
238 U	2340965.00	A	16550.00	0.71

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2154143.80	0.97	2345256.80	91.9	60 - 125	
45 Sc	1788443.90	0.63	1818295.10	98.4	60 - 125	
45 Sc	367006.19	0.39	382689.56	95.9	60 - 125	
45 Sc	3598576.50	0.98	3760093.80	95.7	60 - 125	
72 Ge	389478.44	0.28	408604.41	95.3	60 - 125	
72 Ge	167764.59	0.76	178049.86	94.2	60 - 125	
72 Ge	697412.38	0.57	739345.88	94.3	60 - 125	
115 In	4486413.00	0.36	4894058.00	91.7	60 - 125	
159 Tb	6035279.00	0.70	6463656.00	93.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21007.D\F6E21007.D#
Date Acquired: May 30 2019 12:08 pm
Operator: LYaman
Sample Name: S3 250
Misc Info:
Vial Number: 1106
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:06 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	2061517.00	A	38240.00	1.85
7 Li	654567.50	M	10860.00	1.66
9 Be	163042.80	P	1990.00	1.22
11 B	339902.91	P	8132.00	2.39
23 Na	132800600.00	A	452900.00	0.34
24 Mg	419655620.00	A	4853000.00	1.16
27 Al	545314500.00	A	6713000.00	1.23
28 Si	3416599.00	A	21700.00	0.64
31 P	302989.69	P	2002.00	0.66
39 K	23818200.00	A	117700.00	0.49
40 Ca	251628190.00	A	2289000.00	0.91
45 Sc	1671819.00	A	15250.00	0.91
45 Sc	342468.91	P	1084.00	0.32
45 Sc	3423034.00	A	20220.00	0.59
47 Ti	543759.69	P	5370.00	0.99
51 V	1539820.00	A	8633.00	0.56
52 Cr	1831991.00	A	8219.00	0.45
55 Mn	55982488.00	A	362000.00	0.65
56 Fe	348972190.00	A	3648000.00	1.05
59 Co	6817714.00	A	27550.00	0.40
60 Ni	624008.31	P	1926.00	0.31
63 Cu	1519831.00	A	13100.00	0.86
66 Zn	1022491.00	A	2993.00	0.29
72 Ge	356925.00	P	1743.00	0.49
72 Ge	154438.00	P	869.50	0.56
72 Ge	650361.88	P	1495.00	0.23
75 As	225037.59	P	476.80	0.21
78 Se	127968.10	P	464.20	0.36
88 Sr	9642255.00	A	75800.00	0.79
90 Zr	572467.50	P	7523.00	1.31
95 Mo	1702294.00	A	7197.00	0.42
107 Ag	424427.69	P	5940.00	1.40
111 Cd	961178.88	P	6237.00	0.65
115 In	4100624.00	A	61860.00	1.51
118 Sn	2606650.00	A	37900.00	1.45
121 Sb	635343.00	P	5371.00	0.85
137 Ba	2532492.00	A	15890.00	0.63
159 Tb	5699479.00	A	16050.00	0.28
182 W	333233.41	P	1146.00	0.34
205 Tl	7007117.00	A	61000.00	0.87
208 Pb	9663735.00	A	105500.00	1.09
209 Bi	3148462.00	A	28210.00	0.90
235 U	22549.86	P	434.40	1.93
238 U	10896040.00	A	88340.00	0.81

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2061516.60	1.85	2345256.80	87.9	60 - 125	
45 Sc	1671818.90	0.91	1818295.10	91.9	60 - 125	
45 Sc	342468.97	0.32	382689.56	89.5	60 - 125	
45 Sc	3423034.00	0.59	3760093.80	91.0	60 - 125	
72 Ge	356925.00	0.49	408604.41	87.4	60 - 125	
72 Ge	154437.97	0.56	178049.86	86.7	60 - 125	
72 Ge	650361.94	0.23	739345.88	88.0	60 - 125	
115 In	4100624.00	1.51	4894058.00	83.8	60 - 125	
159 Tb	5699479.50	0.28	6463656.00	88.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Calibration Standard QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21008.D\F6E21008.D#
Date Acquired: May 30 2019 12:12 pm
Operator: LYaman
Sample Name: S4 500
Misc Info:
Vial Number: 1107
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:10 pm
Sample Type: CalStd
Total Dil Factor: 1.00

QC&ISTD Elements

Element	CPS Mean		SD	RSD(%)
6 Li	2031983.00	A	46530.00	2.29
7 Li	1211818.00	A	33400.00	2.76
9 Be	323551.31	P	5083.00	1.57
11 B	592768.63	P	7428.00	1.25
23 Na	275122110.00	A	2826000.00	1.03
24 Mg	849089600.00	A	12270000.00	1.45
27 Al	1094914000.00	A	18250000.00	1.67
28 Si	7066111.00	A	79880.00	1.13
31 P	578840.50	P	3430.00	0.59
39 K	48492780.00	A	574200.00	1.18
40 Ca	519650300.00	A	5333000.00	1.03
45 Sc	1752569.00	A	15050.00	0.86
45 Sc	352525.59	P	3084.00	0.87
45 Sc	3451286.00	A	58800.00	1.70
47 Ti	1097868.00	A	19840.00	1.81
51 V	3102806.00	A	25000.00	0.81
52 Cr	3624939.00	A	31520.00	0.87
55 Mn	109815800.00	A	862600.00	0.79
56 Fe	702328580.00	A	3619000.00	0.52
59 Co	13366120.00	A	136000.00	1.02
60 Ni	1194102.00	A	4987.00	0.42
63 Cu	2949901.00	A	5928.00	0.20
66 Zn	1971605.00	A	16030.00	0.81
72 Ge	360309.81	P	2100.00	0.58
72 Ge	156270.70	P	584.70	0.37
72 Ge	651291.50	P	1013.00	0.16
75 As	446105.09	P	684.00	0.15
78 Se	251988.30	P	562.40	0.22
88 Sr	18551530.00	A	39550.00	0.21
90 Zr	1061942.00	A	10070.00	0.95
95 Mo	3356450.00	A	36100.00	1.08
107 Ag	809854.63	P	7888.00	0.97
111 Cd	1832376.00	A	27770.00	1.52
115 In	3979863.00	A	32640.00	0.82
118 Sn	5044692.00	A	28950.00	0.57
121 Sb	1246095.00	A	14300.00	1.15
137 Ba	4920528.00	A	50630.00	1.03
159 Tb	5623352.00	A	44720.00	0.80
182 W	683617.50	P	3394.00	0.50
205 Tl	13689160.00	A	184400.00	1.35
208 Pb	18653910.00	A	136800.00	0.73
209 Bi	3052174.00	A	14770.00	0.48
235 U	44552.37	P	349.70	0.78
238 U	21235910.00	A	160600.00	0.76

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2031982.90	2.29	2345256.80	86.6	60 - 125	
45 Sc	1752568.90	0.86	1818295.10	96.4	60 - 125	
45 Sc	352525.63	0.87	382689.56	92.1	60 - 125	
45 Sc	3451285.80	1.70	3760093.80	91.8	60 - 125	
72 Ge	360309.75	0.58	408604.41	88.2	60 - 125	
72 Ge	156270.73	0.37	178049.86	87.8	60 - 125	
72 Ge	651291.50	0.16	739345.88	88.1	60 - 125	
115 In	3979862.80	0.82	4894058.00	81.3	60 - 125	
159 Tb	5623352.50	0.80	6463656.00	87.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

--- :Element Failures --- :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

ICV QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21009.D\F6E21009.D#
Date Acquired:	May 30 2019 12:16 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICV
Misc Info:	
Vial Number:	1204
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICV1
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc. RSD(%)	Expected	QC Range(%)	Flag
7 Li	31.84	ppb	863045.9	1.28	30.00	90 - 110	
9 Be	31.93	ppb	225069.5	1.12	30.00	90 - 110	
11 B	25.23	ppb	225436.0	4.46	30.00	90 - 110	Fail
23 Na	30190.00	ppb	174762590.0	0.73	30000.00	90 - 110	
24 Mg	30330.00	ppb	537265470.0	0.43	30000.00	90 - 110	
27 Al	30150.00	ppb	688564290.0	1.16	30000.00	90 - 110	
28 Si	3063.00	ppb	4521660.0	1.16	3000.00	90 - 110	
31 P	295.30	ppb	370256.3	0.61	300.00	90 - 110	
39 K	29330.00	ppb	30125740.0	1.22	30000.00	90 - 110	
40 Ca	30250.00	ppb	328876190.0	0.81	30000.00	90 - 110	
47 Ti	293.60	ppb	669927.4	0.17	300.00	90 - 110	
51 V	295.10	ppb	1884635.0	0.43	300.00	90 - 110	
52 Cr	285.90	ppb	2236019.0	1.29	300.00	90 - 110	
55 Mn	1927.00	ppb	75652576.0	0.17	2000.00	90 - 110	
56 Fe	29130.00	ppb	438109600.0	0.32	30000.00	90 - 110	
59 Co	284.20	ppb	8282645.0	0.55	300.00	90 - 110	
60 Ni	282.10	ppb	748880.2	1.28	300.00	90 - 110	
63 Cu	272.00	ppb	1855228.0	0.97	300.00	90 - 110	
66 Zn	290.70	ppb	1223683.0	1.56	300.00	90 - 110	
75 As	291.90	ppb	270611.1	0.73	300.00	90 - 110	
78 Se	292.10	ppb	156577.8	0.17	300.00	90 - 110	
88 Sr	309.70	ppb	11788930.0	0.71	300.00	90 - 110	
90 Zr	27.51	ppb	703362.6	0.56	30.00	90 - 110	
95 Mo	295.80	ppb	2085457.0	0.87	300.00	90 - 110	
107 Ag	32.18	ppb	549683.4	0.78	30.00	90 - 110	
111 Cd	288.00	ppb	1138669.0	0.58	300.00	90 - 110	
118 Sn	301.80	ppb	3212140.0	0.60	300.00	90 - 110	
121 Sb	59.89	ppb	778351.6	0.68	60.00	90 - 110	
137 Ba	305.00	ppb	1555084.0	1.38	300.00	90 - 110	
182 W	33.20	ppb	403893.0	1.04	30.00	90 - 110	Fail
205 Tl	289.50	ppb	8482582.0	0.48	300.00	90 - 110	
208 Pb	297.50	ppb	11604520.0	0.57	300.00	90 - 110	
235 U	1.93	ppb	26163.3	0.99	2.20	90 - 110	Fail
238 U	297.90	ppb	13134400.0	0.41	300.00	90 - 110	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2194177.3	1.31	2345256.80	93.6	60 - 125	
45 Sc	1807969.1	0.46	1818295.10	99.4	60 - 125	
45 Sc	362143.4	0.76	382689.56	94.6	60 - 125	
45 Sc	3584215.0	0.34	3760093.80	95.3	60 - 125	
72 Ge	375920.1	0.05	408604.41	92.0	60 - 125	
72 Ge	160142.6	0.46	178049.86	89.9	60 - 125	
72 Ge	667572.3	0.43	739345.88	90.3	60 - 125	
115 In	4187545.8	1.05	4894058.00	85.6	60 - 125	
159 Tb	5792105.0	0.60	6463656.00	89.6	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

3 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

ICB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21010.D\F6E21010.D#
Date Acquired:	May 30 2019 12:20 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICB
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.0644	ppb	146839.0	76.95	0.20	
9 Be	-0.0110	ppb	76.7	15.00	0.10	
11 B	-0.3563	ppb	86810.1	97.64	5.00	
23 Na	1.7200	ppb	74986.5	9.96	40.00	
24 Mg	1.6990	ppb	63934.4	4.13	10.00	
27 Al	1.5380	ppb	67987.4	7.93	20.00	
28 Si	2.2310	ppb	10396.1	1.99	20.00	
31 P	0.8460	ppb	24675.8	64.00	10.00	
39 K	1.2500	ppb	66822.8	66.02	20.00	
40 Ca	0.2784	ppb	148522.5	40.52	25.00	
47 Ti	0.0021	ppb	181.1	1256.90	0.50	
51 V	-0.0804	ppb	3963.7	19.97	0.50	
52 Cr	-0.0089	ppb	872.9	21.57	0.20	
55 Mn	0.1506	ppb	9027.5	3.90	0.20	
56 Fe	0.8087	ppb	31587.4	4.14	10.00	
59 Co	0.0099	ppb	962.3	6.10	0.20	
60 Ni	0.0042	ppb	76.4	106.06	0.20	
63 Cu	0.0304	ppb	2535.3	55.30	0.40	
66 Zn	0.0417	ppb	2171.3	22.79	2.00	
75 As	0.0351	ppb	112.0	21.14	0.20	
78 Se	0.0215	ppb	22.4	47.47	0.20	
90 Zr	0.0014	ppb	277.8	33.89	2.00	
95 Mo	0.0529	ppb	638.9	0.17	0.40	
107 Ag	0.0027	ppb	76.7	25.65	0.20	
111 Cd	0.0176	ppb	104.2	19.94	0.20	
118 Sn	0.0584	ppb	1099.0	14.75	0.20	
121 Sb	0.0062	ppb	373.4	19.96	0.40	
137 Ba	0.0190	ppb	194.5	31.09	0.20	
182 W	0.0503	ppb	356.7	6.53	1.00	
205 Tl	0.0385	ppb	1545.7	9.85	0.20	
208 Pb	0.0170	ppb	1779.0	7.33	0.10	
235 U	-0.0003	ppb	1.1	43.15	1.00	
238 U	0.0300	ppb	1596.8	6.23	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2383088.0	1.01	2345256.80	101.6	60 - 125	
45 Sc	1790153.3	0.71	1818295.10	98.5	60 - 125	
45 Sc	373009.4	0.18	382689.56	97.5	60 - 125	
45 Sc	3622358.8	1.09	3760093.80	96.3	60 - 125	
72 Ge	391390.8	1.02	408604.41	95.8	60 - 125	
72 Ge	169447.6	1.00	178049.86	95.2	60 - 125	
72 Ge	710076.6	1.15	739345.88	96.0	60 - 125	
115 In	4703190.0	0.24	4894058.00	96.1	60 - 125	
159 Tb	6146271.5	1.11	6463656.00	95.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21011.D\F6E21011.D#
Date Acquired: May 30 2019 12:25 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: MRLE3001
Misc Info: 1/100/10 ppb
Vial Number: 1305
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	171706.4	0.0000	0.9385	ppb	7.28	50.00	
9 Be	# 3	6	7146.4	0.0000	0.9129	ppb	3.44	50.00	
11 B	# 3	6	142722.1	0.0000	8.6910	ppb	7.16	100.00	
23 Na	# 1	45	661504.7	0.0000	103.1000	ppb	0.30	50000.00	
24 Mg	# 3	45	1950533.0	0.0000	103.6000	ppb	2.01	50000.00	
27 Al	# 3	45	2436219.0	0.0000	100.8000	ppb	2.27	50000.00	
28 Si	# 1	45	159547.1	0.0000	103.5000	ppb	0.48	5000.00	
31 P	# 3	45	82735.6	0.0000	47.5300	ppb	0.58	500.00	
39 K	# 2	45	172165.4	0.0000	96.4900	ppb	1.25	50000.00	
40 Ca	# 1	45	1251607.0	0.0000	101.8000	ppb	0.94	50000.00	
47 Ti	# 3	45	2565.9	0.0000	1.0010	ppb	4.21	500.00	
51 V	# 2	45	10406.8	0.0000	0.8571	ppb	1.47	500.00	
52 Cr	# 2	45	8891.1	0.0000	0.9562	ppb	2.40	500.00	
55 Mn	# 3	45	48280.7	0.0000	1.1010	ppb	2.84	3000.00	
56 Fe	# 1	45	1559741.0	0.0000	102.6000	ppb	1.24	50000.00	
59 Co	# 3	45	31302.7	0.0000	1.0060	ppb	1.78	500.00	
60 Ni	# 2	45	2807.4	0.0000	0.9745	ppb	1.28	500.00	
63 Cu	# 2	45	9632.3	0.0000	1.0040	ppb	1.07	500.00	
66 Zn	# 3	72	46834.9	0.0000	9.7410	ppb	1.51	500.00	
75 As	# 2	72	1021.2	0.0000	0.9373	ppb	1.96	500.00	
78 Se	# 1	72	537.6	0.0000	0.9280	ppb	1.57	500.00	
88 Sr	# 3	72	86351.5	0.0000	2.0480	ppb	1.53	500.00	
90 Zr	# 3	72	95231.9	0.0000	3.3970	ppb	0.21	50.00	
95 Mo	# 3	115	7590.0	0.0000	0.9097	ppb	1.21	500.00	
107 Ag	# 3	115	20174.8	0.0000	1.0270	ppb	2.26	50.00	
111 Cd	# 3	115	4582.5	0.0000	1.0030	ppb	3.04	500.00	
118 Sn	# 3	115	12077.7	0.0000	0.9547	ppb	1.25	500.00	
121 Sb	# 3	115	13992.9	0.0000	0.9183	ppb	3.56	500.00	
137 Ba	# 3	115	5592.4	0.0000	0.9401	ppb	2.90	1000.00	
182 W	# 3	159	29233.0	0.0000	2.2430	ppb	2.01	50.00	
205 Tl	# 3	159	31848.5	0.0000	0.9940	ppb	2.46	500.00	
208 Pb	# 3	159	43797.0	0.0000	1.0120	ppb	1.93	500.00	
235 U	# 3	159	98.9	0.0000	0.0063	ppb	12.73	30.00	
238 U	# 3	159	45402.2	0.0000	0.9482	ppb	1.98	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2383328.00	0.46	2345256.80	101.6	60 - 125	
45 Sc # 1	1805336.60	0.68	1818295.10	99.3	60 - 125	
45 Sc # 2	383690.34	0.79	382689.56	100.3	60 - 125	
45 Sc # 3	3742093.30	0.45	3760093.80	99.5	60 - 125	
72 Ge # 1	398274.72	0.64	408604.41	97.5	60 - 125	
72 Ge # 2	173613.13	0.69	178049.86	97.5	60 - 125	
72 Ge # 3	730229.81	0.42	739345.88	98.8	60 - 125	
115 In # 3	4809539.50	0.53	4894058.00	98.3	60 - 125	
159 Tb # 3	6264187.00	1.65	6463656.00	96.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21012.D\F6E21012.D#
Date Acquired:	May 30 2019 12:29 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	MRLE3002
Misc Info:	0.4/40/4 ppb
Vial Number:	1306
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	Sample
Dilution Factor:	1.00
Autodil Factor:	Undiluted
Final Dil Factor:	1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	165659.0	0.0000	0.2785	ppb	25.17	50.00	
9 Be	# 3	6	3104.9	0.0000	0.3594	ppb	3.27	50.00	
11 B	# 3	6	86463.3	0.0000	-1.2850	ppb	31.86	100.00	
23 Na	# 1	45	326716.7	0.0000	42.6400	ppb	1.79	50000.00	
24 Mg	# 3	45	861419.5	0.0000	42.4000	ppb	2.78	50000.00	
27 Al	# 3	45	1078217.0	0.0000	41.5700	ppb	0.38	50000.00	
28 Si	# 1	45	9302.3	0.0000	1.1480	ppb	63.89	5000.00	
31 P	# 3	45	23110.5	0.0000	-2.0300	ppb	24.37	500.00	
39 K	# 2	45	112639.4	0.0000	37.9300	ppb	3.42	50000.00	
40 Ca	# 1	45	545646.1	0.0000	34.5100	ppb	1.93	50000.00	
47 Ti	# 3	45	1173.4	0.0000	0.3918	ppb	1.59	500.00	
51 V	# 2	45	7152.6	0.0000	0.3368	ppb	3.39	500.00	
52 Cr	# 2	45	4523.6	0.0000	0.4091	ppb	2.03	500.00	
55 Mn	# 3	45	23749.6	0.0000	0.4737	ppb	1.40	3000.00	
56 Fe	# 1	45	738300.9	0.0000	45.6500	ppb	1.39	50000.00	
59 Co	# 3	45	13771.3	0.0000	0.4074	ppb	5.40	500.00	
60 Ni	# 2	45	1299.0	0.0000	0.4215	ppb	3.23	500.00	
63 Cu	# 2	45	5561.1	0.0000	0.4118	ppb	2.60	500.00	
66 Zn	# 3	72	20511.4	0.0000	3.8330	ppb	0.75	500.00	
75 As	# 2	72	506.7	0.0000	0.4017	ppb	5.37	500.00	
78 Se	# 1	72	249.3	0.0000	0.4020	ppb	3.06	500.00	
88 Sr	# 3	72	19369.0	0.0000	0.4204	ppb	0.34	500.00	
90 Zr	# 3	72	313.3	0.0000	0.0019	ppb	36.45	50.00	
95 Mo	# 3	115	3253.8	0.0000	0.3583	ppb	4.34	500.00	
107 Ag	# 3	115	9115.4	0.0000	0.4451	ppb	4.17	50.00	
111 Cd	# 3	115	1868.0	0.0000	0.3890	ppb	5.69	500.00	
118 Sn	# 3	115	5809.2	0.0000	0.4230	ppb	1.55	500.00	
121 Sb	# 3	115	6212.7	0.0000	0.3805	ppb	1.88	500.00	
137 Ba	# 3	115	2580.3	0.0000	0.4082	ppb	1.42	1000.00	
182 W	# 3	159	182.2	0.0000	0.0359	ppb	3.48	50.00	
205 Tl	# 3	159	14532.7	0.0000	0.4284	ppb	1.79	500.00	
208 Pb	# 3	159	20085.4	0.0000	0.4305	ppb	0.91	500.00	
235 U	# 3	159	51.1	0.0000	0.0030	ppb	15.42	30.00	
238 U	# 3	159	20674.6	0.0000	0.4116	ppb	1.11	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2541446.30	0.52	2345256.80	108.4	60 - 125	
45 Sc # 1	1890106.00	1.28	1818295.10	103.9	60 - 125	
45 Sc # 2	398086.06	1.13	382689.56	104.0	60 - 125	
45 Sc # 3	3937767.00	0.66	3760093.80	104.7	60 - 125	
72 Ge # 1	415601.28	0.34	408604.41	101.7	60 - 125	
72 Ge # 2	182078.30	0.63	178049.86	102.3	60 - 125	
72 Ge # 3	761635.44	1.10	739345.88	103.0	60 - 125	
115 In # 3	5007195.00	1.26	4894058.00	102.3	60 - 125	
159 Tb # 3	6533673.00	0.22	6463656.00	101.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Pass

ICS-A QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21013.D\F6E21013.D#
Date Acquired:	May 30 2019 12:34 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICSA1
Misc Info:	
Vial Number:	1303
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICS-A
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.79	ppb	109902.6	6.47	---	
9 Be	-0.01	ppb	51.1	27.59	---	
11 B	-0.77	ppb	55105.2	22.22	---	
23 Na	98940.00	ppb	543778110.0	0.72	120000.00	
24 Mg	88890.00	ppb	1397830000.0	1.97	120000.00	
27 Al	90080.00	ppb	1826375000.0	0.46	120000.00	
28 Si	64.41	ppb	97015.5	0.38	---	
31 P	91680.00	ppb	95624272.0	1.31	---	
39 K	95250.00	ppb	95789632.0	0.29	120000.00	
40 Ca	101400.00	ppb	1046485000.0	1.37	120000.00	
47 Ti	2084.00	ppb	4222318.0	1.08	2400.00	
51 V	-0.11	ppb	3582.7	16.24	---	
52 Cr	0.28	ppb	3024.8	1.45	---	
55 Mn	1.45	ppb	53119.1	1.76	---	
56 Fe	97350.00	ppb	1390117000.0	0.66	120000.00	
59 Co	0.53	ppb	14176.1	1.28	---	
60 Ni	0.36	ppb	992.9	3.29	---	
63 Cu	0.12	ppb	3011.0	9.57	---	
66 Zn	5.07	ppb	22744.8	2.73	---	
75 As	0.19	ppb	249.1	6.39	---	
78 Se	0.13	ppb	78.2	6.73	---	
88 Sr	0.87	ppb	33304.5	0.66	---	
90 Zr	0.11	ppb	2880.4	0.92	---	
95 Mo	1982.00	ppb	13389020.0	1.41	2400.00	
107 Ag	0.02	ppb	312.2	3.14	---	
111 Cd	0.17	ppb	662.2	9.40	---	
118 Sn	0.30	ppb	3369.4	5.81	---	
121 Sb	0.17	ppb	2344.7	2.05	---	
137 Ba	0.24	ppb	1232.3	1.85	---	
182 W	0.24	ppb	2653.7	3.24	---	
205 Tl	0.01	ppb	527.8	37.07	---	
208 Pb	0.08	ppb	4070.4	4.81	---	
235 U	0.00	ppb	11.1	84.76	---	
238 U	0.01	ppb	617.8	12.39	---	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1558597.8	1.80	2345256.80	66.5	60 - 125	IS<70%
45 Sc	1716844.5	0.28	1818295.10	94.4	60 - 125	
45 Sc	355074.7	0.90	382689.56	92.8	60 - 125	
45 Sc	3182534.3	0.94	3760093.80	84.6	60 - 125	
72 Ge	358224.6	0.69	408604.41	87.7	60 - 125	
72 Ge	161452.2	0.52	178049.86	90.7	60 - 125	
72 Ge	655441.1	0.56	739345.88	88.7	60 - 125	
115 In	4013612.5	0.76	4894058.00	82.0	60 - 125	
159 Tb	5738467.5	0.69	6463656.00	88.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Pass

ICS-AB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21014.D\F6E21014.D#
Date Acquired:	May 30 2019 12:38 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICSAB1
Misc Info:	
Vial Number:	1304
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICS-AB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	Expected	QC Range(%)	Flag
7 Li	20.44	ppb	385145.9	2.26	20.00	80 - 120	
9 Be	21.84	ppb	98365.5	1.43	20.00	80 - 120	
11 B	18.62	ppb	119989.3	3.93	20.00	80 - 120	
23 Na	94930.00	ppb	484361790.0	0.56	100000.00	80 - 120	
24 Mg	86040.00	ppb	1267500000.0	0.99	100000.00	80 - 120	
27 Al	86980.00	ppb	1651881000.0	0.74	100000.00	80 - 120	
28 Si	220.70	ppb	293165.3	0.67	200.00	80 - 120	
31 P	89820.00	ppb	87754672.0	0.75	100000.00	80 - 120	
39 K	95760.00	ppb	88222272.0	0.13	100000.00	80 - 120	
40 Ca	100600.00	ppb	963601410.0	0.99	100000.00	80 - 120	
47 Ti	2118.00	ppb	4019422.0	1.06	2000.00	80 - 120	
51 V	20.37	ppb	120496.2	0.35	20.00	80 - 120	
52 Cr	19.81	ppb	139972.1	0.46	20.00	80 - 120	
55 Mn	20.84	ppb	682979.9	0.65	20.00	80 - 120	
56 Fe	100500.00	ppb	1332612000.0	0.39	100000.00	80 - 120	
59 Co	20.67	ppb	501455.7	1.04	20.00	80 - 120	
60 Ni	18.91	ppb	45143.0	0.53	20.00	80 - 120	
63 Cu	18.18	ppb	113250.9	0.68	20.00	80 - 120	
66 Zn	22.22	ppb	88925.6	0.26	20.00	80 - 120	
75 As	20.33	ppb	17864.4	0.06	20.00	80 - 120	
78 Se	21.83	ppb	10665.2	0.86	20.00	80 - 120	
88 Sr	21.44	ppb	762598.5	0.89	20.00	80 - 120	
90 Zr	6.55	ppb	156506.8	0.92	20.00	80 - 120	Fail
95 Mo	2013.00	ppb	13262270.0	0.82	2000.00	80 - 120	
107 Ag	18.83	ppb	300725.6	0.33	20.00	80 - 120	
111 Cd	19.06	ppb	70475.1	0.85	20.00	80 - 120	
118 Sn	19.96	ppb	198857.8	1.18	20.00	80 - 120	
121 Sb	20.33	ppb	247207.7	0.74	20.00	80 - 120	
137 Ba	20.91	ppb	99760.8	0.84	20.00	80 - 120	
182 W	21.18	ppb	249209.5	0.38	20.00	80 - 120	
205 Tl	19.52	ppb	553856.7	0.06	20.00	80 - 120	
208 Pb	19.93	ppb	753134.1	0.25	20.00	80 - 120	
235 U	0.13	ppb	1693.5	5.80	0.14	80 - 120	
238 U	20.31	ppb	866825.2	0.45	19.86	80 - 120	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1401492.0	1.63	2345256.80	59.8	60 - 125	ISFail
45 Sc	1593894.4	0.50	1818295.10	87.7	60 - 125	
45 Sc	325272.0	0.35	382689.56	85.0	60 - 125	
45 Sc	2981111.5	0.72	3760093.80	79.3	60 - 125	
72 Ge	342366.8	0.60	408604.41	83.8	60 - 125	
72 Ge	151272.8	0.35	178049.86	85.0	60 - 125	
72 Ge	623110.1	0.47	739345.88	84.3	60 - 125	
115 In	3914886.3	0.87	4894058.00	80.0	60 - 125	
159 Tb	5604637.0	0.55	6463656.00	86.7	60 - 125	

IS<70%. LY 05/30/19

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
1 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail
ISTD: Fail

CCV QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21015.D\F6E21015.D#
Date Acquired: May 30 2019 12:43 pm
Operator: LYaman
Sample Name: CCV1
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:14 pm
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	25.18 ppb	1.01	25.00	90 - 110	
9 Be	25.06 ppb	1.89	25.00	90 - 110	
11 B	48.87 ppb	2.94	50.00	90 - 110	
23 Na	23670.00 ppb	0.22	25000.00	90 - 110	
24 Mg	23680.00 ppb	3.65	25000.00	90 - 110	
27 Al	23860.00 ppb	2.03	25000.00	90 - 110	
28 Si	2372.00 ppb	0.98	2500.00	90 - 110	
31 P	263.30 ppb	14.30	250.00	90 - 110	
39 K	24410.00 ppb	0.23	25000.00	90 - 110	
40 Ca	25080.00 ppb	0.55	25000.00	90 - 110	
47 Ti	249.00 ppb	1.29	250.00	90 - 110	
51 V	259.80 ppb	0.57	250.00	90 - 110	
52 Cr	251.80 ppb	1.69	250.00	90 - 110	
55 Mn	1532.00 ppb	2.10	1500.00	90 - 110	
56 Fe	26090.00 ppb	0.17	25000.00	90 - 110	
59 Co	250.20 ppb	1.84	250.00	90 - 110	
60 Ni	252.90 ppb	0.47	250.00	90 - 110	
63 Cu	244.40 ppb	1.17	250.00	90 - 110	
66 Zn	245.30 ppb	1.96	250.00	90 - 110	
75 As	253.50 ppb	0.52	250.00	90 - 110	
78 Se	257.90 ppb	0.91	250.00	90 - 110	
88 Sr	270.70 ppb	0.58	250.00	90 - 110	
90 Zr	23.82 ppb	1.82	25.00	90 - 110	
95 Mo	249.30 ppb	0.52	250.00	90 - 110	
107 Ag	25.29 ppb	1.85	25.00	90 - 110	
111 Cd	248.60 ppb	2.11	250.00	90 - 110	
118 Sn	253.40 ppb	0.55	250.00	90 - 110	
121 Sb	49.80 ppb	1.51	50.00	90 - 110	
137 Ba	515.60 ppb	1.30	500.00	90 - 110	
182 W	27.81 ppb	0.68	25.00	90 - 110	Fail
205 Tl	247.20 ppb	0.67	250.00	90 - 110	
208 Pb	254.20 ppb	1.83	250.00	90 - 110	
235 U	1.72 ppb	4.22	1.80	90 - 110	
238 U	254.40 ppb	3.17	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1812206.90	7.60	2345256.80	77.3	60 - 125	
45 Sc	1632894.60	0.53	1818295.10	89.8	60 - 125	
45 Sc	329653.53	0.90	382689.56	86.1	60 - 125	
45 Sc	3349994.80	3.25	3760093.80	89.1	60 - 125	
72 Ge	359198.63	0.57	408604.41	87.9	60 - 125	
72 Ge	154537.75	0.47	178049.86	86.8	60 - 125	
72 Ge	654132.44	3.57	739345.88	88.5	60 - 125	
115 In	4283256.00	2.28	4894058.00	87.5	60 - 125	
159 Tb	5965979.00	2.56	6463656.00	92.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21016.D\F6E21016.D#
Date Acquired:	May 30 2019 12:47 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	CCB1
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.0250	ppb	123575.2	140.87	0.20	
9 Be	-0.0120	ppb	57.8	9.62	0.10	
11 B	0.0977	ppb	74304.8	57.17	5.00	
23 Na	21.2100	ppb	173396.9	21.35	40.00	
24 Mg	7.5190	ppb	157449.6	18.83	10.00	
27 Al	7.4070	ppb	190517.7	19.16	20.00	
28 Si	1.7540	ppb	9004.1	6.06	20.00	
31 P	6.4870	ppb	29401.2	27.47	10.00	
39 K	17.4500	ppb	76620.1	22.34	20.00	
40 Ca	14.7800	ppb	282883.4	29.83	25.00	
47 Ti	0.1562	ppb	502.2	22.23	0.50	
51 V	-0.0871	ppb	3578.5	10.43	0.50	
52 Cr	-0.0100	ppb	788.7	32.38	0.20	
55 Mn	0.0241	ppb	3758.4	12.98	0.20	
56 Fe	15.8100	ppb	236984.1	29.08	10.00	Fail LY 05/30/19
59 Co	-0.0104	ppb	343.3	4.50	0.20	
60 Ni	0.0067	ppb	76.0	79.56	0.20	
63 Cu	0.0234	ppb	2270.0	23.61	0.40	
66 Zn	0.0360	ppb	2124.7	21.07	2.00	
75 As	0.0238	ppb	96.9	32.01	0.20	
78 Se	0.0362	ppb	29.6	19.21	0.20	
88 Sr	-0.0049	ppb	830.1	55.17	0.20	
90 Zr	-0.0021	ppb	182.2	59.94	2.00	
95 Mo	0.2114	ppb	1941.3	14.12	0.40	
107 Ag	0.0026	ppb	76.7	29.99	0.20	
111 Cd	0.0038	ppb	44.0	95.23	0.20	
118 Sn	0.0263	ppb	733.4	23.79	0.20	
121 Sb	0.0390	ppb	873.4	12.05	0.40	
137 Ba	0.0062	ppb	124.4	20.20	0.20	
182 W	0.0463	ppb	313.3	8.13	1.00	
205 Tl	0.0073	ppb	590.0	13.96	0.20	
208 Pb	-0.0049	ppb	895.6	37.16	0.10	
235 U	-0.0002	ppb	3.3	145.93	1.00	
238 U	0.0102	ppb	687.8	11.87	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1975642.3	0.85	2345256.80	84.2	60 - 125	
45 Sc	1661846.8	0.65	1818295.10	91.4	60 - 125	
45 Sc	340529.4	0.06	382689.56	89.0	60 - 125	
45 Sc	3397381.8	1.38	3760093.80	90.4	60 - 125	
72 Ge	377267.0	0.31	408604.41	92.3	60 - 125	
72 Ge	162647.0	0.27	178049.86	91.3	60 - 125	
72 Ge	703032.1	0.83	739345.88	95.1	60 - 125	
115 In	4823626.0	0.59	4894058.00	98.6	60 - 125	
159 Tb	6298530.5	0.59	6463656.00	97.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

1 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21040.D\F6E21040.D#
Date Acquired: May 30 2019 02:42 pm
Operator: LYaman
Sample Name: CCV4
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:14 pm
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	25.32 ppb	1.68	25.00	90 - 110	
9 Be	24.62 ppb	1.75	25.00	90 - 110	
11 B	50.26 ppb	1.63	50.00	90 - 110	
23 Na	24970.00 ppb	0.43	25000.00	90 - 110	
24 Mg	25620.00 ppb	1.33	25000.00	90 - 110	
27 Al	25350.00 ppb	1.02	25000.00	90 - 110	
28 Si	2500.00 ppb	0.51	2500.00	90 - 110	
31 P	248.70 ppb	0.72	250.00	90 - 110	
39 K	24900.00 ppb	1.02	25000.00	90 - 110	
40 Ca	25320.00 ppb	0.89	25000.00	90 - 110	
47 Ti	251.10 ppb	1.37	250.00	90 - 110	
51 V	258.00 ppb	0.33	250.00	90 - 110	
52 Cr	249.80 ppb	0.20	250.00	90 - 110	
55 Mn	1539.00 ppb	2.14	1500.00	90 - 110	
56 Fe	25500.00 ppb	0.49	25000.00	90 - 110	
59 Co	252.00 ppb	2.31	250.00	90 - 110	
60 Ni	248.10 ppb	0.46	250.00	90 - 110	
63 Cu	236.30 ppb	0.19	250.00	90 - 110	
66 Zn	251.10 ppb	1.42	250.00	90 - 110	
75 As	251.80 ppb	0.13	250.00	90 - 110	
78 Se	256.30 ppb	0.21	250.00	90 - 110	
88 Sr	264.20 ppb	0.38	250.00	90 - 110	
90 Zr	21.96 ppb	2.22	25.00	90 - 110	Fail
95 Mo	248.70 ppb	1.91	250.00	90 - 110	
107 Ag	25.66 ppb	3.08	25.00	90 - 110	
111 Cd	252.40 ppb	0.39	250.00	90 - 110	
118 Sn	249.50 ppb	1.47	250.00	90 - 110	
121 Sb	49.52 ppb	1.42	50.00	90 - 110	
137 Ba	515.00 ppb	1.37	500.00	90 - 110	
182 W	27.84 ppb	0.50	25.00	90 - 110	Fail
205 Tl	248.30 ppb	0.19	250.00	90 - 110	
208 Pb	252.10 ppb	0.56	250.00	90 - 110	
235 U	1.66 ppb	2.30	1.80	90 - 110	
238 U	245.20 ppb	1.55	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2102657.00	0.64	2345256.80	89.7	60 - 125	
45 Sc	1770309.80	0.53	1818295.10	97.4	60 - 125	
45 Sc	355107.66	0.36	382689.56	92.8	60 - 125	
45 Sc	3579878.30	1.19	3760093.80	95.2	60 - 125	
72 Ge	372877.53	0.26	408604.41	91.3	60 - 125	
72 Ge	160848.39	0.46	178049.86	90.3	60 - 125	
72 Ge	684528.50	0.62	739345.88	92.6	60 - 125	
115 In	4350674.00	0.71	4894058.00	88.9	60 - 125	
159 Tb	6023798.50	1.35	6463656.00	93.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21041.D\F6E21041.D#
Date Acquired:	May 30 2019 02:47 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	CCB4
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.1239	ppb	144627.9	39.67	0.20	
9 Be	-0.0151	ppb	45.6	7.08	0.10	
11 B	-0.5775	ppb	85021.0	27.53	5.00	
23 Na	-0.9417	ppb	58541.2	15.81	40.00	
24 Mg	-0.3852	ppb	27803.9	3.09	10.00	
27 Al	-0.3549	ppb	25391.0	11.45	20.00	
28 Si	-1.1350	ppb	5372.2	9.30	20.00	
31 P	-1.2330	ppb	23194.8	13.18	10.00	
39 K	-2.6410	ppb	63299.5	8.25	20.00	
40 Ca	-0.8610	ppb	133473.4	163.53	25.00	
47 Ti	0.0012	ppb	186.7	393.14	0.50	
51 V	-0.0510	ppb	4194.8	15.86	0.50	
52 Cr	-0.0154	ppb	827.8	3.70	0.20	
55 Mn	0.0240	ppb	4184.0	5.31	0.20	
56 Fe	0.6206	ppb	28208.7	7.33	10.00	
59 Co	-0.0120	ppb	332.2	2.45	0.20	
60 Ni	-0.0044	ppb	53.3	85.26	0.20	
63 Cu	-0.0265	ppb	2156.4	24.55	0.40	
66 Zn	-0.0197	ppb	2016.9	52.01	2.00	
75 As	0.0217	ppb	101.8	33.75	0.20	
78 Se	0.0041	ppb	12.7	194.06	0.20	
88 Sr	0.0265	ppb	2244.7	5.00	0.20	
90 Zr	0.0023	ppb	320.1	193.11	2.00	
95 Mo	0.0062	ppb	290.0	76.39	0.40	
107 Ag	0.0008	ppb	43.3	35.83	0.20	
111 Cd	0.0009	ppb	32.0	383.38	0.20	
118 Sn	0.0308	ppb	826.7	10.12	0.20	
121 Sb	0.0313	ppb	795.6	15.18	0.40	
137 Ba	0.0045	ppb	120.0	32.45	0.20	
182 W	0.0398	ppb	234.5	8.30	1.00	
205 Tl	0.0014	ppb	415.6	54.72	0.20	
208 Pb	-0.0064	ppb	860.0	24.57	0.10	
235 U	-0.0002	ppb	3.3	133.60	1.00	
238 U	0.0084	ppb	623.4	21.60	0.10	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2370903.8	0.71	2345256.80	101.1	60 - 125	
45 Sc	1754403.8	1.00	1818295.10	96.5	60 - 125	
45 Sc	376501.1	1.22	382689.56	98.4	60 - 125	
45 Sc	3784403.8	1.38	3760093.80	100.6	60 - 125	
72 Ge	390472.0	1.00	408604.41	95.6	60 - 125	
72 Ge	174577.6	0.90	178049.86	98.0	60 - 125	
72 Ge	755124.3	0.97	739345.88	102.1	60 - 125	
115 In	5062705.0	0.92	4894058.00	103.4	60 - 125	
159 Tb	6526956.5	0.46	6463656.00	101.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

CCB QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21042.D\F6E21042.D#
Date Acquired: May 30 2019 02:51 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: IME026WB
Misc Info:
Vial Number: 2206
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: MBW
Dilution Factor: 1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.1056	ppb	140740.4	65.77	1.00	
9 Be	-0.0180	ppb	22.2	7.46	0.50	
11 B	-0.0881	ppb	85385.4	528.27	5.00	
23 Na	-1.2690	ppb	56632.9	6.68	50.00	
24 Mg	0.3508	ppb	40978.6	29.30	50.00	
27 Al	0.2469	ppb	39344.3	25.52	50.00	
28 Si	-2.3030	ppb	3697.3	5.21	25.00	
31 P	1.0640	ppb	25678.7	50.87	25.00	
39 K	0.1016	ppb	65257.0	569.19	50.00	
40 Ca	-1.0150	ppb	131734.1	60.37	50.00	
47 Ti	0.0322	ppb	257.8	46.71	1.00	
51 V	0.0084	ppb	4522.1	109.92	0.50	
52 Cr	-0.0085	ppb	870.9	20.73	0.50	
55 Mn	0.0260	ppb	4207.4	15.43	0.50	
56 Fe	-0.2941	ppb	14841.3	36.82	50.00	
59 Co	-0.0135	ppb	282.2	4.05	0.50	
60 Ni	0.0013	ppb	68.0	83.33	0.50	
63 Cu	-0.0193	ppb	2175.1	27.99	0.50	
66 Zn	0.0072	ppb	2104.7	385.35	10.00	
75 As	0.0206	ppb	98.9	19.88	0.50	
78 Se	-0.0033	ppb	8.7	70.87	0.50	
88 Sr	0.0941	ppb	5057.7	7.27	1.00	
90 Zr	-0.0001	ppb	247.8	859.80	2.50	
95 Mo	-0.0114	ppb	135.6	15.37	1.00	
107 Ag	0.0002	ppb	28.9	341.04	0.50	
111 Cd	-0.0003	ppb	25.7	676.91	0.50	
118 Sn	0.0148	ppb	600.0	22.92	0.50	
121 Sb	0.0116	ppb	468.9	9.59	0.50	
137 Ba	0.0227	ppb	224.5	7.24	0.50	
182 W	0.0328	ppb	135.6	8.85	1.00	
205 Tl	-0.0031	ppb	260.0	13.88	0.50	
208 Pb	-0.0083	ppb	760.0	3.52	0.50	
235 U	0.0002	ppb	8.9	120.61	---	
238 U	0.0035	ppb	366.7	25.30	0.50	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2300226.5	1.16	2345256.80	98.1	60 - 125	
45 Sc	1752214.8	0.39	1818295.10	96.4	60 - 125	
45 Sc	371011.4	0.95	382689.56	96.9	60 - 125	
45 Sc	3731790.8	1.09	3760093.80	99.2	60 - 125	
72 Ge	394258.1	0.49	408604.41	96.5	60 - 125	
72 Ge	171327.0	0.88	178049.86	96.2	60 - 125	
72 Ge	741180.8	0.77	739345.88	100.2	60 - 125	
115 In	4887184.5	0.84	4894058.00	99.9	60 - 125	
159 Tb	6363183.5	0.80	6463656.00	98.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

LCS QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21043.D\F6E21043.D#
Date Acquired:	May 30 2019 02:56 pm
Operator:	LYaman
Sample Name:	IME026WL
Misc Info:	
Vial Number:	2207
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	LCS
Final Dil Factor:	1.00

Analyte Elements

Element	CPS Mean	Conc.		RSD(%)	Expected	QC Range(%)	Flag
7 Li	857065.69	30.15	ppb	1.07	30.00	80 - 120	
9 Be	217569.20	29.69	ppb	0.44	30.00	80 - 120	
11 B	278706.59	32.73	ppb	2.42	30.00	80 - 120	
23 Na	19363960.00	3365.00	ppb	1.32	3000.00	80 - 120	
24 Mg	60493260.00	3265.00	ppb	1.41	3000.00	80 - 120	
27 Al	76005408.00	3182.00	ppb	1.06	3000.00	80 - 120	
28 Si	32559.79	17.39	ppb	0.87	3000.00	80 - 120	Fail
31 P	23517.17	-0.78	ppb	77.28	300.00	80 - 120	Fail
39 K	3368439.00	3119.00	ppb	0.59	3000.00	80 - 120	
40 Ca	36211520.00	3348.00	ppb	0.82	3000.00	80 - 120	
47 Ti	73410.55	30.71	ppb	0.48	30.00	80 - 120	
51 V	207579.20	30.86	ppb	1.49	30.00	80 - 120	
52 Cr	247999.50	30.59	ppb	1.39	30.00	80 - 120	
55 Mn	1350946.00	32.84	ppb	1.19	30.00	80 - 120	
56 Fe	47906020.00	3212.00	ppb	0.97	3000.00	80 - 120	
59 Co	969118.81	31.79	ppb	0.20	30.00	80 - 120	
60 Ni	85148.93	31.03	ppb	0.93	30.00	80 - 120	
63 Cu	219649.30	30.89	ppb	1.25	30.00	80 - 120	
66 Zn	301250.09	64.38	ppb	0.26	60.00	80 - 120	
75 As	30089.96	30.18	ppb	0.25	30.00	80 - 120	
78 Se	17573.88	31.04	ppb	1.21	30.00	80 - 120	
88 Sr	1449082.00	34.41	ppb	0.34	30.00	80 - 120	
90 Zr	1255.66	0.04	ppb	1.11	20.00	80 - 120	Fail
95 Mo	237648.80	29.13	ppb	1.08	30.00	80 - 120	
107 Ag	626006.81	31.69	ppb	0.88	30.00	80 - 120	
111 Cd	137701.09	30.11	ppb	0.54	30.00	80 - 120	
118 Sn	369666.91	30.01	ppb	0.11	30.00	80 - 120	
121 Sb	448034.41	29.80	ppb	0.78	30.00	80 - 120	
137 Ba	178797.70	30.31	ppb	0.83	30.00	80 - 120	
182 W	200.01	0.04	ppb	1.69	30.00	80 - 120	Fail
205 Tl	1003803.00	31.09	ppb	1.13	30.00	80 - 120	
208 Pb	1360233.00	31.64	ppb	1.11	30.00	80 - 120	
235 U	2887.09	0.19	ppb	2.73	0.21	80 - 120	
238 U	1453279.00	29.92	ppb	0.82	29.79	80 - 120	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2280500.50	0.52	2345256.80	97.2	60 - 125	
45 Sc	1792172.60	0.54	1818295.10	98.6	60 - 125	
45 Sc	374061.28	1.33	382689.56	97.7	60 - 125	
45 Sc	3747228.80	0.90	3760093.80	99.7	60 - 125	
72 Ge	396794.44	0.24	408604.41	97.1	60 - 125	
72 Ge	171812.33	0.44	178049.86	96.5	60 - 125	
72 Ge	738070.50	0.32	739345.88	99.8	60 - 125	
115 In	4842124.50	0.49	4894058.00	98.9	60 - 125	
159 Tb	6380143.00	1.53	6463656.00	98.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

4 :Element Failures — 0 :Max. Number of Failures Allowed

0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail

ISTD: Pass

LCS QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21044.D\F6E21044.D#
Date Acquired:	May 30 2019 03:00 pm
Operator:	LYaman
Sample Name:	IME026WC
Misc Info:	
Vial Number:	2208
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	LCS
Final Dil Factor:	1.00

Analyte Elements

Element	CPS Mean	Conc.		RSD(%)	Expected	QC Range(%)	Flag
7 Li	851013.38	30.43	ppb	1.02	30.00	80 - 120	
9 Be	216848.00	30.03	ppb	1.02	30.00	80 - 120	
11 B	279012.19	33.48	ppb	1.89	30.00	80 - 120	
23 Na	18624660.00	3327.00	ppb	0.51	3000.00	80 - 120	
24 Mg	61183112.00	3318.00	ppb	1.61	3000.00	80 - 120	
27 Al	77807272.00	3274.00	ppb	1.41	3000.00	80 - 120	
28 Si	24635.94	12.44	ppb	9.72	3000.00	80 - 120	Fail
31 P	24211.35	-0.12	ppb	288.85	300.00	80 - 120	Fail
39 K	3425086.00	3174.00	ppb	0.56	3000.00	80 - 120	
40 Ca	35726200.00	3396.00	ppb	0.46	3000.00	80 - 120	
47 Ti	74719.09	31.41	ppb	1.20	30.00	80 - 120	
51 V	210826.50	31.36	ppb	0.29	30.00	80 - 120	
52 Cr	253661.30	31.30	ppb	0.43	30.00	80 - 120	
55 Mn	1352107.00	33.03	ppb	0.90	30.00	80 - 120	
56 Fe	48035888.00	3312.00	ppb	0.03	3000.00	80 - 120	
59 Co	972033.38	32.04	ppb	1.25	30.00	80 - 120	
60 Ni	87114.68	31.76	ppb	0.61	30.00	80 - 120	
63 Cu	222210.30	31.26	ppb	0.66	30.00	80 - 120	
66 Zn	313886.69	67.64	ppb	0.43	60.00	80 - 120	
75 As	30689.42	30.86	ppb	1.29	30.00	80 - 120	
78 Se	17378.53	31.38	ppb	0.74	30.00	80 - 120	
88 Sr	1432100.00	34.28	ppb	0.31	30.00	80 - 120	
90 Zr	944.51	0.02	ppb	12.61	20.00	80 - 120	Fail
95 Mo	240386.70	29.82	ppb	1.51	30.00	80 - 120	
107 Ag	637867.88	32.68	ppb	0.70	30.00	80 - 120	
111 Cd	139726.20	30.92	ppb	0.36	30.00	80 - 120	
118 Sn	377987.91	31.06	ppb	0.27	30.00	80 - 120	
121 Sb	458075.31	30.84	ppb	0.12	30.00	80 - 120	
137 Ba	181518.91	31.15	ppb	0.47	30.00	80 - 120	
182 W	187.79	0.04	ppb	5.67	30.00	80 - 120	Fail
205 Tl	1019645.00	31.82	ppb	0.83	30.00	80 - 120	
208 Pb	1383430.00	32.42	ppb	0.63	30.00	80 - 120	
235 U	2932.67	0.20	ppb	2.67	0.21	80 - 120	
238 U	1491528.00	30.94	ppb	1.52	29.79	80 - 120	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2247199.30	0.17	2345256.80	95.8	60 - 125	
45 Sc	1743125.30	0.41	1818295.10	95.9	60 - 125	
45 Sc	373929.72	0.30	382689.56	97.7	60 - 125	
45 Sc	3729149.00	1.03	3760093.80	99.2	60 - 125	
72 Ge	388127.66	0.13	408604.41	95.0	60 - 125	
72 Ge	171433.06	1.07	178049.86	96.3	60 - 125	
72 Ge	732157.94	0.52	739345.88	99.0	60 - 125	
115 In	4784258.00	0.63	4894058.00	97.8	60 - 125	
159 Tb	6331540.50	0.58	6463656.00	98.0	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

4 :Element Failures — 0 :Max. Number of Failures Allowed

0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Fail

ISTD: Pass

CCV QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21048.D\F6E21048.D#
Date Acquired:	May 30 2019 03:18 pm
Operator:	LYaman
Sample Name:	CCV5
Misc Info:	
Vial Number:	1206
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File.	C.\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update:	May 30 2019 12:14 pm
Sample Type:	CCV
Total Dil Factor:	1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	24.75 ppb	1.11	25.00	90 - 110	
9 Be	23.30 ppb	2.52	25.00	90 - 110	
11 B	47.71 ppb	4.16	50.00	90 - 110	
23 Na	25720.00 ppb	0.94	25000.00	90 - 110	
24 Mg	27040.00 ppb	1.11	25000.00	90 - 110	
27 Al	26840.00 ppb	1.65	25000.00	90 - 110	
28 Si	2577.00 ppb	0.78	2500.00	90 - 110	
31 P	264.40 ppb	0.93	250.00	90 - 110	
39 K	25320.00 ppb	1.47	25000.00	90 - 110	
40 Ca	25340.00 ppb	0.36	25000.00	90 - 110	
47 Ti	250.30 ppb	1.25	250.00	90 - 110	
51 V	254.80 ppb	0.32	250.00	90 - 110	
52 Cr	243.30 ppb	1.00	250.00	90 - 110	
55 Mn	1502.00 ppb	0.72	1500.00	90 - 110	
56 Fe	24960.00 ppb	0.40	25000.00	90 - 110	
59 Co	245.70 ppb	0.96	250.00	90 - 110	
60 Ni	242.80 ppb	0.74	250.00	90 - 110	
63 Cu	229.40 ppb	1.06	250.00	90 - 110	
66 Zn	250.70 ppb	0.74	250.00	90 - 110	
75 As	252.50 ppb	0.88	250.00	90 - 110	
78 Se	250.80 ppb	0.53	250.00	90 - 110	
88 Sr	260.90 ppb	0.92	250.00	90 - 110	
90 Zr	22.27 ppb	0.40	25.00	90 - 110	Fail
95 Mo	247.70 ppb	0.68	250.00	90 - 110	
107 Ag	25.27 ppb	0.07	25.00	90 - 110	
111 Cd	249.00 ppb	0.37	250.00	90 - 110	
118 Sn	249.30 ppb	0.42	250.00	90 - 110	
121 Sb	49.23 ppb	0.43	50.00	90 - 110	
137 Ba	512.50 ppb	1.23	500.00	90 - 110	
182 W	27.67 ppb	0.79	25.00	90 - 110	Fail
205 Tl	246.30 ppb	1.03	250.00	90 - 110	
208 Pb	253.10 ppb	0.26	250.00	90 - 110	
235 U	1.69 ppb	2.03	1.80	90 - 110	
238 U	247.80 ppb	0.46	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2450348.80	3.19	2345256.80	104.5	60 - 125	
45 Sc	1829268.50	1.45	1818295.10	100.6	60 - 125	
45 Sc	375587.66	0.56	382689.56	98.1	60 - 125	
45 Sc	3798163.80	1.74	3760093.80	101.0	60 - 125	
72 Ge	380734.38	0.52	408604.41	93.2	60 - 125	
72 Ge	165761.00	0.58	178049.86	93.1	60 - 125	
72 Ge	702227.88	0.24	739345.88	95.0	60 - 125	
115 In	4425632.50	0.49	4894058.00	90.4	60 - 125	
159 Tb	6005675.50	1.16	6463656.00	92.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes:	**Fail**
ISTD:	**Pass**

CCB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21049.D\F6E21049.D#
Date Acquired:	May 30 2019 03:23 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	CCB5
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements				Conc		
Element	Conc.		CPS	RSD(%)	High Limit	Flag
7 Li	-0.1233	ppb	162226.1	31.13	0.20	
9 Be	-0.0121	ppb	76.7	20.80	0.10	
11 B	-0.4806	ppb	96024.0	45.34	5.00	
23 Na	56.1300	ppb	398503.8	11.74	40.00	Fail
24 Mg	3.7530	ppb	111335.9	30.08	10.00	
27 Al	3.2070	ppb	117774.6	30.75	20.00	
28 Si	2.6020	ppb	11267.9	14.68	20.00	
31 P	0.5529	ppb	26927.9	26.62	10.00	
39 K	17.6200	ppb	88518.7	26.20	20.00	
40 Ca	34.0200	ppb	527149.2	11.14	25.00	Fail
47 Ti	0.0268	ppb	263.3	23.67	0.50	
51 V	0.1538	ppb	5789.6	25.08	0.50	
52 Cr	0.1499	ppb	2262.4	34.80	0.20	
55 Mn	0.2353	ppb	13701.3	22.89	0.20	Fail
56 Fe	40.0200	ppb	634247.6	10.82	10.00	Fail
59 Co	0.0239	ppb	1519.0	53.35	0.20	
60 Ni	0.1673	ppb	549.3	29.98	0.20	
63 Cu	0.1444	ppb	3509.5	33.38	0.40	
66 Zn	-0.0098	ppb	2119.1	86.24	2.00	
75 As	0.1737	ppb	261.3	24.82	0.20	
78 Se	0.3730	ppb	225.6	2.56	0.20	Fail
88 Sr	0.0843	ppb	4855.4	13.89	0.20	
90 Zr	0.0014	ppb	303.3	65.92	2.00	
95 Mo	0.0356	ppb	552.3	11.86	0.40	
107 Ag	0.0050	ppb	132.2	53.85	0.20	
111 Cd	0.0410	ppb	228.6	17.10	0.20	
118 Sn	0.0571	ppb	1190.1	21.96	0.20	
121 Sb	0.0364	ppb	893.4	2.87	0.40	
137 Ba	0.0675	ppb	518.9	22.58	0.20	
182 W	0.0406	ppb	244.5	6.70	1.00	
205 Tl	0.0418	ppb	1736.8	23.60	0.20	
208 Pb	0.0264	ppb	2286.8	35.85	0.10	
235 U	0.0003	ppb	10.0	158.92	1.00	
238 U	0.0385	ppb	2103.6	25.95	0.10	

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ISTD Elements		CPS				
Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2659269.8	0.88	2345256.80	113.4	60 - 125	
45 Sc	1843617.5	0.89	1818295.10	101.4	60 - 125	
45 Sc	392659.5	0.73	382689.56	102.6	60 - 125	
45 Sc	4010328.8	0.95	3760093.80	106.7	60 - 125	
72 Ge	403831.4	0.30	408604.41	98.8	60 - 125	
72 Ge	178736.3	0.71	178049.86	100.4	60 - 125	
72 Ge	775394.0	0.99	739345.88	104.9	60 - 125	
115 In	5170036.5	0.01	4894058.00	105.6	60 - 125	
159 Tb	6485199.0	0.67	6463656.00	100.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

5 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21050.D\F6E21050.D#
Date Acquired: May 30 2019 03:27 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-08M
Misc Info:
Vial Number: 2212
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	387218.8	0.0000	9.0850	ppb	2.42	50.00	
9 Be	# 3	6	22261.1	0.0000	2.7850	ppb	1.43	50.00	
11 B	# 3	6	419002.4	0.0000	51.0100	ppb	1.80	100.00	
23 Na	# 1	45	132603200.0	0.0000	23150.0000	ppb	0.86	50000.00	
24 Mg	# 3	45	21855470.0	0.0000	1165.0000	ppb	0.91	50000.00	
27 Al	# 3	45	8010387.0	0.0000	330.2000	ppb	1.14	50000.00	
28 Si	# 1	45	2207098.0	0.0000	1509.0000	ppb	0.18	5000.00	
31 P	# 3	45	26657.1	0.0000	1.5170	ppb	33.12	500.00	
39 K	# 2	45	860442.1	0.0000	748.5000	ppb	0.70	50000.00	
40 Ca	# 1	45	38295600.0	0.0000	3548.0000	ppb	0.40	50000.00	
47 Ti	# 3	45	8452.7	0.0000	3.4260	ppb	0.61	500.00	
51 V	# 2	45	26801.3	0.0000	3.3770	ppb	0.60	500.00	
52 Cr	# 2	45	25963.9	0.0000	3.0890	ppb	0.91	500.00	
55 Mn	# 3	45	3934774.0	0.0000	94.6600	ppb	0.79	3000.00	
56 Fe	# 1	45	4914753.0	0.0000	329.1000	ppb	0.76	50000.00	
59 Co	# 3	45	97642.9	0.0000	3.1440	ppb	1.54	500.00	
60 Ni	# 2	45	8680.3	0.0000	3.1340	ppb	1.27	500.00	
63 Cu	# 2	45	24274.9	0.0000	3.1100	ppb	1.11	500.00	
66 Zn	# 3	72	33936.2	0.0000	6.9750	ppb	1.76	500.00	
75 As	# 2	72	3720.5	0.0000	3.7110	ppb	2.73	500.00	
78 Se	# 1	72	1731.7	0.0000	3.0750	ppb	1.06	500.00	
88 Sr	# 3	72	3075489.0	0.0000	74.2200	ppb	1.30	500.00	
90 Zr	# 3	72	590.0	0.0000	0.0124	ppb	15.69	50.00	
95 Mo	# 3	115	55320.9	0.0000	6.9350	ppb	2.10	500.00	
107 Ag	# 3	115	60089.9	0.0000	3.1190	ppb	0.91	50.00	
111 Cd	# 3	115	13817.1	0.0000	3.0940	ppb	2.11	500.00	
118 Sn	# 3	115	37696.2	0.0000	3.1090	ppb	1.12	500.00	
121 Sb	# 3	115	45139.0	0.0000	3.0630	ppb	0.75	500.00	
137 Ba	# 3	115	323791.5	0.0000	56.3200	ppb	0.71	1000.00	
182 W	# 3	159	21649.9	0.0000	1.6980	ppb	0.34	50.00	
205 Tl	# 3	159	99178.7	0.0000	3.1770	ppb	1.59	500.00	
208 Pb	# 3	159	131915.8	0.0000	3.1600	ppb	0.71	500.00	
235 U	# 3	159	381.1	0.0000	0.0261	ppb	8.00	30.00	
238 U	# 3	159	152914.6	0.0000	3.2630	ppb	0.27	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2470507.50	0.63	2345256.80	105.3	60 - 125	
45 Sc # 1	1788526.00	0.61	1818295.10	98.4	60 - 125	
45 Sc # 2	375072.72	0.59	382689.56	98.0	60 - 125	
45 Sc # 3	3792194.50	1.23	3760093.80	100.9	60 - 125	
72 Ge # 1	392506.78	0.68	408604.41	96.1	60 - 125	
72 Ge # 2	169646.42	1.10	178049.86	95.3	60 - 125	
72 Ge # 3	726480.63	0.64	739345.88	98.3	60 - 125	
115 In # 3	4720559.00	1.05	4894058.00	96.5	60 - 125	
159 Tb # 3	6148743.00	0.55	6463656.00	95.1	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21051.D\F6E21051.D#
Date Acquired: May 30 2019 03:32 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-08S
Misc Info:
Vial Number: 2301
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	376372.1	0.0000	9.3760	ppb	2.09	50.00	
9 Be	# 3	6	22345.7	0.0000	2.9330	ppb	1.35	50.00	
11 B	# 3	6	417197.9	0.0000	53.9000	ppb	1.40	100.00	
23 Na	# 1	45	132400700.0	0.0000	23190.0000	ppb	1.49	50000.00	
24 Mg	# 3	45	21884140.0	0.0000	1192.0000	ppb	0.47	50000.00	
27 Al	# 3	45	7986452.0	0.0000	336.5000	ppb	1.23	50000.00	
28 Si	# 1	45	2198968.0	0.0000	1508.0000	ppb	0.76	5000.00	
31 P	# 3	45	27252.2	0.0000	2.4820	ppb	13.72	500.00	
39 K	# 2	45	859856.7	0.0000	749.3000	ppb	0.59	50000.00	
40 Ca	# 1	45	38461020.0	0.0000	3575.0000	ppb	0.59	50000.00	
47 Ti	# 3	45	8269.2	0.0000	3.4260	ppb	1.79	500.00	
51 V	# 2	45	26735.6	0.0000	3.3730	ppb	0.53	500.00	
52 Cr	# 2	45	25978.8	0.0000	3.0960	ppb	1.53	500.00	
55 Mn	# 3	45	3953313.0	0.0000	97.2200	ppb	0.31	3000.00	
56 Fe	# 1	45	4928405.0	0.0000	331.1000	ppb	1.21	50000.00	
59 Co	# 3	45	98470.5	0.0000	3.2420	ppb	0.67	500.00	
60 Ni	# 2	45	8634.8	0.0000	3.1220	ppb	0.84	500.00	
63 Cu	# 2	45	24102.9	0.0000	3.0910	ppb	1.63	500.00	
66 Zn	# 3	72	33872.9	0.0000	6.9840	ppb	0.54	500.00	
75 As	# 2	72	3714.0	0.0000	3.7210	ppb	1.18	500.00	
78 Se	# 1	72	1741.0	0.0000	3.0960	ppb	2.39	500.00	
88 Sr	# 3	72	3135712.0	0.0000	75.9200	ppb	0.58	500.00	
90 Zr	# 3	72	346.7	0.0000	0.0037	ppb	13.40	50.00	
95 Mo	# 3	115	55886.6	0.0000	6.9610	ppb	1.74	500.00	
107 Ag	# 3	115	60699.2	0.0000	3.1310	ppb	0.68	50.00	
111 Cd	# 3	115	13927.8	0.0000	3.0990	ppb	2.27	500.00	
118 Sn	# 3	115	37687.4	0.0000	3.0880	ppb	1.87	500.00	
121 Sb	# 3	115	45329.4	0.0000	3.0560	ppb	0.68	500.00	
137 Ba	# 3	115	329179.1	0.0000	56.8900	ppb	1.46	1000.00	
182 W	# 3	159	21703.4	0.0000	1.6950	ppb	2.40	50.00	
205 Tl	# 3	159	100754.4	0.0000	3.2150	ppb	1.43	500.00	
208 Pb	# 3	159	134583.4	0.0000	3.2110	ppb	1.16	500.00	
235 U	# 3	159	390.0	0.0000	0.0266	ppb	7.37	30.00	
238 U	# 3	159	155456.3	0.0000	3.3040	ppb	0.74	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2355743.50	0.34	2345256.80	100.4	60 - 125	
45 Sc # 1	1782735.40	0.87	1818295.10	98.0	60 - 125	
45 Sc # 2	374448.47	0.33	382689.56	97.8	60 - 125	
45 Sc # 3	3709731.30	0.97	3760093.80	98.7	60 - 125	
72 Ge # 1	391928.34	0.50	408604.41	95.9	60 - 125	
72 Ge # 2	168895.86	0.51	178049.86	94.9	60 - 125	
72 Ge # 3	724146.75	0.57	739345.88	97.9	60 - 125	
115 In # 3	4750946.50	0.73	4894058.00	97.1	60 - 125	
159 Tb # 3	6174344.50	1.62	6463656.00	95.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21052.D\F6E21052.D#
Date Acquired: May 30 2019 03:36 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-08A
Misc Info:
Vial Number: 2302
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1051697.0	0.0000	38.1000	ppb	0.70	50.00	
9 Be	# 3	6	223392.3	0.0000	30.3100	ppb	0.95	50.00	
11 B	# 3	6	580185.8	0.0000	83.1400	ppb	1.10	100.00	
23 Na	# 1	45	147693100.0	0.0000	25780.0000	ppb	0.48	50000.00	
24 Mg	# 3	45	76907480.0	0.0000	4175.0000	ppb	0.55	50000.00	
27 Al	# 3	45	78761520.0	0.0000	3316.0000	ppb	0.38	50000.00	
28 Si	# 1	45	2199574.0	0.0000	1503.0000	ppb	0.73	5000.00	
31 P	# 3	45	25437.9	0.0000	0.8928	ppb	42.43	500.00	
39 K	# 2	45	3829839.0	0.0000	3558.0000	ppb	0.30	50000.00	
40 Ca	# 1	45	69993112.0	0.0000	6496.0000	ppb	0.63	50000.00	
47 Ti	# 3	45	76202.0	0.0000	32.0500	ppb	0.74	500.00	
51 V	# 2	45	217418.8	0.0000	32.3700	ppb	0.12	500.00	
52 Cr	# 2	45	254511.8	0.0000	31.4200	ppb	0.73	500.00	
55 Mn	# 3	45	5138853.0	0.0000	125.8000	ppb	0.77	3000.00	
56 Fe	# 1	45	47755728.0	0.0000	3208.0000	ppb	0.03	50000.00	
59 Co	# 3	45	983334.4	0.0000	32.4300	ppb	0.85	500.00	
60 Ni	# 2	45	85575.4	0.0000	31.2100	ppb	0.37	500.00	
63 Cu	# 2	45	219027.5	0.0000	30.8200	ppb	0.28	500.00	
66 Zn	# 3	72	294288.7	0.0000	64.1600	ppb	0.63	500.00	
75 As	# 2	72	31196.0	0.0000	31.5800	ppb	0.87	500.00	
78 Se	# 1	72	17412.6	0.0000	31.3300	ppb	1.35	500.00	
88 Sr	# 3	72	4355050.0	0.0000	105.5000	ppb	0.48	500.00	
90 Zr	# 3	72	663.4	0.0000	0.0151	ppb	22.50	50.00	
95 Mo	# 3	115	274912.8	0.0000	34.5500	ppb	1.20	500.00	
107 Ag	# 3	115	562401.4	0.0000	29.1900	ppb	2.38	50.00	
111 Cd	# 3	115	139919.3	0.0000	31.3600	ppb	1.44	500.00	
118 Sn	# 3	115	375684.4	0.0000	31.2600	ppb	1.84	500.00	
121 Sb	# 3	115	448048.0	0.0000	30.5500	ppb	1.41	500.00	
137 Ba	# 3	115	492065.5	0.0000	85.5400	ppb	1.30	1000.00	
182 W	# 3	159	21833.6	0.0000	1.6910	ppb	1.24	50.00	
205 Tl	# 3	159	1002380.0	0.0000	31.8100	ppb	1.23	500.00	
208 Pb	# 3	159	1354232.0	0.0000	32.2700	ppb	0.88	500.00	
235 U	# 3	159	3109.4	0.0000	0.2128	ppb	4.12	30.00	
238 U	# 3	159	1495124.0	0.0000	31.5400	ppb	0.89	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2294278.00	0.89	2345256.80	97.8	60 - 125	
45 Sc # 1	1788760.80	0.63	1818295.10	98.4	60 - 125	
45 Sc # 2	373793.38	0.64	382689.56	97.7	60 - 125	
45 Sc # 3	3726646.30	0.88	3760093.80	99.1	60 - 125	
72 Ge # 1	389490.22	0.53	408604.41	95.3	60 - 125	
72 Ge # 2	170266.64	0.47	178049.86	95.6	60 - 125	
72 Ge # 3	723471.94	0.27	739345.88	97.9	60 - 125	
115 In # 3	4724164.00	1.14	4894058.00	96.5	60 - 125	
159 Tb # 3	6226789.00	1.09	6463656.00	96.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21053.D\F6E21053.D#
Date Acquired: May 30 2019 03:41 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-08I
Misc Info:
Vial Number: 2303
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	302155.2	0.0000	6.3870	ppb	2.45	50.00	
9 Be	# 3	6	33.3	0.0000	-0.0166	ppb	3.06	50.00	
11 B	# 3	6	396481.9	0.0000	50.7400	ppb	4.92	100.00	
23 Na	# 1	45	131127100.0	0.0000	22920.0000	ppb	0.61	50000.00	
24 Mg	# 3	45	15516310.0	0.0000	845.3000	ppb	1.31	50000.00	
27 Al	# 3	45	58828.4	0.0000	1.0840	ppb	18.21	50000.00	
28 Si	# 1	45	2174159.0	0.0000	1488.0000	ppb	1.13	5000.00	
31 P	# 3	45	25599.0	0.0000	1.1330	ppb	55.61	500.00	
39 K	# 2	45	522565.1	0.0000	430.2000	ppb	0.44	50000.00	
40 Ca	# 1	45	35130728.0	0.0000	3258.0000	ppb	0.85	50000.00	
47 Ti	# 3	45	1019.0	0.0000	0.3555	ppb	3.58	500.00	
51 V	# 2	45	6304.7	0.0000	0.2709	ppb	3.72	500.00	
52 Cr	# 2	45	1177.2	0.0000	0.0281	ppb	5.89	500.00	
55 Mn	# 3	45	3901092.0	0.0000	96.0300	ppb	1.81	3000.00	
56 Fe	# 1	45	124235.0	0.0000	7.0480	ppb	6.77	50000.00	
59 Co	# 3	45	928.9	0.0000	0.0080	ppb	34.11	500.00	
60 Ni	# 2	45	133.6	0.0000	0.0248	ppb	4.26	500.00	
63 Cu	# 2	45	2769.4	0.0000	0.0616	ppb	17.05	500.00	
66 Zn	# 3	72	3493.9	0.0000	0.3151	ppb	5.26	500.00	
75 As	# 2	72	719.8	0.0000	0.6439	ppb	0.50	500.00	
78 Se	# 1	72	11.6	0.0000	0.0019	ppb	266.37	500.00	
88 Sr	# 3	72	3005255.0	0.0000	72.0700	ppb	0.49	500.00	
90 Zr	# 3	72	331.1	0.0000	0.0030	ppb	9.17	50.00	
95 Mo	# 3	115	32954.9	0.0000	4.0560	ppb	0.32	500.00	
107 Ag	# 3	115	68.9	0.0000	0.0022	ppb	62.32	50.00	
111 Cd	# 3	115	28.8	0.0000	0.0005	ppb	933.08	500.00	
118 Sn	# 3	115	543.4	0.0000	0.0111	ppb	33.97	500.00	
121 Sb	# 3	115	975.6	0.0000	0.0463	ppb	5.63	500.00	
137 Ba	# 3	115	318568.0	0.0000	54.5600	ppb	0.75	1000.00	
182 W	# 3	159	22505.8	0.0000	1.7330	ppb	0.47	50.00	
205 Tl	# 3	159	2850.4	0.0000	0.0788	ppb	2.25	500.00	
208 Pb	# 3	159	3284.7	0.0000	0.0519	ppb	6.29	500.00	
235 U	# 3	159	84.4	0.0000	0.0054	ppb	28.58	30.00	
238 U	# 3	159	14697.6	0.0000	0.3044	ppb	0.22	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2348230.50	1.53	2345256.80	100.1	60 - 125	
45 Sc # 1	1786508.50	0.85	1818295.10	98.3	60 - 125	
45 Sc # 2	375097.75	0.40	382689.56	98.0	60 - 125	
45 Sc # 3	3706672.80	1.12	3760093.80	98.6	60 - 125	
72 Ge # 1	393384.66	0.68	408604.41	96.3	60 - 125	
72 Ge # 2	172025.16	0.76	178049.86	96.6	60 - 125	
72 Ge # 3	731059.44	1.19	739345.88	98.9	60 - 125	
115 In # 3	4794220.50	0.45	4894058.00	98.0	60 - 125	
159 Tb # 3	6258914.50	0.71	6463656.00	96.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21054.D\F6E21054.D#
Date Acquired: May 30 2019 03:45 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-08J
Misc Info:
Vial Number: 2304
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 50.00
Autodil Factor: Undiluted
Final Dil Factor: 50.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	177815.1	0.0000	1.2240	ppb	4.67	50.00	
9 Be	# 3	6	86.7	0.0000	-0.0097	ppb	20.23	50.00	
11 B	# 3	6	150518.2	0.0000	10.0900	ppb	3.57	100.00	
23 Na	# 1	45	26156050.0	0.0000	4578.0000	ppb	0.82	50000.00	
24 Mg	# 3	45	3230671.0	0.0000	173.7000	ppb	0.71	50000.00	
27 Al	# 3	45	45013.1	0.0000	0.4897	ppb	21.91	50000.00	
28 Si	# 1	45	433507.7	0.0000	293.7000	ppb	0.89	5000.00	
31 P	# 3	45	25990.4	0.0000	1.3670	ppb	37.76	500.00	
39 K	# 2	45	159530.3	0.0000	87.3200	ppb	2.36	50000.00	
40 Ca	# 1	45	7011662.0	0.0000	641.5000	ppb	0.49	50000.00	
47 Ti	# 3	45	353.4	0.0000	0.0727	ppb	12.99	500.00	
51 V	# 2	45	5275.9	0.0000	0.1101	ppb	12.39	500.00	
52 Cr	# 2	45	1005.6	0.0000	0.0062	ppb	56.06	500.00	
55 Mn	# 3	45	805907.0	0.0000	19.6900	ppb	0.80	3000.00	
56 Fe	# 1	45	54216.7	0.0000	2.3480	ppb	1.93	50000.00	
59 Co	# 3	45	501.1	0.0000	-0.0062	ppb	27.15	500.00	
60 Ni	# 2	45	86.2	0.0000	0.0074	ppb	12.38	500.00	
63 Cu	# 2	45	2325.1	0.0000	-0.0035	ppb	267.25	500.00	
66 Zn	# 3	72	1646.8	0.0000	-0.0907	ppb	3.78	500.00	
75 As	# 2	72	225.1	0.0000	0.1468	ppb	7.70	500.00	
78 Se	# 1	72	14.0	0.0000	0.0060	ppb	66.45	500.00	
88 Sr	# 3	72	606236.3	0.0000	14.3300	ppb	0.42	500.00	
90 Zr	# 3	72	180.0	0.0000	-0.0025	ppb	91.32	50.00	
95 Mo	# 3	115	6526.1	0.0000	0.7622	ppb	2.01	500.00	
107 Ag	# 3	115	144.5	0.0000	0.0059	ppb	41.23	50.00	
111 Cd	# 3	115	53.6	0.0000	0.0057	ppb	17.61	500.00	
118 Sn	# 3	115	522.3	0.0000	0.0084	ppb	20.64	500.00	
121 Sb	# 3	115	544.5	0.0000	0.0164	ppb	11.30	500.00	
137 Ba	# 3	115	63451.5	0.0000	10.6000	ppb	0.58	1000.00	
182 W	# 3	159	4464.2	0.0000	0.3596	ppb	1.54	50.00	
205 Tl	# 3	159	904.5	0.0000	0.0172	ppb	13.39	500.00	
208 Pb	# 3	159	916.7	0.0000	-0.0044	ppb	11.62	500.00	
235 U	# 3	159	17.8	0.0000	0.0008	ppb	15.66	30.00	
238 U	# 3	159	3195.0	0.0000	0.0625	ppb	2.69	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2370429.00	1.05	2345256.80	101.1	60 - 125	
45 Sc # 1	1780683.50	0.97	1818295.10	97.9	60 - 125	
45 Sc # 2	377412.63	1.41	382689.56	98.6	60 - 125	
45 Sc # 3	3722808.80	0.86	3760093.80	99.0	60 - 125	
72 Ge # 1	397263.78	0.66	408604.41	97.2	60 - 125	
72 Ge # 2	172137.03	0.60	178049.86	96.7	60 - 125	
72 Ge # 3	740508.88	0.25	739345.88	100.2	60 - 125	
115 In # 3	4907242.00	0.40	4894058.00	100.3	60 - 125	
159 Tb # 3	6301822.00	0.44	6463656.00	97.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21055.D\F6E21055.D#
Date Acquired: May 30 2019 03:50 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-09I
Misc Info:
Vial Number: 2305
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1263731.0	0.0000	48.2200	ppb	1.55	50.00	
9 Be	# 3	6	35.6	0.0000	-0.0161	ppb	10.19	50.00	
11 B	# 3	6	977676.2	0.0000	153.8000	ppb	1.56	100.00	>LRS
23 Na	# 1	45	889933570.0	0.0000	159100.0000	ppb	0.17	50000.00	>LRS
24 Mg	# 3	45	2917758.0	0.0000	160.2000	ppb	0.58	50000.00	
27 Al	# 3	45	61303.9	0.0000	1.2330	ppb	4.59	50000.00	
28 Si	# 1	45	1663163.0	0.0000	1163.0000	ppb	0.77	5000.00	
31 P	# 3	45	26956.7	0.0000	2.6420	ppb	17.08	500.00	
39 K	# 2	45	2014241.0	0.0000	1853.0000	ppb	0.71	50000.00	
40 Ca	# 1	45	71798496.0	0.0000	6823.0000	ppb	0.70	50000.00	
47 Ti	# 3	45	863.4	0.0000	0.2959	ppb	4.27	500.00	
51 V	# 2	45	7034.2	0.0000	0.3914	ppb	2.59	500.00	
52 Cr	# 2	45	7858.1	0.0000	0.8621	ppb	0.24	500.00	
55 Mn	# 3	45	49416.1	0.0000	1.1620	ppb	0.99	3000.00	
56 Fe	# 1	45	68382.0	0.0000	3.3930	ppb	4.40	50000.00	
59 Co	# 3	45	878.9	0.0000	0.0069	ppb	37.27	500.00	
60 Ni	# 2	45	143.3	0.0000	0.0289	ppb	10.92	500.00	
63 Cu	# 2	45	2675.4	0.0000	0.0518	ppb	14.99	500.00	
66 Zn	# 3	72	4353.0	0.0000	0.5637	ppb	1.26	500.00	
75 As	# 2	72	758.2	0.0000	0.7254	ppb	2.33	500.00	
78 Se	# 1	72	40.2	0.0000	0.0569	ppb	11.88	500.00	
88 Sr	# 3	72	6980840.0	0.0000	178.4000	ppb	1.28	500.00	
90 Zr	# 3	72	296.7	0.0000	0.0025	ppb	77.34	50.00	
95 Mo	# 3	115	36216.1	0.0000	4.8720	ppb	0.51	500.00	
107 Ag	# 3	115	30.0	0.0000	0.0004	ppb	91.67	50.00	
111 Cd	# 3	115	19.0	0.0000	-0.0013	ppb	341.41	500.00	
118 Sn	# 3	115	477.8	0.0000	0.0093	ppb	8.98	500.00	
121 Sb	# 3	115	374.5	0.0000	0.0081	ppb	34.94	500.00	
137 Ba	# 3	115	24602.2	0.0000	4.5870	ppb	0.51	1000.00	
182 W	# 3	159	3096.0	0.0000	0.2722	ppb	2.30	50.00	
205 Tl	# 3	159	216.7	0.0000	-0.0040	ppb	34.17	500.00	
208 Pb	# 3	159	933.4	0.0000	-0.0025	ppb	37.68	500.00	
235 U	# 3	159	91.1	0.0000	0.0062	ppb	11.68	30.00	
238 U	# 3	159	11119.5	0.0000	0.2434	ppb	0.57	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2242149.80	1.15	2345256.80	95.6	60 - 125	
45 Sc # 1	1747223.90	0.95	1818295.10	96.1	60 - 125	
45 Sc # 2	371614.72	1.09	382689.56	97.1	60 - 125	
45 Sc # 3	3643004.50	0.86	3760093.80	96.9	60 - 125	
72 Ge # 1	373123.19	0.94	408604.41	91.3	60 - 125	
72 Ge # 2	162845.69	0.66	178049.86	91.5	60 - 125	
72 Ge # 3	686077.94	0.34	739345.88	92.8	60 - 125	
115 In # 3	4390493.00	0.54	4894058.00	89.7	60 - 125	
159 Tb # 3	5902122.50	0.74	6463656.00	91.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21056.D\F6E21056.D#
Date Acquired: May 30 2019 03:54 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-10I
Misc Info:
Vial Number: 2306
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	2593049.0	0.0000	97.2200	ppb	1.38	50.00	>LRS
9 Be	# 3	6	37.8	0.0000	-0.0162	ppb	14.71	50.00	
11 B	# 3	6	1487479.0	0.0000	223.0000	ppb	1.30	100.00	>LRS
23 Na	# 1	45	2512675100.0	0.0000	454500.0000	ppb	1.83	50000.00	>LRS
24 Mg	# 3	45	161423300.0	0.0000	8756.0000	ppb	1.35	50000.00	
27 Al	# 3	45	37861.5	0.0000	0.1848	ppb	8.96	50000.00	
28 Si	# 1	45	1881688.0	0.0000	1331.0000	ppb	1.24	5000.00	
31 P	# 3	45	30192.8	0.0000	4.7630	ppb	3.83	500.00	
39 K	# 2	45	3801723.0	0.0000	3476.0000	ppb	0.36	50000.00	
40 Ca	# 1	45	408888380.0	0.0000	39370.0000	ppb	1.79	50000.00	
47 Ti	# 3	45	1016.7	0.0000	0.3520	ppb	4.22	500.00	
51 V	# 2	45	5572.2	0.0000	0.1497	ppb	11.94	500.00	
52 Cr	# 2	45	1204.1	0.0000	0.0297	ppb	4.75	500.00	
55 Mn	# 3	45	2986761.0	0.0000	73.0300	ppb	1.28	3000.00	
56 Fe	# 1	45	1237010.0	0.0000	84.8000	ppb	2.40	50000.00	
59 Co	# 3	45	3874.0	0.0000	0.1049	ppb	1.32	500.00	
60 Ni	# 2	45	227.3	0.0000	0.0580	ppb	4.57	500.00	
63 Cu	# 2	45	2261.3	0.0000	-0.0143	ppb	29.74	500.00	
66 Zn	# 3	72	7399.9	0.0000	1.3820	ppb	1.06	500.00	
75 As	# 2	72	390.0	0.0000	0.3471	ppb	8.85	500.00	
78 Se	# 1	72	15.3	0.0000	0.0119	ppb	39.06	500.00	
88 Sr	# 3	72	37944400.0	0.0000	1034.0000	ppb	0.47	500.00	>LRS
90 Zr	# 3	72	231.1	0.0000	0.0005	ppb	147.31	50.00	
95 Mo	# 3	115	27755.1	0.0000	4.0460	ppb	1.39	500.00	
107 Ag	# 3	115	43.3	0.0000	0.0013	ppb	61.05	50.00	
111 Cd	# 3	115	-86.1	0.0000	-0.0282	ppb	61.26	500.00	
118 Sn	# 3	115	451.1	0.0000	0.0104	ppb	23.13	500.00	
121 Sb	# 3	115	316.7	0.0000	0.0059	ppb	63.84	500.00	
137 Ba	# 3	115	20469.8	0.0000	4.1380	ppb	1.26	1000.00	
182 W	# 3	159	1289.0	0.0000	0.1320	ppb	4.46	50.00	
205 Tl	# 3	159	86.7	0.0000	-0.0082	ppb	3.84	500.00	
208 Pb	# 3	159	697.8	0.0000	-0.0075	ppb	23.27	500.00	
235 U	# 3	159	37.8	0.0000	0.0025	ppb	38.83	30.00	
238 U	# 3	159	4121.9	0.0000	0.0924	ppb	0.49	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2416346.50	1.14	2345256.80	103.0	60 - 125	
45 Sc # 1	1727566.90	2.51	1818295.10	95.0	60 - 125	
45 Sc # 2	379654.41	1.39	382689.56	99.2	60 - 125	
45 Sc # 3	3730304.00	0.90	3760093.80	99.2	60 - 125	
72 Ge # 1	351759.25	1.17	408604.41	86.1	60 - 125	
72 Ge # 2	158099.11	0.54	178049.86	88.8	60 - 125	
72 Ge # 3	643666.31	0.72	739345.88	87.1	60 - 125	
115 In # 3	4048169.50	1.43	4894058.00	82.7	60 - 125	
159 Tb # 3	5608643.50	0.44	6463656.00	86.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21057.D\F6E21057.D#
Date Acquired: May 30 2019 03:59 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-11I
Misc Info:
Vial Number: 2307
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1812448.0	0.0000	60.4400	ppb	0.87	50.00	>LRS
9 Be	# 3	6	41.1	0.0000	-0.0162	ppb	16.31	50.00	
11 B	# 3	6	1140120.0	0.0000	153.2000	ppb	1.29	100.00	>LRS
23 Na	# 1	45	1580948000.0	0.0000	276000.0000	ppb	0.98	50000.00	>LRS
24 Mg	# 3	45	197450400.0	0.0000	10510.0000	ppb	1.71	50000.00	
27 Al	# 3	45	34050.2	0.0000	-0.0020	ppb	1360.10	50000.00	
28 Si	# 1	45	2211346.0	0.0000	1510.0000	ppb	1.17	5000.00	
31 P	# 3	45	33516.9	0.0000	6.9760	ppb	5.72	500.00	
39 K	# 2	45	2047404.0	0.0000	1818.0000	ppb	1.06	50000.00	
40 Ca	# 1	45	378766300.0	0.0000	35190.0000	ppb	0.74	50000.00	
47 Ti	# 3	45	1096.7	0.0000	0.3771	ppb	2.35	500.00	
51 V	# 2	45	6153.5	0.0000	0.2248	ppb	1.94	500.00	
52 Cr	# 2	45	1238.5	0.0000	0.0319	ppb	8.64	500.00	
55 Mn	# 3	45	2356364.0	0.0000	56.5400	ppb	1.03	3000.00	
56 Fe	# 1	45	4212437.0	0.0000	281.7000	ppb	0.65	50000.00	
59 Co	# 3	45	3589.5	0.0000	0.0934	ppb	3.45	500.00	
60 Ni	# 2	45	202.0	0.0000	0.0479	ppb	5.13	500.00	
63 Cu	# 2	45	2231.1	0.0000	-0.0226	ppb	17.21	500.00	
66 Zn	# 3	72	3609.5	0.0000	0.4181	ppb	2.94	500.00	
75 As	# 2	72	200.0	0.0000	0.1373	ppb	6.97	500.00	
78 Se	# 1	72	14.7	0.0000	0.0098	ppb	23.12	500.00	
88 Sr	# 3	72	31521730.0	0.0000	831.3000	ppb	0.35	500.00	>LRS
90 Zr	# 3	72	332.2	0.0000	0.0042	ppb	27.88	50.00	
95 Mo	# 3	115	7251.0	0.0000	1.0050	ppb	5.25	500.00	
107 Ag	# 3	115	68.9	0.0000	0.0028	ppb	27.87	50.00	
111 Cd	# 3	115	-3.5	0.0000	-0.0068	ppb	164.27	500.00	
118 Sn	# 3	115	445.6	0.0000	0.0085	ppb	33.47	500.00	
121 Sb	# 3	115	273.3	0.0000	0.0018	ppb	139.43	500.00	
137 Ba	# 3	115	27137.9	0.0000	5.3300	ppb	1.39	1000.00	
182 W	# 3	159	367.8	0.0000	0.0534	ppb	7.79	50.00	
205 Tl	# 3	159	92.2	0.0000	-0.0080	ppb	9.91	500.00	
208 Pb	# 3	159	722.3	0.0000	-0.0072	ppb	13.68	500.00	
235 U	# 3	159	50.0	0.0000	0.0034	ppb	12.33	30.00	
238 U	# 3	159	7042.1	0.0000	0.1581	ppb	1.06	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2624022.80	0.92	2345256.80	111.9	60 - 125	
45 Sc # 1	1789728.80	0.93	1818295.10	98.4	60 - 125	
45 Sc # 2	384674.91	0.71	382689.56	100.5	60 - 125	
45 Sc # 3	3800308.80	0.68	3760093.80	101.1	60 - 125	
72 Ge # 1	361106.84	0.07	408604.41	88.4	60 - 125	
72 Ge # 2	159760.42	1.10	178049.86	89.7	60 - 125	
72 Ge # 3	664971.13	0.04	739345.88	89.9	60 - 125	
115 In # 3	4170405.80	1.25	4894058.00	85.2	60 - 125	
159 Tb # 3	5701513.50	0.88	6463656.00	88.2	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

4 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21058.D\F6E21058.D#
Date Acquired: May 30 2019 04:03 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: E197-12I
Misc Info:
Vial Number: 2308
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 10.00
Autodil Factor: Undiluted
Final Dil Factor: 10.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	1104892.0	0.0000	34.4800	ppb	1.27	50.00	
9 Be	# 3	6	48.9	0.0000	-0.0153	ppb	13.11	50.00	
11 B	# 3	6	1333675.0	0.0000	181.5000	ppb	0.67	100.00	>LRS
23 Na	# 1	45	664145470.0	0.0000	116900.0000	ppb	0.81	50000.00	>LRS
24 Mg	# 3	45	100551600.0	0.0000	5390.0000	ppb	0.30	50000.00	
27 Al	# 3	45	54629.2	0.0000	0.8636	ppb	1.63	50000.00	
28 Si	# 1	45	2000961.0	0.0000	1377.0000	ppb	0.45	5000.00	
31 P	# 3	45	37432.2	0.0000	10.3300	ppb	4.45	500.00	
39 K	# 2	45	1126386.0	0.0000	982.9000	ppb	0.85	50000.00	
40 Ca	# 1	45	136468990.0	0.0000	12780.0000	ppb	0.68	50000.00	
47 Ti	# 3	45	1033.4	0.0000	0.3538	ppb	4.65	500.00	
51 V	# 2	45	6029.7	0.0000	0.2155	ppb	5.92	500.00	
52 Cr	# 2	45	1234.1	0.0000	0.0328	ppb	4.55	500.00	
55 Mn	# 3	45	2627576.0	0.0000	63.4900	ppb	0.62	3000.00	
56 Fe	# 1	45	5572557.0	0.0000	376.1000	ppb	0.55	50000.00	
59 Co	# 3	45	1889.1	0.0000	0.0388	ppb	9.38	500.00	
60 Ni	# 2	45	426.5	0.0000	0.1290	ppb	4.36	500.00	
63 Cu	# 2	45	2576.9	0.0000	0.0288	ppb	9.75	500.00	
66 Zn	# 3	72	6878.5	0.0000	1.1330	ppb	3.33	500.00	
75 As	# 2	72	508.0	0.0000	0.4587	ppb	1.49	500.00	
78 Se	# 1	72	22.9	0.0000	0.0246	ppb	15.43	500.00	
88 Sr	# 3	72	8696058.0	0.0000	220.1000	ppb	0.67	500.00	
90 Zr	# 3	72	915.6	0.0000	0.0257	ppb	11.75	50.00	
95 Mo	# 3	115	23879.2	0.0000	3.1930	ppb	1.03	500.00	
107 Ag	# 3	115	32.2	0.0000	0.0005	ppb	74.56	50.00	
111 Cd	# 3	115	9.6	0.0000	-0.0035	ppb	43.35	500.00	
118 Sn	# 3	115	452.2	0.0000	0.0069	ppb	56.20	500.00	
121 Sb	# 3	115	365.6	0.0000	0.0074	ppb	50.68	500.00	
137 Ba	# 3	115	33967.3	0.0000	6.3190	ppb	2.09	1000.00	
182 W	# 3	159	234.5	0.0000	0.0417	ppb	3.08	50.00	
205 Tl	# 3	159	60.0	0.0000	-0.0092	ppb	2.54	500.00	
208 Pb	# 3	159	1062.3	0.0000	0.0010	ppb	42.83	500.00	
235 U	# 3	159	516.7	0.0000	0.0373	ppb	7.03	30.00	
238 U	# 3	159	73206.8	0.0000	1.6400	ppb	0.45	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2625766.00	0.82	2345256.80	112.0	60 - 125	
45 Sc # 1	1775194.40	0.67	1818295.10	97.6	60 - 125	
45 Sc # 2	380846.72	0.48	382689.56	99.5	60 - 125	
45 Sc # 3	3774085.00	0.36	3760093.80	100.4	60 - 125	
72 Ge # 1	370914.09	0.21	408604.41	90.8	60 - 125	
72 Ge # 2	163205.34	0.84	178049.86	91.7	60 - 125	
72 Ge # 3	692933.38	0.51	739345.88	93.7	60 - 125	
115 In # 3	4404701.00	0.54	4894058.00	90.0	60 - 125	
159 Tb # 3	5847747.00	0.39	6463656.00	90.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures
0 :ISTD Failures

0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21059.D\F6E21059.D#
Date Acquired: May 30 2019 04:08 pm
Operator: LYaman
Sample Name: CCV6
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:14 pm
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	24.43 ppb	2.07	25.00	90 - 110	
9 Be	22.65 ppb	1.68	25.00	90 - 110	
11 B	46.55 ppb	1.81	50.00	90 - 110	
23 Na	26280.00 ppb	0.27	25000.00	90 - 110	
24 Mg	27480.00 ppb	0.33	25000.00	90 - 110	
27 Al	27140.00 ppb	0.56	25000.00	90 - 110	
28 Si	2660.00 ppb	0.25	2500.00	90 - 110	
31 P	266.60 ppb	0.26	250.00	90 - 110	
39 K	25380.00 ppb	0.82	25000.00	90 - 110	
40 Ca	25750.00 ppb	0.42	25000.00	90 - 110	
47 Ti	249.90 ppb	1.15	250.00	90 - 110	
51 V	253.10 ppb	1.22	250.00	90 - 110	
52 Cr	241.30 ppb	1.02	250.00	90 - 110	
55 Mn	1472.00 ppb	1.42	1500.00	90 - 110	
56 Fe	25010.00 ppb	0.38	25000.00	90 - 110	
59 Co	241.40 ppb	1.14	250.00	90 - 110	
60 Ni	240.10 ppb	0.26	250.00	90 - 110	
63 Cu	228.30 ppb	0.58	250.00	90 - 110	
66 Zn	251.20 ppb	0.32	250.00	90 - 110	
75 As	252.20 ppb	0.24	250.00	90 - 110	
78 Se	249.90 ppb	0.11	250.00	90 - 110	
88 Sr	265.20 ppb	0.74	250.00	90 - 110	
90 Zr	22.42 ppb	0.63	25.00	90 - 110	Fail
95 Mo	247.40 ppb	1.77	250.00	90 - 110	
107 Ag	25.31 ppb	0.83	25.00	90 - 110	
111 Cd	248.20 ppb	0.42	250.00	90 - 110	
118 Sn	250.40 ppb	0.82	250.00	90 - 110	
121 Sb	49.13 ppb	1.50	50.00	90 - 110	
137 Ba	514.60 ppb	1.59	500.00	90 - 110	
182 W	27.52 ppb	0.77	25.00	90 - 110	Fail
205 Tl	245.30 ppb	0.49	250.00	90 - 110	
208 Pb	253.10 ppb	0.04	250.00	90 - 110	
235 U	1.64 ppb	1.88	1.80	90 - 110	
238 U	245.30 ppb	0.77	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2576933.80	1.08	2345256.80	109.9	60 - 125	
45 Sc	1784621.90	1.08	1818295.10	98.1	60 - 125	
45 Sc	381186.22	0.30	382689.56	99.6	60 - 125	
45 Sc	3866386.30	0.77	3760093.80	102.8	60 - 125	
72 Ge	373163.78	0.68	408604.41	91.3	60 - 125	
72 Ge	166124.23	0.50	178049.86	93.3	60 - 125	
72 Ge	707590.38	0.62	739345.88	95.7	60 - 125	
115 In	4464455.50	1.67	4894058.00	91.2	60 - 125	
159 Tb	6028987.00	1.26	6463656.00	93.3	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21060.D\F6E21060.D#
Date Acquired:	May 30 2019 04:12 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	CCB6
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements				Conc		
Element	Conc.		CPS	RSD(%)	High Limit	Flag
7 Li	-0.2550	ppb	169381.8	9.55	0.20	Fail
9 Be	-0.0146	ppb	58.9	10.81	0.10	
11 B	-0.7001	ppb	100938.8	19.14	5.00	
23 Na	58.2700	ppb	414856.4	2.48	40.00	Fail
24 Mg	0.5819	ppb	49050.3	42.14	10.00	
27 Al	0.0827	ppb	38418.6	200.05	20.00	
28 Si	-0.1698	ppb	7165.3	113.13	20.00	
31 P	1.1540	ppb	27991.7	19.97	10.00	
39 K	-0.5142	ppb	70222.3	154.08	20.00	
40 Ca	8.0410	ppb	241274.9	12.78	25.00	
47 Ti	-0.0182	ppb	150.0	44.20	0.50	
51 V	0.0433	ppb	5162.5	19.58	0.50	
52 Cr	0.0079	ppb	1088.9	80.83	0.20	
55 Mn	0.0505	ppb	5644.6	25.84	0.20	
56 Fe	7.0860	ppb	130009.3	11.90	10.00	
59 Co	-0.0066	ppb	533.4	28.05	0.20	
60 Ni	0.0153	ppb	115.3	29.86	0.20	
63 Cu	-0.0131	ppb	2410.7	82.57	0.40	
66 Zn	-0.0325	ppb	2012.4	25.81	2.00	
75 As	0.0397	ppb	123.1	12.70	0.20	
78 Se	0.0857	ppb	60.7	11.37	0.20	
88 Sr	0.0579	ppb	3696.2	10.91	0.20	
90 Zr	-0.0012	ppb	226.7	115.02	2.00	
95 Mo	0.0144	ppb	362.2	27.16	0.40	
107 Ag	0.0014	ppb	55.6	20.12	0.20	
111 Cd	0.0036	ppb	45.6	43.53	0.20	
118 Sn	0.0307	ppb	832.3	9.95	0.20	
121 Sb	0.0259	ppb	715.6	4.86	0.40	
137 Ba	0.0126	ppb	171.1	9.53	0.20	
182 W	0.0415	ppb	256.7	4.25	1.00	
205 Tl	0.0073	ppb	607.8	35.47	0.20	
208 Pb	-0.0029	ppb	1010.1	49.73	0.10	
235 U	-0.0002	ppb	3.3	133.56	1.00	
238 U	0.0121	ppb	803.4	15.73	0.10	

ISTD Elements		CPS				
Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	2840215.3	1.33	2345256.80	121.1	60 - 125	IS7120/.
45 Sc	1861447.9	0.35	1818295.10	102.4	60 - 125	
45 Sc	403247.6	0.79	382689.56	105.4	60 - 125	
45 Sc	4050497.5	2.29	3760093.80	107.7	60 - 125	
72 Ge	407363.5	0.11	408604.41	99.7	60 - 125	
72 Ge	179048.2	0.79	178049.86	100.6	60 - 125	
72 Ge	776761.8	0.46	739345.88	105.1	60 - 125	
115 In	5101352.0	1.47	4894058.00	104.2	60 - 125	
159 Tb	6497889.5	0.51	6463656.00	100.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures	0 :Max. Number of Failures Allowed
0 :ISTD Failures	0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes:	Fail
ISTD:	Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21061.D\F6E21061.D#
Date Acquired: May 30 2019 04:17 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: MRLE3005
Misc Info: 1/100/10 ppb
Vial Number: 1305
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	192863.5	0.0000	0.6012	ppb	15.71	50.00	
9 Be	# 3	6	7710.0	0.0000	0.8321	ppb	2.34	50.00	
11 B	# 3	6	158387.6	0.0000	7.3000	ppb	1.32	100.00	
23 Na	# 1	45	758167.1	0.0000	114.9000	ppb	0.91	50000.00	
24 Mg	# 3	45	2206757.0	0.0000	109.6000	ppb	1.02	50000.00	
27 Al	# 3	45	2739513.0	0.0000	105.9000	ppb	1.06	50000.00	
28 Si	# 1	45	174015.4	0.0000	108.9000	ppb	0.74	5000.00	
31 P	# 3	45	93291.6	0.0000	51.1400	ppb	2.08	500.00	
39 K	# 2	45	181864.0	0.0000	97.8000	ppb	1.40	50000.00	
40 Ca	# 1	45	1308082.0	0.0000	102.5000	ppb	1.52	50000.00	
47 Ti	# 3	45	2669.2	0.0000	0.9706	ppb	0.69	500.00	
51 V	# 2	45	11295.0	0.0000	0.9126	ppb	1.95	500.00	
52 Cr	# 2	45	9111.3	0.0000	0.9325	ppb	1.70	500.00	
55 Mn	# 3	45	48684.9	0.0000	1.0330	ppb	0.57	3000.00	
56 Fe	# 1	45	1602572.0	0.0000	101.4000	ppb	1.07	50000.00	
59 Co	# 3	45	33464.1	0.0000	1.0050	ppb	1.01	500.00	
60 Ni	# 2	45	2882.3	0.0000	0.9544	ppb	0.74	500.00	
63 Cu	# 2	45	9731.0	0.0000	0.9560	ppb	0.80	500.00	
66 Zn	# 3	72	48771.1	0.0000	9.5740	ppb	0.98	500.00	
75 As	# 2	72	1041.8	0.0000	0.9204	ppb	1.25	500.00	
78 Se	# 1	72	555.3	0.0000	0.9313	ppb	2.97	500.00	
88 Sr	# 3	72	93406.6	0.0000	2.0930	ppb	0.59	500.00	
90 Zr	# 3	72	99347.0	0.0000	3.3470	ppb	1.70	50.00	
95 Mo	# 3	115	7692.3	0.0000	0.8765	ppb	1.97	500.00	
107 Ag	# 3	115	20975.9	0.0000	1.0170	ppb	1.57	50.00	
111 Cd	# 3	115	4770.7	0.0000	0.9941	ppb	4.92	500.00	
118 Sn	# 3	115	12616.0	0.0000	0.9491	ppb	2.22	500.00	
121 Sb	# 3	115	14676.9	0.0000	0.9170	ppb	2.15	500.00	
137 Ba	# 3	115	5852.5	0.0000	0.9366	ppb	3.81	1000.00	
182 W	# 3	159	29431.3	0.0000	2.1960	ppb	1.38	50.00	
205 Tl	# 3	159	31655.6	0.0000	0.9598	ppb	0.81	500.00	
208 Pb	# 3	159	44724.9	0.0000	1.0050	ppb	1.14	500.00	
235 U	# 3	159	92.2	0.0000	0.0057	ppb	10.19	30.00	
238 U	# 3	159	44644.1	0.0000	0.9063	ppb	1.82	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2814227.00	1.14	2345256.80	120.0	60 - 125	
45 Sc # 1	1875852.90	0.50	1818295.10	103.2	60 - 125	
45 Sc # 2	402006.75	1.19	382689.56	105.0	60 - 125	
45 Sc # 3	4005874.00	0.85	3760093.80	106.5	60 - 125	
72 Ge # 1	409987.78	0.01	408604.41	100.3	60 - 125	
72 Ge # 2	180102.61	0.97	178049.86	101.2	60 - 125	
72 Ge # 3	773157.50	0.45	739345.88	104.6	60 - 125	
115 In # 3	5052841.00	1.37	4894058.00	103.2	60 - 125	
159 Tb # 3	6443173.50	1.30	6463656.00	99.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

Sample QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21062.D\F6E21062.D#
Date Acquired: May 30 2019 04:21 pm
Acq. Method: EM6020R2.M
Operator: LYaman
Sample Name: MRLE3006
Misc Info: 0.4/40/4 ppb
Vial Number: 1306
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update: May 30 2019 12:14 pm
Sample Type: Sample
Dilution Factor: 1.00
Autodil Factor: Undiluted
Final Dil Factor: 1.00

Tune #	Name
#1	h2.u
#2	he.u
#3	norm.u

QC Elements

Element	Tune	ISTD	CPS	Corr Conc	Raw Conc	Units	Conc RSD(%)	High Limit	Flag
7 Li	# 3	6	180194.8	0.0000	0.1883	ppb	33.36	50.00	
9 Be	# 3	6	3301.6	0.0000	0.3456	ppb	4.05	50.00	
11 B	# 3	6	95848.0	0.0000	-1.2270	ppb	28.11	100.00	
23 Na	# 1	45	355603.6	0.0000	46.6300	ppb	0.70	50000.00	
24 Mg	# 3	45	950960.7	0.0000	45.1500	ppb	0.35	50000.00	
27 Al	# 3	45	1189029.0	0.0000	44.2000	ppb	1.55	50000.00	
28 Si	# 1	45	9185.3	0.0000	0.9897	ppb	15.54	5000.00	
31 P	# 3	45	27623.2	0.0000	0.6632	ppb	65.27	500.00	
39 K	# 2	45	115831.1	0.0000	37.9800	ppb	0.95	50000.00	
40 Ca	# 1	45	558254.1	0.0000	34.9500	ppb	0.25	50000.00	
47 Ti	# 3	45	1206.8	0.0000	0.3869	ppb	2.50	500.00	
51 V	# 2	45	7647.3	0.0000	0.3780	ppb	3.61	500.00	
52 Cr	# 2	45	4537.4	0.0000	0.3964	ppb	0.47	500.00	
55 Mn	# 3	45	23002.9	0.0000	0.4362	ppb	1.13	3000.00	
56 Fe	# 1	45	730763.4	0.0000	44.5500	ppb	1.07	50000.00	
59 Co	# 3	45	14569.8	0.0000	0.4151	ppb	1.15	500.00	
60 Ni	# 2	45	1280.7	0.0000	0.4033	ppb	0.59	500.00	
63 Cu	# 2	45	5433.0	0.0000	0.3751	ppb	4.24	500.00	
66 Zn	# 3	72	21186.9	0.0000	3.8340	ppb	1.02	500.00	
75 As	# 2	72	539.6	0.0000	0.4313	ppb	2.13	500.00	
78 Se	# 1	72	257.6	0.0000	0.4129	ppb	5.86	500.00	
88 Sr	# 3	72	20529.6	0.0000	0.4322	ppb	1.35	500.00	
90 Zr	# 3	72	346.7	0.0000	0.0027	ppb	31.94	50.00	
95 Mo	# 3	115	3337.2	0.0000	0.3493	ppb	2.18	500.00	
107 Ag	# 3	115	9615.8	0.0000	0.4472	ppb	1.06	50.00	
111 Cd	# 3	115	2035.3	0.0000	0.4042	ppb	1.95	500.00	
118 Sn	# 3	115	5949.2	0.0000	0.4119	ppb	2.62	500.00	
121 Sb	# 3	115	6624.0	0.0000	0.3868	ppb	1.14	500.00	
137 Ba	# 3	115	2694.8	0.0000	0.4061	ppb	1.80	1000.00	
182 W	# 3	159	122.2	0.0000	0.0314	ppb	0.93	50.00	
205 Tl	# 3	159	14006.6	0.0000	0.4056	ppb	1.46	500.00	
208 Pb	# 3	159	20342.3	0.0000	0.4289	ppb	1.77	500.00	
235 U	# 3	159	46.7	0.0000	0.0026	ppb	9.05	30.00	
238 U	# 3	159	19736.5	0.0000	0.3863	ppb	0.66	500.00	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li # 3	2804768.30	0.87	2345256.80	119.6	60 - 125	
45 Sc # 1	1915658.90	0.30	1818295.10	105.4	60 - 125	
45 Sc # 2	409152.72	0.76	382689.56	106.9	60 - 125	
45 Sc # 3	4092397.80	1.06	3760093.80	108.8	60 - 125	
72 Ge # 1	418514.78	0.29	408604.41	102.4	60 - 125	
72 Ge # 2	182643.69	1.08	178049.86	102.6	60 - 125	
72 Ge # 3	786542.56	0.29	739345.88	106.4	60 - 125	
115 In # 3	5256028.00	0.71	4894058.00	107.4	60 - 125	
159 Tb # 3	6641188.50	0.77	6463656.00	102.7	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures
0 :ISTD Failures
0 :Max. Number of Failures Allowed
0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Pass
ISTD: Pass

ICS-A QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21063.D\F6E21063.D#
Date Acquired:	May 30 2019 04:35 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICSA2
Misc Info:	
Vial Number:	1303
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICS-A
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	0.65	ppb	95872.0	13.80	---	
9 Be	-0.01	ppb	61.1	59.61	---	
11 B	-1.11	ppb	47882.7	22.22	---	
23 Na	95230.00	ppb	442757790.0	1.27	120000.00	
24 Mg	88500.00	ppb	1293031900.0	1.11	120000.00	
27 Al	90460.00	ppb	1704026000.0	1.34	120000.00	
28 Si	4.81	ppb	11491.6	3.96	---	
31 P	91120.00	ppb	88310224.0	0.36	---	
39 K	96800.00	ppb	84193480.0	0.26	120000.00	
40 Ca	101100.00	ppb	882660480.0	0.91	120000.00	
47 Ti	2112.00	ppb	3974613.0	0.44	2400.00	
51 V	0.02	ppb	3798.3	43.13	---	
52 Cr	0.26	ppb	2494.2	1.82	---	
55 Mn	0.28	ppb	11574.9	1.90	---	
56 Fe	101900.00	ppb	1231597100.0	0.76	120000.00	
59 Co	0.51	ppb	12920.5	1.67	---	
60 Ni	0.34	ppb	814.2	3.66	---	
63 Cu	0.05	ppb	2187.3	10.52	---	
66 Zn	1.91	ppb	8983.0	1.68	---	
75 As	0.23	ppb	254.9	6.62	---	
78 Se	0.13	ppb	66.9	12.41	---	
88 Sr	0.88	ppb	31392.4	0.44	---	
90 Zr	0.05	ppb	1297.9	2.27	---	
95 Mo	1959.00	ppb	13113460.0	0.95	2400.00	
107 Ag	0.02	ppb	303.3	19.87	---	
111 Cd	0.13	ppb	524.6	58.77	---	
118 Sn	0.05	ppb	868.9	3.68	---	
121 Sb	0.17	ppb	2353.6	3.36	---	
137 Ba	0.17	ppb	903.4	5.69	---	
182 W	0.26	ppb	2867.1	2.48	---	
205 Tl	0.00	ppb	382.2	74.08	---	
208 Pb	0.06	ppb	3246.9	8.71	---	
235 U	0.00	ppb	6.7	209.16	---	
238 U	0.00	ppb	357.8	53.48	---	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1388745.1	0.96	2345256.80	59.2	60 - 125	ISFail
45 Sc	1452480.5	0.85	1818295.10	79.9	60 - 125	
45 Sc	307081.7	0.42	382689.56	80.2	60 - 125	
45 Sc	2956957.8	0.94	3760093.80	78.6	60 - 125	
72 Ge	317248.0	0.72	408604.41	77.6	60 - 125	
72 Ge	144310.9	0.67	178049.86	81.1	60 - 125	
72 Ge	606100.9	0.40	739345.88	82.0	60 - 125	
115 In	3977006.3	0.44	4894058.00	81.3	60 - 125	
159 Tb	5651918.0	0.44	6463656.00	87.4	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
1 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:

Analytes:	Pass
ISTD:	Fail

ICS-AB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21064.D\F6E21064.D#
Date Acquired:	May 30 2019 04:52 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	ICSAB2
Misc Info:	
Vial Number:	1304
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	ICS-AB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	Expected	QC Range(%)	Flag
7 Li	19.79	ppb	385050.9	1.74	20.00	80 - 120	
9 Be	19.97	ppb	92178.0	1.80	20.00	80 - 120	
11 B	17.50	ppb	118802.7	4.01	20.00	80 - 120	
23 Na	94980.00	ppb	440286780.0	0.75	100000.00	80 - 120	
24 Mg	86970.00	ppb	1283083000.0	0.72	100000.00	80 - 120	
27 Al	89330.00	ppb	1699215000.0	0.43	100000.00	80 - 120	
28 Si	200.20	ppb	242204.5	0.38	200.00	80 - 120	
31 P	89730.00	ppb	87806416.0	0.40	100000.00	80 - 120	
39 K	96590.00	ppb	83905072.0	0.43	100000.00	80 - 120	
40 Ca	101000.00	ppb	879053310.0	0.40	100000.00	80 - 120	
47 Ti	2097.00	ppb	3985725.0	0.28	2000.00	80 - 120	
51 V	19.84	ppb	110759.4	0.55	20.00	80 - 120	
52 Cr	19.42	ppb	129375.3	0.29	20.00	80 - 120	
55 Mn	20.47	ppb	672033.8	1.15	20.00	80 - 120	
56 Fe	100500.00	ppb	1210658900.0	0.29	100000.00	80 - 120	
59 Co	19.97	ppb	485379.9	0.79	20.00	80 - 120	
60 Ni	18.44	ppb	41508.1	0.42	20.00	80 - 120	
63 Cu	17.57	ppb	103279.8	0.75	20.00	80 - 120	
66 Zn	19.86	ppb	77054.0	0.33	20.00	80 - 120	
75 As	19.78	ppb	16483.9	0.76	20.00	80 - 120	
78 Se	21.32	ppb	9661.0	1.06	20.00	80 - 120	
88 Sr	21.96	ppb	755816.7	0.41	20.00	80 - 120	
90 Zr	18.85	ppb	435295.6	0.63	20.00	80 - 120	
95 Mo	1948.00	ppb	12979850.0	0.36	2000.00	80 - 120	
107 Ag	18.51	ppb	298880.0	0.34	20.00	80 - 120	
111 Cd	18.95	ppb	70853.7	0.37	20.00	80 - 120	
118 Sn	19.65	ppb	198014.9	0.18	20.00	80 - 120	
121 Sb	19.83	ppb	243783.2	0.56	20.00	80 - 120	
137 Ba	20.33	ppb	98050.1	1.28	20.00	80 - 120	
182 W	20.59	ppb	242510.1	0.95	20.00	80 - 120	
205 Tl	19.18	ppb	544606.4	0.68	20.00	80 - 120	
208 Pb	19.51	ppb	737871.2	0.41	20.00	80 - 120	
235 U	0.13	ppb	1732.4	2.21	0.14	80 - 120	
238 U	19.30	ppb	824291.2	0.99	19.86	80 - 120	

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1436411.4	1.87	2345256.80	61.2	60 - 125	IS<70%
45 Sc	1448108.9	0.52	1818295.10	79.6	60 - 125	
45 Sc	306700.8	0.70	382689.56	80.1	60 - 125	
45 Sc	2985551.8	0.63	3760093.80	79.4	60 - 125	
72 Ge	317593.8	0.63	408604.41	77.7	60 - 125	
72 Ge	143389.7	1.06	178049.86	80.5	60 - 125	
72 Ge	602809.2	0.25	739345.88	81.5	60 - 125	
115 In	3958346.5	0.82	4894058.00	80.9	60 - 125	
159 Tb	5609019.5	0.47	6463656.00	86.8	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

0 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Number of ISTD Failures Allowed

Data Results:

Analytes: Pass
ISTD: Pass

CCV QC Report

Data File: C:\DATA\IF62019\E\IF6E21.B\F6E21065.D\F6E21065.D#
Date Acquired: May 30 2019 04:57 pm
Operator: LYaman
Sample Name: CCV7
Misc Info:
Vial Number: 1206
Current Method: C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File: C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal Update: May 30 2019 12:14 pm
Sample Type: CCV
Total Dil Factor: 1.00

QC Elements

Element	Conc.	RSD(%)	Expected	QC Range(%)	Flag
7 Li	24.14 ppb	1.66	25.00	90 - 110	
9 Be	24.13 ppb	0.29	25.00	90 - 110	
11 B	48.35 ppb	0.69	50.00	90 - 110	
23 Na	23290.00 ppb	0.44	25000.00	90 - 110	
24 Mg	24160.00 ppb	0.32	25000.00	90 - 110	
27 Al	24300.00 ppb	0.68	25000.00	90 - 110	
28 Si	2362.00 ppb	0.21	2500.00	90 - 110	
31 P	242.10 ppb	1.21	250.00	90 - 110	
39 K	24780.00 ppb	0.51	25000.00	90 - 110	
40 Ca	24980.00 ppb	0.67	25000.00	90 - 110	
47 Ti	247.50 ppb	0.55	250.00	90 - 110	
51 V	260.50 ppb	0.59	250.00	90 - 110	
52 Cr	252.40 ppb	0.93	250.00	90 - 110	
55 Mn	1548.00 ppb	0.38	1500.00	90 - 110	
56 Fe	26140.00 ppb	0.93	25000.00	90 - 110	
59 Co	252.40 ppb	0.67	250.00	90 - 110	
60 Ni	251.70 ppb	0.86	250.00	90 - 110	
63 Cu	242.40 ppb	0.98	250.00	90 - 110	
66 Zn	247.30 ppb	1.23	250.00	90 - 110	
75 As	250.50 ppb	0.79	250.00	90 - 110	
78 Se	256.50 ppb	0.16	250.00	90 - 110	
88 Sr	282.70 ppb	0.66	250.00	90 - 110	Fail
90 Zr	23.51 ppb	0.58	25.00	90 - 110	
95 Mo	238.70 ppb	1.16	250.00	90 - 110	
107 Ag	24.72 ppb	1.33	25.00	90 - 110	
111 Cd	248.20 ppb	0.53	250.00	90 - 110	
118 Sn	250.90 ppb	0.62	250.00	90 - 110	
121 Sb	49.87 ppb	0.47	50.00	90 - 110	
137 Ba	512.60 ppb	1.10	500.00	90 - 110	
182 W	27.70 ppb	0.69	25.00	90 - 110	Fail
205 Tl	245.70 ppb	0.37	250.00	90 - 110	
208 Pb	253.30 ppb	0.21	250.00	90 - 110	
235 U	1.65 ppb	0.24	1.80	90 - 110	
238 U	244.80 ppb	0.48	250.00	90 - 110	

ISTD Elements

Element	CPS Mean	RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1706344.50	0.80	2345256.80	72.8	60 - 125	
45 Sc	1498763.80	0.70	1818295.10	82.4	60 - 125	
45 Sc	305419.06	0.65	382689.56	79.8	60 - 125	
45 Sc	3211586.80	0.74	3760093.80	85.4	60 - 125	
72 Ge	334856.19	0.47	408604.41	82.0	60 - 125	
72 Ge	146004.61	0.83	178049.86	82.0	60 - 125	
72 Ge	650589.44	0.16	739345.88	88.0	60 - 125	
115 In	4460667.50	0.83	4894058.00	91.1	60 - 125	
159 Tb	6005907.50	0.25	6463656.00	92.9	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

2 :Element Failures 0 :Max. Number of Failures Allowed
0 :ISTD Failures 0 :Max. Number of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

CCB QC Report

Data File:	C:\DATA\IF62019\E\IF6E21.B\F6E21066.D\F6E21066.D#
Date Acquired:	May 30 2019 05:01 pm
Acq. Method:	EM6020R2.M
Operator:	LYaman
Sample Name:	CCB7
Misc Info:	
Vial Number:	1102
Current Method:	C:\ICPCHEM\1\METHODS\EM6020R2.M
Calibration File:	C:\DATA\IF62017\A\IF6A01.B\EM6020R2.C
Last Cal. Update:	May 30 2019 12:14 pm
Sample Type:	CCB
Dilution Factor:	1.00

QC Elements

Element	Conc.		CPS	Conc RSD(%)	High Limit	Flag
7 Li	-0.0720	ppb	111617.9	42.48	0.20	
9 Be	-0.0144	ppb	38.9	8.28	0.10	
11 B	0.0719	ppb	68096.1	36.16	5.00	
23 Na	40.9100	ppb	252479.8	11.47	40.00	Fail
24 Mg	7.6120	ppb	153671.1	12.51	10.00	
27 Al	6.9830	ppb	175262.0	14.98	20.00	
28 Si	-0.9221	ppb	4884.3	21.04	20.00	
31 P	6.0860	ppb	27968.2	24.99	10.00	
39 K	11.2100	ppb	67049.1	29.29	20.00	
40 Ca	36.4800	ppb	453420.4	13.62	25.00	Fail
47 Ti	0.1708	ppb	515.6	26.03	0.50	
51 V	-0.0459	ppb	3634.0	14.52	0.50	
52 Cr	-0.0145	ppb	717.4	24.66	0.20	
55 Mn	0.0253	ppb	3671.7	22.63	0.20	
56 Fe	45.5600	ppb	588020.2	13.04	10.00	Fail
59 Co	-0.0104	ppb	332.2	11.04	0.20	
60 Ni	0.0091	ppb	77.8	40.62	0.20	
63 Cu	0.0057	ppb	2048.4	151.45	0.40	
66 Zn	-0.0340	ppb	1797.9	56.26	2.00	
75 As	0.0166	ppb	87.3	76.46	0.20	
78 Se	0.0430	ppb	31.1	14.37	0.20	
88 Sr	0.0094	ppb	1391.2	14.47	0.20	
90 Zr	-0.0014	ppb	197.8	85.98	2.00	
95 Mo	0.1925	ppb	1879.1	9.06	0.40	
107 Ag	0.0019	ppb	65.6	13.11	0.20	
111 Cd	0.0025	ppb	39.7	179.74	0.20	
118 Sn	0.0268	ppb	776.7	4.38	0.20	
121 Sb	0.0408	ppb	945.6	2.33	0.40	
137 Ba	0.0052	ppb	124.4	72.03	0.20	
182 W	0.0688	ppb	630.0	8.13	1.00	
205 Tl	0.0033	ppb	475.6	75.60	0.20	
208 Pb	-0.0066	ppb	847.8	27.82	0.10	
235 U	0.0000	ppb	5.6	699.72	1.00	
238 U	0.0082	ppb	608.9	18.27	0.10	

LY 05/30/19

ISTD Elements

Element	CPS Mean	CPS RSD(%)	Ref Value	Rec(%)	QC Range(%)	Flag
6 Li	1813788.5	0.35	2345256.80	77.3	60 - 125	
45 Sc	1509817.0	1.20	1818295.10	83.0	60 - 125	
45 Sc	323531.0	1.55	382689.56	84.5	60 - 125	
45 Sc	3280596.5	0.79	3760093.80	87.2	60 - 125	
72 Ge	353548.2	0.62	408604.41	86.5	60 - 125	
72 Ge	157711.9	1.62	178049.86	88.6	60 - 125	
72 Ge	696670.4	0.35	739345.88	94.2	60 - 125	
115 In	5066817.5	0.37	4894058.00	103.5	60 - 125	
159 Tb	6498059.0	0.71	6463656.00	100.5	60 - 125	

ISTD Ref File : C:\DATA\IF62019\E\IF6E21.B\F6E21004.D\F6E21004.D#

3 :Element Failures — 0 :Max. Number of Failures Allowed
0 :ISTD Failures — 0 :Max. Nnumber of ISTD Failures Allowed

Data Results:
Analytes: Fail
ISTD: Pass

EMAX LABORATORIES, INC.

DIGESTION LOG
for
ICP-MS METALS

Note: For samples, relevant QCs/Standards digested, refer to attached digestion sequence.

Comments:

Digestion Vessel Lot # 1812117

All samples pH<2

Book #: EIM-073
Batch: IME026W
Matrix: water
Digestor ID: E

SOP #	Rev. #
☐ EMAX-200.8	6
☑ EMAX-6020	10
☐ EMAX-	

Start	Temp	End	Temp
	93.4 °C		93.6 °C

Standards	ID	Amount Added (ml/g)
LCS-1	SM6A-007-05-25	0.15
LCS-2	↓ -05-26	0.15
MS	same spike soln and vol. as	LCS 1 and 2
Blank Soil (Bead)	N/A	N/A
Reagent	**Lot# / ID** MC 5/28/19	**Amount Added (ml)**
HNO_3	SW1A-08 ~~-05-03~~ -12-04	0.5+1.0
HCl	-12-01	0.25+0.25
H_2O_2	N/A	N/A
HNO_3(1:1)	N/A	N/A
pH Strip (0-14)	HC857466	N/A
Digestate Location	Metals	
Extract Location	N/A	

☑ Reagent Water ID: SM5A-04-03-02
☑ Thermometer ID: 181292128 / E28
☑ Pipette ID: 2393600318
☐ Pipette ID:
☐ Pipette ID:
☐ HNO_3 dispenser checked @ 5.0 ml with Class A volumetric flask
☐ HCl dispenser checked @ 5.0 ml with Class A volumetric flask

Prepared By: MC
Standard Added By: MC Witnessed By: LY
Extract Rcvd By: LY Checked By: MC

EMAX LABORATORIES, INC.

DIGESTION LOG FOR METALS

PrepBatchID	LabSampleID	Aliquot	Unit	DateTime	Vd(ml)	ExpAmt	ExpVd(ml)	PrepFctr	Comments
19IME026W01	IME026WB	50	ml	5/28/19 14:12	50	50	50	1	
19IME026W02	IME026WL	50	ml	5/28/19 14:12	50	50	50	1	
19IME026W03	IME026WC	50	ml	5/28/19 14:12	50	50	50	1	
19IME026W04	E197-02	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W05	E197-04	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W06	E197-06	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W07	E197-08	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W08	E197-08M	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W09	E197-08S	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W10	E197-09	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W11	E197-10	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W12	E197-11	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED
19IME026W13	E197-12	50	ml	5/28/19 14:12	50	50	50	1	DISSOLVED

MC
5/28/19

Vd=digestate volume PrepFctr=(ExpAmt/Aliquot)*(Vd/ExpVd)

☑ Digestion Started @ 5/28/19 14:22 Prepared By: MCande

☑ Digestion Ended @ 5/28/19 16:47 Checked By: LY

Comments: Date 5/28/19

SOP EMAX-6020 Rev. 10

LABORATORY REPORT FOR

ARCADIS

PG&E'S TOPOCK-GMP

WET CHEMICAL ANALYSES

SDG#: 19E197

CASE NARRATIVE

Client : ARCADIS

Project: PG&E TOPOCK-GMP

SDG : 19E197

METHOD E120.1
SPECIFIC CONDUCTANCE

A total of eight (8) water samples were received on 05/24/19 to be analyzed for Specific Conductance in accordance with Method E120.1 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as specified by the method. All calibration requirements were within acceptance criteria.

Matrix QC Sample
Sample duplicate was analyzed and RPD was within expected value.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.

E120.1
SPECIFIC CONDUCTANCE

Client : ARCADIS
Project : PG&E TOPOCK-GMP
Batch No. : 19E197
Matrix : WATER
InstrumentID : D4

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (umhos/cm)	PREP FACTOR	MOIST (%)	RL (umhos/cm)	MDL (umhos/cm)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MW-54-195-Q219	E197-02	21800	1	NA	2	2	05/24/1915:35	NA	19ECE00401	19ECE004	ECE004W	05/23/1908:01	05/24/19
MW-54-085-Q219	E197-04	8040	1	NA	2	2	05/24/1915:36	NA	19ECE00402	19ECE004	ECE004W	05/23/1907:50	05/24/19
MW-54-140-Q219	E197-06	12600	1	NA	2	2	05/24/1915:37	NA	19ECE00403	19ECE004	ECE004W	05/23/1908:44	05/24/19
MW-55-045-Q219	E197-08	1300	1	NA	2	2	05/24/1915:38	NA	19ECE00404	19ECE004	ECE004W	05/23/1911:10	05/24/19
MW-55-120-Q219	E197-09	8060	1	NA	2	2	05/24/1915:39	NA	19ECE00405	19ECE004	ECE004W	05/23/1911:49	05/24/19
MW-56D-Q219	E197-10	21700	1	NA	2	2	05/24/1915:39	NA	19ECE00406	19ECE004	ECE004W	05/23/1913:23	05/24/19
MW-56M-Q219	E197-11	11000	1	NA	2	2	05/24/1915:40	NA	19ECE00407	19ECE004	ECE004W	05/23/1913:02	05/24/19
MW-56S-Q219	E197-12	5320	1	NA	2	2	05/24/1915:41	NA	19ECE00408	19ECE004	ECE004W	05/23/1912:40	05/24/19
MW-56S-Q219DUP	E197-12D	5310	1	NA	2	2	05/24/1915:42	NA	19ECE00409	19ECE004	ECE004W	05/23/1912:40	05/24/19

EMAX QUALITY CONTROL DATA
SAMPLE DUPLICATE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E120.1

MATRIX : WATER

DILUTION FACTOR:	1	1
SAMPLE ID :	MW-56S-Q219	MW-56S-Q219DUP
LAB SAMPLE ID :	E197-12	E197-12D
LAB FILE ID :	19ECE00408	19ECE00409
DATE PREPARED :	NA	NA
DATE ANALYZED :	05/24/1915:41	05/24/1915:42
PREP BATCH :	ECE004W	ECE004W
CALIBRATION REF:	19ECE004	19ECE004

ACCESSION:

PARAMETER	PARENT RESULT (umhos/cm)	DUP RESULT (umhos/cm)	RPD (%)	MAX RPD (%)
Specific Conductivity	5320	5310	0	5

EMAX LABORATORIES, INC.

FileID: 19ECE004W

SPECIFIC CONDUCTANCE ANALYSIS LOG

PrepBatchID	LabSampleID	Aliquot (ml)	Temp (°C)	AnalysisDateTime	Found Conc.	Conductivity	Unit	Notes
19ECE00401	E197-02	20	25.0	5/24/19 15:35	21800	21800	uS/cm	
19ECE00402	E197-04	20	25.0	5/24/19 15:36	8040	8040	uS/cm	
19ECE00403	E197-06	20	25.0	5/24/19 15:37	12560	12600	uS/cm	
19ECE00404	E197-08	20	25.0	5/24/19 15:38	1299	1300	uS/cm	
19ECE00405	E197-09	20	25.0	5/24/19 15:39	8060	8060	uS/cm	
19ECE00406	E197-10	20	25.0	5/24/19 15:39	21700	21700	uS/cm	
19ECE00407	E197-11	20	25.0	5/24/19 15:40	11020	11000	uS/cm	
19ECE00408	E197-12	20	25.0	5/24/19 15:41	5320	5320	uS/cm	
19ECE00409	E197-12D	20	25.0	5/24/19 15:42	5310	5310	uS/cm	

YA 06/07/19

Calibration of Conductivity Meter — InstrumentID: D4

CAL Standard ID		Conc.(µS/cm)	Reading	DateTime
ICAL1	SW1-02-01-2	9.27	9.27	5/24/19 15:28
ICAL2	SW1-02-01-3	998	998	5/24/19 15:29
ICAL3	SW1-02-02-0	10008	10000	5/24/19 15:30
ICAL4	SW1-02-02-0	99661	99700	5/24/19 15:31
CCS	SW1-02-02-0	1411	1411	5/24/19 15:32
ICV	SW1-01-905	422	426	5/24/19 15:32

Calibration Temp (°C): 25.0 Thermometer ID: 111862324

☑ Verified Cell Constant (K) @ 1 S/cm

LOQ = 9.27 uS/cm

CV Acceptance Limits: 399 448

QC Check	Result(µS/cm)	Expected Val	QC Check
CCS	1411	1411	%Rec=100
ICV	426	399-448	PASS
E197-12D	5310	5320	RPD=0

YA 06/07/19

☑ Sample(s) is/are filtered upon receipt

☑ Sample(s) is/are analyzed upon receipt

pH strip Lot#: HC857466 Snapseal Lot#: 25918009

0.45 micron filter Lot#: 81618103

Comment:

Conductivity reading is automatically compensated to 25°C.

☐ EMAX-2510B Rev. 6 Analyzed By: YAquin

☑ EMAX-120.1 Rev. 8 Checked By: YA

☐ EMAX-9050 Rev. 4 Date: 06/07/19

CASE NARRATIVE

Client : ARCADIS

Project: PG&E TOPOCK-GMP

SDG : 19E197

METHOD E218.6
HEXAVALENT CHROMIUM

A total of twelve (12) water samples were received on 05/24/19 to be analyzed for Hexavalent Chromium in accordance with Method E218.6 and project specific requirements.

Holding Time
Samples were analyzed within the prescribed holding time.

Calibration
Calibration was performed as prescribed by the method and was verified using a secondary source (ICV). All calibration requirements were within acceptance criteria.

Method Blank
Method blank was prepared and analyzed at the frequency required by the project. For this SDG, one (1) method blank was analyzed. Hexavalent Chromium was not detected in HCE003WB. Refer to sample result summary form for details.

Lab Control Sample
Lab control sample was prepared and analyzed at a frequency required by the project. For this SDG, one (1) set of LCS/LCD was analyzed. HCE003WL/HCE003WC were within LCS limits. Refer to LCS summary form for details.

Matrix QC Sample
Matrix spike sample was prepared and analyzed at a frequency required by the project. For this SDG, two (2) sets of MS/MSD and ten (10) sets of MS were analyzed.

- Percent recovery for Hexavalent Chromium was within MS QC limits in E197-01M,
- -02M, -03M, -05M, -06M, -07M, -09M, -10M, -11M and -12M.
- Hexavalent Chromium was within MS QC limits in E197-04M/S.
- Hexavalent Chromium was within MS QC limits in E197-08M/S.

Refer to Matrix QC summary forms for details.

Sample Analysis
Samples were analyzed according to prescribed analytical procedures. Results were evaluated in accordance to project requirements. For this SDG, all quality control requirements were met.
Samples E197-02I, -06I, -10I and -11I were reported at 5X due to matrix interferences.

SAMPLE RESULTS

METHOD E218.6
HEXAVALENT CHROMIUM

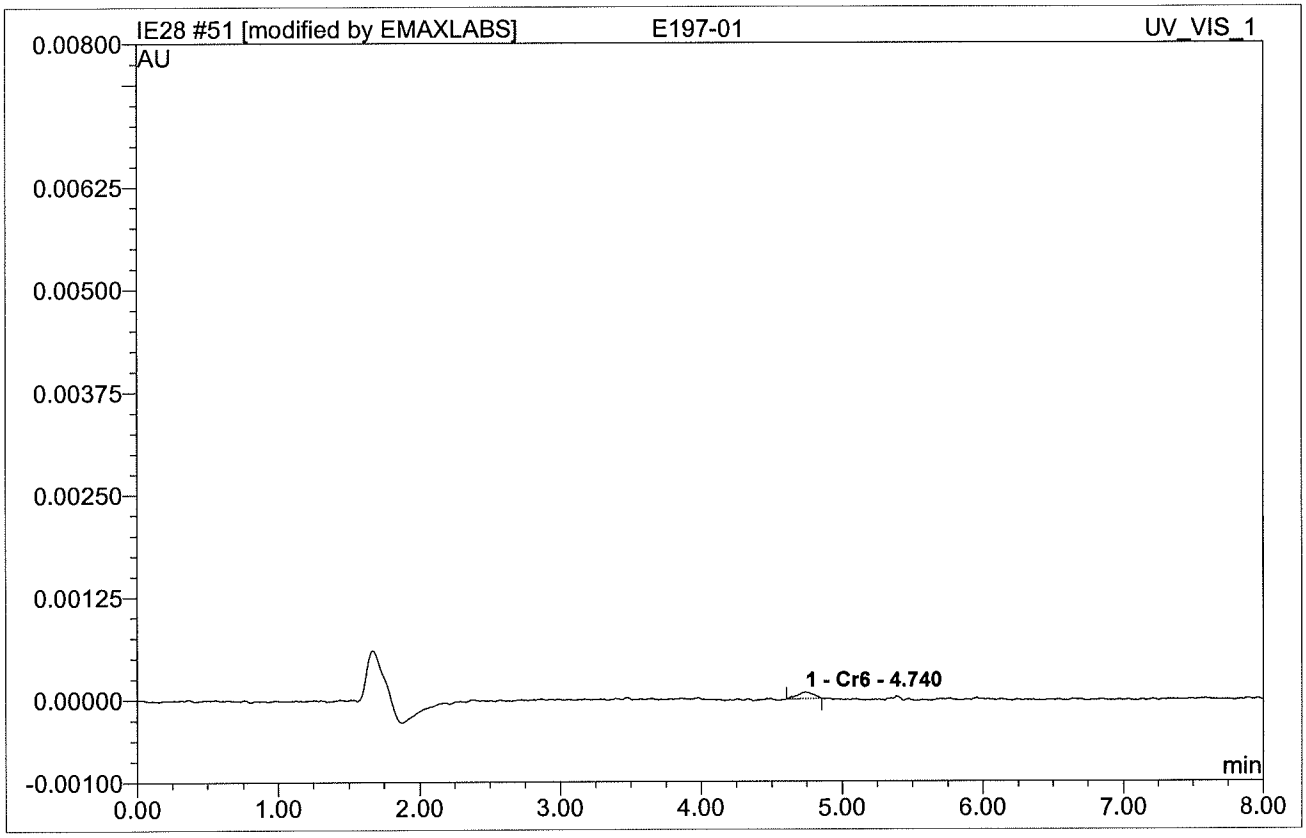
Client : ARCADIS
Project : PG&E TOPOCK-GMP
Batch No. : 19E197

Matrix : WATER
InstrumentID : 59

CLIENT SAMPLE ID	EMAX SAMPLE ID	RESULTS (ug/L)	DIL'N. FACTOR	MOIST (%)	LOQ (ug/L)	LOD (ug/L)	ANALYSIS DATETIME	PREPARATION DATETIME	DATA FILE ID	CAL REF	PREP BATCH	COLLECTION DATETIME	RECEIVED DATETIME
MBLK1W	HCE003WB	ND	1	NA	0.2	0.1	05/28/1911:01	NA	IE28003	IE28001	HCE003W	NA	NA
LCS1W	HCE003WL	2.04	1	NA	0.2	0.1	05/28/1911:11	NA	IE28004	IE28001	HCE003W	NA	NA
LCD1W	HCE003WC	2.01	1	NA	0.2	0.1	05/28/1911:21	NA	IE28005	IE28001	HCE003W	NA	NA
MW-54-085-Q219	E197-04	ND	1	NA	0.2	0.1	05/28/1911:53	NA	IE28008	IE28001	HCE003W	05/23/1907:50	05/24/19
MW-54-085-Q219MS	E197-04M	1.02	1	NA	0.2	0.1	05/28/1912:03	NA	IE28009	IE28001	HCE003W	05/23/1907:50	05/24/19
MW-54-085-Q219MSD	E197-04S	1.01	1	NA	0.2	0.1	05/28/1912:13	NA	IE28010	IE28001	HCE003W	05/23/1907:50	05/24/19
MW-55-045-Q219	E197-08	ND	1	NA	0.2	0.1	05/28/1913:16	NA	IE28015	IE28013	HCE003W	05/23/1911:10	05/24/19
MW-55-045-Q219MS	E197-08M	1.04	1	NA	0.2	0.1	05/28/1913:26	NA	IE28016	IE28013	HCE003W	05/23/1911:10	05/24/19
MW-55-045-Q219MSD	E197-08S	1.02	1	NA	0.2	0.1	05/28/1913:37	NA	IE28017	IE28013	HCE003W	05/23/1911:10	05/24/19
MW-55-120-Q219	E197-09	7.49	1	NA	0.2	0.1	05/28/1913:47	NA	IE28018	IE28013	HCE003W	05/23/1911:49	05/24/19
MW-55-120-Q219MS	E197-09M	9.45	1	NA	0.2	0.1	05/28/1914:00	NA	IE28019	IE28013	HCE003W	05/23/1911:49	05/24/19
MW-56S-Q219	E197-12	ND	1	NA	0.2	0.1	05/28/1915:23	NA	IE28027	IE28025	HCE003W	05/23/1912:40	05/24/19
MW-56S-Q219MS	E197-12M	0.936	1	NA	0.2	0.1	05/28/1915:34	NA	IE28028	IE28025	HCE003W	05/23/1912:40	05/24/19
MW-54-195-Q219	E197-02I	ND	5	NA	1	0.5	05/28/1915:44	NA	IE28029	IE28025	HCE003W	05/23/1908:01	05/24/19
MW-54-195-Q219MS	E197-02M	4.88	5	NA	1	0.5	05/28/1915:55	NA	IE28030	IE28025	HCE003W	05/23/1908:01	05/24/19
MW-54-140-Q219	E197-06I	ND	5	NA	1	0.5	05/28/1916:05	NA	IE28031	IE28025	HCE003W	05/23/1908:44	05/24/19
MW-54-140-Q219MS	E197-06M	5.01	5	NA	1	0.5	05/28/1916:15	NA	IE28032	IE28025	HCE003W	05/23/1908:44	05/24/19
MW-56D-Q219	E197-10I	ND	5	NA	1	0.5	05/28/1916:26	NA	IE28033	IE28025	HCE003W	05/23/1913:23	05/24/19
MW-56D-Q219MS	E197-10M	5.00	5	NA	1	0.5	05/28/1916:55	NA	IE28034	IE28025	HCE003W	05/23/1913:23	05/24/19
MW-56M-Q219	E197-11I	ND	5	NA	1	0.5	05/28/1917:06	NA	IE28035	IE28025	HCE003W	05/23/1913:02	05/24/19
MW-56M-Q219MS	E197-11M	4.89	5	NA	1	0.5	05/28/1917:16	NA	IE28036	IE28025	HCE003W	05/23/1913:02	05/24/19
MW-54-195-EB-Q219	E197-01	ND	1	NA	0.2	0.1	05/28/1917:58	NA	IE28039	IE28037	HCE003W	05/23/1907:25	05/24/19
MW-54-195-EB-Q219MS	E197-01M	1.06	1	NA	0.2	0.1	05/28/1918:08	NA	IE28040	IE28037	HCE003W	05/23/1907:25	05/24/19
MW-54-085-EB-Q219	E197-03	ND	1	NA	0.2	0.1	05/28/1918:19	NA	IE28041	IE28037	HCE003W	05/23/1907:20	05/24/19
MW-54-085-EB-Q219MS	E197-03M	1.06	1	NA	0.2	0.1	05/28/1918:29	NA	IE28042	IE28037	HCE003W	05/23/1907:20	05/24/19
MW-54-140-EB-Q219	E197-05	ND	1	NA	0.2	0.1	05/28/1918:40	NA	IE28043	IE28037	HCE003W	05/23/1908:50	05/24/19
MW-54-140-EB-Q219MS	E197-05M	1.05	1	NA	0.2	0.1	05/28/1918:50	NA	IE28044	IE28037	HCE003W	05/23/1908:50	05/24/19
MW-55-045-EB-Q219	E197-07	ND	1	NA	0.2	0.1	05/28/1919:00	NA	IE28045	IE28037	HCE003W	05/23/1911:15	05/24/19
MW-55-045-EB-Q219MS	E197-07M	1.09	1	NA	0.2	0.1	05/28/1919:11	NA	IE28046	IE28037	HCE003W	05/23/1911:15	05/24/19

IE28 039 E197-01

Sample Name:	**E197-01**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 17:58**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

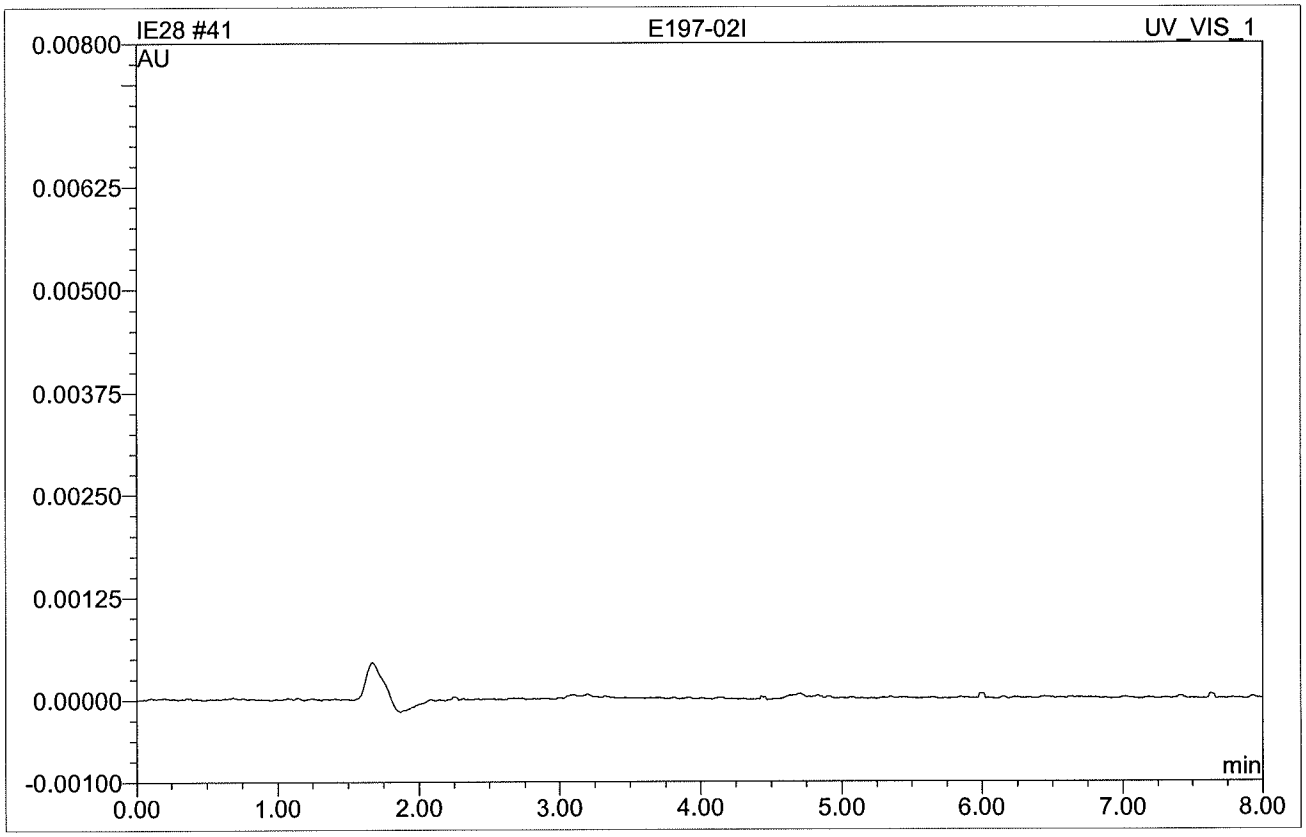


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.74	Cr6	0.0000790	0.0000103	100.00	0.095 ✓	BMB*
Total:			0.000	0.000	100.00	0.095	

IE28 029 E197-02I

DF=5

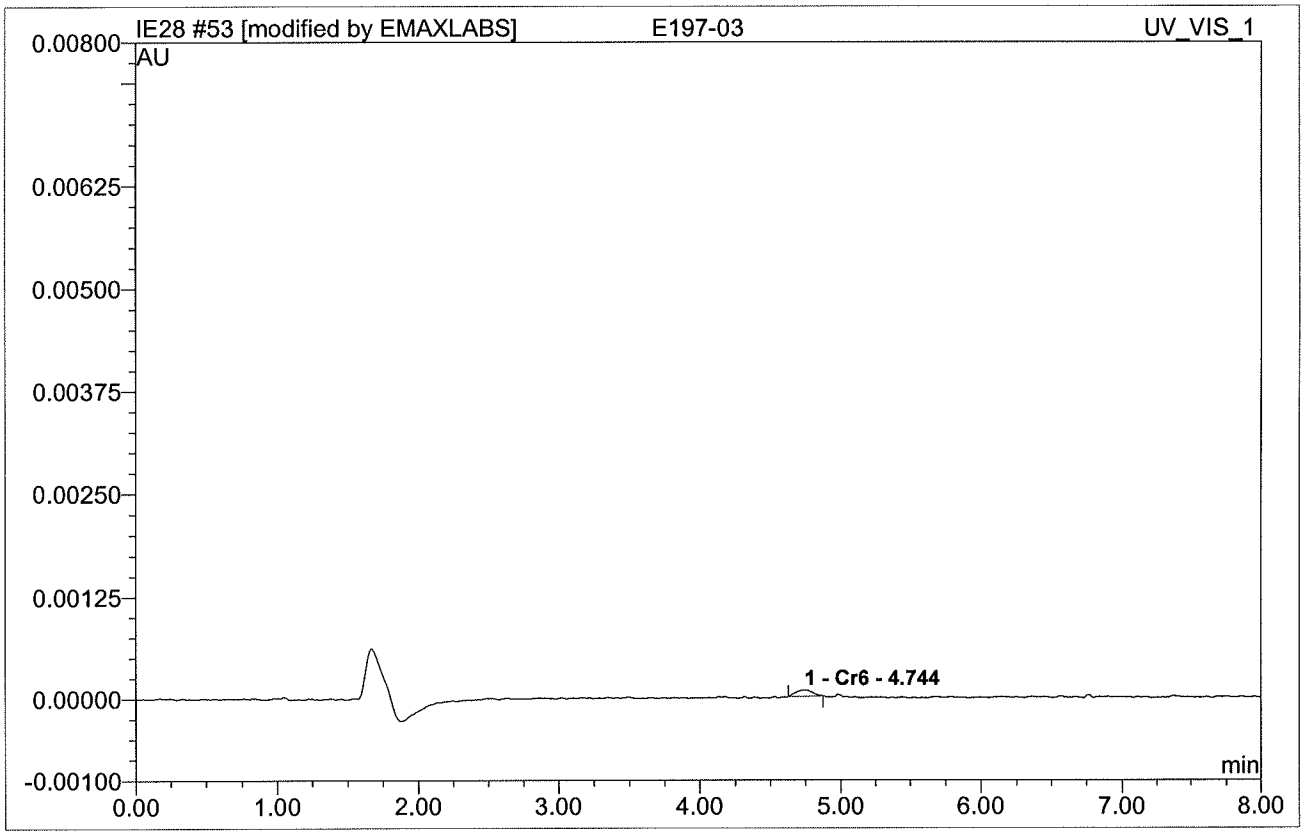
Sample Name:	**E197-02I**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**5**
Recording Time:	**5/28/2019 15:44**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	✓

IE28 041 E197-03

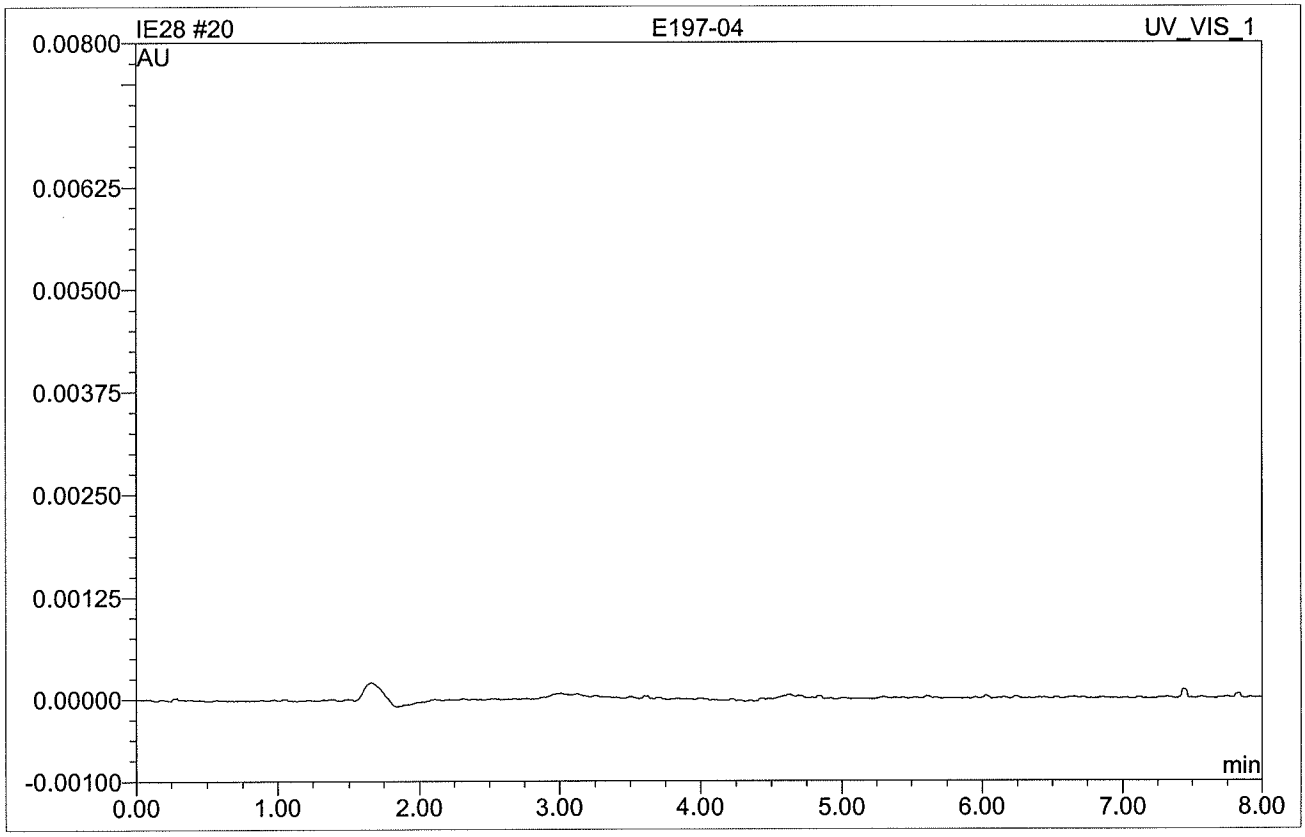
Sample Name:	**E197-03**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 18:19**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount		Type
1	4.74	Cr6	0.0000770	0.0000104	100.00	0.095	✓	BMB*
Total:			0.000	0.000	100.00	0.095		

IE28 008 E197-04

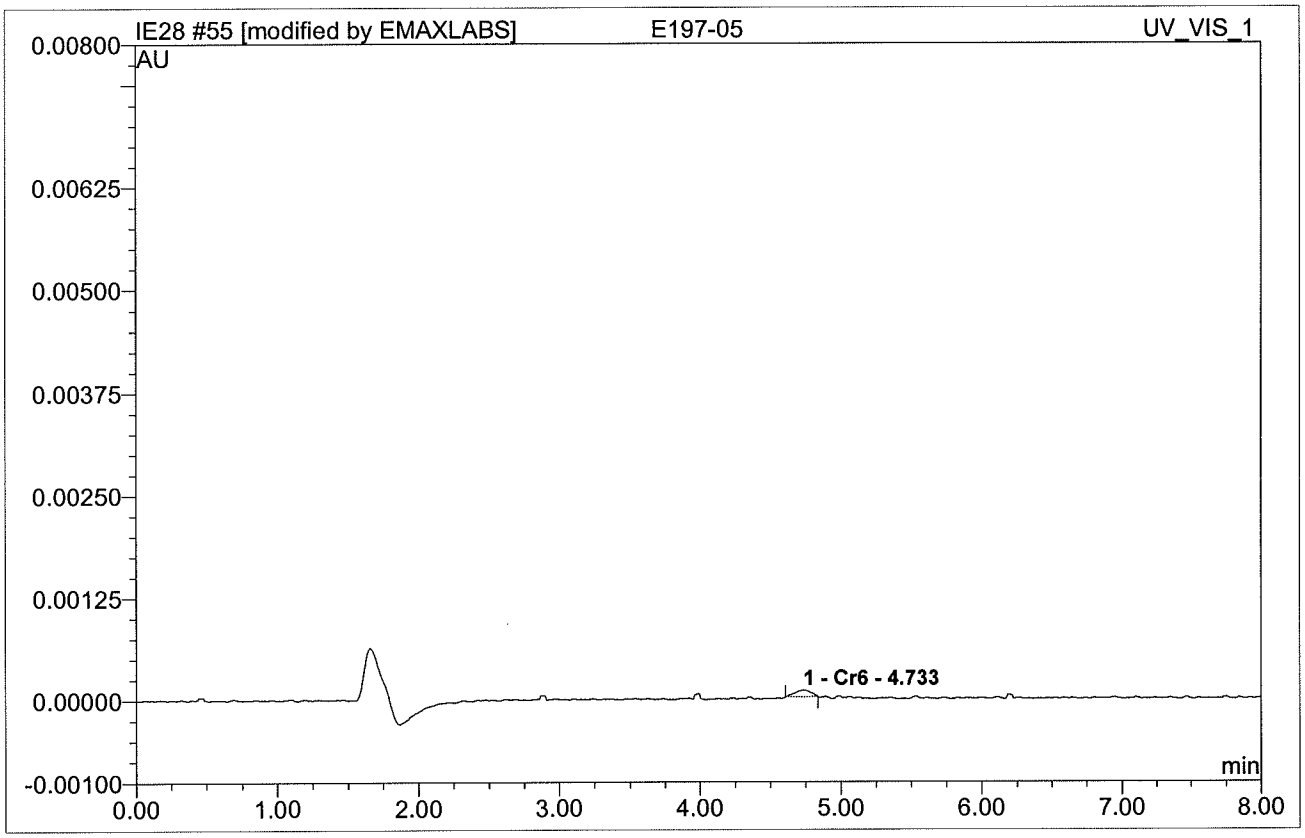
Sample Name:	**E197-04**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 11:53**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IE28 043 E197-05

Sample Name:	**E197-05**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 18:40**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

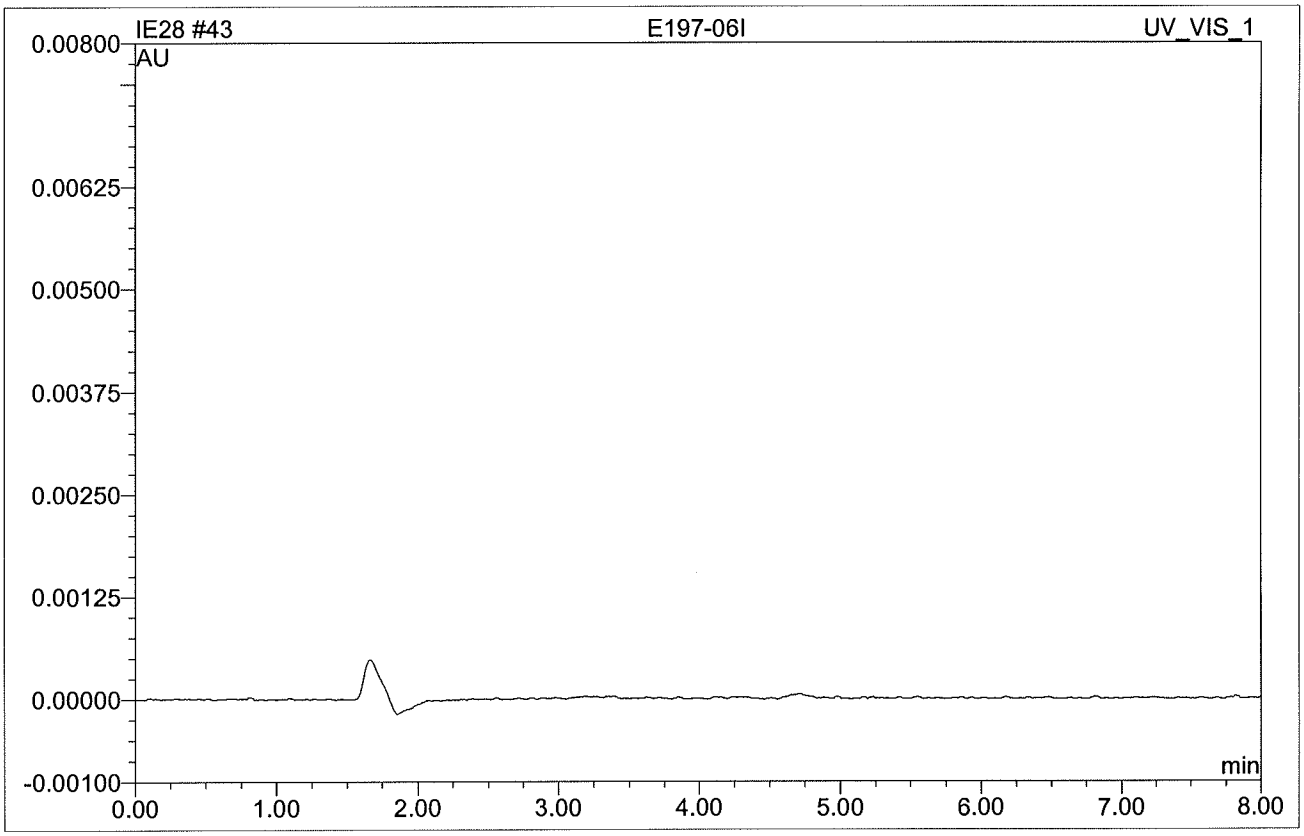


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.73	Cr6	0.0000810	0.0000107	100.00	0.098	BMB*
Total:			0.000	0.000	100.00	0.098	

IE28 031 E197-06I

DF=5

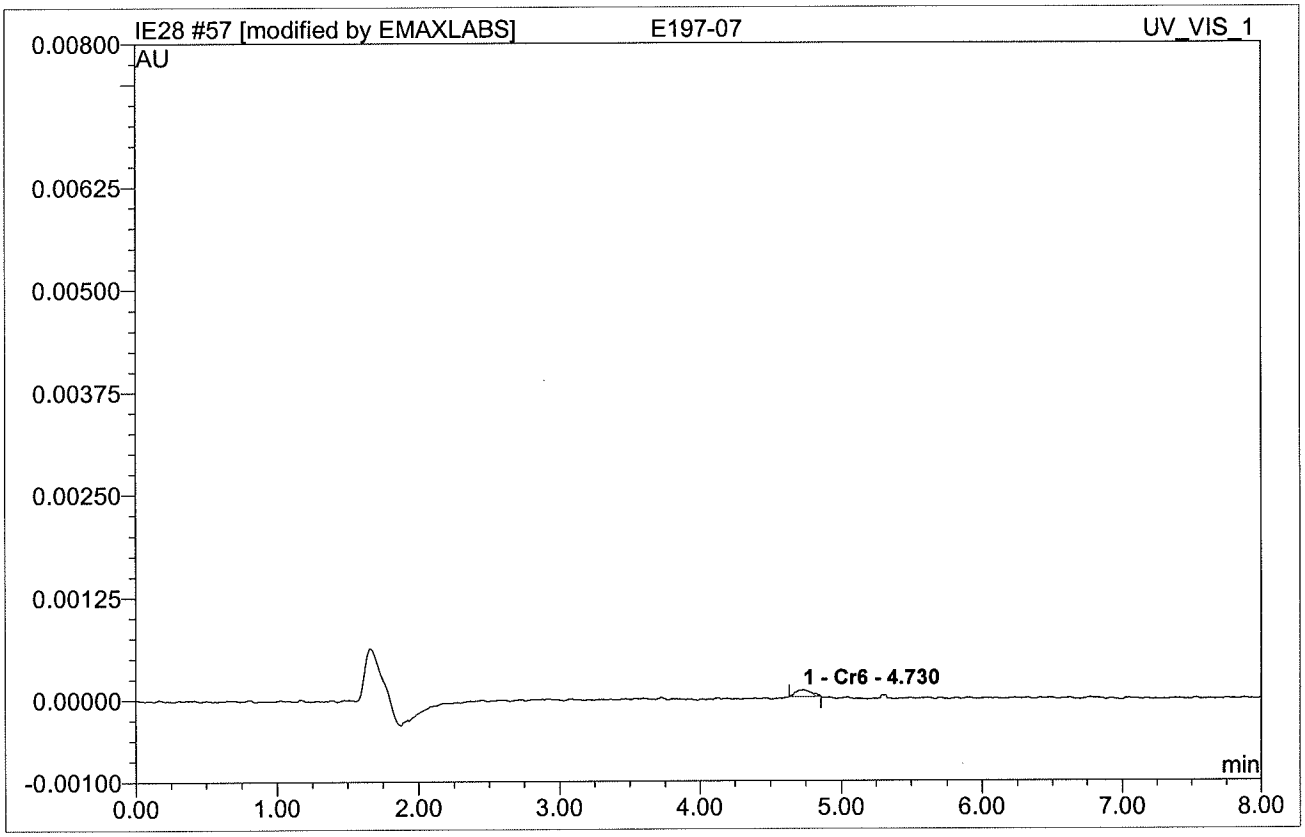
Sample Name:	**E197-06I**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**5**
Recording Time:	**5/28/2019 16:05**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IE28 045 E197-07

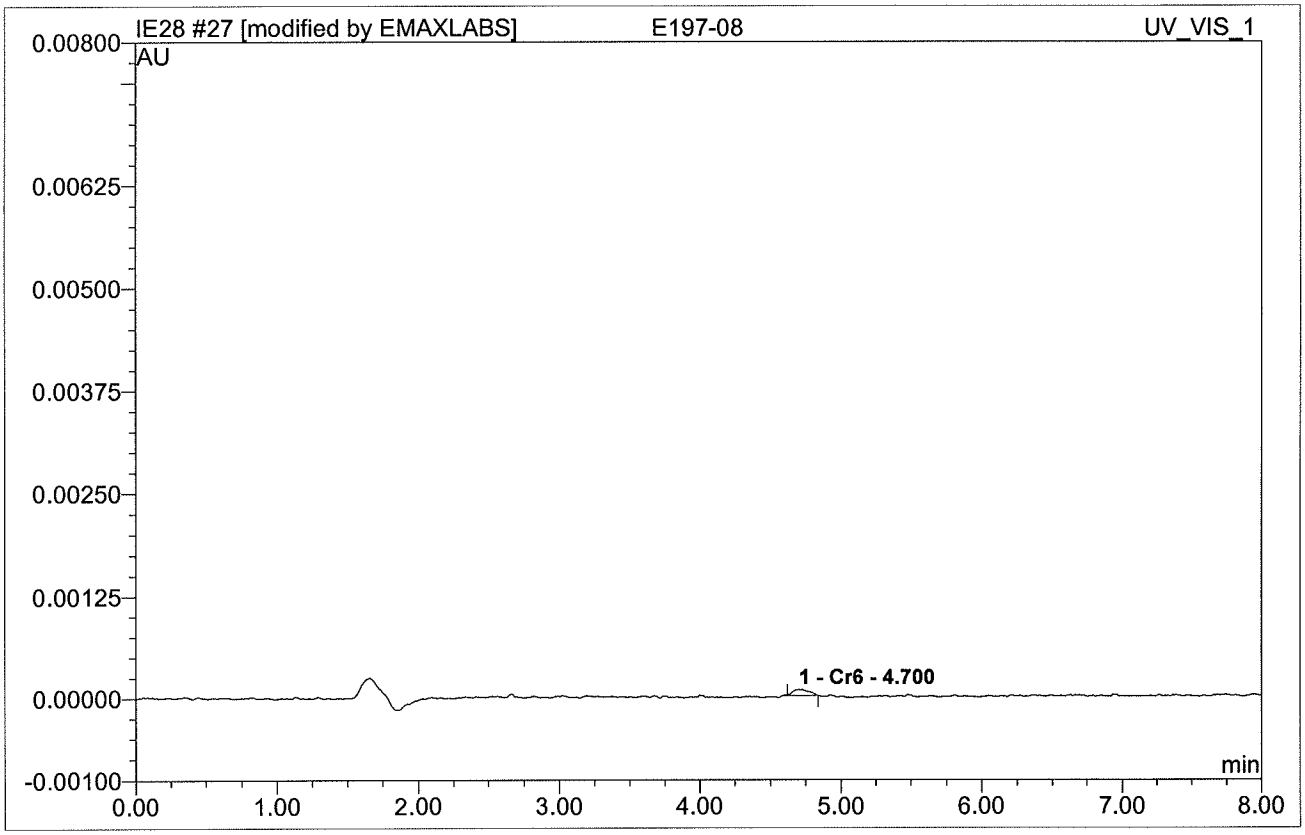
Sample Name:	**E197-07**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 19:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.73	Cr6	0.0000850	0.0000108	100.00	0.099	BMB*
Total:			0.000	0.000	100.00	0.099	

IE28 015 E197-08

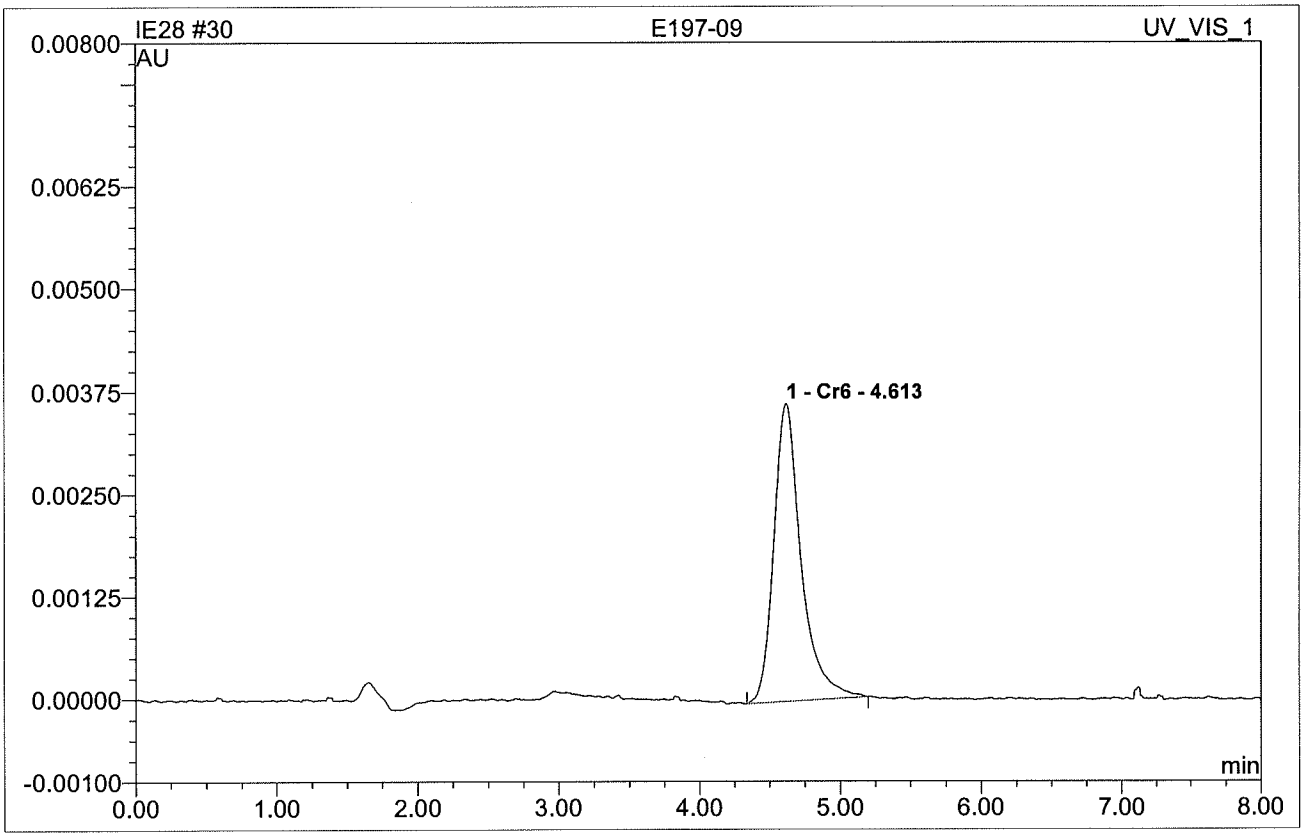
Sample Name:	**E197-08**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 13:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.70	Cr6	0.0000760	0.0000095	100.00	0.087	BMB*
Total:			0.000	0.000	100.00	0.087	

IE28 018 E197-09

Sample Name:	**E197-09**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 13:47**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

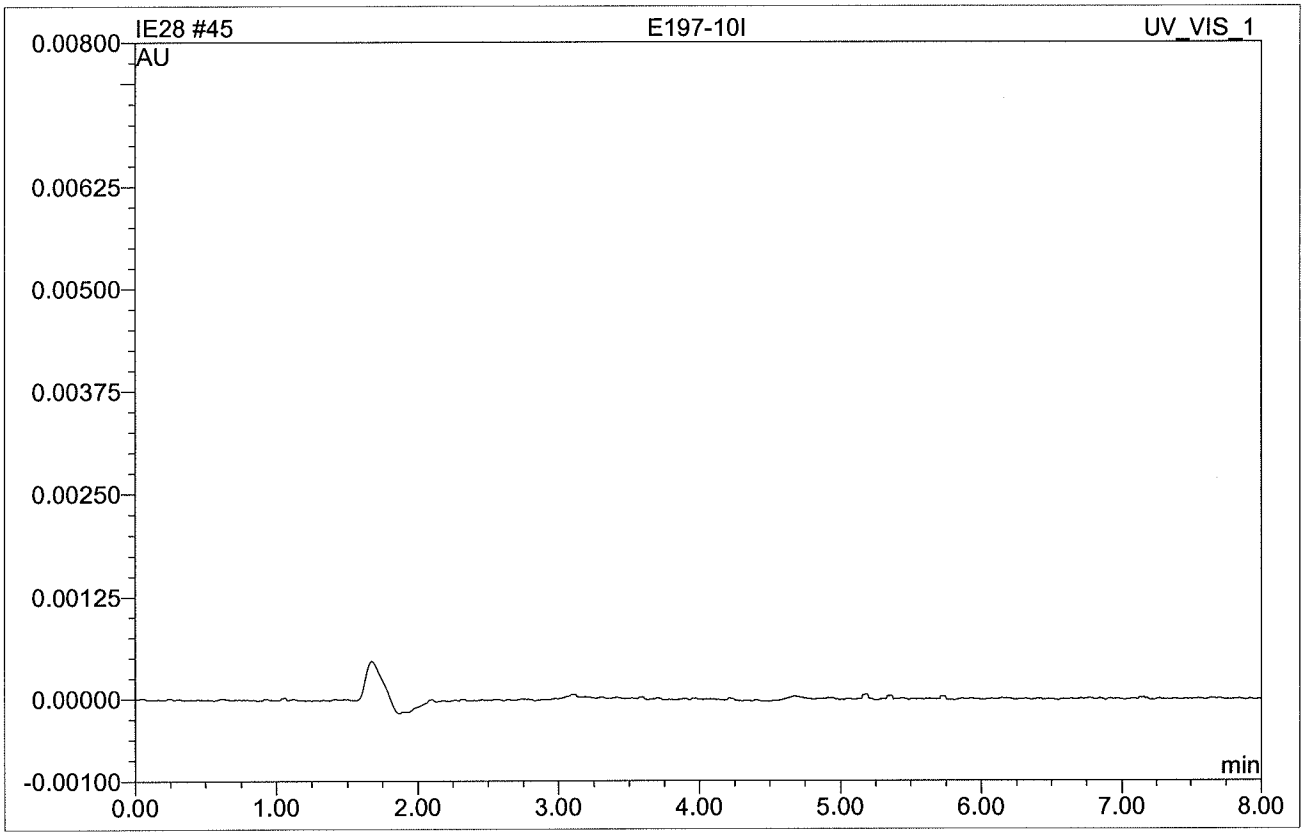


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.61	Cr6	0.0036330	0.0008100	100.00	7.492	BMB
Total:			0.004	0.001	100.00	7.492	

IE28 033 E197-10I

DF=5

Sample Name:	**E197-10I**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**5**
Recording Time:	**5/28/2019 16:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

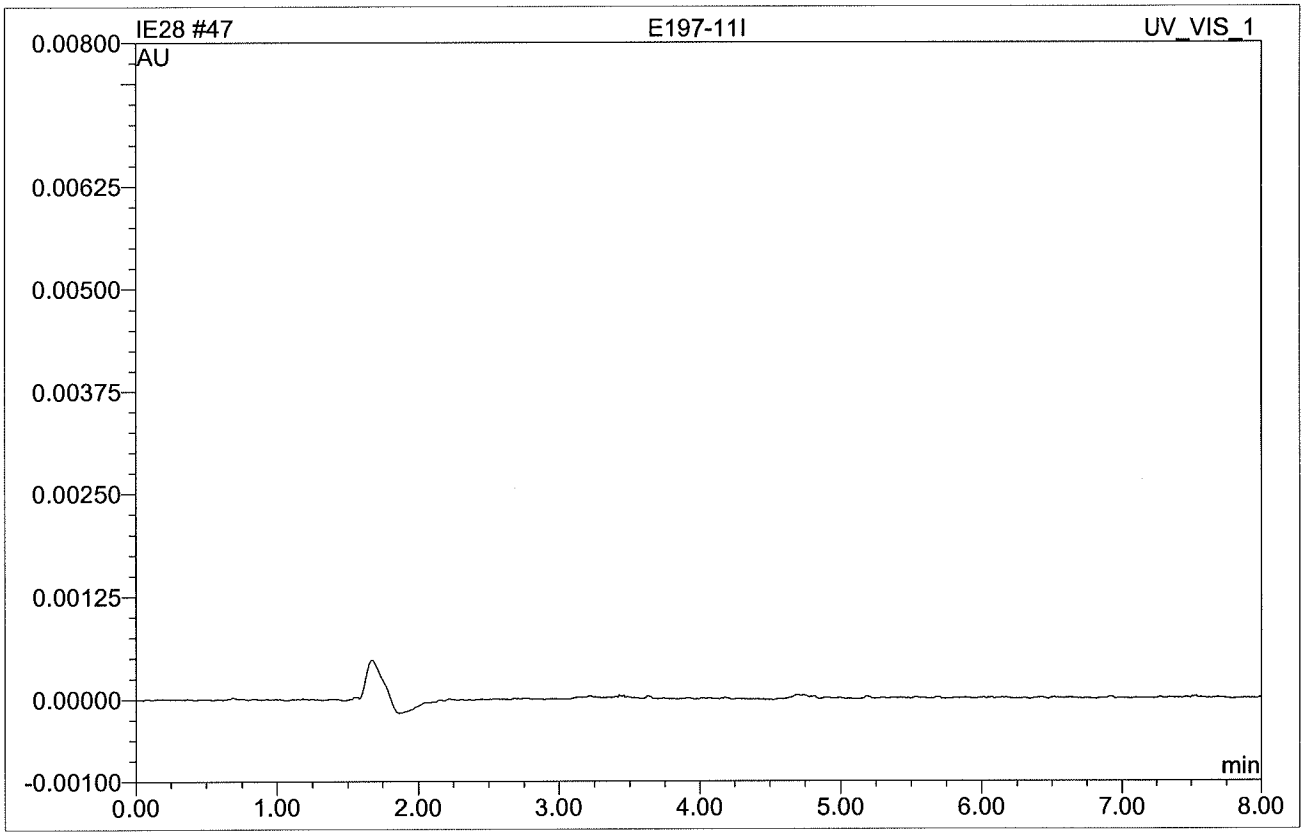


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IE28 035 E197-11I

DF=5

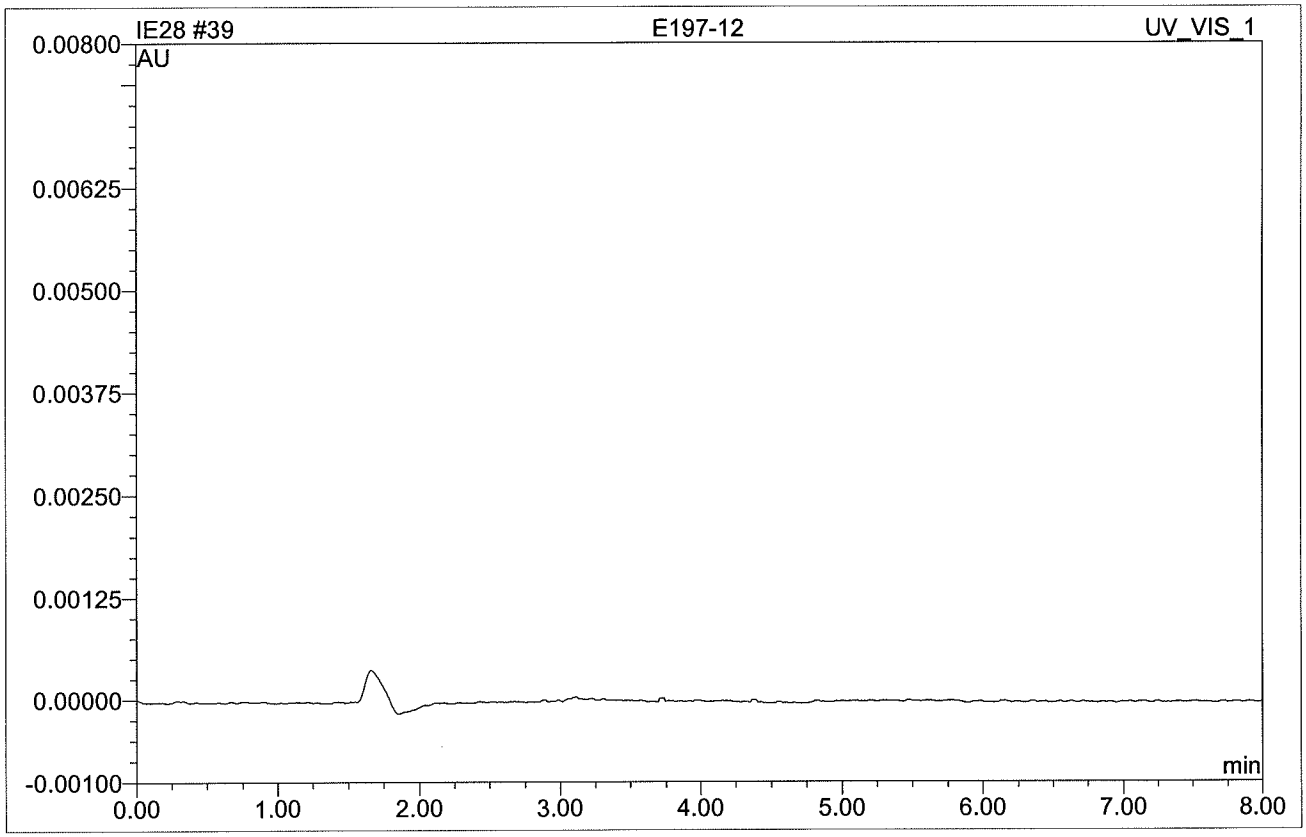
Sample Name:	**E197-11I**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**5**
Recording Time:	**5/28/2019 17:06**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IE28 027 E197-12

Sample Name:	**E197-12**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 15:23**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

QC SUMMARIES

EMAX QUALITY CONTROL DATA
LAB CONTROL SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER		% MOISTURE: NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MBLK1W	LCS1W	LCD1W
LAB SAMPLE ID	: HCE003WB	HCE003WL	HCE003WC
LAB FILE ID	: IE28003	IE28004	IE28005
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 05/28/1911:01	05/28/1911:11	05/28/1911:21
PREP BATCH	: HCE003W	HCE003W	HCE003W
CALIBRATION REF	: IE28001	IE28001	IE28001

ACCESSION:

PARAMETERS	MBResult (ug/L)	SpkAmt (ug/L)	LCSResult (ug/L)	LCSRec (%)	SpikeAmt (ug/L)	LCDResult (ug/L)	LCDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
HEXAVALENT CHROMIUM	ND	2.00	2.04	102	2.00	2.01	101	1	90-110	20

MB: Method Blank sample LCS: Lab Control Sample LCD: Lab Control Sample Duplicate

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 1	1
SAMPLE ID	: MW-54-195-EB-Q219	MW-54-195-EB-Q219MS
LAB SAMPLE ID	: E197-01	E197-01M
LAB FILE ID	: IE28039	IE28040
DATE PREPARED	: NA	NA
DATE ANALYZED	: 05/28/1917:58	05/28/1918:08
PREP BATCH	: HCE003W	HCE003W
CALIBRATION REF	: IE28037	IE28037

ACCESSION:

PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	1.00	1.06	106	90-110

PS: Parent Sample MS: Matrix Spike

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 5	5
SAMPLE ID	: MW-54-195-Q219	MW-54-195-Q219MS
LAB SAMPLE ID	: E197-02I	E197-02M
LAB FILE ID	: IE28029	IE28030
DATE PREPARED	: NA	NA
DATE ANALYZED	: 05/28/1915:44	05/28/1915:55
PREP BATCH	: HCE003W	HCE003W
CALIBRATION REF	: IE28025	IE28025

ACCESSION:

PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	5.00	4.88	97.6	90-110

PS: Parent Sample MS: Matrix Spike

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 1	1
SAMPLE ID	: MW-54-085-EB-Q219	MW-54-085-EB-Q219MS
LAB SAMPLE ID	: E197-03	E197-03M
LAB FILE ID	: IE28041	IE28042
DATE PREPARED	: NA	NA
DATE ANALYZED	: 05/28/1918:19	05/28/1918:29
PREP BATCH	: HCE003W	HCE003W
CALIBRATION REF	: IE28037	IE28037

ACCESSION:

PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	1.00	1.06	106	90-110

PS: Parent Sample MS: Matrix Spike

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER		% MOISTURE: NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MW-54-085-Q219	MW-54-085-Q219MS	MW-54-085-Q219MSD
LAB SAMPLE ID	: E197-04	E197-04M	E197-04S
LAB FILE ID	: IE28008	IE28009	IE28010
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 05/28/1911:53	05/28/1912:03	05/28/1912:13
PREP BATCH	: HCE003W	HCE003W	HCE003W
CALIBRATION REF	: IE28001	IE28001	IE28001

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpkAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
HEXAVALENT CHROMIUM	ND	1.00	1.02	102	1.00	1.01	101	1	90-110	20

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR:	1	1
SAMPLE ID	: MW-54-140-EB-Q219	MW-54-140-EB-Q219MS
LAB SAMPLE ID	: E197-05	E197-05M
LAB FILE ID	: IE28043	IE28044
DATE PREPARED	: NA	NA
DATE ANALYZED	: 05/28/1918:40	05/28/1918:50
PREP BATCH	: HCE003W	HCE003W
CALIBRATION REF:	IE28037	IE28037

ACCESSION:

PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	1.00	1.05	105	90-110

PS: Parent Sample MS: Matrix Spike

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 5	5
SAMPLE ID	: MW-54-140-Q219	MW-54-140-Q219MS
LAB SAMPLE ID	: E197-06I	E197-06M
LAB FILE ID	: IE28031	IE28032
DATE PREPARED	: NA	NA
DATE ANALYZED	: 05/28/1916:05	05/28/1916:15
PREP BATCH	: HCE003W	HCE003W
CALIBRATION REF	: IE28025	IE28025

ACCESSION:

PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	5.00	5.01	100	90-110

PS: Parent Sample MS: Matrix Spike

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 1	1
SAMPLE ID	: MW-55-045-EB-Q219	MW-55-045-EB-Q219MS
LAB SAMPLE ID	: E197-07	E197-07M
LAB FILE ID	: IE28045	IE28046
DATE PREPARED	: NA	NA
DATE ANALYZED	: 05/28/1919:00	05/28/1919:11
PREP BATCH	: HCE003W	HCE003W
CALIBRATION REF	: IE28037	IE28037

ACCESSION:

PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	1.00	1.09	109	90-110

PS: Parent Sample MS: Matrix Spike

EMAX QUALITY CONTROL DATA
MS/MSD ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER		% MOISTURE: NA
DILUTION FACTOR	: 1	1	1
SAMPLE ID	: MW-55-045-Q219	MW-55-045-Q219MS	MW-55-045-Q219MSD
LAB SAMPLE ID	: E197-08	E197-08M	E197-08S
LAB FILE ID	: IE28015	IE28016	IE28017
DATE PREPARED	: NA	NA	NA
DATE ANALYZED	: 05/28/1913:16	05/28/1913:26	05/28/1913:37
PREP BATCH	: HCE003W	HCE003W	HCE003W
CALIBRATION REF	: IE28013	IE28013	IE28013

ACCESSION:

PARAMETERS	PSResult (ug/L)	SpkAmt (ug/L)	MSResult (ug/L)	MSRec (%)	SpikeAmt (ug/L)	MSDResult (ug/L)	MSDRec (%)	RPD (%)	QCLimit (%)	MaxRPD (%)
HEXAVALENT CHROMIUM	ND	1.00	1.04	104	1.00	1.02	102	2	90-110	20

PS: Parent Sample MS: Matrix Spike MSD: Matrix Spike Duplicate

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR:	1	1
SAMPLE ID	: MW-55-120-Q219	MW-55-120-Q219MS
LAB SAMPLE ID	: E197-09	E197-09M
LAB FILE ID	: IE28018	IE28019
DATE PREPARED	: NA	NA
DATE ANALYZED	: 05/28/1913:47	05/28/1914:00
PREP BATCH	: HCE003W	HCE003W
CALIBRATION REF:	IE28013	IE28013

ACCESSION:

PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	7.49	2.00	9.45	98.0	90-110

PS: Parent Sample MS: Matrix Spike

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR:	5	5
SAMPLE ID	: MW-56D-Q219	MW-56D-Q219MS
LAB SAMPLE ID	: E197-10I	E197-10M
LAB FILE ID	: IE28033	IE28034
DATE PREPARED	: NA	NA
DATE ANALYZED	: 05/28/1916:26	05/28/1916:55
PREP BATCH	: HCE003W	HCE003W
CALIBRATION REF:	IE28025	IE28025

ACCESSION:

PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	5.00	5.00	100	90-110

PS: Parent Sample MS: Matrix Spike

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 5	5
SAMPLE ID	: MW-56M-Q219	MW-56M-Q219MS
LAB SAMPLE ID	: E197-11I	E197-11M
LAB FILE ID	: IE28035	IE28036
DATE PREPARED	: NA	NA
DATE ANALYZED	: 05/28/1917:06	05/28/1917:16
PREP BATCH	: HCE003W	HCE003W
CALIBRATION REF	: IE28025	IE28025

ACCESSION:

PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	5.00	4.89	97.8	90-110

PS: Parent Sample MS: Matrix Spike

EMAX QUALITY CONTROL DATA
MATRIX SPIKE SAMPLE ANALYSIS

CLIENT : ARCADIS
PROJECT : PG&E TOPOCK-GMP
BATCH NO. : 19E197
METHOD : E218.6

MATRIX	: WATER	% MOISTURE: NA
DILUTION FACTOR	: 1	1
SAMPLE ID	: MW-56S-Q219	MW-56S-Q219MS
LAB SAMPLE ID	: E197-12	E197-12M
LAB FILE ID	: IE28027	IE28028
DATE PREPARED	: NA	NA
DATE ANALYZED	: 05/28/1915:23	05/28/1915:34
PREP BATCH	: HCE003W	HCE003W
CALIBRATION REF	: IE28025	IE28025

ACCESSION:

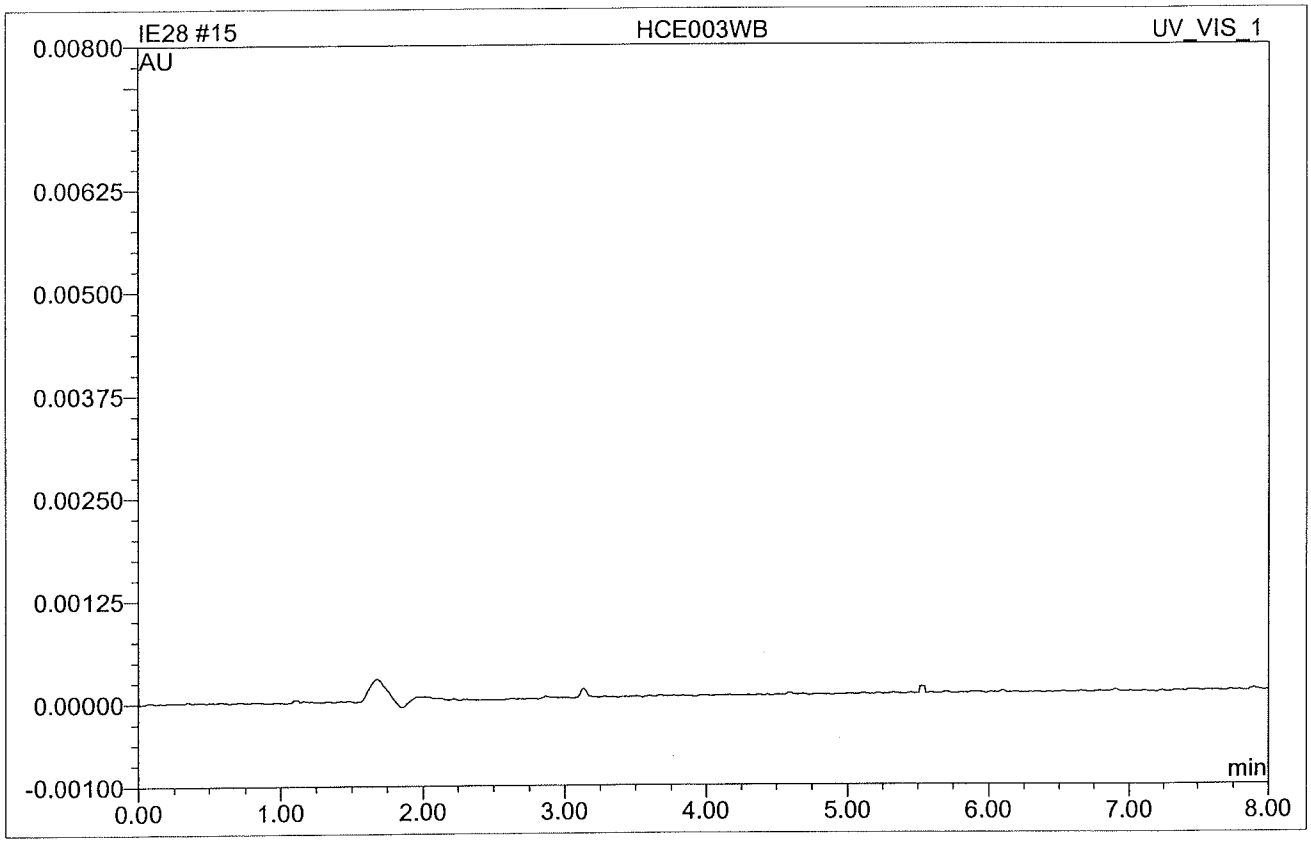
PARAMETER	PSResult (ug/L)	SPIKE AMT (ug/L)	MSResult (ug/L)	MSRec (%)	QC LIMIT (%)
HEXAVALENT CHROMIUM	ND	1.00	0.936	93.6	90-110

PS: Parent Sample MS: Matrix Spike

QC DATA

IE28 003 HCE003WB

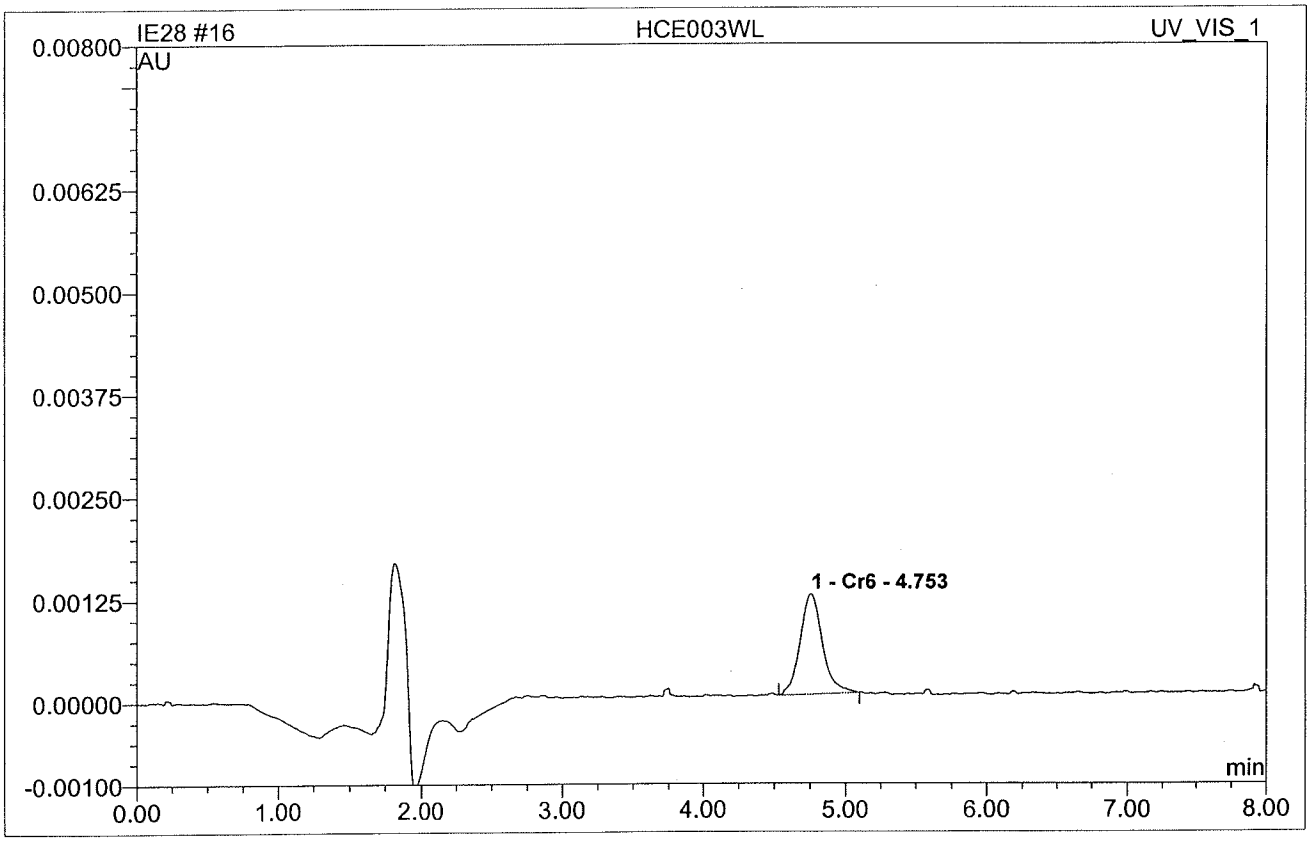
Sample Name:	**HCE003WB**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 11:01**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IE28 004 HCE003WL

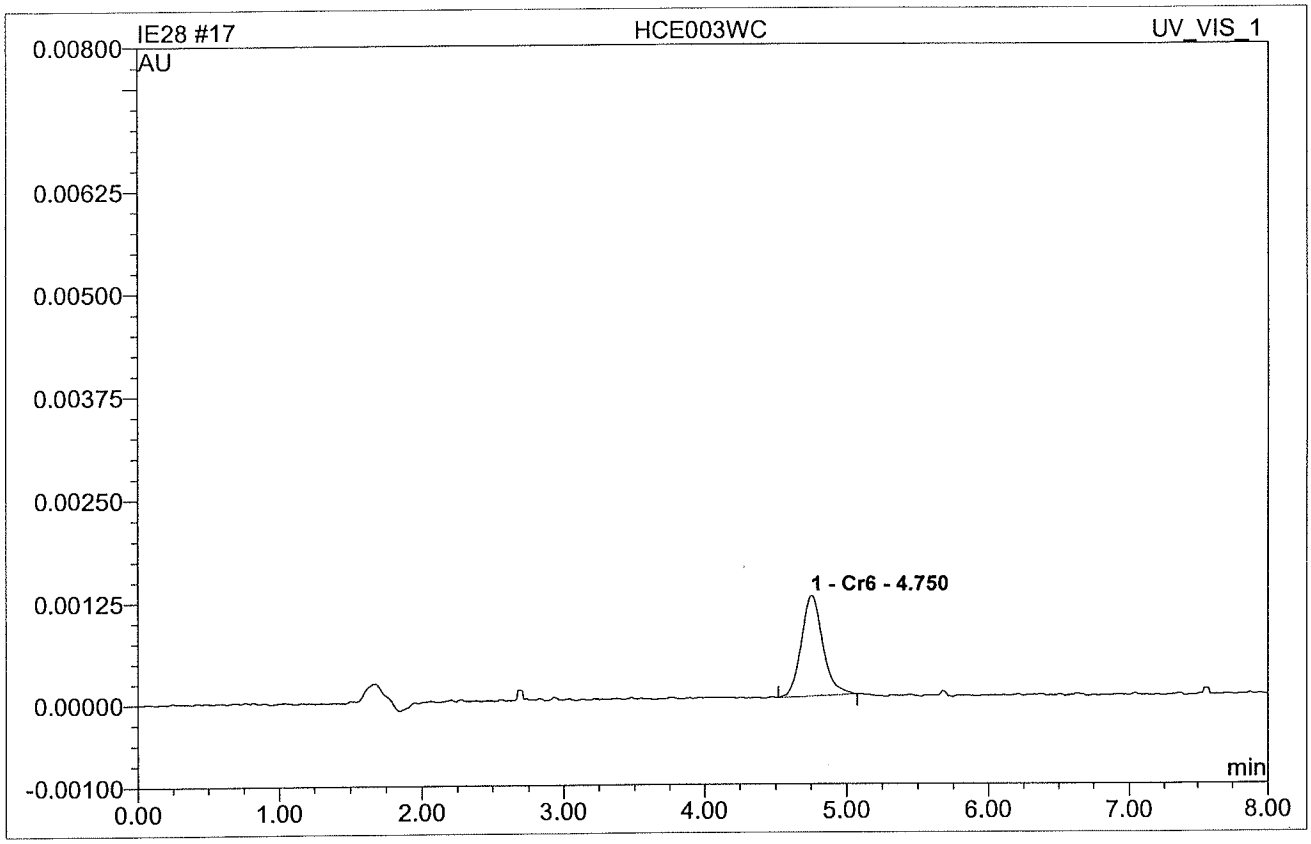
Sample Name:	**HCE003WL**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 11:11**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.75	Cr6	0.0012240	0.0002207	100.00	2.041	BMB
Total:			0.001	0.000	100.00	2.041	

IE28 005 HCE003WC

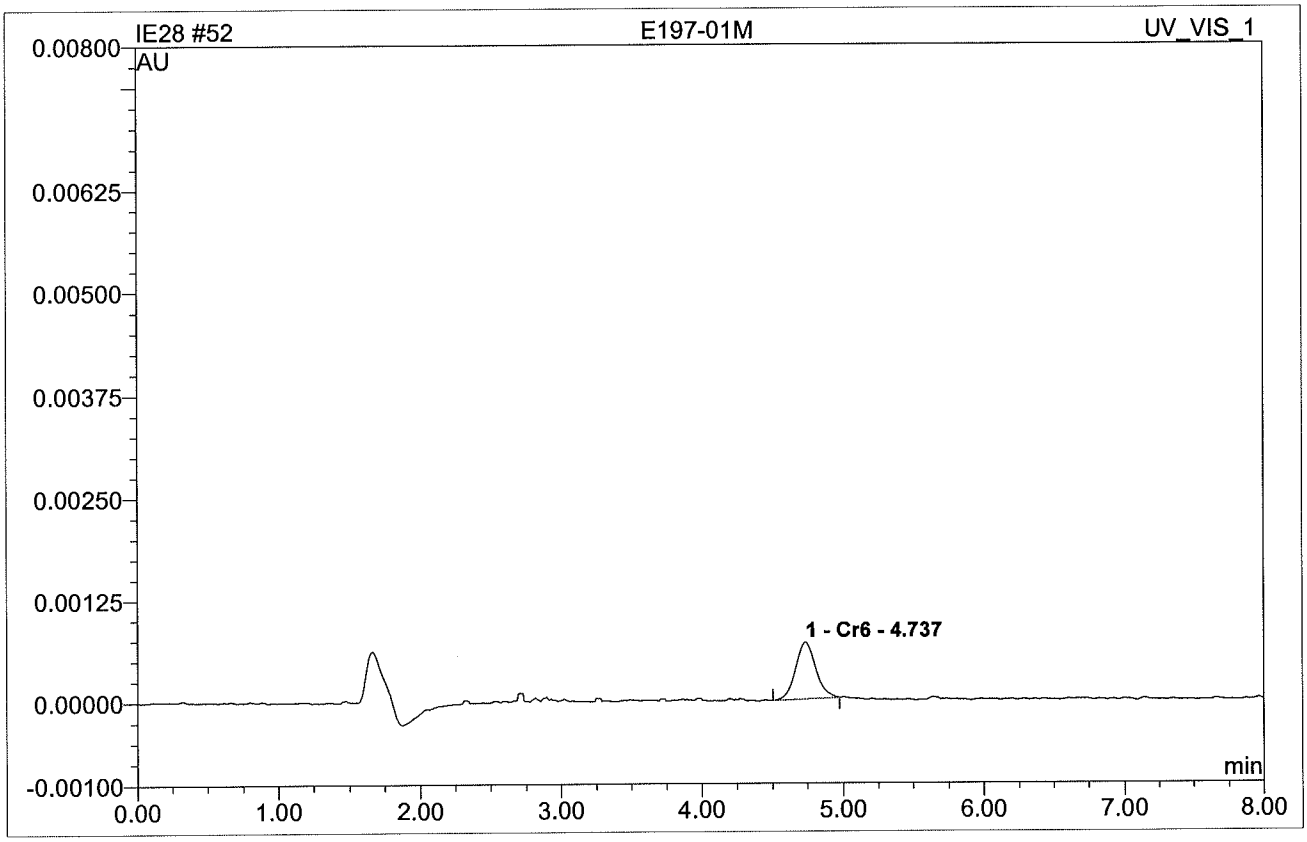
Sample Name:	**HCE003WC**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 11:21**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.75	Cr6	0.0012290	0.0002176	100.00	2.012	BMB
Total:			0.001	0.000	100.00	2.012	

IE28 040 E197-01M

Sample Name:	**E197-01M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 18:08**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

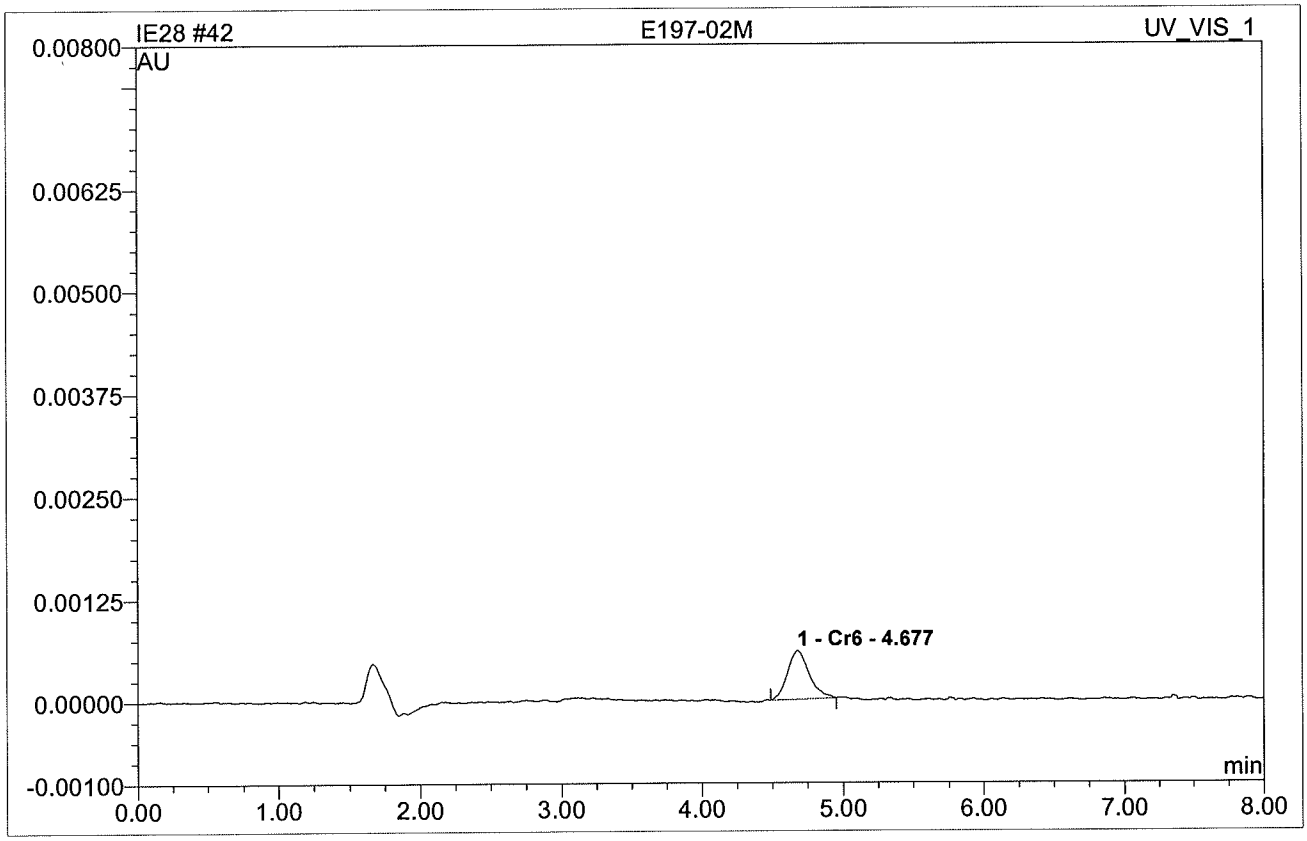


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount		Type
1	4.74	Cr6	0.0006940	0.0001147	100.00	1.060	✓	BMB
Total:			0.001	0.000	100.00	1.060		

IE28 030 E197-02M

DF=5

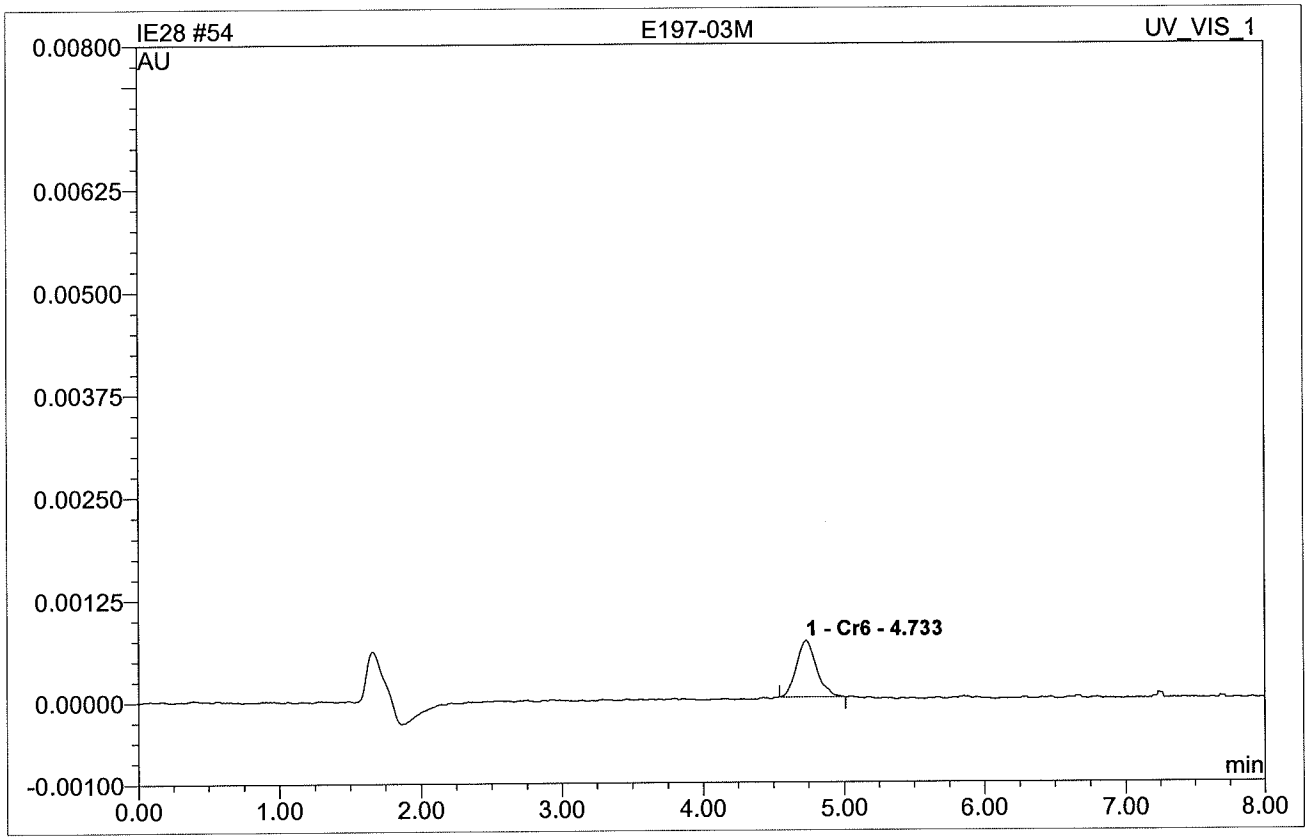
Sample Name:	**E197-02M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**5**
Recording Time:	**5/28/2019 15:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.68	Cr6	0.0005940	0.0001055	100.00	4.877	✓ BMB
Total:			0.001	0.000	100.00	4.877	

IE28 042 E197-03M

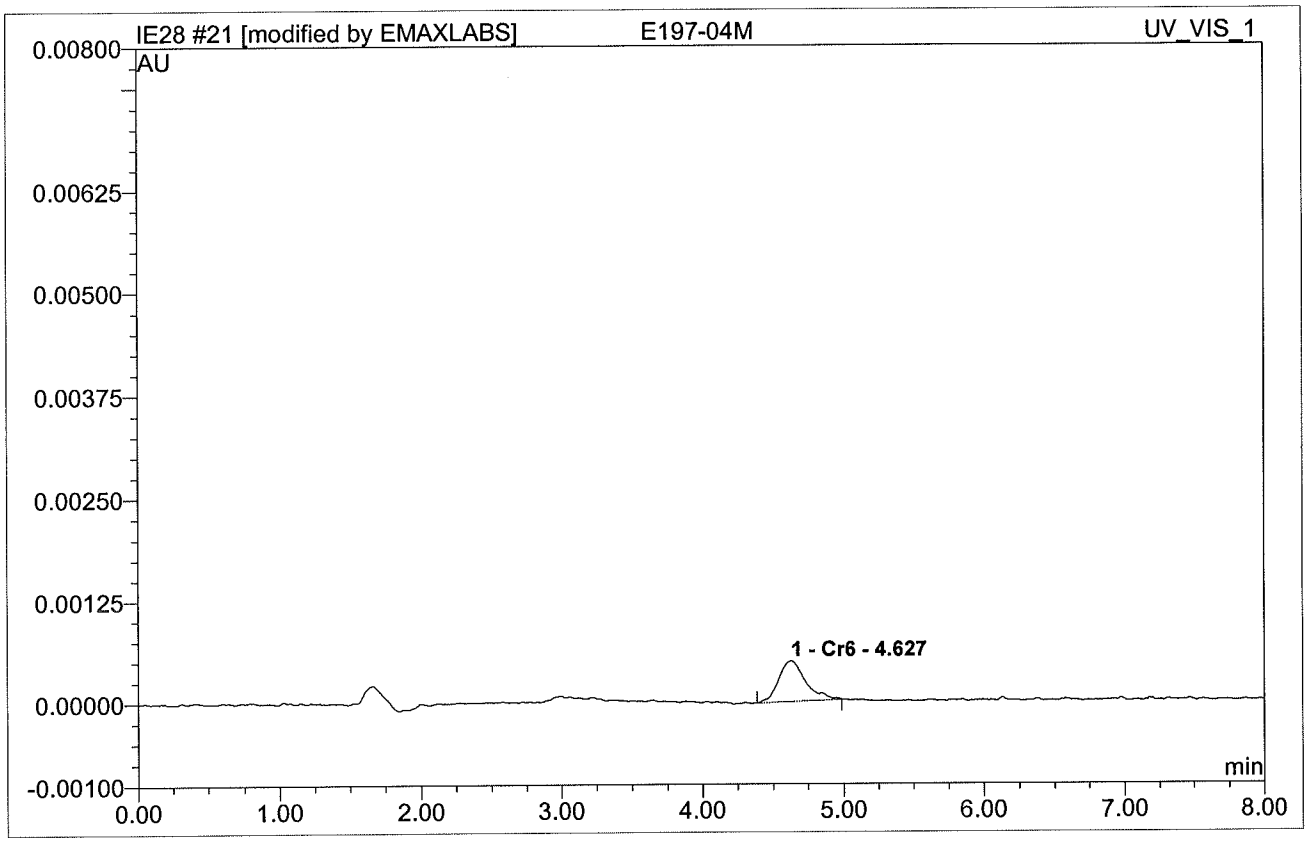
Sample Name:	**E197-03M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 18:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.73	Cr6	0.0006950	0.0001144	100.00	1.057	BMB
Total:			0.001	0.000	100.00	1.057	

IE28 009 E197-04M

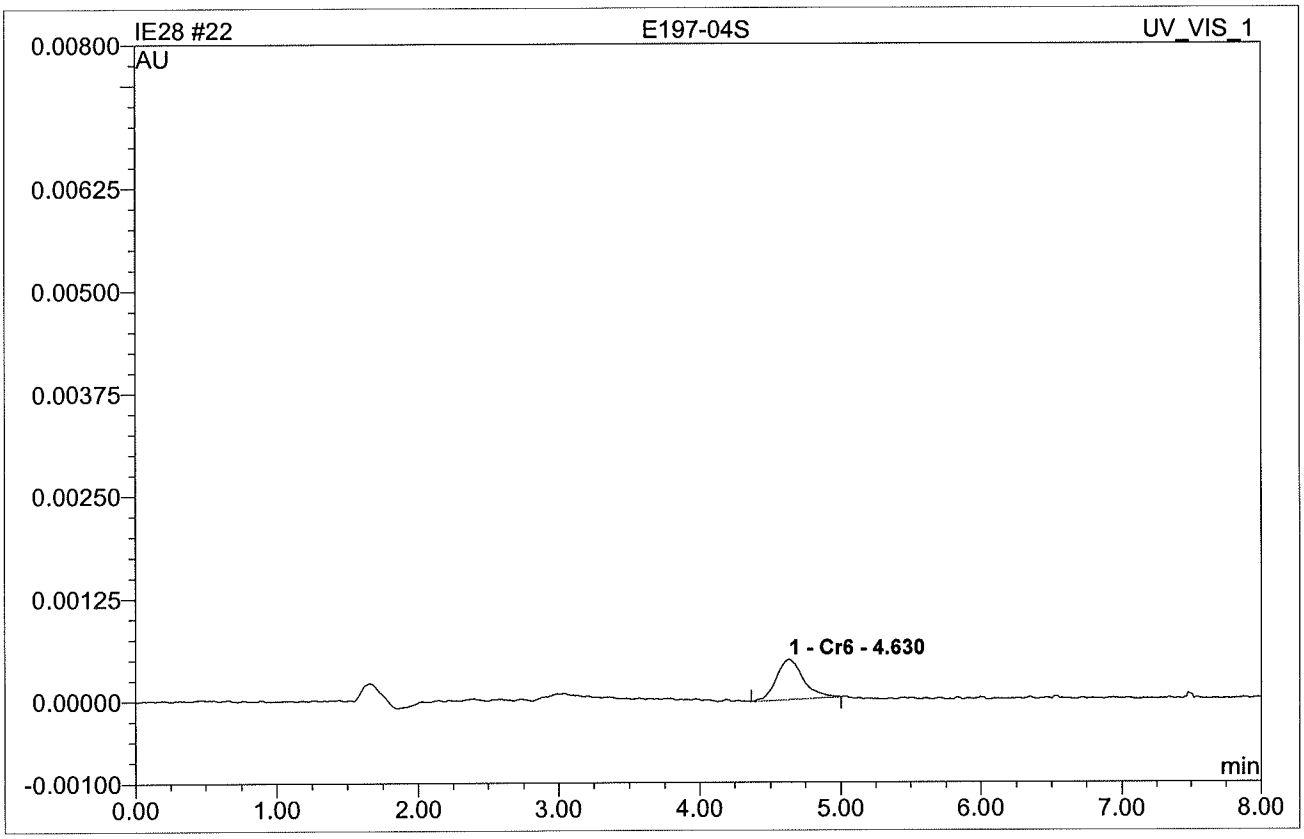
Sample Name:	**E197-04M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 12:03**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.63	Cr6	0.0004930	0.0001103	100.00	1.020	BMB*
Total:			0.000	0.000	100.00	1.020	

IE28 010 E197-04S

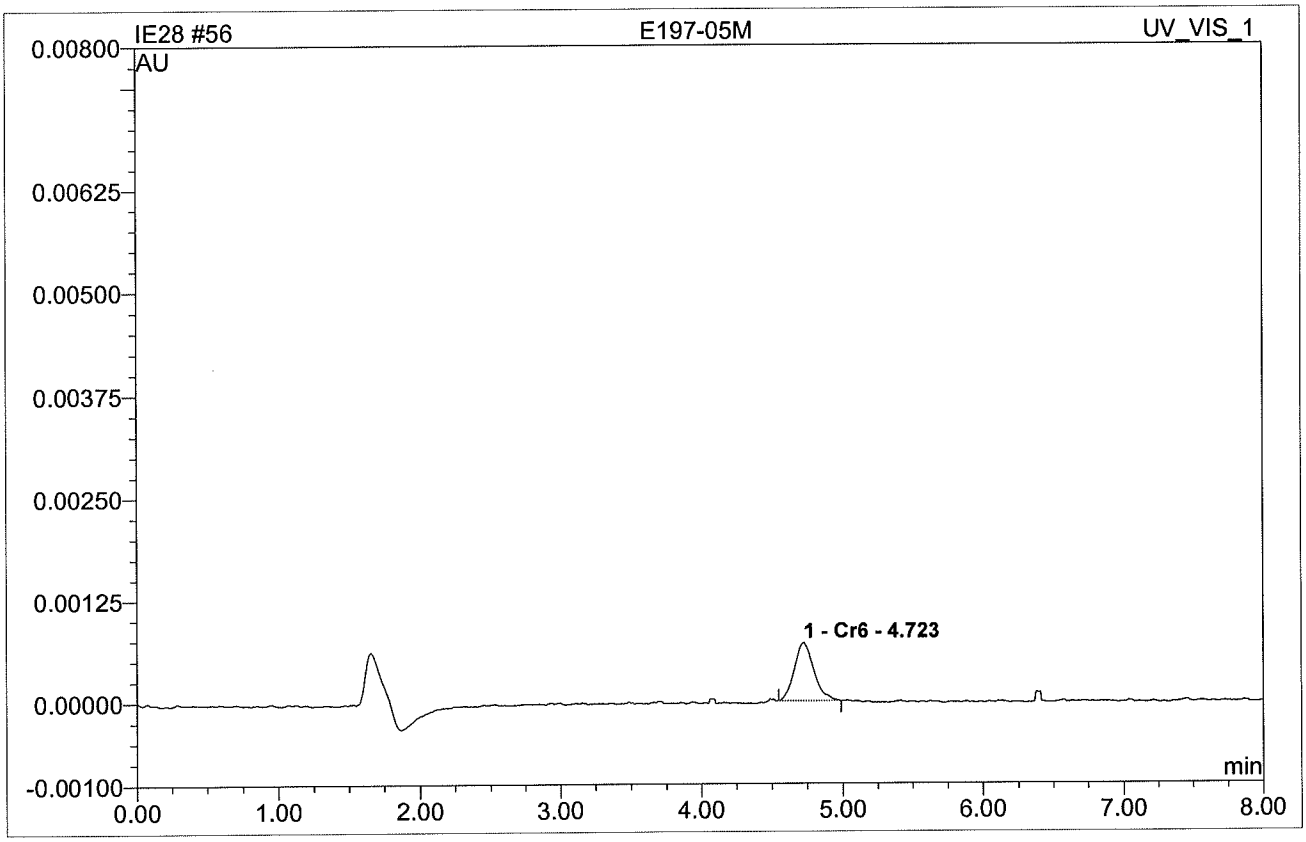
Sample Name:	**E197-04S**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 12:13**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount		Type
1	4.63	Cr6	0.0004900	0.0001096	100.00	1.013	✓	BMB
Total:			0.000	0.000	100.00	1.013		

IE28 044 E197-05M

Sample Name:	**E197-05M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 18:50**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

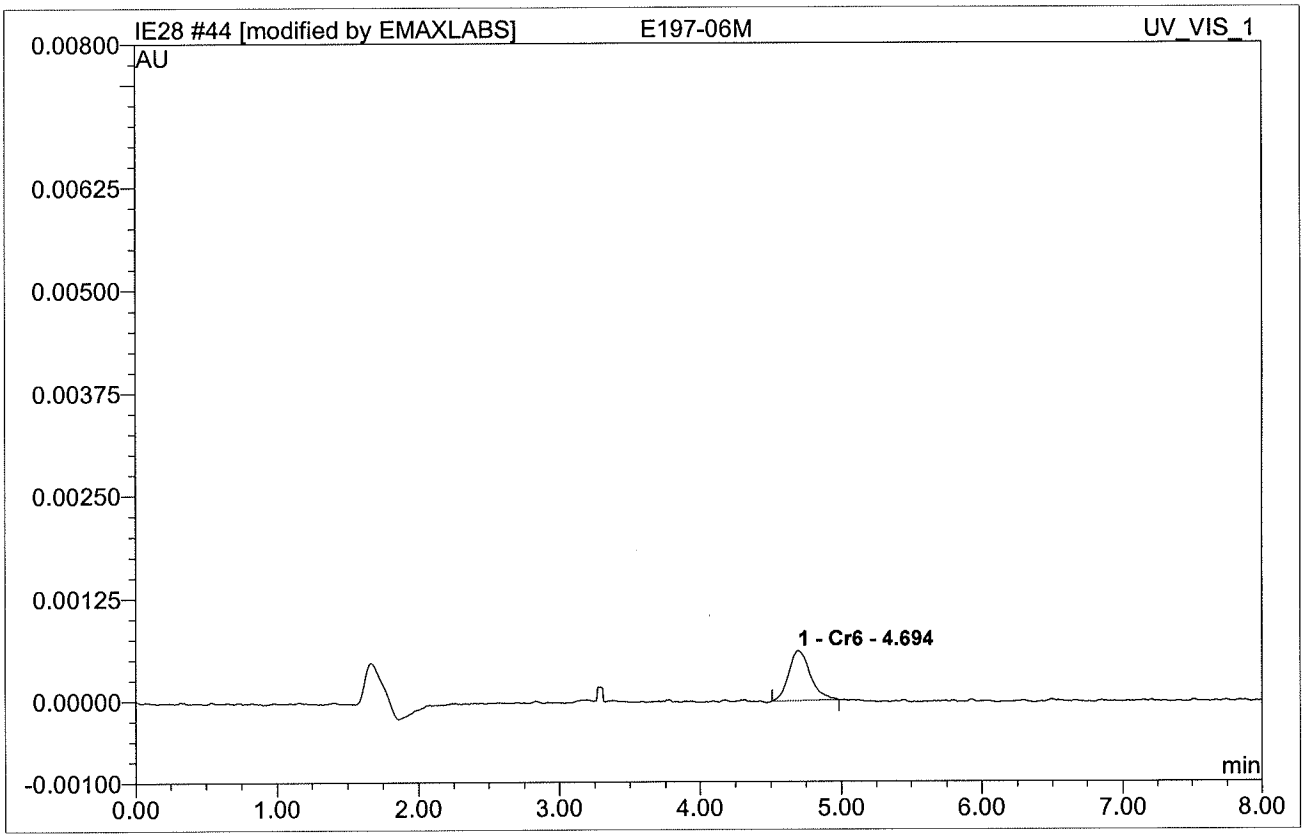


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.72	Cr6	0.0007050	0.0001138	100.00	1.052	BMB
Total:			0.001	0.000	100.00	1.052	

IE28 032 E197-06M

DF=5

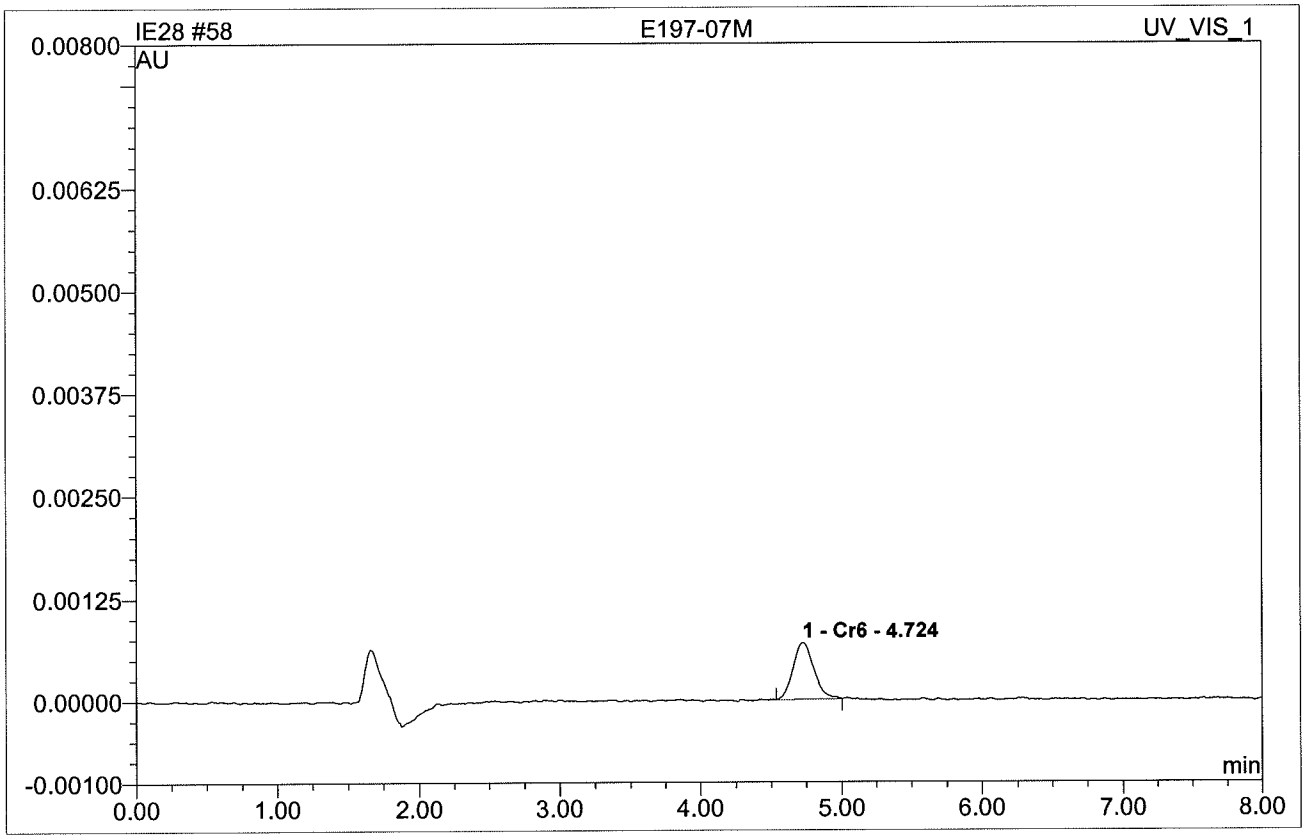
Sample Name:	**E197-06M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**5**
Recording Time:	**5/28/2019 16:15**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.69	Cr6	0.0006120	0.0001085	100.00	5.015	BMB*
Total:			0.001	0.000	100.00	5.015	

IE28 046 E197-07M

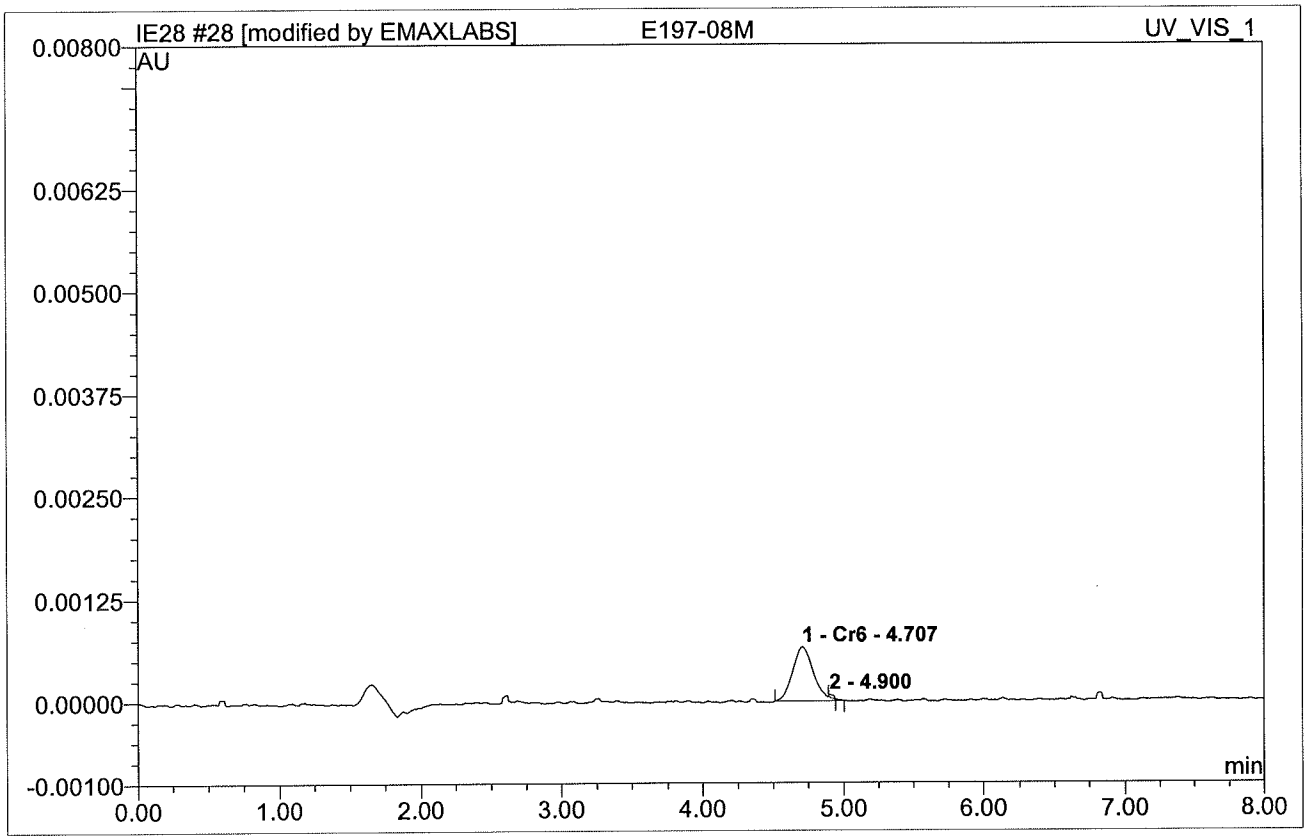
Sample Name:	**E197-07M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 19:11**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.72	Cr6	0.0006940	0.0001176	100.00	1.087	BMB
Total:			0.001	0.000	100.00	1.087	

IE28 016 E197-08M

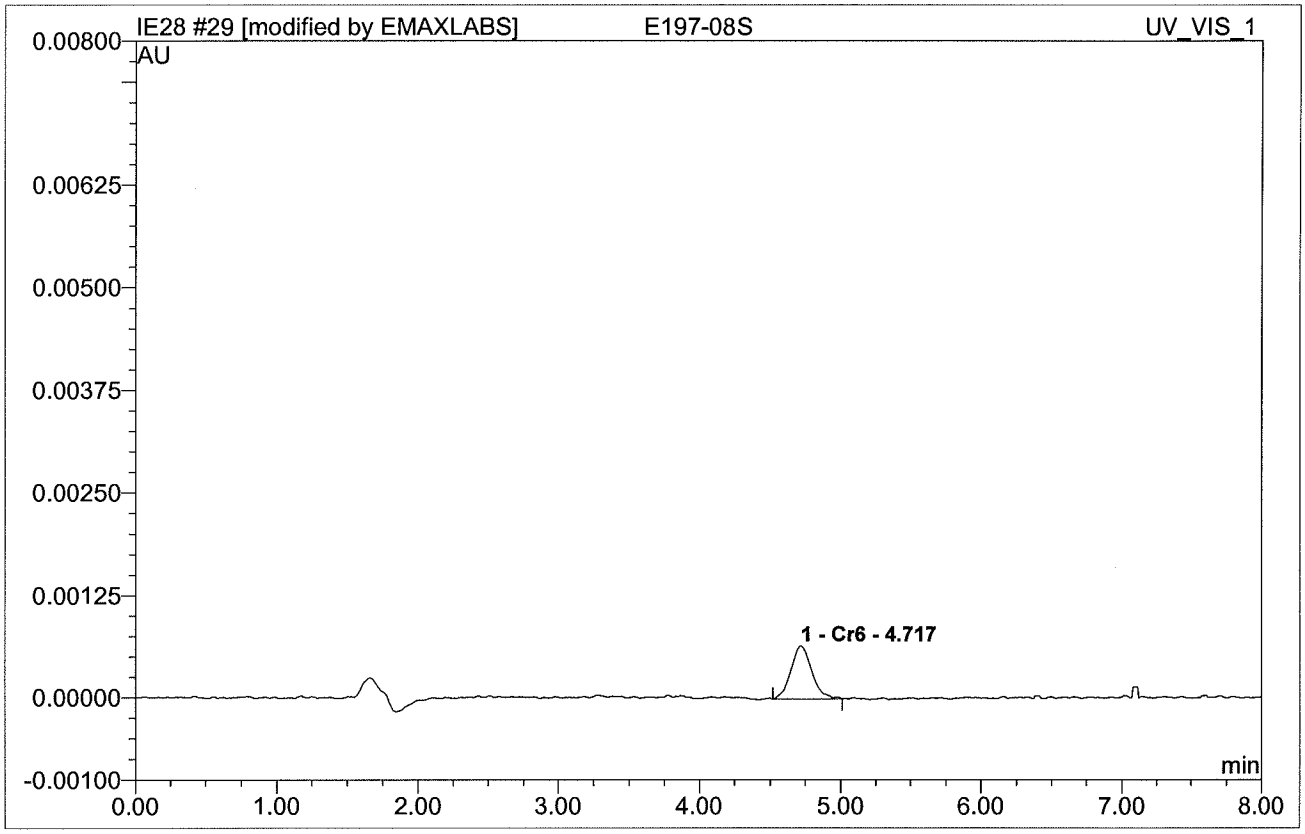
Sample Name:	**E197-08M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 13:26**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.71	Cr6	0.0006610	0.0001130	98.72	1.045	BMB*
2	4.90	n.a.	0.0000360	0.0000015	1.28	n.a.	Rd*
Total:			0.001	0.000	100.00	1.045	

IE28 017 E197-08S

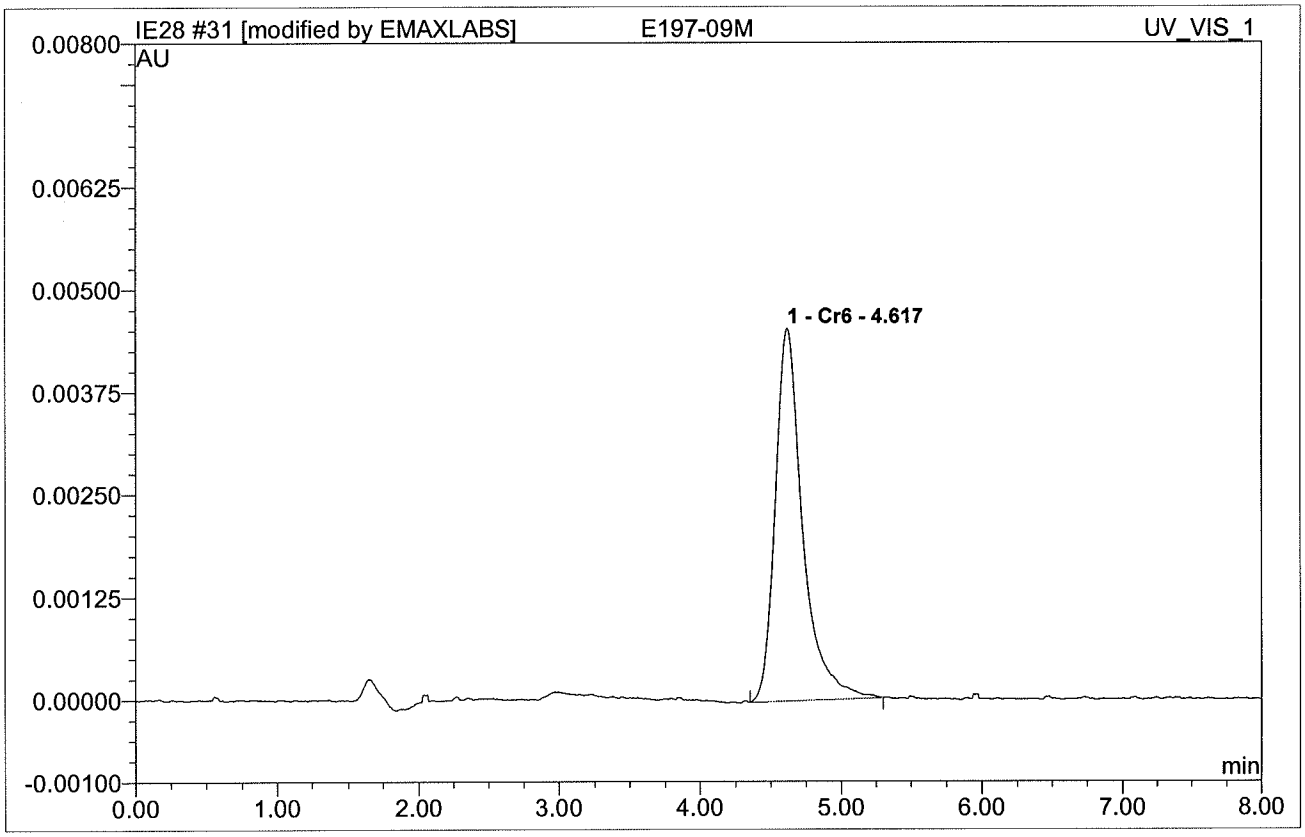
Sample Name:	**E197-08S**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 13:37**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.72	Cr6	0.0006460	0.0001106	100.00	1.022	BMB*
Total:			0.001	0.000	100.00	1.022	

IE28 019 E197-09M

Sample Name:	**E197-09M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 14:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

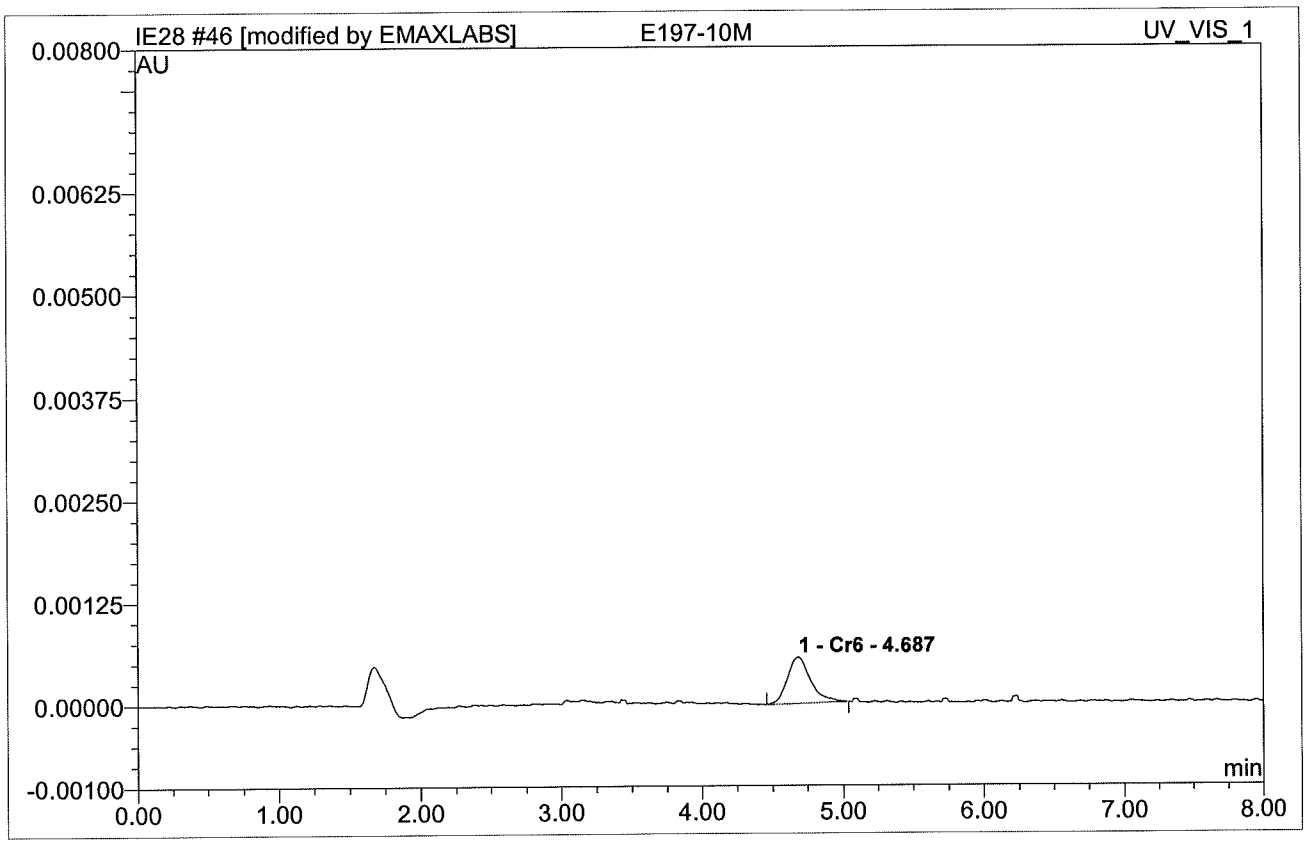


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.62	Cr6	0.0045430	0.0010210	100.00	9.445	BMB*
Total:			0.005	0.001	100.00	9.445	

IE28 034 E197-10M

DF=5

Sample Name:	**E197-10M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**5**
Recording Time:	**5/28/2019 16:55**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**

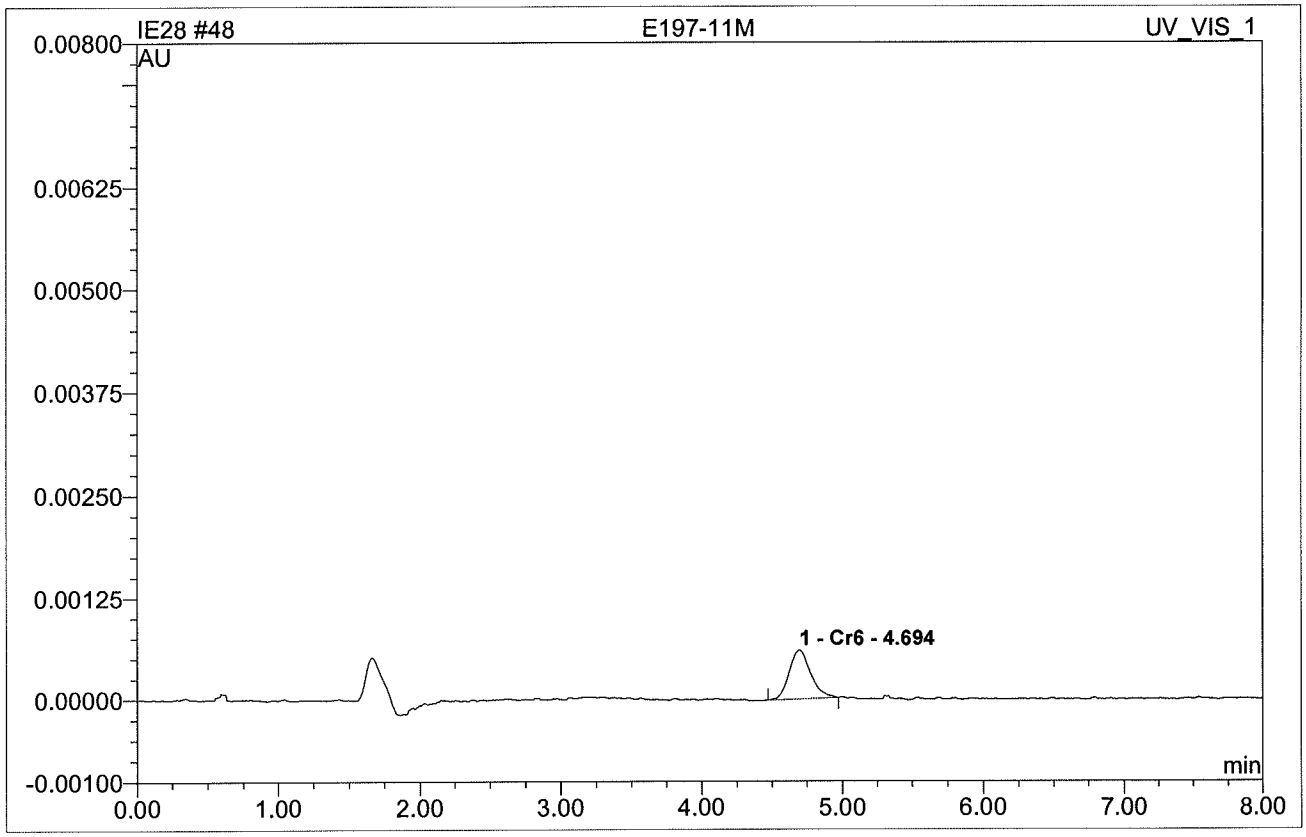


No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.69	Cr6	0.0005630	0.0001082	100.00	5.001	BMB*
Total:			0.001	0.000	100.00	5.001	

IE28 036 E197-11M

DF=5

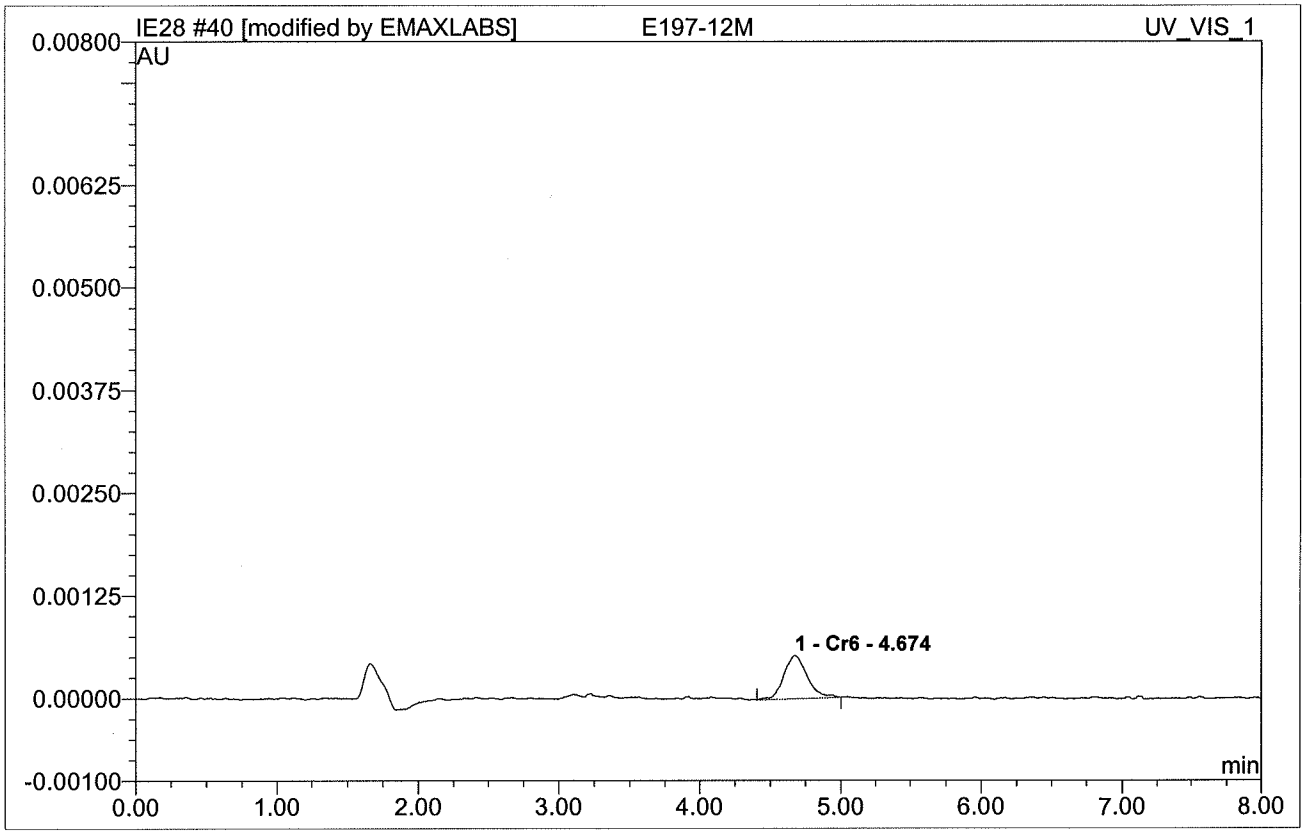
Sample Name:	**E197-11M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**5**
Recording Time:	**5/28/2019 17:16**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.69	Cr6	0.0006000	0.0001058	100.00	4.891	BMB
Total:			0.001	0.000	100.00	4.891	

IE28 028 E197-12M

Sample Name:	**E197-12M**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 15:34**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.67	Cr6	0.0005250	0.0001013	100.00	0.936	BMB*
Total:			0.001	0.000	100.00	0.936	

INITIAL CALIBRATION

IC RESULT FORM CalVersion : CR6.E27/IE27(2019)

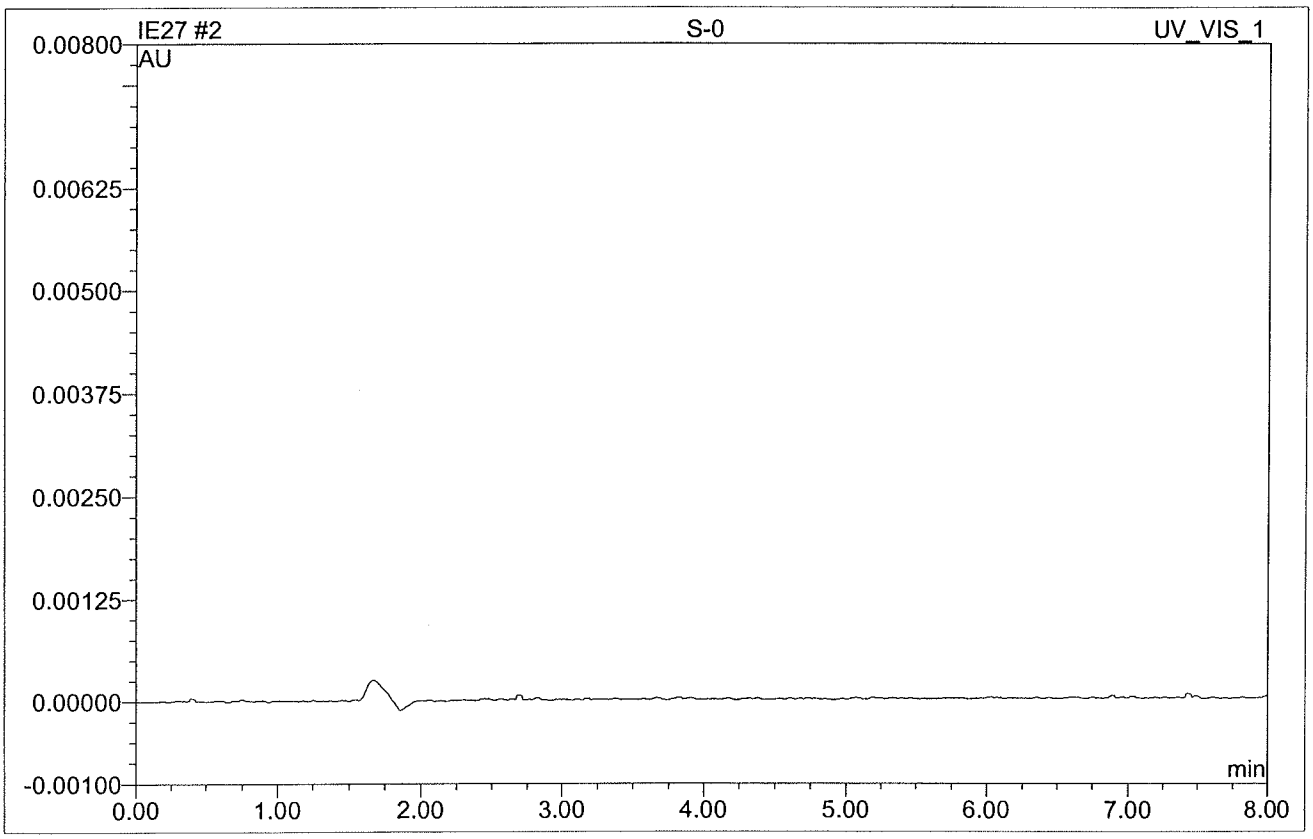
LFID	LSID	SelCmp	Cr6	DateTime	DF
IE27001	IB	C	ND	05/27/1910:58	1
IE27002	S-0	C	ND	05/27/1911:08	1
IE27003	S-1	C	0.218	05/27/1911:18	1
IE27004	S-2	C	0.508	05/27/1911:29	1
IE27005	S-3	C	0.973	05/27/1911:39	1
IE27006	S-4	C	2.017	05/27/1911:50	1
IE27007	S-5	C	4.989	05/27/1912:00	1
IE27008	S-6	C	7.472	05/27/1912:10	1
IE27009	S-7	C	10.025	05/27/1912:21	1
IE27010	ICV	C	100%	05/27/1912:31	1
IE27011	ICB	C	ND	05/27/1912:42	1
IE27012	LOW LEVEL	C	0.213	05/27/1912:52	1

METHOD: IC59E27
SOLVENT: BUFFER (SP2-01-07-04)

6/4/19

IE27 002 S-0

Sample Name:	**S-0**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 11:08**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



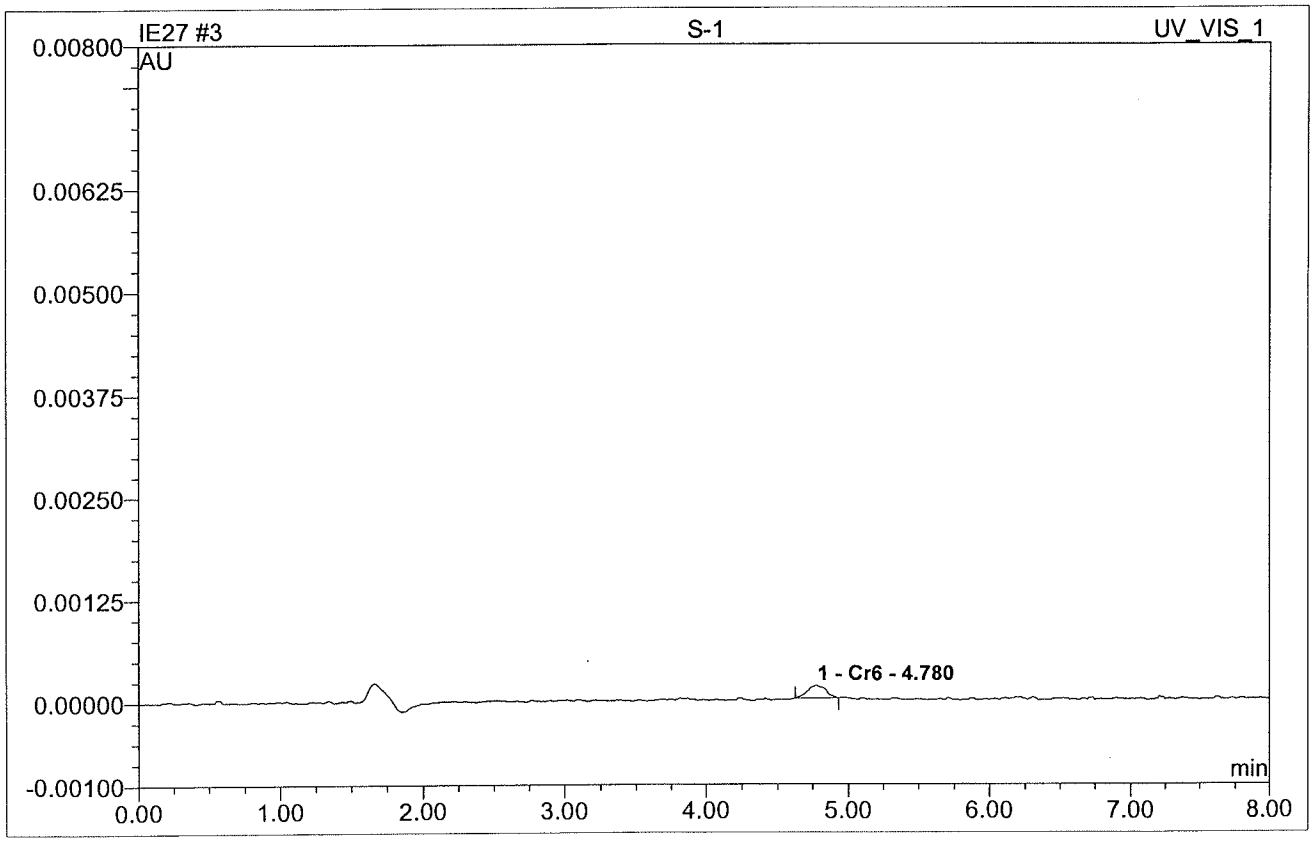
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

6/14/19

IE27 003 S-1

0.2 PPB

Sample Name:	**S-1**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 11:18**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



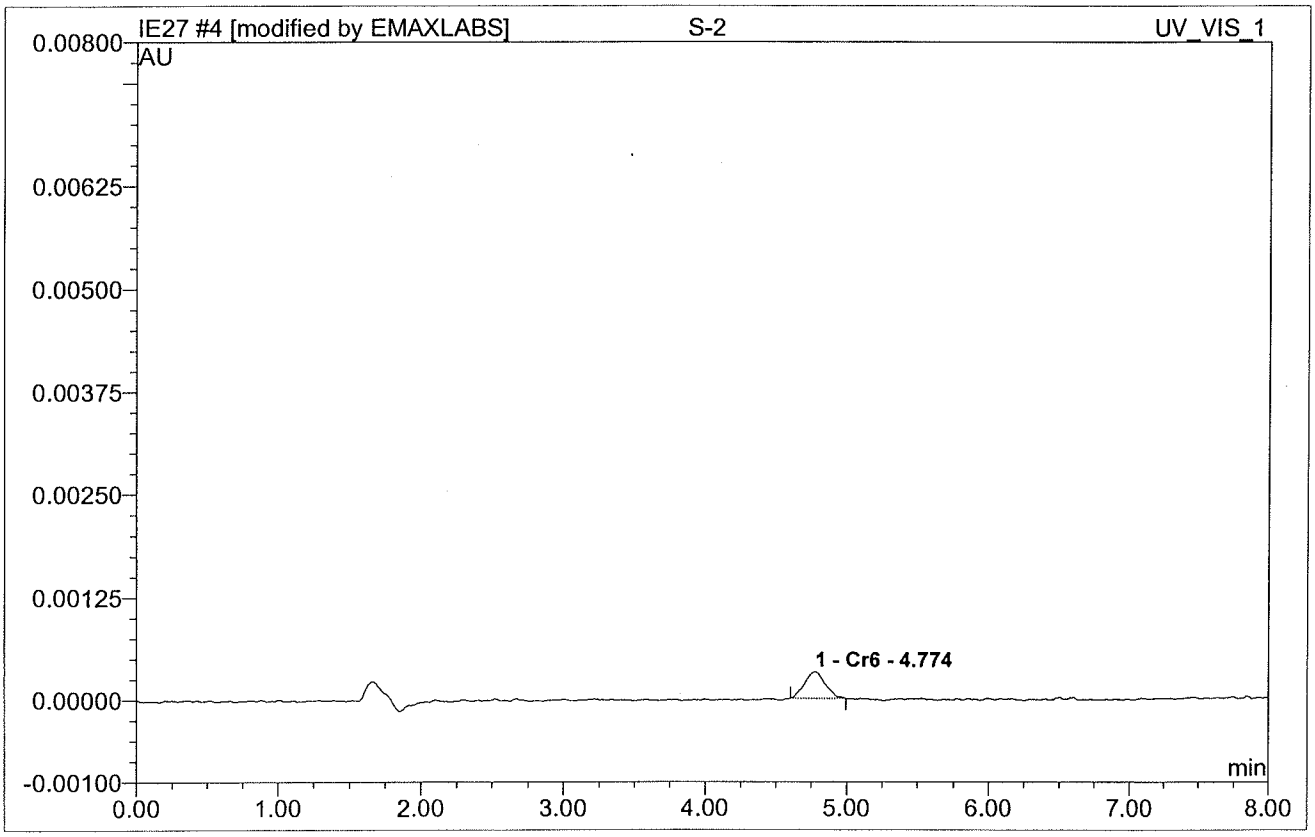
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.78	Cr6	0.0001540	0.0000236	100.00	0.218	BMB
Total:			0.000	0.000	100.00	0.218	

RE 6/4/19

IE27 004 S-2

0.5 PPB

Sample Name:	**S-2**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 11:29**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



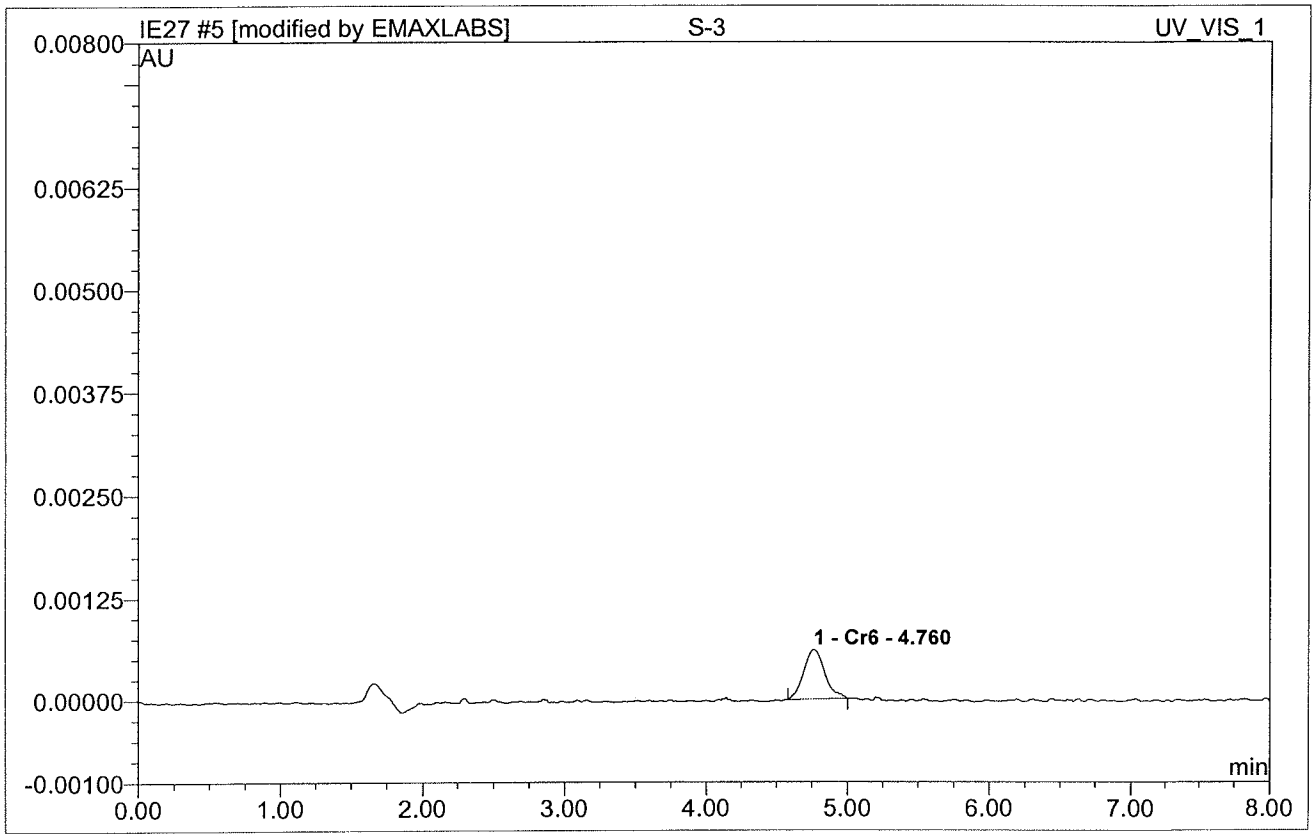
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.77	Cr6	0.0003240	0.0000550	100.00	0.508	BMB*
Total:			0.000	0.000	100.00	0.508	

RE 6/4/19

IE27 005 S-3

1.0 PPB

Sample Name:	**S-3**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 11:39**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



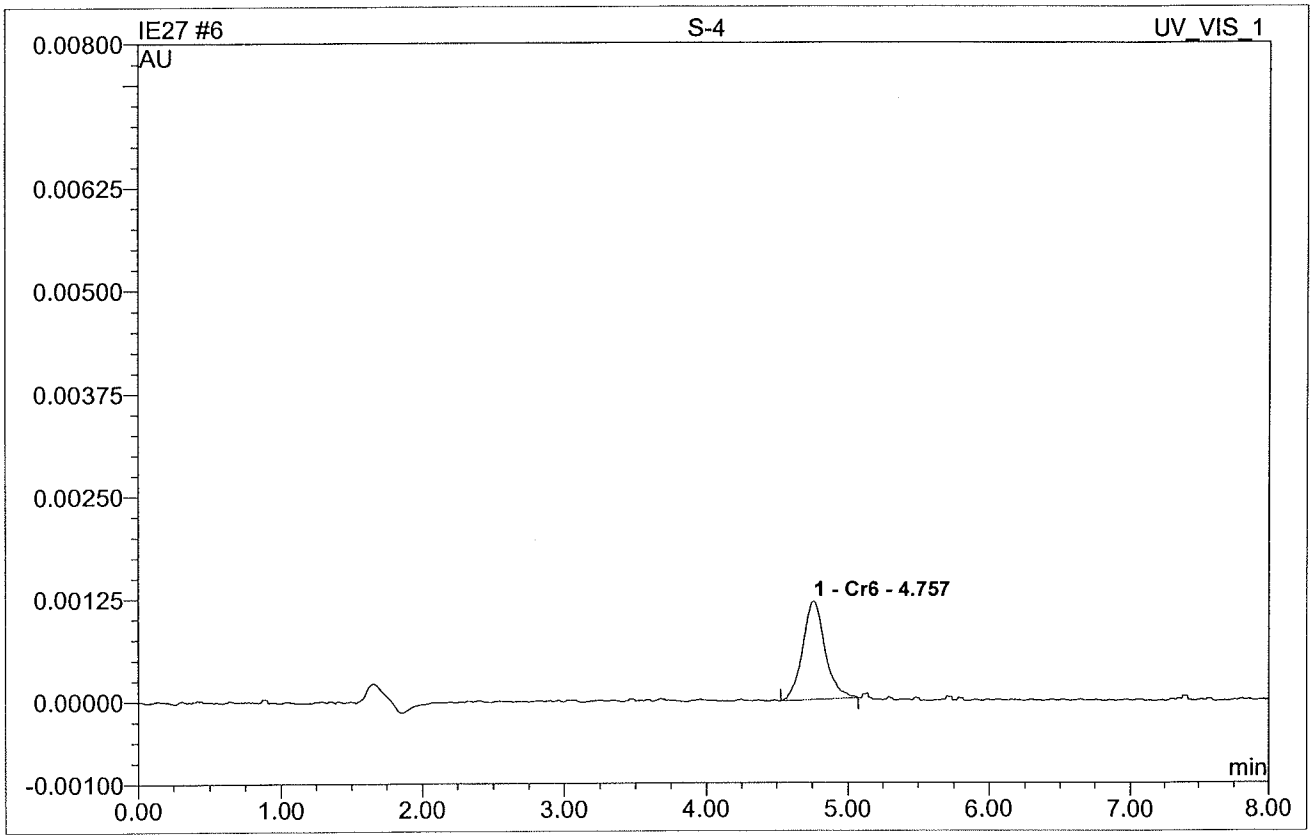
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.76	Cr6	0.0006080	0.0001053	100.00	0.973	BMB*
Total:			0.001	0.000	100.00	0.973	

LE 6/4/19

IE27 006 S-4

2.0 PPB

Sample Name:	**S-4**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 11:50**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



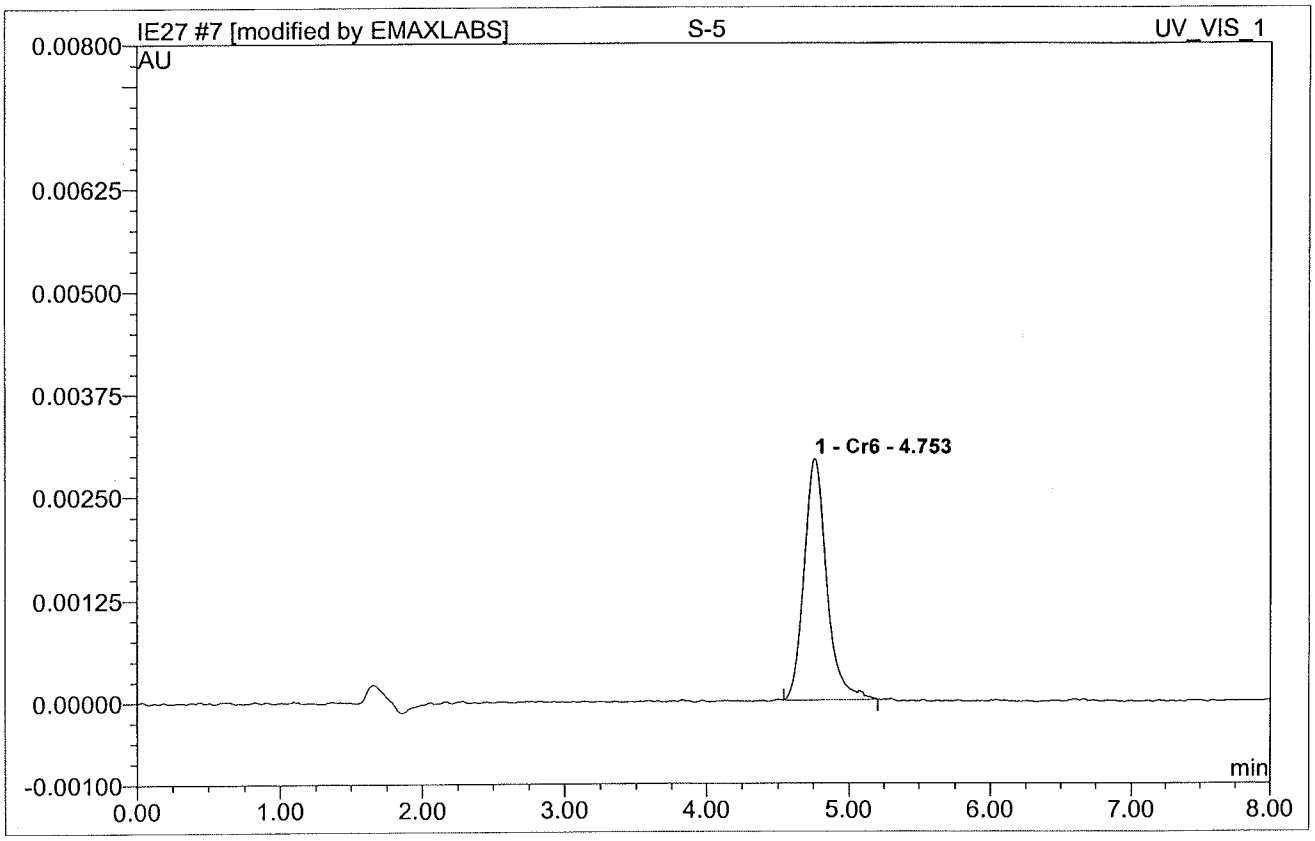
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.76	Cr6	0.0011980	0.0002181	100.00	2.017	BMB
Total:			0.001	0.000	100.00	2.017	

LE 6/4/19

IE27 007 S-5

5.0 PPB

Sample Name:	**S-5**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 12:00**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



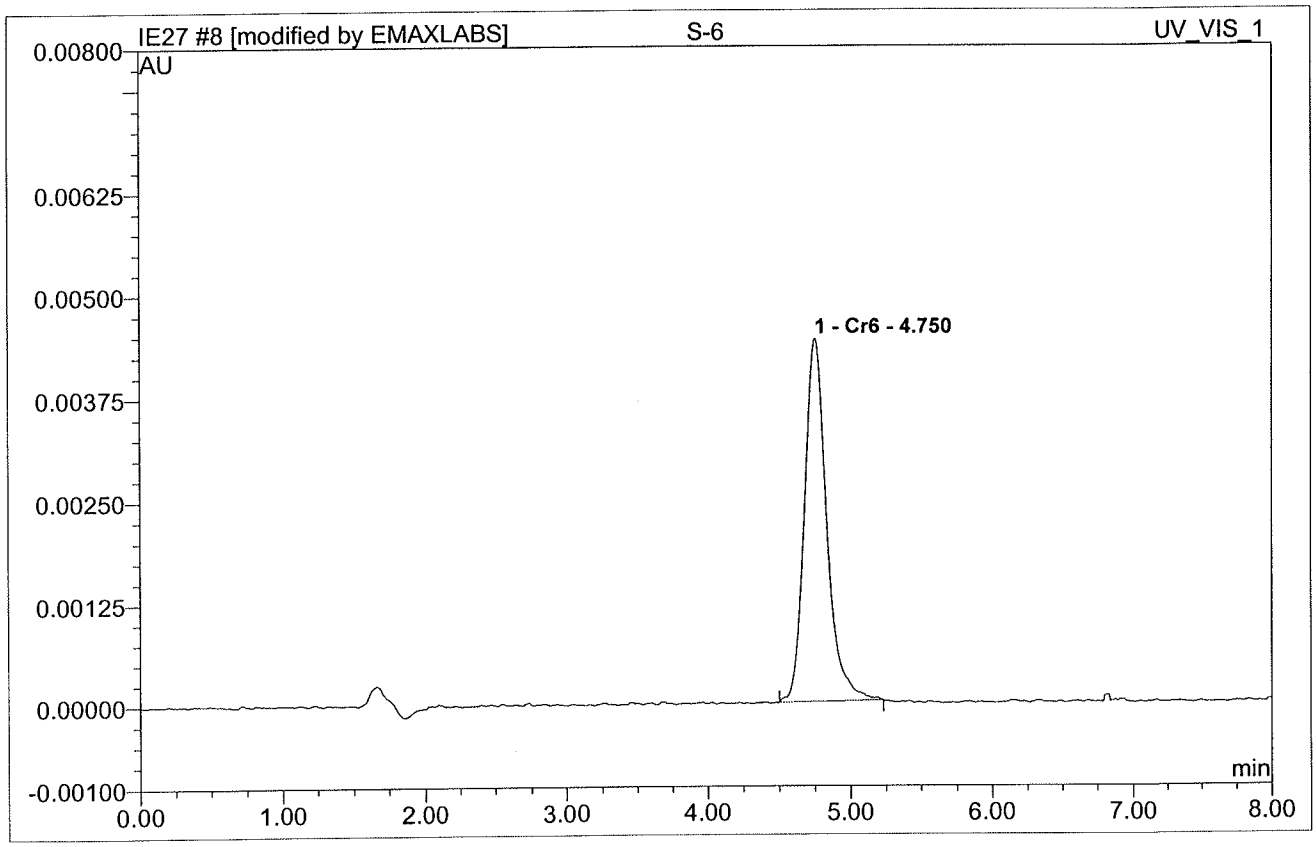
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.75	Cr6	0.0029290	0.0005393	100.00	4.989	BMB*
Total:			0.003	0.001	100.00	4.989	

LE 6/14/19

IE27 008 S-6

7.5 PPB

Sample Name:	**S-6**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 12:10**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



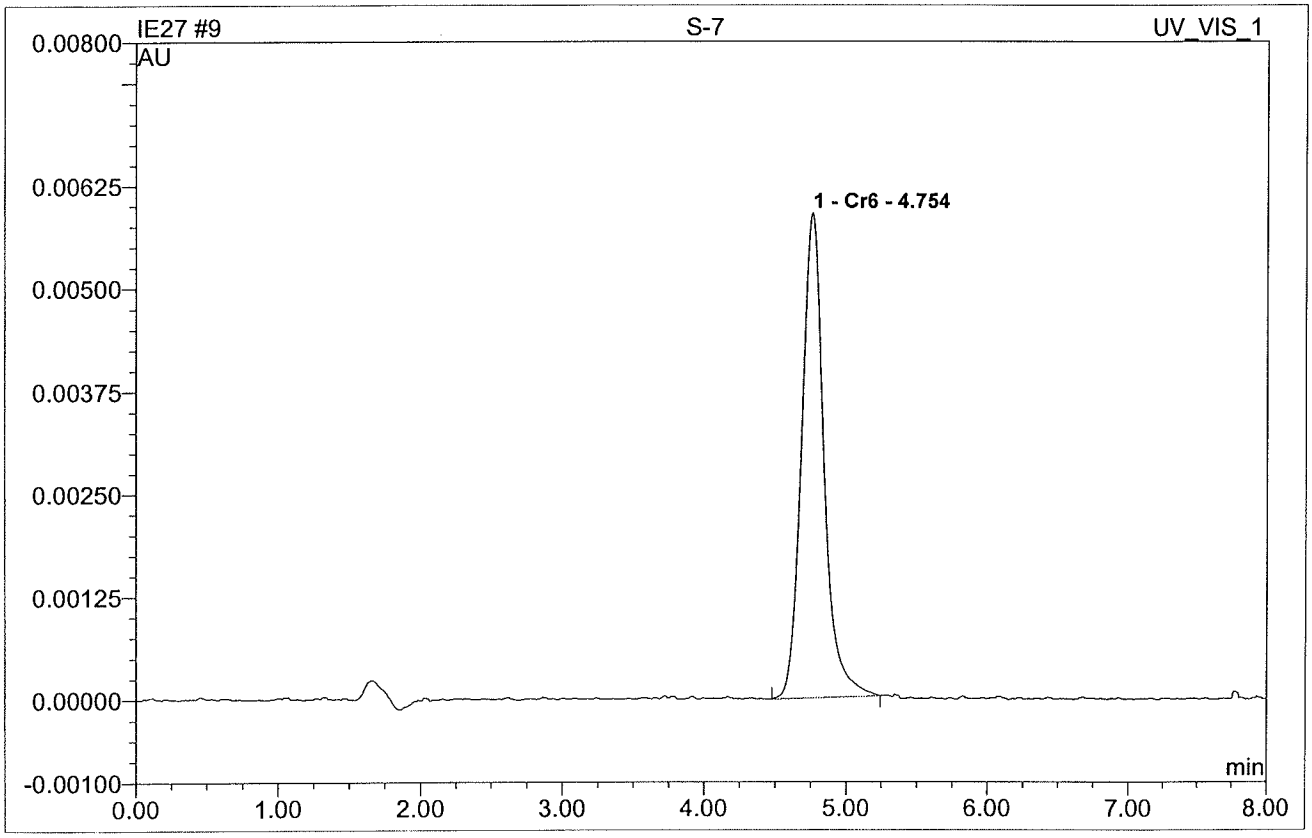
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.75	Cr6	0.0044240	0.0008078	100.00	7.472	BMB*
Total:			0.004	0.001	100.00	7.472	

6/14/19

IE27 009 S-7

10 PPB

Sample Name:	**S-7**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 12:21**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



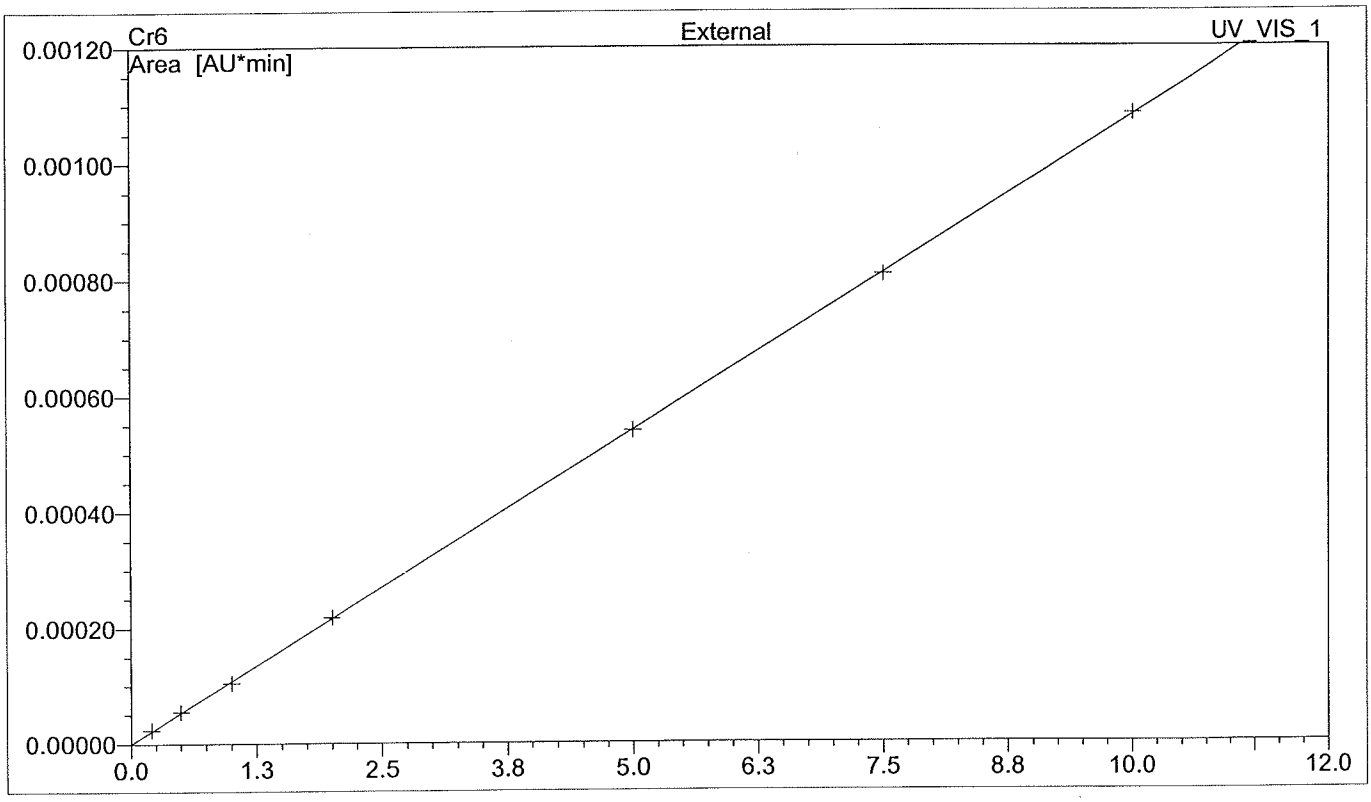
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.75	Cr6	0.0058950	0.0010837	100.00	10.025	BMB
Total:			0.006	0.001	100.00	10.025	

RB 6/4/19

9 S-7

10 PPB

Sample Name:	**S-7**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**standard**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1.0000**
Recording Time:	**5/27/2019 12:21**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Cal.Type	Points	R-Square	Offset	Slope	Curve
1	4.75	Cr6	0LOff	7	1.0000	0.0000001	0.0001081	0.0000
Average:					1.0000	0.0000	0.0001	0.0000

LEE 6/04/19

SECOND SOURCE VERIFICATION

IC RESULT FORM CalVersion : CR6.E27/IE27(2019)

LFID	LSID	SelCmp	Cr6	DateTime	DF
IE27001	IB	C	ND	05/27/1910:58	1
IE27002	S-0	C	ND	05/27/1911:08	1
IE27003	S-1	C	0.218	05/27/1911:18	1
IE27004	S-2	C	0.508	05/27/1911:29	1
IE27005	S-3	C	0.973	05/27/1911:39	1
IE27006	S-4	C	2.017	05/27/1911:50	1
IE27007	S-5	C	4.989	05/27/1912:00	1
IE27008	S-6	C	7.472	05/27/1912:10	1
IE27009	S-7	C	10.025	05/27/1912:21	1
IE27010	ICV	C	100%	05/27/1912:31	1
IE27011	ICB	C	ND	05/27/1912:42	1
IE27012	LOW LEVEL	C	0.213	05/27/1912:52	1

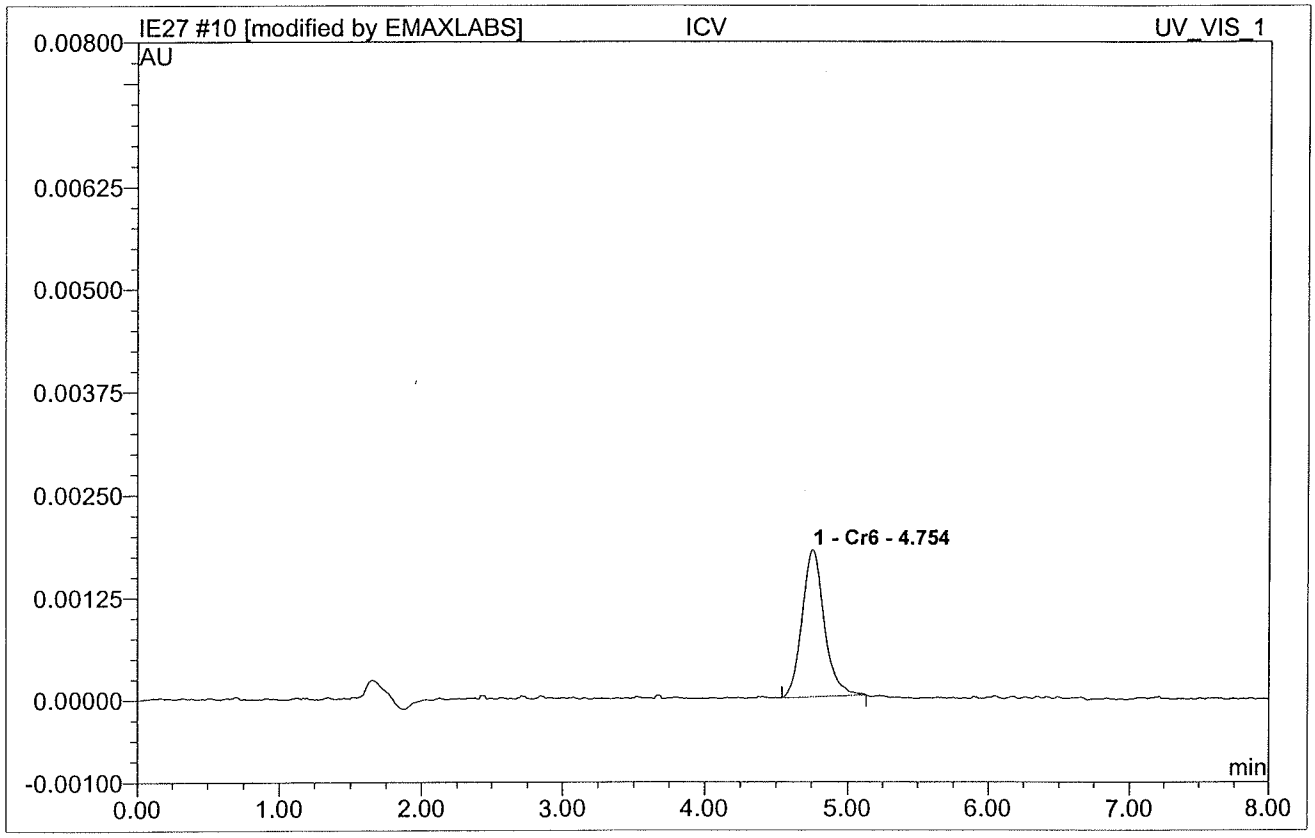
METHOD: IC59E27
SOLVENT: BUFFER (SP2-01-07-04)

6/4/19

IE27 010 ICV

3.0 PPB

Sample Name:	**ICV**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 12:31**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



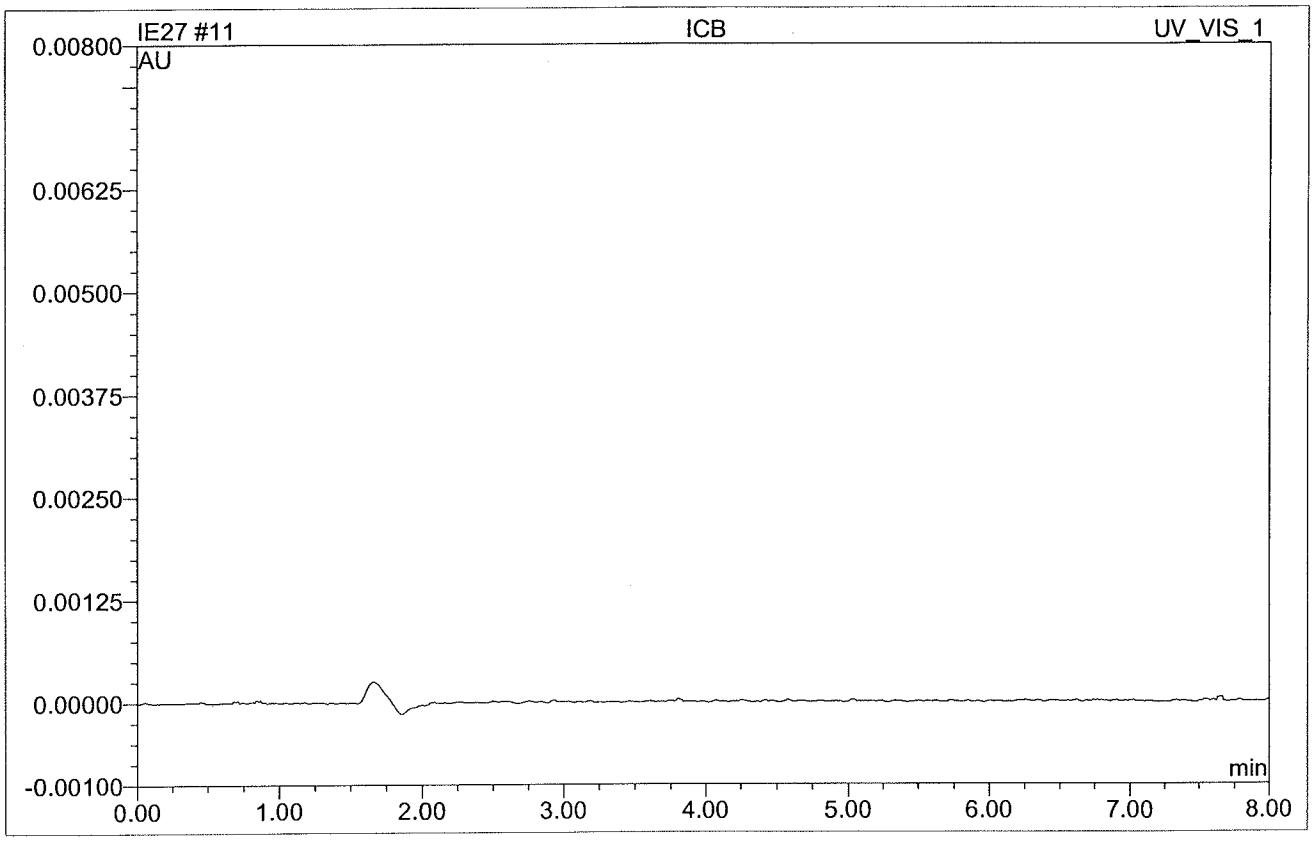
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount		Type
1	4.75	Cr6	0.0017960	0.0003233	100.00	2.990	✓	BMB*
Total:			0.002	0.000	100.00	2.990		

conc. = $\frac{\text{Area} - \text{offset}}{\text{slope}}$

LEE 6/14/19

IE27 011 ICB

Sample Name:	**iCB**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 12:42**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



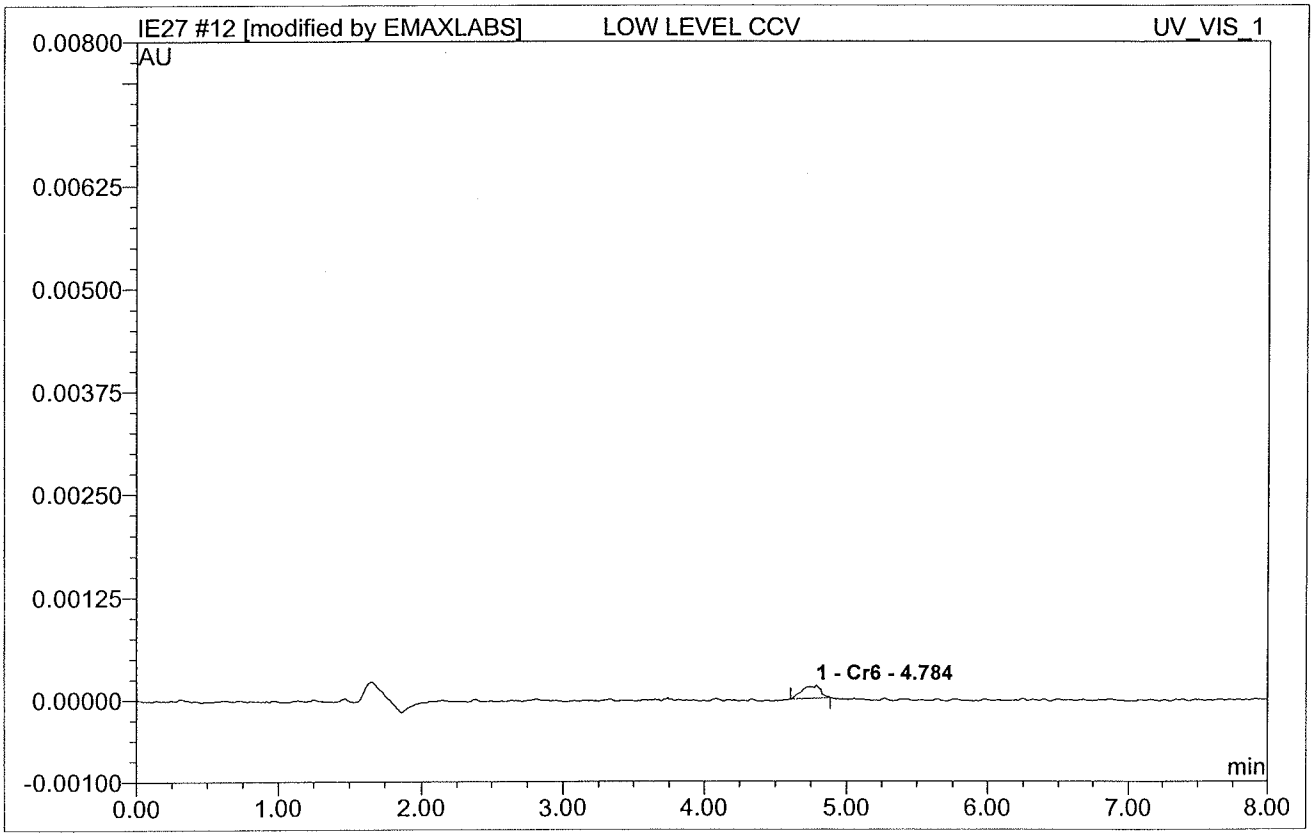
No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

LE 6/4/19

IE27 012 LOW LEVEL CCV

0.2 PPB

Sample Name:	**LOW LEVEL CCV**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/27/2019 12:52**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount		Type
1	4.78	Cr6	0.0001600	0.0000231	100.00	0.213	✓	BMB*
Total:			0.000	0.000	100.00	0.213		

6/4/19

DAILY CALIBRATIONS

Continuing Calibration Summary Form

Client : ARCADIS
Project : PG&E TOPOCK-GMP
SDG : 19E197
Method : E218.6
QuantMethod : IC59E27
InstrumentID: 59
Parameter : HEXAVALENT CHROMIUM

LFID	LSID	DF	Expected	Result	Unit	%Rec	AnalysisDateTime
IE28001	CCV1	1	2	2.015	ug/L	101	05/28/1910:40
IE28013	CCV3	1	2	2	ug/L	100	05/28/1912:45
IE28025	CCV5	1	2	1.977	ug/L	99	05/28/1915:03
IE28037	CCV7	1	2	2.013	ug/L	101	05/28/1917:37
IE28048	CCV9	1	2	2.098	ug/L	105	05/28/1919:32

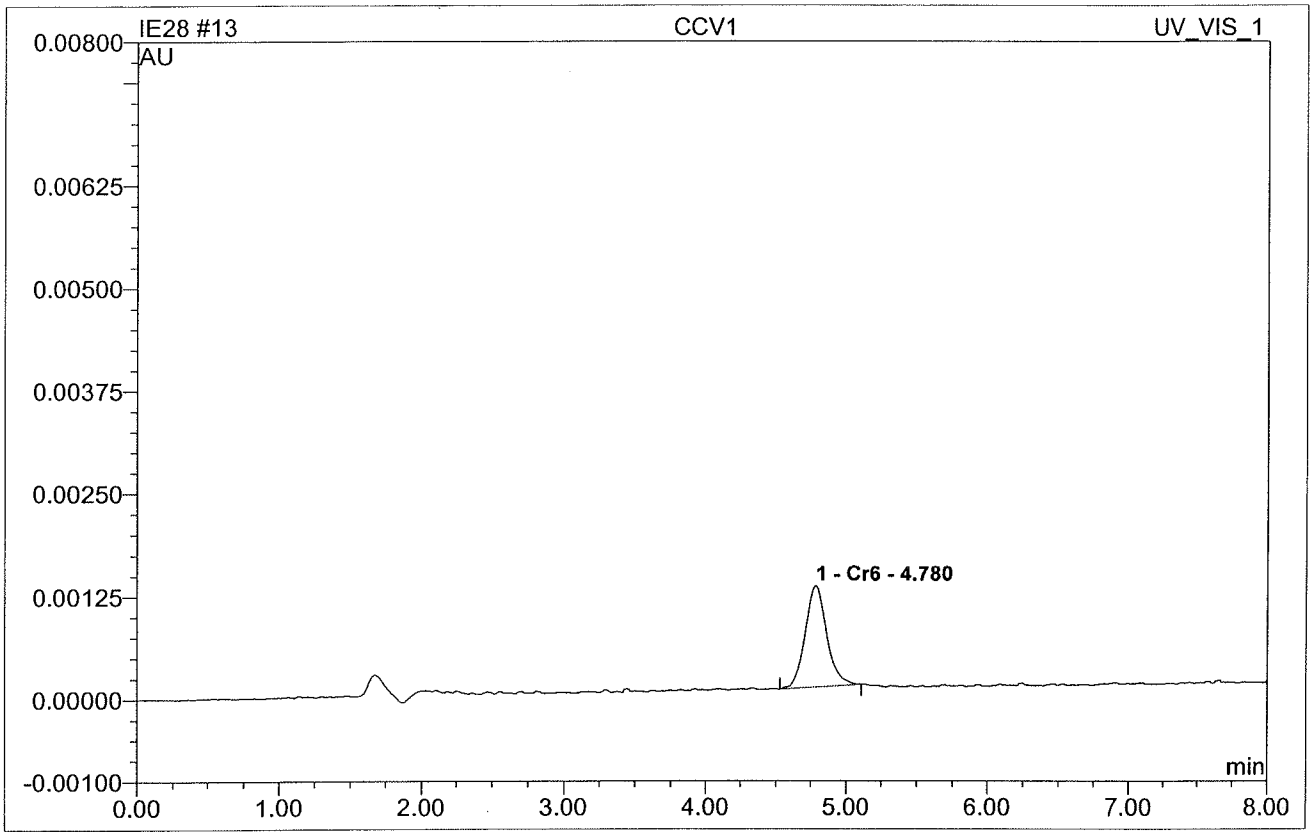
CCV Acceptance Criteria: 95-105%

IC RESULT FORM CalVersion : CR6.E27/IE27 (2019)

LFID	LSID	SelCmp	Cr6	DateTime	DF
IE28001	CCV1	C	101%	05/28/1910:40	1
IE28002	CCB1	C	ND	05/28/1910:50	1
IE28003	HCE003WB	C	ND	05/28/1911:01	1
IE28004	HCE003WL	C	2.041	05/28/1911:11	1
IE28005	HCE003WC	C	2.012	05/28/1911:21	1
IE28006	E197-02	C	ND	05/28/1911:32	1
IE28007	E197-02M	C	ND	05/28/1911:42	1
IE28008	E197-04	C	ND	05/28/1911:53	1
IE28009	E197-04M	C	1.020	05/28/1912:03	1
IE28010	E197-04S	C	1.013	05/28/1912:13	1
IE28011	E197-06	C	ND	05/28/1912:24	1
IE28012	E197-06M	C	ND	05/28/1912:34	1
IE28013	CCV3	C	100%	05/28/1912:45	1
IE28014	CCB3	C	ND	05/28/1913:05	1
IE28015	E197-08	C	0.087	05/28/1913:16	1
IE28016	E197-08M	C	1.045	05/28/1913:26	1
IE28017	E197-08S	C	1.022	05/28/1913:37	1
IE28018	E197-09	C	7.492	05/28/1913:47	1
IE28019	E197-09M	C	9.445	05/28/1914:00	1
IE28020	E197-10	C	ND	05/28/1914:10	1
IE28021	E197-10M	C	ND	05/28/1914:21	1
IE28022	NO INJECTI	C	ND	05/28/1914:31	1
IE28023	E197-11	C	ND	05/28/1914:42	1
IE28024	E197-11M	C	ND	05/28/1914:52	1
IE28025	CCV5	C	99%	05/28/1915:03	1
IE28026	CCB5	C	ND	05/28/1915:13	1
IE28027	E197-12	C	ND	05/28/1915:23	1
IE28028	E197-12M	C	0.936	05/28/1915:34	1
IE28029	E197-02I	C	ND	05/28/1915:44	5
IE28030	E197-02M	C	4.877	05/28/1915:55	5
IE28031	E197-06I	C	ND	05/28/1916:05	5
IE28032	E197-06M	C	5.015	05/28/1916:15	5
IE28033	E197-10I	C	ND	05/28/1916:26	5
IE28034	E197-10M	C	5.001	05/28/1916:55	5
IE28035	E197-11I	C	ND	05/28/1917:06	5
IE28036	E197-11M	C	4.891	05/28/1917:16	5
IE28037	CCV7	C	101%	05/28/1917:37	1
IE28038	CCB7	C	ND	05/28/1917:48	1
IE28039	E197-01	C	0.095	05/28/1917:58	1
IE28040	E197-01M	C	1.060	05/28/1918:08	1
IE28041	E197-03	C	0.095	05/28/1918:19	1
IE28042	E197-03M	C	1.057	05/28/1918:29	1
IE28043	E197-05	C	0.098	05/28/1918:40	1
IE28044	E197-05M	C	1.052	05/28/1918:50	1
IE28045	E197-07	C	0.099	05/28/1919:00	1
IE28046	E197-07M	C	1.087	05/28/1919:11	1
IE28047	E143-01	C	0.278	05/28/1919:21	1
IE28048	CCV9	C	105%	05/28/1919:32	1
IE28049	CCB9	C	ND	05/28/1919:42	1

IE28 001 CCV1

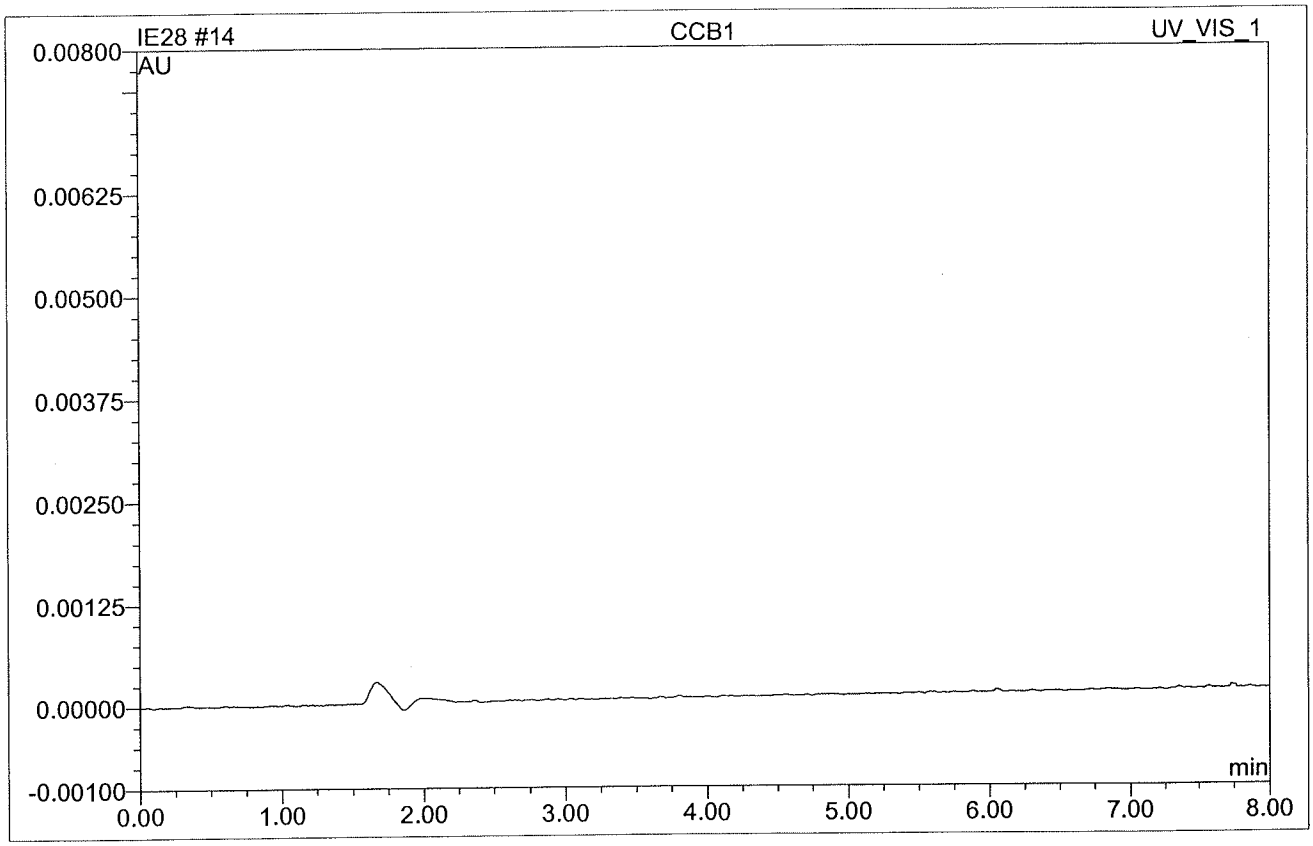
Sample Name:	**CCV1**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 10:40**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.78	Cr6	0.0012270	0.0002179	100.00	2.015	BMB
Total:			0.001	0.000	100.00	2.015	

IE28 002 CCB1

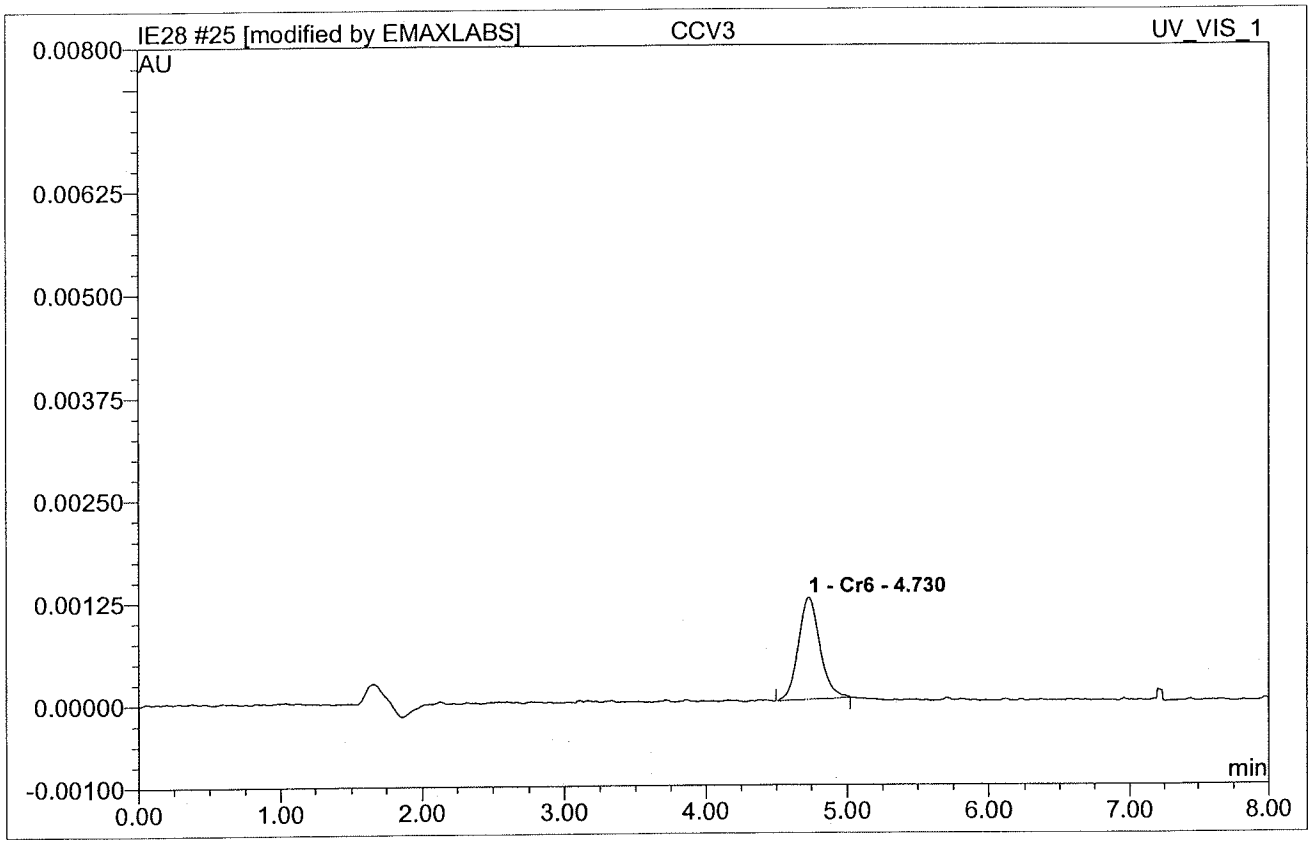
Sample Name:	**CCB1**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 10:50**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IE28 013 CCV3

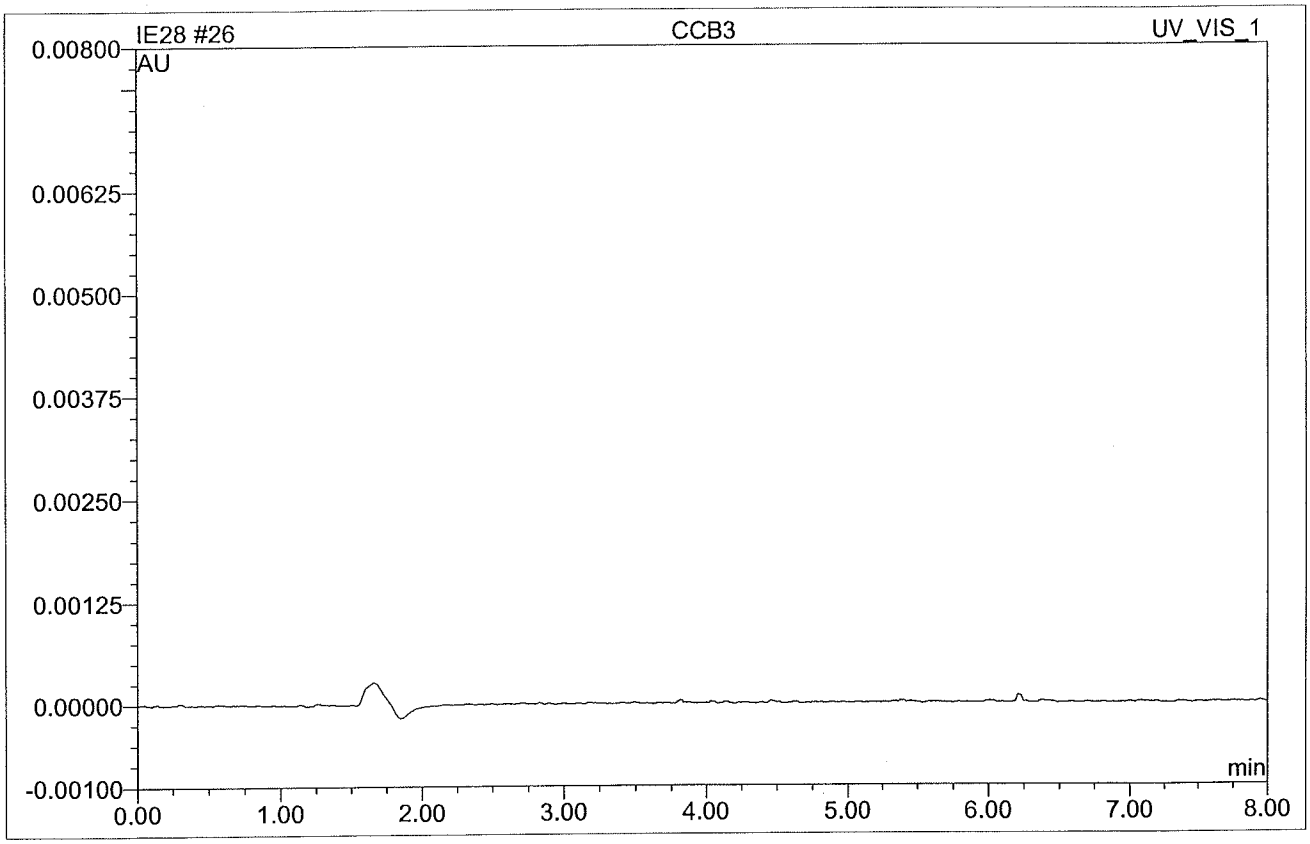
Sample Name:	**CCV3**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 12:45**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.73	Cr6	0.0012420	0.0002163	100.00	2.000	BMB*
Total:			0.001	0.000	100.00	2.000	

IE28 014 CCB3

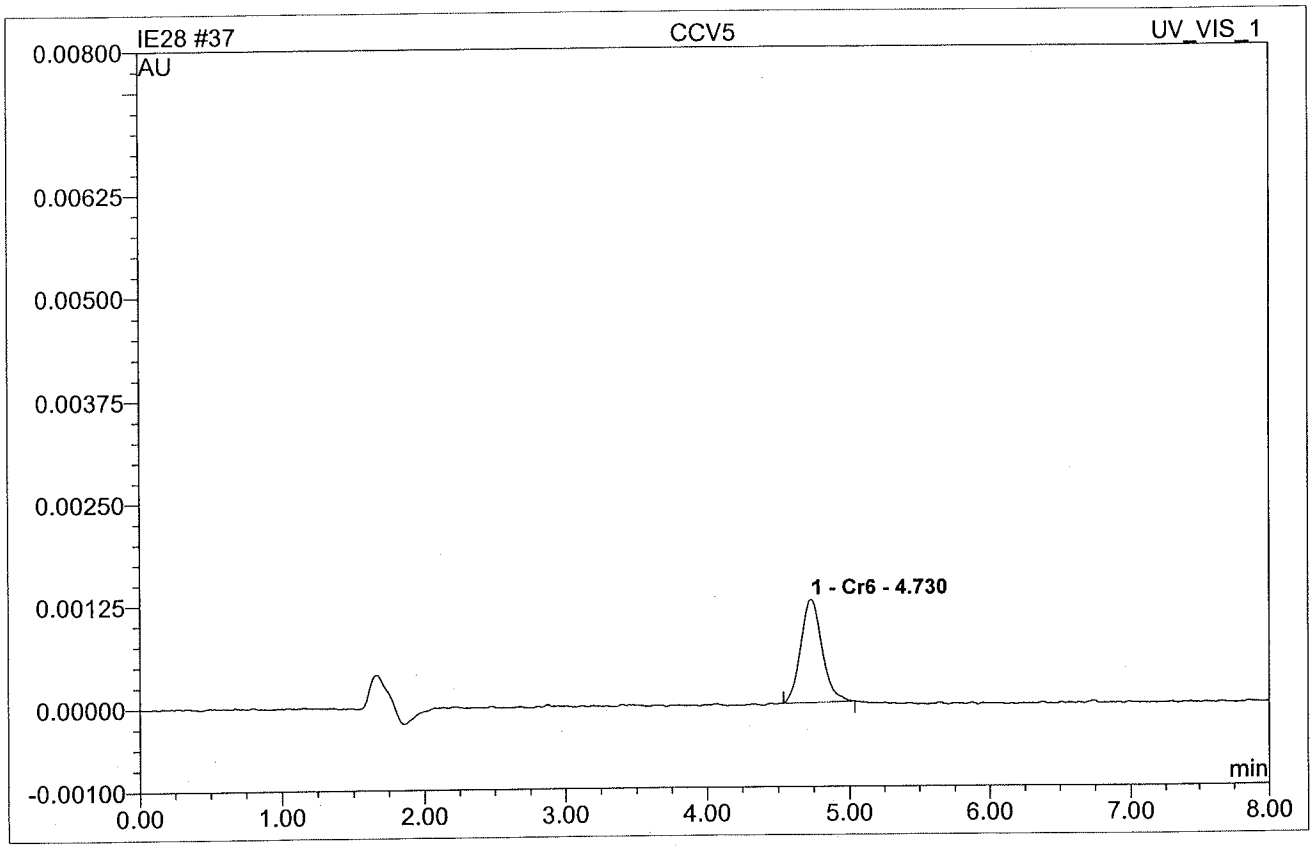
Sample Name:	**CCB3**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 13:05**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IE28 025 CCV5

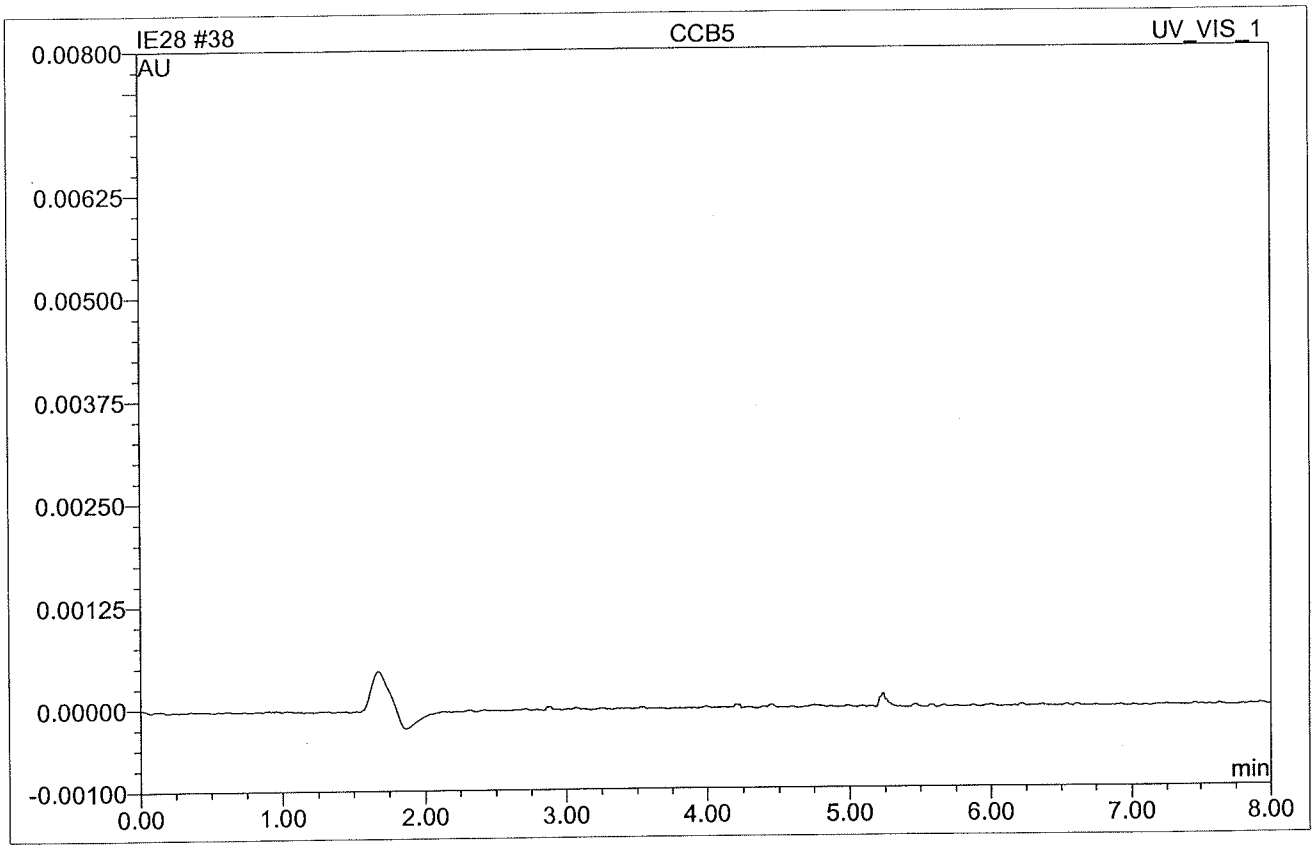
Sample Name:	**CCV5**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 15:03**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.73	Cr6	0.0012520	0.0002138	100.00	1.977	BMB
Total:			0.001	0.000	100.00	1.977	

IE28 026 CCB5

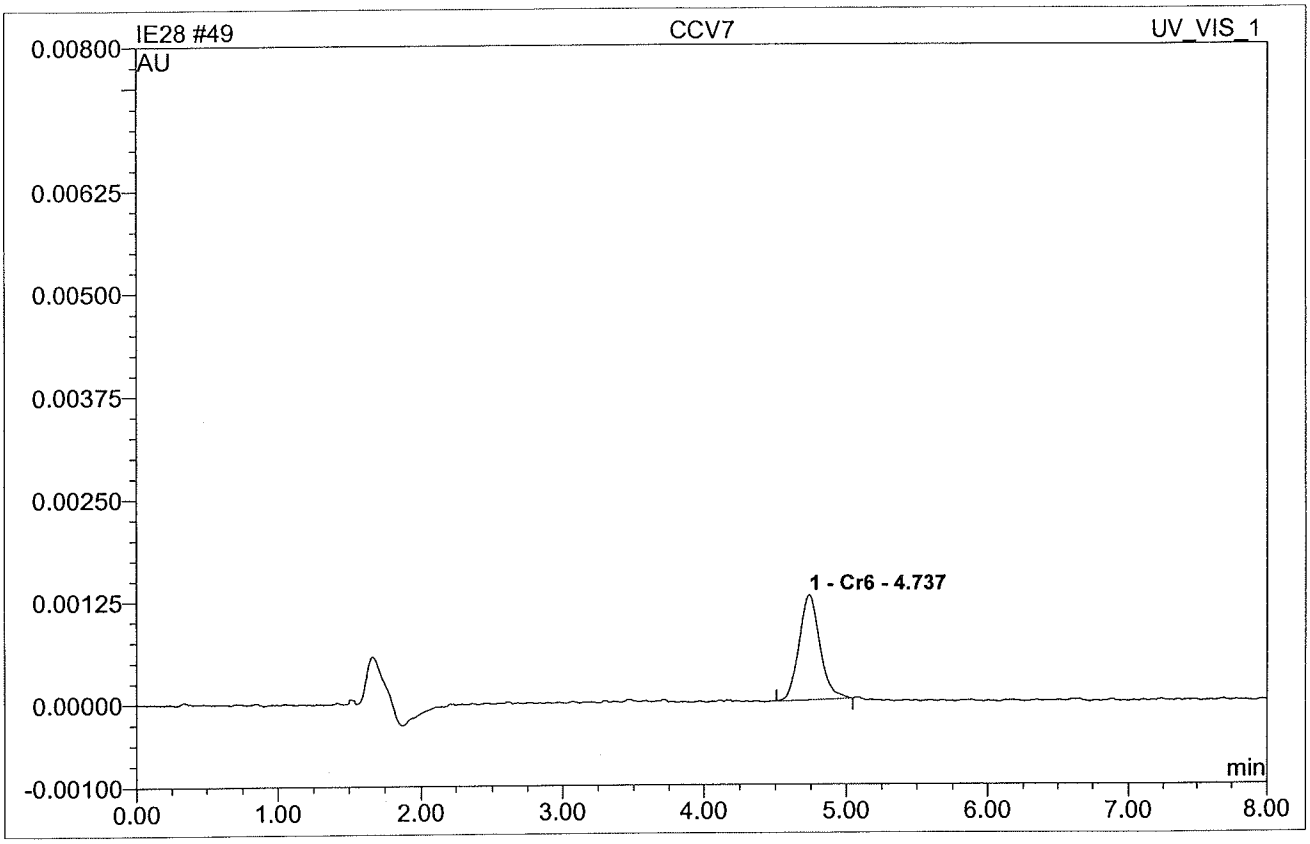
Sample Name:	**CCB5**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 15:13**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IE28 037 CCV7

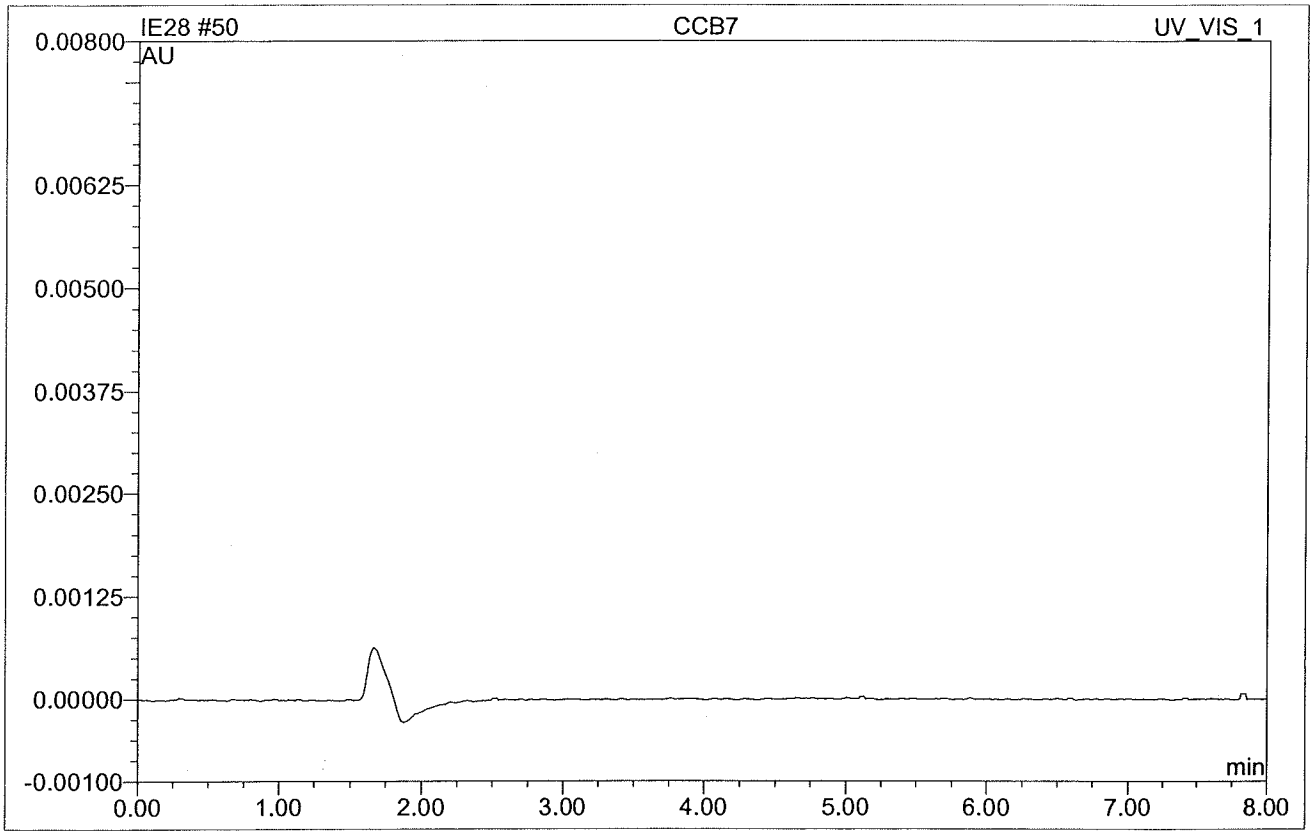
Sample Name:	**CCV7**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 17:37**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.74	Cr6	0.0012780	0.0002177	100.00	2.013	BMB
Total:			0.001	0.000	100.00	2.013	

IE28 038 CCB7

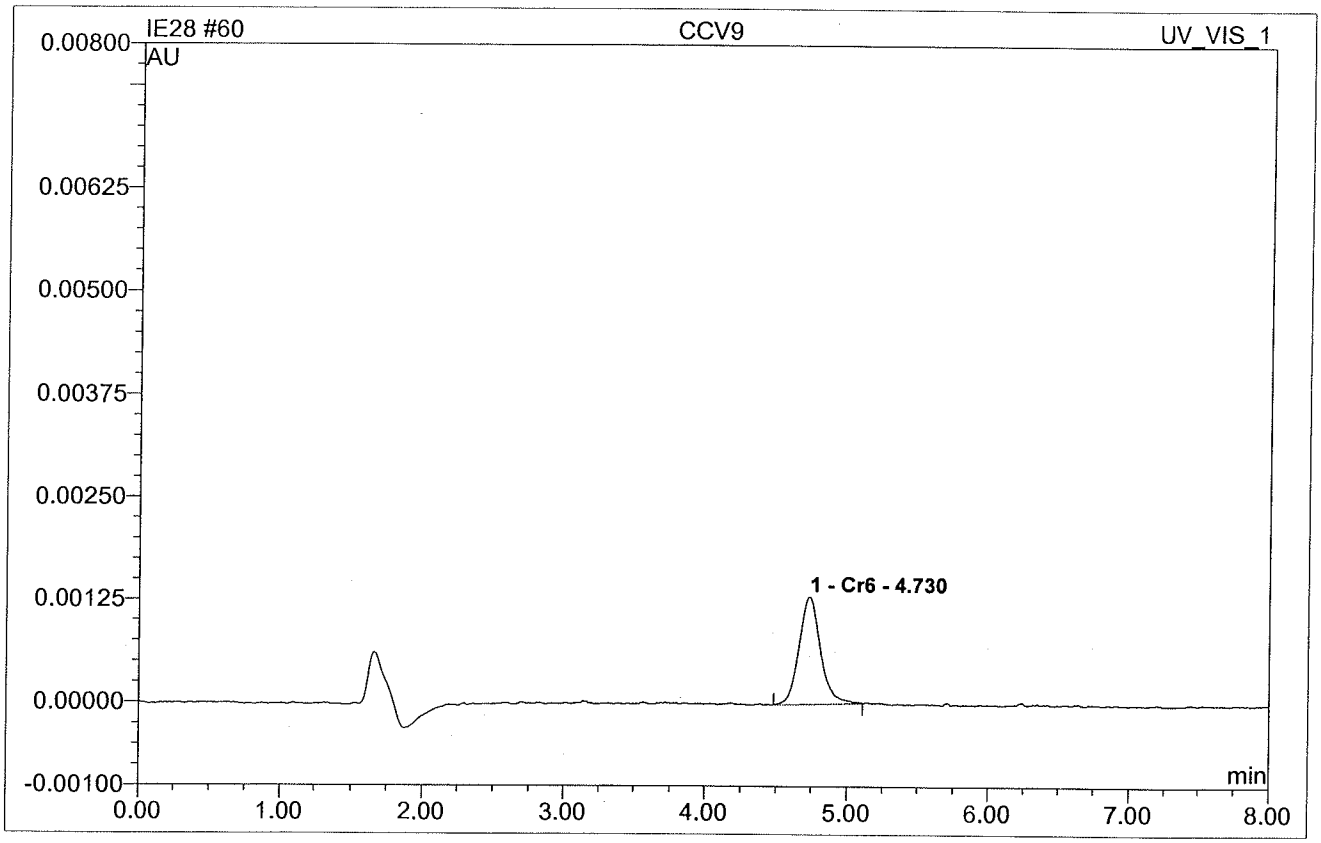
Sample Name:	**CCB7**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 17:48**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

IE28 048 CCV9

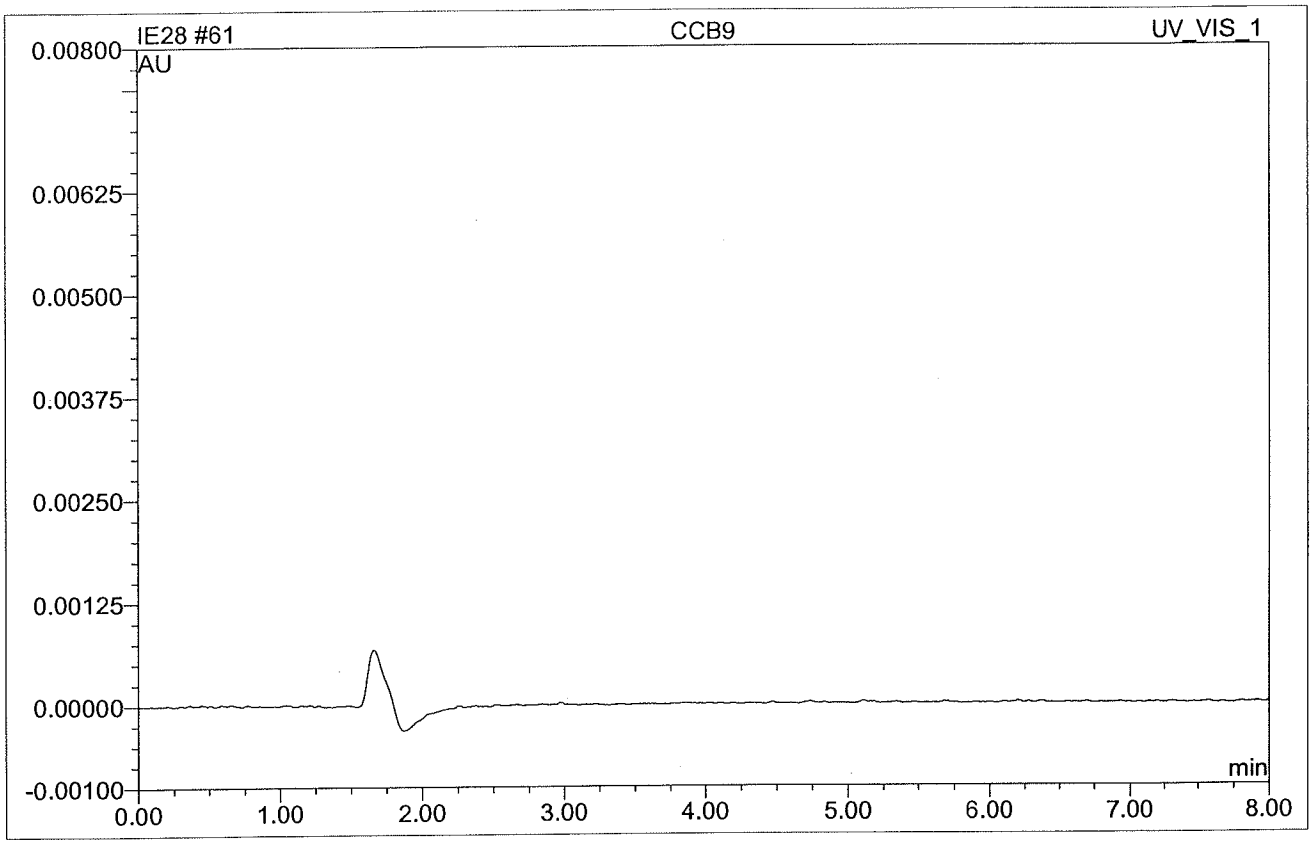
Sample Name:	**CCV9**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 19:32**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
1	4.73	Cr6	0.0013060	0.0002269	100.00	2.098	BMB
Total:			0.001	0.000	100.00	2.098	

IE28 049 CCB9

Sample Name:	**CCB9**	*Injection Volume:*	**250.0**
Vial Number:	**0**	*Channel:*	**UV_VIS_1**
Sample Type:	**unknown**	*Wavelength:*	**n.a.**
Control Program:	**Cr6 Program**	*Bandwidth:*	**n.a.**
Quantif. Method:	**IC59E27**	*Dilution Factor:*	**1**
Recording Time:	**5/28/2019 19:42**	*Sample Weight:*	**1.0000**
Run Time (min):	**8.00**	*Sample Amount:*	**1.0000**



No.	Ret.Time min	Peak Name	Height AU	Area AU*min	Rel.Area %	Amount	Type
Total:			0.000	0.000	0.00	0.000	

ANALYTICAL LOG(S)

ANALYSIS RUN LOG
for
HEXAVALENT CHROMIUM IC

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

1,5 Diphenylcarbohydrazide : 0.5 g	SW9A-04-064
MeOH : 100 mL	SW1A-08-04-07
H_2SO_4 : 28 mL	↓ -006-08-20
$(NH_4)_2SO_4$: 66 g	SW9A-04-061
NH_4OH : 13 ml	↓ -048
☐ pH Adjusted Water ID #: (range 9.3-9.5)	
☑ Buffer (10 mL → 100 mL)	SB2-01-07-04
Reagent Water ID #:	RW1-19-002

Linear Range (ppb): S-0 -0
S-1 -0.2
S-2 -0.5
S-3 -1.0
S-4 -2.0
S-5 -5.0
S-6 -7.5
S-7 -10.0

Column: Dionex IonPac AS7 (4x250mm) Serial 18062734S
Guard Column: Dionex IonPac NG1 (4x35 mm) Serial 18011111
Wavelength: 530 nm
Flow Rate: 1.0 mL/min
Injection: 0.250 mL

Book #:	A59-047
Instrument No.:	59
Pipette ID:	SW9A-04-017
	SW9A-04-025
	SW9A-04-052
Balance ID:	10601202
Analytical Sequence:	IE27
Method File:	IC59E27
Analytical Batch:	N/A

SOP #	Rev. #
☑ EMAX-218.6	6
☑ EMAX-7199	5
☐ EMAX-	

STANDARDS ID	
ICAL	SW6B-002-04-17
ICV	↓ -18
LowCCV	↓ -19

LCS/MS STANDARDS

	Standard ID	Conc	Spike Amt	Final Vol
LCS				
MS				

ELECTRONIC DATA ARCHIVAL

Location	Date
☐ CHROMELEON	
☐	

5 mL vial kit Lot #: 038008 Snap-Seal Container
0.45 µm filter lot #: 4 oz: 16118006
0.2 µm filter lot #: 1.5 oz:

Analyzed By: AS
Date: 5/27/19

Title: Temporary sequence for manual data acquisition
Datasource: DG7B3Q91_local
Location: DX600\2019
Timebase: DX600
#Samples: 12

Created: 5/27/2019 10:28:10 AM by EMAXLABS
Last Update: 5/27/2019 1:03:42 PM by EMAXLABS

No.	Sequence	Sample ID	Name	Type	Inj. Vol.	Program	Method	Status	Inj. Date/Time	Dil. Factor	Comment
1	IE27	001	IB	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 10:58:09 AM	1.0000	BUFFER
2	IE27	002	S-0	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 11:08:33 AM	1.0000	
3	IE27	003	S-1	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 11:18:57 AM	1.0000	0.2 PPB
4	IE27	004	S-2	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 11:29:21 AM	1.0000	0.5 PPB
5	IE27	005	S-3	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 11:39:46 AM	1.0000	1.0 PPB
6	IE27	006	S-4	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 11:50:10 AM	1.0000	2.0 PPB
7	IE27	007	S-5	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:00:34 PM	1.0000	5.0 PPB
8	IE27	008	S-6	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:10:58 PM	1.0000	7.5 PPB
9	IE27	009	S-7	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:21:23 PM	1.0000	10 PPB
10	IE27	010	ICV	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:31:47 PM	1.0000	3.0 PPB
11	IE27	011	ICB	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:42:11 PM	1.0000	
12	IE27	012	LOW LEVEL CCV	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:52:35 PM	1.0000	0.2 PPB

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EMAX LABORATORIES, INC.

ANALYSIS RUN LOG
for
HEXAVALENT CHROMIUM IC

Note: For samples and relevant QCs/Standards analyzed, refer to attached analytical sequence.

Comments:

1,5 Diphenylcarbohydrazide : 0.5 g SW9A-04-064

MeOH : 100 mL SW1A-08-04-07

H_2SO_4 : 28 mL ↓ -006-08-20

$(NH_4)_2SO_4$: 66 g SW9A-04-061

NH_4OH : 13 ml ↓ -048

☐ **pH Adjusted Water ID #:**
(range 9.3-9.5)

☑ **Buffer** (10 mL → 100 mL) SB2-01-07-04

Reagent Water ID #: RW1-19-002

HCE003W: E197/E443

For E197-09M, 0.100mL of spike Standard was added to final volume 5mL of sample.

Book #: A59-047

Instrument No.: 59

Pipette ID: SW9A-04-017
SW9A-04-025
SW9A-04-052

Balance ID: 10601202

Analytical Sequence: IE28

Method File: IC59E27

Analytical Batch: HCE003W

SOP #	Rev. #
☑ EMAX-218.6	6
☐ EMAX-7199	5
☐ EMAX-	

STANDARDS ID	
ICAL	—
ICV	—
CCV	SW6B-002-05-01

LCS/MS STANDARDS

	Standard ID	Conc	Spike Amt	Final Vol
LCS	SW6B-002-04-10	100 ppb	0.100mL	5mL
MS	↓	↓	0.050mL	↓

ELECTRONIC DATA ARCHIVAL	
Location	Date
☐ CHROMELEON	
☐	

5 mL vial kit Lot #: 038008 Snap-Seal Container

0.45 µm filter lot #: 8161810 3 4 oz: 16118006

0.2 µm filter lot #: 1.5 oz: 15418006

Analyzed By: AS

Date: 5/28/19

Sequence: IE28
Operator: EMAXLABS

FINAL As

Title: Temporary sequence for manual data acquisition
Datasource: DG7B3Q91_local
Location: DX600\2019
Timebase: DX600
#Samples: 61

Created: 5/28/2019 10:32:36 AM by EMAXLABS
Last Update: 5/28/2019 8:07:13 PM by EMAXLABS

No.	Sequence	Sample ID	Name	Type	Inj. Vol.	Program	Method	Status	Inj. Date/Time	Dil. Factor	Comment
1	IE28		IB	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 10:58:09 AM	1.0000	BUFFER
2	IE28		S-0	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 11:08:33 AM	1.0000	
3	IE28		S-1	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 11:18:57 AM	1.0000	0.2 PPB
4	IE28		S-2	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 11:29:21 AM	1.0000	0.5 PPB
5	IE28		S-3	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 11:39:46 AM	1.0000	1.0 PPB
6	IE28		S-4	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 11:50:10 AM	1.0000	2.0 PPB
7	IE28		S-5	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:00:34 PM	1.0000	5.0 PPB
8	IE28		S-6	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:10:58 PM	1.0000	7.5 PPB
9	IE28		S-7	Standard	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:21:23 PM	1.0000	10 PPB
10	IE28		ICV	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:31:47 PM	1.0000	3.0 PPB
11	IE28		ICB	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:42:11 PM	1.0000	
12	IE28		LOW LEVEL CCV	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/27/2019 12:52:35 PM	1.0000	0.2 PPB
13	IE28	001	CCV1	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 10:40:19 AM	1.0000	
14	IE28	002	CCB1	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 10:50:43 AM	1.0000	
15	IE28	003	HCE003WB	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 11:01:07 AM	1.0000	
16	IE28	004	HCE003WL	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 11:11:31 AM	1.0000	
17	IE28	005	HCE003WC	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 11:21:56 AM	1.0000	
18	IE28	006	E197-02	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 11:32:20 AM	1.0000	
19	IE28	007	E197-02M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 11:42:44 AM	1.0000	
20	IE28	008	E197-04	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 11:53:08 AM	1.0000	
21	IE28	009	E197-04M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 12:03:32 PM	1.0000	
22	IE28	010	E197-04S	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 12:13:57 PM	1.0000	
23	IE28	011	E197-06	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 12:24:20 PM	1.0000	
24	IE28	012	E197-06M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 12:34:45 PM	1.0000	
25	IE28	013	CCV3	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 12:45:09 PM	1.0000	
26	IE28	014	CCB3	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 1:05:57 PM	1.0000	
27	IE28	015	E197-08	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 1:16:21 PM	1.0000	

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Title: Temporary sequence for manual data acquisition
Datasource: DG7B3Q91_local
Location: DX600\2019
Timebase: DX600
#Samples: 61

Created: 5/28/2019 10:32:36 AM by EMAXLABS
Last Update: 5/28/2019 8:07:13 PM by EMAXLABS

No.	Sequence	Sample ID	Name	Type	Inj. Vol.	Program	Method	Status	Inj. Date/Time	Dil. Factor	Comment
28	IE28	016	E197-08M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 1:26:46 PM	1.0000	
29	IE28	017	E197-08S	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 1:37:10 PM	1.0000	
30	IE28	018	E197-09	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 1:47:34 PM	1.0000	
31	IE28	019	E197-09M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 2:00:33 PM	1.0000	
32	IE28	020	E197-10	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 2:10:58 PM	1.0000	
33	IE28	021	E197-10M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 2:21:22 PM	1.0000	
34	IE28	022	NO INJECTION	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 2:31:46 PM	1.0000	
35	IE28	023	E197-11	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 2:42:11 PM	1.0000	
36	IE28	024	E197-11M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 2:52:35 PM	1.0000	
37	IE28	025	CCV5	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 3:03:00 PM	1.0000	
38	IE28	026	CCB5	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 3:13:24 PM	1.0000	
39	IE28	027	E197-12	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 3:23:48 PM	1.0000	
40	IE28	028	E197-12M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 3:34:12 PM	1.0000	
41	IE28	029	E197-02I	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 3:44:36 PM	5.0000	DF=5
42	IE28	030	E197-02M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 3:55:00 PM	5.0000	DF=5
43	IE28	031	E197-06I	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 4:05:24 PM	5.0000	DF=5
44	IE28	032	E197-06M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 4:15:48 PM	5.0000	DF=5
45	IE28	033	E197-10I	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 4:26:13 PM	5.0000	DF=5
46	IE28	034	E197-10M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 4:55:50 PM	5.0000	DF=5
47	IE28	035	E197-11I	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 5:06:14 PM	5.0000	DF=5
48	IE28	036	E197-11M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 5:16:38 PM	5.0000	DF=5
49	IE28	037	CCV7	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 5:37:38 PM	1.0000	
50	IE28	038	CCB7	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 5:48:02 PM	1.0000	
51	IE28	039	E197-01	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 5:58:26 PM	1.0000	
52	IE28	040	E197-01M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 6:08:50 PM	1.0000	
53	IE28	041	E197-03	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 6:19:14 PM	1.0000	
54	IE28	042	E197-03M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 6:29:38 PM	1.0000	

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Sequence: IE28
Operator: EMAXLABS

Title: Temporary sequence for manual data acquisition
Datasource: DG7B3Q91_local
Location: DX600\2019
Timebase: DX600
#Samples: 61

Created: 5/28/2019 10:32:36 AM by EMAXLABS
Last Update: 5/28/2019 8:07:13 PM by EMAXLABS

No.	Sequence	Sample ID	Name	Type	Inj. Vol.	Program	Method	Status	Inj. Date/Time	Dil. Factor	Comment
55	IE28	043	E197-05	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 6:40:02 PM	1.0000	
56	IE28	044	E197-05M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 6:50:27 PM	1.0000	
57	IE28	045	E197-07	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 7:00:51 PM	1.0000	
58	IE28	046	E197-07M	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 7:11:15 PM	1.0000	
59	IE28	047	E143-01	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 7:21:39 PM	1.0000	
60	IE28	048	CCV9	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 7:32:03 PM	1.0000	
61	IE28	049	CCB9	Unknown	250.0	Cr6 Program	IC59E27	Finished	5/28/2019 7:42:27 PM	1.0000	

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EXTRACTION LOG(S)

EMAX LABORATORIES, INC.

pH ADJUSTMENTS/SAMPLE PRESERVATION LOG FOR HEXAVALENT CHROMIUM

SOP ☑ EMAX-218.6 Rev. 6 ☐ EMAX-7199 Rev. 5 Book #: PHC-018

Matrix: W Start Date: 5/24/19 Time: 15:15 End Date: 5/24/19 Time: 15:43

Sample Prep ID	Lab Sample ID	Initial pH	Final pH	Notes
01	E197 -01	9.50	9.50	no adjustment needed; Cr
02	-02	9.50	9.50	
03	-03	9.50	9.50	
04	-04	9.50	9.50	
05	-05	9.50	9.50	
06	-06	9.50	9.50	
07	-07	9.50	9.50	
08	-08	9.50	9.50	
09	-09	9.50	9.50	
10	-10	9.49	9.49	
11	-11	9.45	9.45	
12	-12	9.47	9.47	
13				
14				
15				
16				
17				
18				
19				
20				
21				
22				
23				
24				
25				AS 5/24/19

Standards	ID	pH
Buffer 7	SW1-02-02-06	7.00
Buffer 10	-07	10.01
Check pH Buffer (8)	-20	7.97
pH meter	F7	

Reagent	Standard ID #
NaOH	
$(NH_4)_2SO_4/NH_4OH$	
Reagent Water	

Legend:

Color	Texture	Clarity	Artifacts
Bu = Blue Bl = Black	Cs = Coarse	Cr = Clear	Rk = Rocks
Bn = Brown Gn = Green	Md = Medium	Cy = Cloudy	Sl = Shale
Og = Orange Rd = Red	Fn = Fine	Td = Turbid	Vg = Vegetation
Yw = Yellow			

☑ Samples were received with preservation

Comments:

Prepared By: AS

Standard Added By: —

Checked By: AS

RETENTION TIME WINDOW

RETENTION TIME WINDOW

METHOD 218.6/7199

Lab Name:	EMAX	**METHOD:**	EMAX-218.6/7199
Instrument ID:	DX500IC59	**IC COLUMN:**	AS7/AG7 / AS7/NG1
		COLUMN SIZE:	4x250mm

Compound	Ical Mean RT	from	to	Retention Time Window
CHROMIUM VI	**4.76**	4.55	4.97	**0.213**

IC59E27

LC 6/4/19

May 13, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N035240

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on April 22, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Litucan for

Quennie Manimtim
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035240

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (5.5 ug/L) and hexavalent chromium (2.5 ug/L) for sample N035240-003 (MW-33-090-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 6020_Dissolved:

Because the results for total dissolved chromium (5.5 ug/L) and hexavalent chromium (2.5 ug/L) for sample N035240-003 (MW-33-090-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 4.7 and 3.6 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Dilution was necessary on Selenium for sample N035240-004 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

ASSET Laboratories

Date: *13-May-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035240
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035240-001A	MW-27-085-Q219	Groundwater	4/22/2019 12:55:00 PM	4/22/2019	5/13/2019
N035240-001B	MW-27-085-Q219	Groundwater	4/22/2019 12:55:00 PM	4/22/2019	5/13/2019
N035240-001C	MW-27-085-Q219	Groundwater	4/22/2019 12:55:00 PM	4/22/2019	5/13/2019
N035240-001D	MW-27-085-Q219	Groundwater	4/22/2019 12:55:00 PM	4/22/2019	5/13/2019
N035240-002A	MW-27-085-EB-Q219	Groundwater	4/22/2019 1:00:00 PM	4/22/2019	5/13/2019
N035240-003A	MW-33-090-Q219	Groundwater	4/22/2019 3:01:00 PM	4/22/2019	5/13/2019
N035240-003B	MW-33-090-Q219	Groundwater	4/22/2019 3:01:00 PM	4/22/2019	5/13/2019
N035240-003C	MW-33-090-Q219	Groundwater	4/22/2019 3:01:00 PM	4/22/2019	5/13/2019
N035240-003D	MW-33-090-Q219	Groundwater	4/22/2019 3:01:00 PM	4/22/2019	5/13/2019
N035240-004A	MW-33-210-Q219	Groundwater	4/22/2019 2:07:00 PM	4/22/2019	5/13/2019
N035240-004B	MW-33-210-Q219	Groundwater	4/22/2019 2:07:00 PM	4/22/2019	5/13/2019
N035240-004C	MW-33-210-Q219	Groundwater	4/22/2019 2:07:00 PM	4/22/2019	5/13/2019
N035240-004D	MW-33-210-Q219	Groundwater	4/22/2019 2:07:00 PM	4/22/2019	5/13/2019
N035240-005A	MW-700-Q219	Groundwater	4/22/2019 4:00:00 PM	4/22/2019	5/13/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-27-085-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 12:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190423B**	QC Batch: **R133387**			PrepDate:			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	4/23/2019 11:35 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-090-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 3:01:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190423B**	QC Batch: **R133387**			PrepDate:			Analyst: **LR**
Specific Conductance	9800	0.10	0.10		umhos/cm	1	4/23/2019 11:35 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-210-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 2:07:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190423B**	QC Batch: **R133387**			PrepDate:			Analyst: **LR**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	4/23/2019 11:35 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035240-004BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133387**
Client ID: **ZZZZZZ** Batch ID: **R133387** TestNo: **EPA 120.1** Analysis Date: **4/23/2019** SeqNo: **3360282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19330.000	0.10						19280	0.259	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-27-085-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 12:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190423A** QC Batch: **R133438**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/23/2019 01:13 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 03:44 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-27-085-EB-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 1:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190423A**	QC Batch: **R133438**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/23/2019 12:16 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-090-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 3:01:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190423A** QC Batch: **R133438**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	2.5	0.033	0.20		µg/L	1	4/23/2019 01:32 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	5.5	0.13	1.0		µg/L	1	5/9/2019 03:54 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-210-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 2:07:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190423A** QC Batch: **R133438**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	10	0.17	1.0		µg/L	5	4/23/2019 11:57 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	9.2	0.13	1.0		µg/L	1	5/9/2019 04:14 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-700-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190423A**	QC Batch: **R133438**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/23/2019 12:54 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133438**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **PBW**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362181**

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

Sample ID: **LCS-R133438**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **LCSW**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.064	0.20	5.000	0	101	90	110				

Sample ID: **N035240-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ZZZZZZ**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	15.025	1.0	5.000	10.23	95.9	90	110				

Sample ID: **N035240-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ZZZZZZ**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.093	0.20	1.000	0.08930	100	90	110				

Sample ID: **N035240-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ZZZZZZ**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.094	0.20	1.000	0.07630	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035240-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133438**
Client ID: **ZZZZZZ** Batch ID: **R133438** TestNo: **EPA 218.6** Analysis Date: **4/23/2019** SeqNo: **3362193**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.527	0.20	1.000	2.479	105	90	110				

Sample ID: **N035240-004ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133438**
Client ID: **ZZZZZZ** Batch ID: **R133438** TestNo: **EPA 218.6** Analysis Date: **4/23/2019** SeqNo: **3362196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.272	1.0						10.23	0.415	20	

Sample ID: **N035240-004AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133438**
Client ID: **ZZZZZZ** Batch ID: **R133438** TestNo: **EPA 218.6** Analysis Date: **4/23/2019** SeqNo: **3362197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	15.404	1.0	5.000	10.23	103	90	110	15.02	2.49	20	

Sample ID: **N035240-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133438**
Client ID: **ZZZZZZ** Batch ID: **R133438** TestNo: **EPA 218.6** Analysis Date: **4/23/2019** SeqNo: **3362200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.007	0.20	1.000	0	101	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-73664**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **PBW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379672**

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

Sample ID: **LCS-73664**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **LCSW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.923	1.0	10.00	0	99.2	85	115				

Sample ID: **N035260-001A-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.289	1.0	10.00	0	103	75	125				

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.193	1.0	10.00	0	102	75	125	10.29	0.935	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-27-085-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 12:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190424C**	QC Batch: **R133444**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	4/24/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-090-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 3:01:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190424C**	QC Batch: **R133444**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	1.1	0.032	0.050		mg/L	1	4/24/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-210-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 2:07:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190424C**	QC Batch: **R133444**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	1.6	0.063	0.10		mg/L	2	4/24/2019

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R133444** SampType: **MBLK** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **133444**
Client ID: **PBW** Batch ID: **R133444** TestNo: **SM4500-NO3** Analysis Date: **4/24/2019** SeqNo: **3362566**

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

Sample ID: **LCS-R133444** SampType: **LCS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **133444**
Client ID: **LCSW** Batch ID: **R133444** TestNo: **SM4500-NO3** Analysis Date: **4/24/2019** SeqNo: **3362567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.510	0.050	0.5000	0	102	85	115				

Sample ID: **N035115-001BDUP** SampType: **DUP** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **133444**
Client ID: **ZZZZZZ** Batch ID: **R133444** TestNo: **SM4500-NO3** Analysis Date: **4/24/2019** SeqNo: **3362571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.136	1.0						12.03	0.894	20	

Sample ID: **N035115-002BMS** SampType: **MS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **133444**
Client ID: **ZZZZZZ** Batch ID: **R133444** TestNo: **SM4500-NO3** Analysis Date: **4/24/2019** SeqNo: **3362573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	10.415	0.50	5.000	5.054	107	75	125				

Sample ID: **N035115-002BMSD** SampType: **MSD** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **133444**
Client ID: **ZZZZZZ** Batch ID: **R133444** TestNo: **SM4500-NO3** Analysis Date: **4/24/2019** SeqNo: **3362574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	10.211	0.50	5.000	5.054	103	75	125	10.42	1.98	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-27-085-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 12:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	1.6	0.081	0.10		µg/L	1	5/9/2019 03:44 PM
Manganese	86	0.26	0.50		µg/L	1	5/9/2019 03:44 PM
Molybdenum	17	0.21	0.50		µg/L	1	5/9/2019 03:44 PM
Selenium	ND	0.36	0.50		µg/L	1	5/9/2019 03:44 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-090-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 3:01:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	1.2	0.081	0.10		µg/L	1	5/9/2019 03:54 PM
Manganese	9.2	0.26	0.50		µg/L	1	5/9/2019 03:54 PM
Molybdenum	8.6	0.21	0.50		µg/L	1	5/9/2019 03:54 PM
Selenium	ND	0.36	0.50		µg/L	1	5/9/2019 03:54 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035240
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035240-004

Client Sample ID: MW-33-210-Q219
Collection Date: 4/22/2019 2:07:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	1.4	0.081	0.10		µg/L	1	5/9/2019 04:14 PM
Manganese	ND	0.26	0.50		µg/L	1	5/9/2019 04:14 PM
Molybdenum	19	0.21	0.50		µg/L	1	5/9/2019 04:14 PM
Selenium	ND	1.8	2.5		µg/L	5	5/9/2019 04:19 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-73664**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **PBW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-73664**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **LCSW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.933	0.10	10.00	0	99.3	85	115				
Manganese	102.767	0.50	100.0	0	103	85	115				
Molybdenum	9.093	0.50	10.00	0	90.9	85	115				
Selenium	10.072	0.50	10.00	0	101	85	115				

Sample ID: **N035260-001A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.412	0.10	10.00	0	104	75	125				
Manganese	107.388	0.50	100.0	0	107	75	125				
Molybdenum	9.982	0.50	10.00	0	99.8	75	125				
Selenium	10.033	0.50	10.00	0	100	75	125				

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.282	0.10	10.00	0	103	75	125	9.960	3.18	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.187	0.50	100.0	0	107	75	125	106.8	0.365	20	
Molybdenum	10.046	0.50	10.00	0	100	75	125	10.31	2.58	20	
Selenium	9.887	0.50	10.00	0	98.9	75	125	9.852	0.358	20	

Qualifiers:

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

ARCUS02 C: 5/6/2019 12:00 AM
FOLDER R: 4/22/2019
N035240-006A 1 of 1

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
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Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com
Submitted By: Jason Mahn		Phone: 949-727-1400, ext 200 Fax:
Title: Project Manager	Phone: 916-786-3302 Fax:	P.O.# SWA-ASSET-C9817-057
Signature: Date: 4/22/2019	Sampled By: Jason Mahn	
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.	
Project Name: PG&E Topock - GMP	Signature: Date: 4/22/19	
Project Number: RC000753.801D		

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC	
Excel EDD		RTNE	
Geotracker		RWQCB	✓
Labspec		CalTrans	
Others	✓	LEVEL III	
Specify: RWQCB		LEVEL IV	
Global ID:		Regulatory	
		Specify State:	

Sample Receipt Condition	Y	N
1. Chilled	✓	
2. Headspace		
3. Container Intact	✓	
4. Seal Present		
5. IR number		1
6. Method of Cooling: Ice		
Sample Temp: 3.8°C		

Courier: ASSET

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Fluoride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly)	Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, (500 mL poly)	Metals Dissolved (EPA7470A FF) Hg: HNO3 (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly)	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035240-01	MW-27-085-Q219	4/22/2019	1255				X				X		X		X							E	5	P	BNS	
2	-02	MW-27-085-EB-Q219	4/22/2019	1300		X																	E	1	P	B	
3	-03	MW-33-090-Q219	4/22/2019	1501		X						X		X		X							E	4	P	BNS	
4	-04	MW-33-210-Q219	4/22/2019	1407		X						X		X		X							E	4	P	BNS	
5	-05	MW-700-Q219	4/22/2019	1600		X																	E	1	P	B	

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Jason Mahn	4/22/19 1614	JORDAN 16C	4/22/19 1614
JORDAN 16C	4-22-19 1822	Joanna Retriguez	4/22/18 18:22

Turn Around Time (TAT)

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

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

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

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=25%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

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

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

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	4/22/2019	Workorder:	N035240
Rep sample Temp (Deg C):	3.8	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

Checklist Completed By: YR 4/23/2019

Reviewed By: LG 042919

ASSET Laboratories

WORK ORDER Summary

23-Apr-19

WorkOrder: N035240

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/22/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035240-001A	MW-27-085-Q219	4/22/2019 12:55:00 PM	5/6/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035240-001B			5/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035240-001C			5/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035240-001D			5/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035240-002A	MW-27-085-EB-Q219	4/22/2019 1:00:00 PM	5/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035240-003A	MW-33-090-Q219	4/22/2019 3:01:00 PM	5/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035240-003B			5/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035240-003C			5/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035240-003D			5/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035240-004A	MW-33-210-Q219	4/22/2019 2:07:00 PM	5/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035240-004B			5/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035240-004C			5/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035240-004D			5/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035240-005A	MW-700-Q219	4/22/2019 4:00:00 PM	5/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035240-006A	FOLDER	5/6/2019	5/6/2019		EDD	RWQCB	☐	☐	☐	LAB

ASSET Laboratories

WORK ORDER Summary

23-Apr-19

WorkOrder: N035240

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/22/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035240-006A	FOLDER	5/6/2019	5/6/2019		Folder	Folder	☐	☐	☐	LAB
			5/6/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035240

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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May 13, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N035240

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on April 22, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Litucan for

Quennie Manimtim
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035240

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (5.5 ug/L) and hexavalent chromium (2.5 ug/L) for sample N035240-003 (MW-33-090-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 6020_Dissolved:

Because the results for total dissolved chromium (5.5 ug/L) and hexavalent chromium (2.5 ug/L) for sample N035240-003 (MW-33-090-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 4.7 and 3.6 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Dilution was necessary on Selenium for sample N035240-004 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

ASSET Laboratories

Date: *13-May-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035240
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035240-001A	MW-27-085-Q219	Groundwater	4/22/2019 12:55:00 PM	4/22/2019	5/13/2019
N035240-001B	MW-27-085-Q219	Groundwater	4/22/2019 12:55:00 PM	4/22/2019	5/13/2019
N035240-001C	MW-27-085-Q219	Groundwater	4/22/2019 12:55:00 PM	4/22/2019	5/13/2019
N035240-001D	MW-27-085-Q219	Groundwater	4/22/2019 12:55:00 PM	4/22/2019	5/13/2019
N035240-002A	MW-27-085-EB-Q219	Groundwater	4/22/2019 1:00:00 PM	4/22/2019	5/13/2019
N035240-003A	MW-33-090-Q219	Groundwater	4/22/2019 3:01:00 PM	4/22/2019	5/13/2019
N035240-003B	MW-33-090-Q219	Groundwater	4/22/2019 3:01:00 PM	4/22/2019	5/13/2019
N035240-003C	MW-33-090-Q219	Groundwater	4/22/2019 3:01:00 PM	4/22/2019	5/13/2019
N035240-003D	MW-33-090-Q219	Groundwater	4/22/2019 3:01:00 PM	4/22/2019	5/13/2019
N035240-004A	MW-33-210-Q219	Groundwater	4/22/2019 2:07:00 PM	4/22/2019	5/13/2019
N035240-004B	MW-33-210-Q219	Groundwater	4/22/2019 2:07:00 PM	4/22/2019	5/13/2019
N035240-004C	MW-33-210-Q219	Groundwater	4/22/2019 2:07:00 PM	4/22/2019	5/13/2019
N035240-004D	MW-33-210-Q219	Groundwater	4/22/2019 2:07:00 PM	4/22/2019	5/13/2019
N035240-005A	MW-700-Q219	Groundwater	4/22/2019 4:00:00 PM	4/22/2019	5/13/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-27-085-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 12:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190423B**	QC Batch: **R133387**			PrepDate:			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	4/23/2019 11:35 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-090-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 3:01:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190423B**	QC Batch: **R133387**			PrepDate:			Analyst: **LR**
Specific Conductance	9800	0.10	0.10		umhos/cm	1	4/23/2019 11:35 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-210-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 2:07:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190423B**	QC Batch: **R133387**			PrepDate:			Analyst: **LR**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	4/23/2019 11:35 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035240-004BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133387**
Client ID: **ZZZZZZ** Batch ID: **R133387** TestNo: **EPA 120.1** Analysis Date: **4/23/2019** SeqNo: **3360282**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19330.000	0.10						19280	0.259	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-27-085-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 12:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190423A** QC Batch: **R133438**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/23/2019 01:13 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 03:44 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-27-085-EB-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 1:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190423A**	QC Batch: **R133438**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/23/2019 12:16 PM

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-090-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 3:01:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190423A** QC Batch: **R133438**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	2.5	0.033	0.20		µg/L	1	4/23/2019 01:32 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	5.5	0.13	1.0		µg/L	1	5/9/2019 03:54 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-210-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 2:07:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190423A** QC Batch: **R133438**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	10	0.17	1.0		µg/L	5	4/23/2019 11:57 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	9.2	0.13	1.0		µg/L	1	5/9/2019 04:14 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-700-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190423A**	QC Batch: **R133438**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/23/2019 12:54 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133438**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **PBW**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362181**

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

Sample ID: **LCS-R133438**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **LCSW**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.064	0.20	5.000	0	101	90	110				

Sample ID: **N035240-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ZZZZZZ**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	15.025	1.0	5.000	10.23	95.9	90	110				

Sample ID: **N035240-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ZZZZZZ**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.093	0.20	1.000	0.08930	100	90	110				

Sample ID: **N035240-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ZZZZZZ**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.094	0.20	1.000	0.07630	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035240-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133438**
Client ID: **ZZZZZZ** Batch ID: **R133438** TestNo: **EPA 218.6** Analysis Date: **4/23/2019** SeqNo: **3362193**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3.527	0.20	1.000	2.479	105	90	110				

Sample ID: **N035240-004ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133438**
Client ID: **ZZZZZZ** Batch ID: **R133438** TestNo: **EPA 218.6** Analysis Date: **4/23/2019** SeqNo: **3362196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.272	1.0						10.23	0.415	20	

Sample ID: **N035240-004AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133438**
Client ID: **ZZZZZZ** Batch ID: **R133438** TestNo: **EPA 218.6** Analysis Date: **4/23/2019** SeqNo: **3362197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	15.404	1.0	5.000	10.23	103	90	110	15.02	2.49	20	

Sample ID: **N035240-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133438**
Client ID: **ZZZZZZ** Batch ID: **R133438** TestNo: **EPA 218.6** Analysis Date: **4/23/2019** SeqNo: **3362200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.007	0.20	1.000	0	101	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-73664**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **PBW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379672**

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

Sample ID: **LCS-73664**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **LCSW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.923	1.0	10.00	0	99.2	85	115				

Sample ID: **N035260-001A-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.289	1.0	10.00	0	103	75	125				

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.193	1.0	10.00	0	102	75	125	10.29	0.935	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-27-085-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 12:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190424C**	QC Batch: **R133444**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	4/24/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-090-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 3:01:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190424C**	QC Batch: **R133444**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	1.1	0.032	0.050		mg/L	1	4/24/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-210-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 2:07:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190424C**	QC Batch: **R133444**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	1.6	0.063	0.10		mg/L	2	4/24/2019

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R133444**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **PBW**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362566**

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

Sample ID: **LCS-R133444**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **LCSW**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.510	0.050	0.5000	0	102	85	115				

Sample ID: **N035115-001BDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **ZZZZZZ**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	12.136	1.0						12.03	0.894	20	

Sample ID: **N035115-002BMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **ZZZZZZ**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	10.415	0.50	5.000	5.054	107	75	125				

Sample ID: **N035115-002BMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **ZZZZZZ**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	10.211	0.50	5.000	5.054	103	75	125	10.42	1.98	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035240
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035240-001

Client Sample ID: MW-27-085-Q219
Collection Date: 4/22/2019 12:55:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	1.6	0.081	0.10		µg/L	1	5/9/2019 03:44 PM
Manganese	86	0.26	0.50		µg/L	1	5/9/2019 03:44 PM
Molybdenum	17	0.21	0.50		µg/L	1	5/9/2019 03:44 PM
Selenium	ND	0.36	0.50		µg/L	1	5/9/2019 03:44 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-090-Q219
Lab Order:	N035240	**Collection Date:**	4/22/2019 3:01:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035240-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	1.2	0.081	0.10		µg/L	1	5/9/2019 03:54 PM
Manganese	9.2	0.26	0.50		µg/L	1	5/9/2019 03:54 PM
Molybdenum	8.6	0.21	0.50		µg/L	1	5/9/2019 03:54 PM
Selenium	ND	0.36	0.50		µg/L	1	5/9/2019 03:54 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035240
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035240-004

Client Sample ID: MW-33-210-Q219
Collection Date: 4/22/2019 2:07:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	1.4	0.081	0.10		µg/L	1	5/9/2019 04:14 PM
Manganese	ND	0.26	0.50		µg/L	1	5/9/2019 04:14 PM
Molybdenum	19	0.21	0.50		µg/L	1	5/9/2019 04:14 PM
Selenium	ND	1.8	2.5		µg/L	5	5/9/2019 04:19 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-73664**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **PBW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-73664**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **LCSW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.933	0.10	10.00	0	99.3	85	115				
Manganese	102.767	0.50	100.0	0	103	85	115				
Molybdenum	9.093	0.50	10.00	0	90.9	85	115				
Selenium	10.072	0.50	10.00	0	101	85	115				

Sample ID: **N035260-001A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.412	0.10	10.00	0	104	75	125				
Manganese	107.388	0.50	100.0	0	107	75	125				
Molybdenum	9.982	0.50	10.00	0	99.8	75	125				
Selenium	10.033	0.50	10.00	0	100	75	125				

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.282	0.10	10.00	0	103	75	125	9.960	3.18	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.187	0.50	100.0	0	107	75	125	106.8	0.365	20	
Molybdenum	10.046	0.50	10.00	0	100	75	125	10.31	2.58	20	
Selenium	9.887	0.50	10.00	0	98.9	75	125	9.852	0.358	20	

Qualifiers:

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

Calculations are based on raw values

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

SAMPLE RECEIVING ITEMS

ARCUS02 C: 5/6/2019 12:00 AM
FOLDER R: 4/22/2019
N035240-006A 1 of 1

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

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

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com
Submitted By: Jason Mahn		Phone: 949-727-1400, ext 200 Fax:
Title: Project Manager	Phone: 916-786-3302 Fax:	P.O.# SWA-ASSET-C9817-057
Signature: Date: 4/22/2019	Sampled By: Jason Mahn	
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*	
Project Name: PG&E Topock - GMP	Signature: Date: 4/22/19	
Project Number: RC000753.801D		

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	✓	
Others	✓	LEVEL III		4. Seal Present		1
Specify: RWQCB		LEVEL IV		5. IR number		
Global ID:		Regulatory		6. Method of Cooling: Ice		
		Specify State:		Sample Temp: 3.8°C		

Courier: ASSET

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Fluoride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly)	Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, (500 mL poly)	Metals Dissolved (EPA7470A FF) Hg: HNO3 (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly)	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035240-01	MW-27-085-Q219	4/22/2019	1255				X				X		X		X							E	5	P	BNS	
2	-02	MW-27-085-EB-Q219	4/22/2019	1300		X																	E	1	P	B	
3	-03	MW-33-090-Q219	4/22/2019	1501		X						X		X		X							E	4	P	BNS	
4	-04	MW-33-210-Q219	4/22/2019	1407		X						X		X		X							E	4	P	BNS	
5	-05	MW-700-Q219	4/22/2019	1600		X																	E	1	P	B	

Relinquished by (Signature and Printed Name): Jason Mahn	Date/Time: 4/22/19 1614	Received by (Signature and Printed Name): JORDAN 16C
Relinquished by (Signature and Printed Name): JORDAN 16C	Date/Time: 4-22-19 1822	Received by (Signature and Printed Name): Joanna Retriguez
Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):

Date/Time: 4/22/19 1614

Date/Time: 4/22/18 18:22

Date/Time:

Turn Around Time (TAT)

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

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

Special Instruction:

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

Terms

1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
   Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=25%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

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

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

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	4/22/2019	Workorder:	N035240
Rep sample Temp (Deg C):	3.8	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments:

Checklist Completed By: YR 4/23/2019

Reviewed By: LG 042919

ASSET Laboratories

WORK ORDER Summary

23-Apr-19

WorkOrder: N035240

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/22/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035240-001A	MW-27-085-Q219	4/22/2019 12:55:00 PM	5/6/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035240-001B			5/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035240-001C			5/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035240-001D			5/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035240-002A	MW-27-085-EB-Q219	4/22/2019 1:00:00 PM	5/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035240-003A	MW-33-090-Q219	4/22/2019 3:01:00 PM	5/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035240-003B			5/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035240-003C			5/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035240-003D			5/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035240-004A	MW-33-210-Q219	4/22/2019 2:07:00 PM	5/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035240-004B			5/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035240-004C			5/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035240-004D			5/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035240-005A	MW-700-Q219	4/22/2019 4:00:00 PM	5/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035240-006A	FOLDER	5/6/2019	5/6/2019		EDD	RWQCB	☐	☐	☐	LAB

WORK ORDER Summary

23-Apr-19

WorkOrder: N035240

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/22/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035240-006A	FOLDER	5/6/2019	5/6/2019		Folder	Folder	☐	☐	☐	LAB
			5/6/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035240

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133387 **Analyst:** LSR

ASSET #: N035240 **Date Analyzed:** 23-Apr

Method: EPA 120.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer: Julia Ramit Date: 4/29/2019

2nd Level Reviewer: 5/7/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 4/23/19 1135
Analyst: LSR

Standard	Std ID	Reading	Comments
11.26 us/cm	CINV-181011A	11.41 @18.5C	% Rec: (90-110%)
1410	190107D	1414 @18.6C	
9965	190218B	9940 @18.6C	
100390	190218C	100500 @18.6C	

	Sample ID	Matrix	Reading	Comments
1	N035240-1B	H_2O	10220 @18.0C	
2	3B		9810 @17.8C	
3	4B		19280 @18.0C	
4	4B DUP		19330 @18.0C	
5				
6				
7				
8	1413 us/cm	CINV-181022A	1454 @18.5C	
9	10000	B	9970 @18.6C	
10	99922	CINV-190111H	99600 @18.6C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Julia Ramit 4/29/2019

Date: 4/24/19 1045
Analyst: LSR

Standard	Std ID	Reading	Comments
11.26 us/cm	CINV-181011A	11.42 @19.5C	% Rec: (90-110%)
1410	190107D	1412 @19.4C	
9965	190218B	9910 @19.2C	
100390	190218C	100200 @19.2C	

	Sample ID	Matrix	Reading	Comments
1	N035250-1B	H_2O	13690 @18.5C	
2	2B		9390 @18.6C	STD CHECK
3	3B		19220 @18.8C	1413 CINV181022A
4	4B		19440 @19.0C	= 1423 @ 20.9°C
5	4B DUP		19460 @19.3C	10000 CINV181022B
6	5B		7440 @19.2C	= 9630 @ 20.9°C
7	LSN 4/2 ~~6~~ 7B		8670 @19.4C	99922 CINV190111H
8	9B		1000 @18.8C	= 94800 @ 21.1°C
9	11B		2200 @19.6C	
10	12B		13930 @19.0C	
~~Dup~~	14B		4580 @19.3C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133438
ASSET #: N035240

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 4/23/2019

Method:

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

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

Comments: Dilution was necessary for N035240-004A due to matrix interference.MS not recovered at 1X.

SECOND LEVEL REVIEW:

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

1st Level Reviewer rba Date: 5/7/2019

2nd Level Reviewer 5/7/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

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

FORMULA:

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

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

where:

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

For Sample **N035240-003A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 2.4789 * 1$$

$$Cr^{+6}, \mu g/L = 2.4789$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 2.5}$$

rba 5/7/2019

ANALYSIS RUN LOG

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	04/23/19 10:30 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/23/19 10:41 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	04/23/19 10:51 AM	Reported
13	MB-R133438	MBLK	1	Hexavalent Chromium	04/23/19 11:00 AM	Reported
14	LCS-R133438	LCS	1	Hexavalent Chromium	04/23/19 11:10 AM	Reported
15	N035240-001A	SAMP	5	Hexavalent Chromium	04/23/19 11:19 AM	Not Reported
16	N035240-001AMS	MS	5	Hexavalent Chromium	04/23/19 11:29 AM	Not Reported
17	N035240-003A	SAMP	5	Hexavalent Chromium	04/23/19 11:38 AM	Not Reported
18	N035240-003AMS	MS	5	Hexavalent Chromium	04/23/19 11:48 AM	Not Reported
19	N035240-004A	SAMP	5	Hexavalent Chromium	04/23/19 11:57 AM	Reported
20	N035240-004AMS	MS	5	Hexavalent Chromium	04/23/19 12:07 PM	Reported
21	N035240-002A	SAMP	1	Hexavalent Chromium	04/23/19 12:16 PM	Reported
22	N035240-002AMS	MS	1	Hexavalent Chromium	04/23/19 12:25 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	04/23/19 12:35 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	04/23/19 12:44 PM	Reported
25	N035240-005A	SAMP	1	Hexavalent Chromium	04/23/19 12:54 PM	Reported
26	N035240-005AMS	MS	1	Hexavalent Chromium	04/23/19 1:03 PM	Reported
27	N035240-001A	SAMP	1	Hexavalent Chromium	04/23/19 1:13 PM	Reported
28	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 1:22 PM	Not Reported
29	N035240-003A	SAMP	1	Hexavalent Chromium	04/23/19 1:32 PM	Reported
30	N035240-003AMS	MS	1	Hexavalent Chromium	04/23/19 1:41 PM	Reported
31	N035240-004A	SAMP	1	Hexavalent Chromium	04/23/19 1:51 PM	Not Reported
32	N035240-004AMS	MS	1	Hexavalent Chromium	04/23/19 2:00 PM	Not Reported
33	N035240-004ADUP	DUP	5	Hexavalent Chromium	04/23/19 2:11 PM	Reported
34	N035240-004AMSD	MSD	5	Hexavalent Chromium	04/23/19 2:22 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	04/23/19 2:32 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	04/23/19 2:41 PM	Reported
37	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 2:51 PM	Reported
38	N035039-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:00 PM	Not Reported
39	N035039-009AMS	MS	1	Hexavalent Chromium	04/23/19 3:10 PM	Not Reported
40	N035065-002A	SAMP	1	Hexavalent Chromium	04/23/19 3:19 PM	Not Reported
41	N035065-002AMS	MS	1	Hexavalent Chromium	04/23/19 3:28 PM	Not Reported
42	N035023-012A	SAMP	1	Hexavalent Chromium	04/23/19 3:38 PM	Not Reported

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035023-012AMS	MS	1	Hexavalent Chromium	04/23/19 3:47 PM	Not Reported
44	N035065-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:57 PM	Not Reported
45	N035065-009AMS	MS	1	Hexavalent Chromium	04/23/19 4:06 PM	Not Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	04/23/19 4:16 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	04/23/19 4:25 PM	Reported
48	N035065-012A	SAMP	1	Hexavalent Chromium	04/23/19 4:35 PM	Not Reported
49	N035065-012AMS	MS	1	Hexavalent Chromium	04/23/19 4:44 PM	Not Reported
50	N035065-005A	SAMP	1	Hexavalent Chromium	04/23/19 4:54 PM	Not Reported
51	N035065-005AMS	MS	1	Hexavalent Chromium	04/23/19 5:03 PM	Not Reported
52	N035074-001A	SAMP	1	Hexavalent Chromium	04/23/19 5:13 PM	Not Reported
53	N035074-001AMS	MS	1	Hexavalent Chromium	04/23/19 5:22 PM	Not Reported
54	CCV-4	CCV	1	Hexavalent Chromium	04/23/19 5:31 PM	Reported
55	CCB-4	CCB	1	Hexavalent Chromium	04/23/19 5:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190423A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 09:17:37**
No. of Injections:	**58**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	12	1000	Unknown		04/23/2019 10:30	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	13	1000	Unknown		04/23/2019 10:41	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		04/23/2019 10:51	Finished	ICB R190411C
13	MB-H2O,MBLK,1,	15	1000	Unknown		04/23/2019 11:00	Finished	MB R190411C
14	LCS-H2O,LCS,1,	16	1000	Unknown		04/23/2019 11:10	Finished	LCS @5ppb, IWST-190423B
15	N035240-001A,SAMF	17	1000	Unknown		04/23/2019 11:19	Finished	SAMP,2>10mL
16	N035240-001AMS,MS	18	1000	Unknown		04/23/2019 11:29	Finished	MS (1ppb), IWST-190423B,2>
17	N035240-003A,SAMF	19	1000	Unknown		04/23/2019 11:38	Finished	SAMP,2>10mL
18	N035240-003AMS,MS	20	1000	Unknown		04/23/2019 11:48	Finished	MS (1ppb), IWST-190423B,2>
19	N035240-004A,SAMF	21	1000	Unknown		04/23/2019 11:57	Finished	SAMP,2>10mL
20	N035240-004AMS,MS	22	1000	Unknown		04/23/2019 12:07	Finished	MS (1ppb), IWST-190423B,2>
21	N035240-002A,SAMF	23	1000	Unknown		04/23/2019 12:16	Finished	SAMP,10mL
22	N035240-002AMS,MS	24	1000	Unknown		04/23/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>
23	CCV-1,CCV1,1,	25	1000	Unknown		04/23/2019 12:35	Finished	CCV @10ppb, IWST-190423A
24	CCB-1,CCB,1,	26	1000	Unknown		04/23/2019 12:44	Finished	CCB R190411C
25	N035240-005A,SAMF	27	1000	Unknown		04/23/2019 12:54	Finished	SAMP,10mL
26	N035240-005AMS,MS	28	1000	Unknown		04/23/2019 13:03	Finished	MS (1ppb), IWST-190423B,10
27	N035240-001A,SAMF	29	1000	Unknown		04/23/2019 13:13	Finished	SAMP,10mL
28	N035240-001AMS,MS	30	1000	Unknown		04/23/2019 13:22	Finished	MS (1ppb), IWST-190423B,10
29	N035240-003A,SAMF	31	1000	Unknown		04/23/2019 13:32	Finished	SAMP,10mL
30	N035240-003AMS,MS	32	1000	Unknown		04/23/2019 13:41	Finished	MS (1ppb), IWST-190423B,10
31	N035240-004A,SAMF	33	1000	Unknown		04/23/2019 13:51	Finished	SAMP,10mL
32	N035240-004AMS,MS	34	1000	Unknown		04/23/2019 14:00	Finished	MS (1ppb), IWST-190423B,2>
33	N035240-004ADUP,D	1	1000	Unknown		04/23/2019 14:11	Finished	DUP,2>10mL
34	N035240-004AMSD,M	2	1000	Unknown		04/23/2019 14:22	Finished	MSD (1ppb), IWST-190423B,2
35	CCV-2,CCV,1,	3	1000	Unknown		04/23/2019 14:32	Finished	CCV @5ppb, IWST-190423A
36	CCB-2,CCB,1,	4	1000	Unknown		04/23/2019 14:41	Finished	CCB R190411C
37	N035240-001AMS,MS	5	1000	Unknown		04/23/2019 14:51	Finished	MS (1ppb), IWST-190423B,10
38	N035039-009A,SAMF	6	1000	Unknown		04/23/2019 15:00	Finished	SAMP,10mL
39	N035039-009AMS,MS	7	1000	Unknown		04/23/2019 15:10	Finished	MS (5ppb), IWST-190423B,10
40	N035065-002A,SAMF	8	1000	Unknown		04/23/2019 15:19	Finished	SAMP,10mL
41	N035065-002AMS,MS	9	1000	Unknown		04/23/2019 15:28	Finished	MS (5ppb), IWST-190423B,10
42	N035023-012A,SAMF	10	1000	Unknown		04/23/2019 15:38	Finished	SAMP,10mL
43	N035023-012AMS,MS	11	1000	Unknown		04/23/2019 15:47	Finished	MS (1ppb), IWST-190423B,10
44	N035065-009A,SAMF	12	1000	Unknown		04/23/2019 15:57	Finished	SAMP,10mL
45	N035065-009AMS,MS	13	1000	Unknown		04/23/2019 16:06	Finished	MS (1ppb), IWST-190423B,10
46	CCV-3,CCV1,1,	14	1000	Unknown		04/23/2019 16:16	Finished	CCV @10ppb, IWST-190423A
47	CCB-3,CCB,1,	15	1000	Unknown		04/23/2019 16:25	Finished	CCB R190411C
48	N035065-012A,SAMF	16	1000	Unknown		04/23/2019 16:35	Finished	SAMP,10mL
49	N035065-012AMS,MS	17	1000	Unknown		04/23/2019 16:44	Finished	MS (1ppb), IWST-190423B,10
50	N035065-005A,SAMF	18	1000	Unknown		04/23/2019 16:54	Finished	SAMP,10mL
51	N035065-005AMS,MS	19	1000	Unknown		04/23/2019 17:03	Finished	MS (1ppb), IWST-190423B,10
52	N035074-001A,SAMF	20	1000	Unknown		04/23/2019 17:13	Finished	SAMP,10mL
53	N035074-001AMS,MS	21	1000	Unknown		04/23/2019 17:22	Finished	MS (1ppb), IWST-190423B,10
54	CCV-4,CCV,1,	22	1000	Unknown		04/23/2019 17:31	Finished	CCV @5ppb, IWST-190423A
55	CCB-4,CCB,1,	23	1000	Unknown		04/23/2019 17:41	Finished	CCB R190411C
56	SHUTDOWN	24	1000	Unknown		04/23/2019 17:50	Finished	
57	Eluent: R190422A	25	1000	Unknown		n.a.	Finished	Eluent
58	PCR: R190422B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 4/22/19
Time Prepared: 0835H
Prepared By: MSA

slope: y95.37
pH 4: 4.03
7: 7.01
10: 9.98

Reagent ID:
Sulfuric Acid: 109U1
Diphenylcarbazide: CINU-190328A
NH4OH + NH4SO4 eluent: M904224 M904229B
NH4OH + NH4SO4 buffer: M904116

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M75226-01A	9.41	9.41	50mL	100mL	4 drops NaOH	
2)	2A	9.67	-				
3)	3A	9.67	-				
4)	4A	9.68	-				
5)	M75227-1A	9.46	9.46			+3 " "	
6)	2A	9.23	9.44			+3 " "	
7)	3A	9.30	-				
8)	4A	9.28	9.32			+2 " "	
9)	5A	9.42	-				
10)	6A	9.24	-				
11)	7A	9.28	-				
12)	8A	9.40	-				
13)	9A	9.42	-				
14)	10A	9.30	-				
15)							

Sample Preparation

Date Prepared: 4/23/19
Time Prepared: 1015H
Prepared By: MSA

Reagent ID:
Sulfuric Acid: 109U1
Diphenylcarbazide: CINU-190328A
NH4OH + NH4SO4 eluent: M91N22A
NH4OH + NH4SO4 buffer: M904116

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M75240-01A	9.31	-	50mL	100mL		1/2
2)	1A	9.32	-				2/2
3)	2A	9.74	9.64 -				
4)	3A	9.74	-				
5)	4A	9.63	-				
6)	5A	9.75	9.62 -				
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 4/23/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0538	0.2527	1.2462	2.4794	3.7395	4.9803	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ICV**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362178**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ZZZZZZ**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362179**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.226	0.20	0.2000	0	113	80	120				

Sample ID **CCV-1**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ZZZZZZ**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.074	0.20	10.00	0	101	95	105				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **CCV**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.037	0.20	5.000	0	101	95	105				

Sample ID **CCV-3**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ZZZZZZ**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362201**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.176	0.20	10.00	0	102	95	105				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-4** SampType: **CCV** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133438**
Client ID: **CCV** Batch ID: **R133438** TestNo: **EPA 218.6** Analysis Date: **4/23/2019** SeqNo: **3362203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.035	0.20	5.000	0	101	95	105				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **ICB**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362180**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **CCB**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362188**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **CCB**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362199**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **CCB**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362202**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133438**
Client ID: **CCB**	Batch ID: **R133438**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3362204**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/23/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.865	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
Average	4.858	
Actual RT Window	4.778 - 4.938	
Applied RT Window	4.658 - 5.058	
MB-R133438	N.A.	N.A.
LCS-R133438	4.840	PASS
N035240-001A	N.A.	N.A.
N035240-001AMS	4.823	PASS
N035240-003A	4.823	PASS
N035240-003AMS	4.831	PASS
N035240-004A	4.798	PASS
N035240-004AMS	4.798	PASS
N035240-002A	4.856	PASS
N035240-002AMS	4.856	PASS
N035240-005A	4.856	PASS
N035240-005AMS	4.856	PASS
N035240-001A	N.A.	N.A.
N035240-001AMS	4.681	PASS
N035240-003A	4.690	PASS
N035240-003AMS	4.690	PASS
N035240-004A	N.A.	N.A.
N035240-004AMS	N.A.	N.A.
N035240-004ADUP	4.798	PASS
N035240-004AMSD	4.798	PASS
N035240-001AMS	4.690	PASS
N035039-009A	4.848	PASS
N035039-009AMS	4.856	PASS
N035065-002A	4.815	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/23/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.865	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
Average	4.858	
Actual RT Window	4.778 - 4.938	
Applied RT Window	4.658 - 5.058	
N035065-002AMS	4.815	PASS
N035023-012A	4.848	PASS
N035023-012AMS	4.848	PASS
N035065-009A	4.848	PASS
N035065-009AMS	4.848	PASS
N035065-012A	4.856	PASS
N035065-012AMS	4.856	PASS
N035065-005A	4.848	PASS
N035065-005AMS	4.848	PASS
N035074-001A	4.840	PASS
N035074-001AMS	4.831	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

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

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

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

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

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

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	04/23/19 10:30 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/23/19 10:41 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	04/23/19 10:51 AM	Reported
13	MB-R133438	MBLK	1	Hexavalent Chromium	04/23/19 11:00 AM	Reported
14	LCS-R133438	LCS	1	Hexavalent Chromium	04/23/19 11:10 AM	Reported
15	N035240-001A	SAMP	5	Hexavalent Chromium	04/23/19 11:19 AM	Not Reported
16	N035240-001AMS	MS	5	Hexavalent Chromium	04/23/19 11:29 AM	Not Reported
17	N035240-003A	SAMP	5	Hexavalent Chromium	04/23/19 11:38 AM	Not Reported
18	N035240-003AMS	MS	5	Hexavalent Chromium	04/23/19 11:48 AM	Not Reported
19	N035240-004A	SAMP	5	Hexavalent Chromium	04/23/19 11:57 AM	Reported
20	N035240-004AMS	MS	5	Hexavalent Chromium	04/23/19 12:07 PM	Reported
21	N035240-002A	SAMP	1	Hexavalent Chromium	04/23/19 12:16 PM	Reported
22	N035240-002AMS	MS	1	Hexavalent Chromium	04/23/19 12:25 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	04/23/19 12:35 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	04/23/19 12:44 PM	Reported
25	N035240-005A	SAMP	1	Hexavalent Chromium	04/23/19 12:54 PM	Reported
26	N035240-005AMS	MS	1	Hexavalent Chromium	04/23/19 1:03 PM	Reported
27	N035240-001A	SAMP	1	Hexavalent Chromium	04/23/19 1:13 PM	Reported
28	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 1:22 PM	Not Reported
29	N035240-003A	SAMP	1	Hexavalent Chromium	04/23/19 1:32 PM	Reported
30	N035240-003AMS	MS	1	Hexavalent Chromium	04/23/19 1:41 PM	Reported
31	N035240-004A	SAMP	1	Hexavalent Chromium	04/23/19 1:51 PM	Not Reported
32	N035240-004AMS	MS	1	Hexavalent Chromium	04/23/19 2:00 PM	Not Reported
33	N035240-004ADUP	DUP	5	Hexavalent Chromium	04/23/19 2:11 PM	Reported
34	N035240-004AMSD	MSD	5	Hexavalent Chromium	04/23/19 2:22 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	04/23/19 2:32 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	04/23/19 2:41 PM	Reported
37	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 2:51 PM	Reported
38	N035039-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:00 PM	Not Reported
39	N035039-009AMS	MS	1	Hexavalent Chromium	04/23/19 3:10 PM	Not Reported
40	N035065-002A	SAMP	1	Hexavalent Chromium	04/23/19 3:19 PM	Not Reported
41	N035065-002AMS	MS	1	Hexavalent Chromium	04/23/19 3:28 PM	Not Reported
42	N035023-012A	SAMP	1	Hexavalent Chromium	04/23/19 3:38 PM	Not Reported

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035023-012AMS	MS	1	Hexavalent Chromium	04/23/19 3:47 PM	Not Reported
44	N035065-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:57 PM	Not Reported
45	N035065-009AMS	MS	1	Hexavalent Chromium	04/23/19 4:06 PM	Not Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	04/23/19 4:16 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	04/23/19 4:25 PM	Reported
48	N035065-012A	SAMP	1	Hexavalent Chromium	04/23/19 4:35 PM	Not Reported
49	N035065-012AMS	MS	1	Hexavalent Chromium	04/23/19 4:44 PM	Not Reported
50	N035065-005A	SAMP	1	Hexavalent Chromium	04/23/19 4:54 PM	Not Reported
51	N035065-005AMS	MS	1	Hexavalent Chromium	04/23/19 5:03 PM	Not Reported
52	N035074-001A	SAMP	1	Hexavalent Chromium	04/23/19 5:13 PM	Not Reported
53	N035074-001AMS	MS	1	Hexavalent Chromium	04/23/19 5:22 PM	Not Reported
54	CCV-4	CCV	1	Hexavalent Chromium	04/23/19 5:31 PM	Reported
55	CCB-4	CCB	1	Hexavalent Chromium	04/23/19 5:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190423A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 09:17:37**
No. of Injections:	**58**	*Updated By:*	**ics 5000**

Injection Details

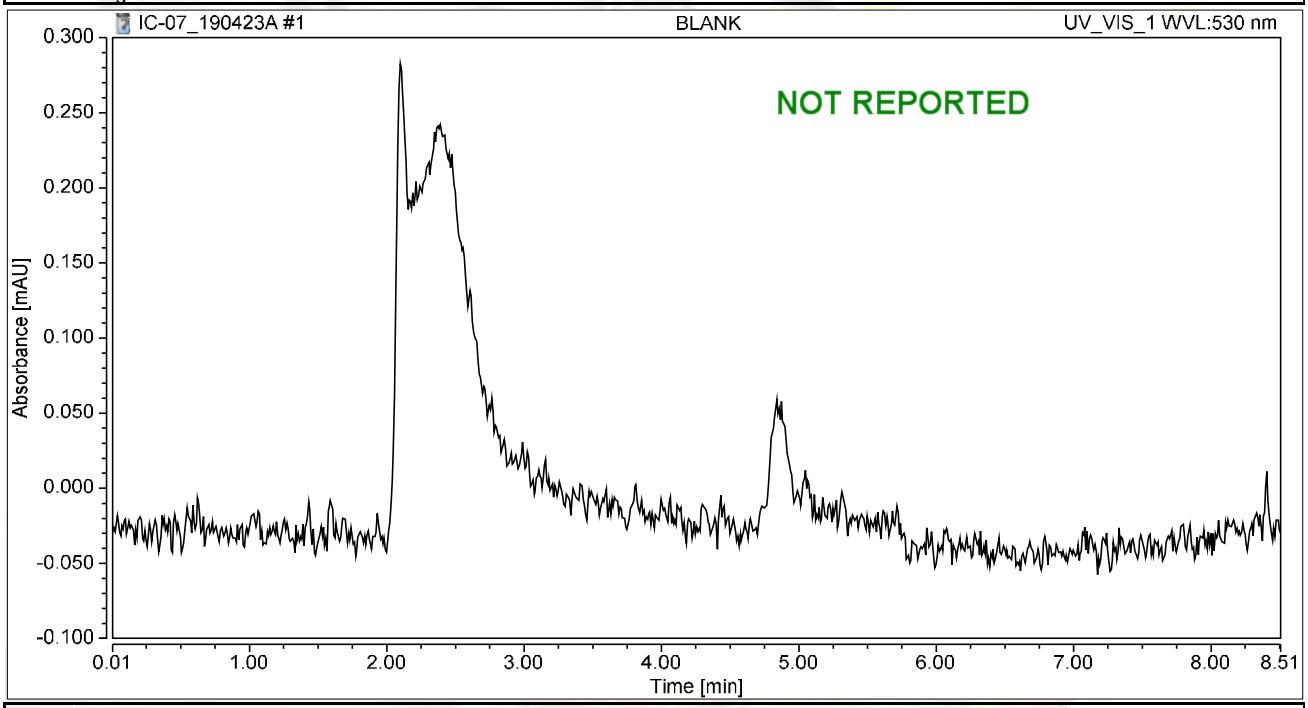
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	12	1000	Unknown		04/23/2019 10:30	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	13	1000	Unknown		04/23/2019 10:41	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		04/23/2019 10:51	Finished	ICB R190411C
13	MB-H2O,MBLK,1,	15	1000	Unknown		04/23/2019 11:00	Finished	MB R190411C
14	LCS-H2O,LCS,1,	16	1000	Unknown		04/23/2019 11:10	Finished	LCS @5ppb, IWST-190423B
15	N035240-001A,SAMF	17	1000	Unknown		04/23/2019 11:19	Finished	SAMP,2>10mL
16	N035240-001AMS,MS	18	1000	Unknown		04/23/2019 11:29	Finished	MS (1ppb), IWST-190423B,2>1
17	N035240-003A,SAMF	19	1000	Unknown		04/23/2019 11:38	Finished	SAMP,2>10mL
18	N035240-003AMS,MS	20	1000	Unknown		04/23/2019 11:48	Finished	MS (1ppb), IWST-190423B,2>1
19	N035240-004A,SAMF	21	1000	Unknown		04/23/2019 11:57	Finished	SAMP,2>10mL
20	N035240-004AMS,MS	22	1000	Unknown		04/23/2019 12:07	Finished	MS (1ppb), IWST-190423B,2>1
21	N035240-002A,SAMF	23	1000	Unknown		04/23/2019 12:16	Finished	SAMP,10mL
22	N035240-002AMS,MS	24	1000	Unknown		04/23/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>1
23	CCV-1,CCV1,1,	25	1000	Unknown		04/23/2019 12:35	Finished	CCV @10ppb, IWST-190423A
24	CCB-1,CCB,1,	26	1000	Unknown		04/23/2019 12:44	Finished	CCB R190411C
25	N035240-005A,SAMF	27	1000	Unknown		04/23/2019 12:54	Finished	SAMP,10mL
26	N035240-005AMS,MS	28	1000	Unknown		04/23/2019 13:03	Finished	MS (1ppb), IWST-190423B,10
27	N035240-001A,SAMF	29	1000	Unknown		04/23/2019 13:13	Finished	SAMP,10mL
28	N035240-001AMS,MS	30	1000	Unknown		04/23/2019 13:22	Finished	MS (1ppb), IWST-190423B,10
29	N035240-003A,SAMF	31	1000	Unknown		04/23/2019 13:32	Finished	SAMP,10mL
30	N035240-003AMS,MS	32	1000	Unknown		04/23/2019 13:41	Finished	MS (1ppb), IWST-190423B,10
31	N035240-004A,SAMF	33	1000	Unknown		04/23/2019 13:51	Finished	SAMP,10mL
32	N035240-004AMS,MS	34	1000	Unknown		04/23/2019 14:00	Finished	MS (1ppb), IWST-190423B,2>1
33	N035240-004ADUP,D	1	1000	Unknown		04/23/2019 14:11	Finished	DUP,2>10mL
34	N035240-004AMSD,M	2	1000	Unknown		04/23/2019 14:22	Finished	MSD (1ppb), IWST-190423B,2>
35	CCV-2,CCV,1,	3	1000	Unknown		04/23/2019 14:32	Finished	CCV @5ppb, IWST-190423A
36	CCB-2,CCB,1,	4	1000	Unknown		04/23/2019 14:41	Finished	CCB R190411C
37	N035240-001AMS,MS	5	1000	Unknown		04/23/2019 14:51	Finished	MS (1ppb), IWST-190423B,10
38	N035039-009A,SAMF	6	1000	Unknown		04/23/2019 15:00	Finished	SAMP,10mL
39	N035039-009AMS,MS	7	1000	Unknown		04/23/2019 15:10	Finished	MS (5ppb), IWST-190423B,10
40	N035065-002A,SAMF	8	1000	Unknown		04/23/2019 15:19	Finished	SAMP,10mL
41	N035065-002AMS,MS	9	1000	Unknown		04/23/2019 15:28	Finished	MS (5ppb), IWST-190423B,10
42	N035023-012A,SAMF	10	1000	Unknown		04/23/2019 15:38	Finished	SAMP,10mL
43	N035023-012AMS,MS	11	1000	Unknown		04/23/2019 15:47	Finished	MS (1ppb), IWST-190423B,10
44	N035065-009A,SAMF	12	1000	Unknown		04/23/2019 15:57	Finished	SAMP,10mL
45	N035065-009AMS,MS	13	1000	Unknown		04/23/2019 16:06	Finished	MS (1ppb), IWST-190423B,10
46	CCV-3,CCV1,1,	14	1000	Unknown		04/23/2019 16:16	Finished	CCV @10ppb, IWST-190423A
47	CCB-3,CCB,1,	15	1000	Unknown		04/23/2019 16:25	Finished	CCB R190411C
48	N035065-012A,SAMF	16	1000	Unknown		04/23/2019 16:35	Finished	SAMP,10mL
49	N035065-012AMS,MS	17	1000	Unknown		04/23/2019 16:44	Finished	MS (1ppb), IWST-190423B,10
50	N035065-005A,SAMF	18	1000	Unknown		04/23/2019 16:54	Finished	SAMP,10mL
51	N035065-005AMS,MS	19	1000	Unknown		04/23/2019 17:03	Finished	MS (1ppb), IWST-190423B,10
52	N035074-001A,SAMF	20	1000	Unknown		04/23/2019 17:13	Finished	SAMP,10mL
53	N035074-001AMS,MS	21	1000	Unknown		04/23/2019 17:22	Finished	MS (1ppb), IWST-190423B,10
54	CCV-4,CCV,1,	22	1000	Unknown		04/23/2019 17:31	Finished	CCV @5ppb, IWST-190423A
55	CCB-4,CCB,1,	23	1000	Unknown		04/23/2019 17:41	Finished	CCB R190411C
56	SHUTDOWN	24	1000	Unknown		04/23/2019 17:50	Finished	
57	Eluent: R190422A	25	1000	Unknown		n.a.	Finished	Eluent
58	PCR: R190422B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 08:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

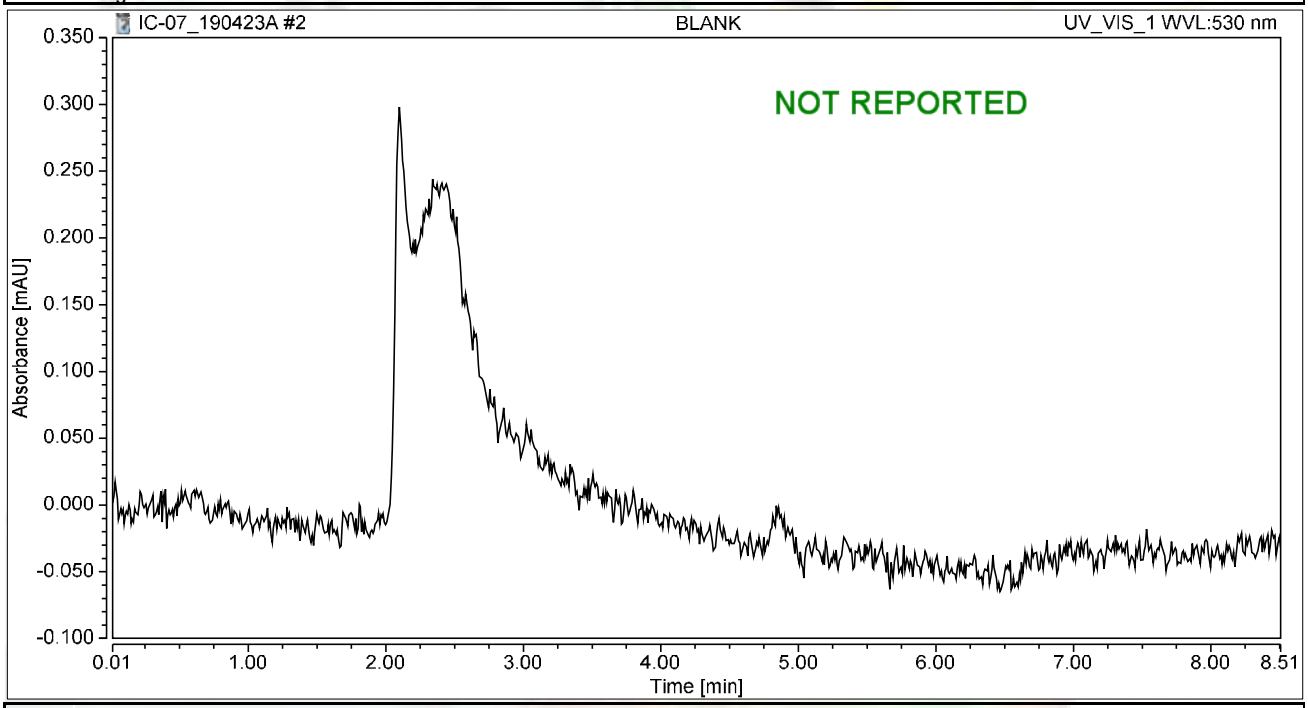
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

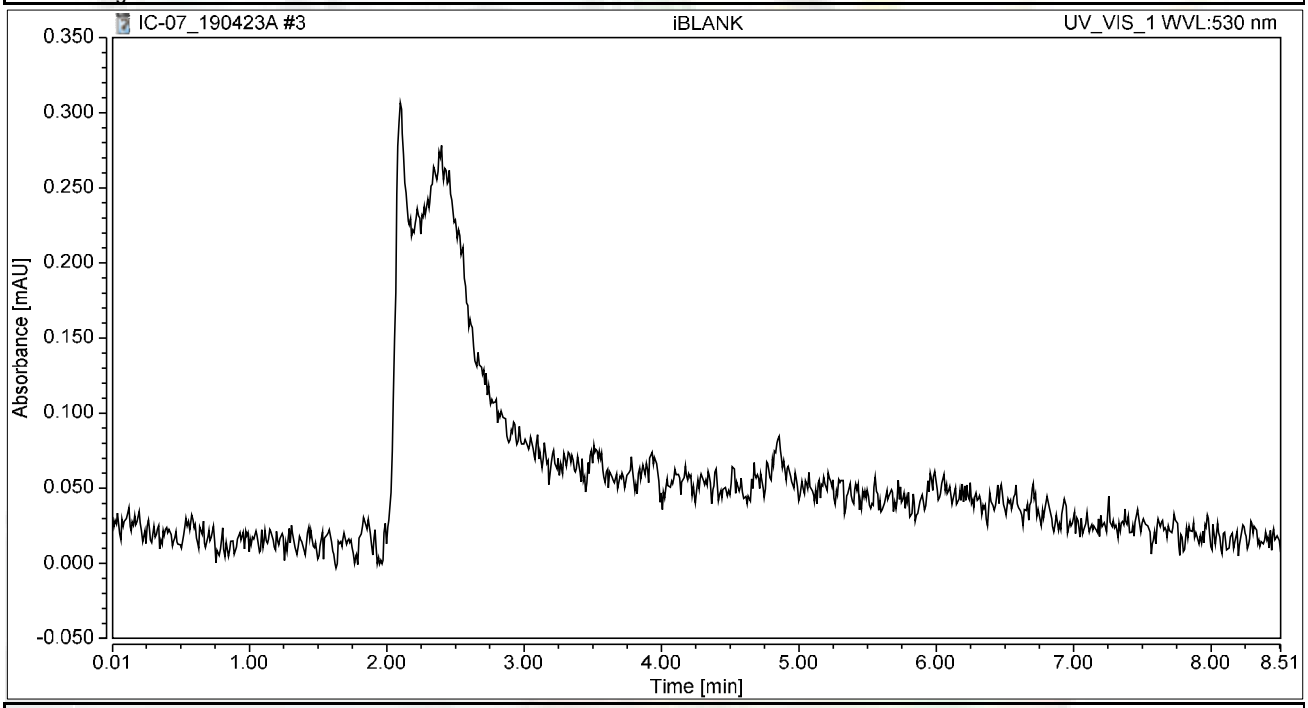
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

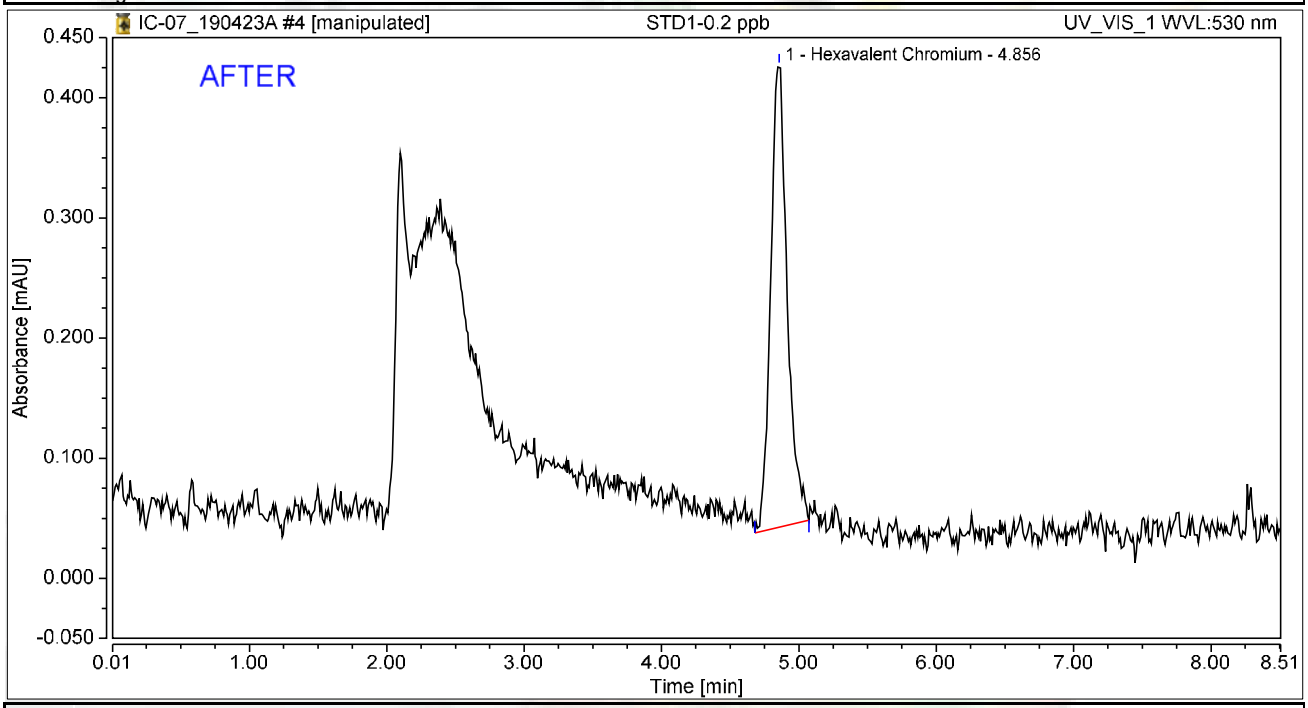
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.054	0.384	100.00	100.00	0.2161
Total:			**0.054**	**0.384**	**100.00**	**100.00**	

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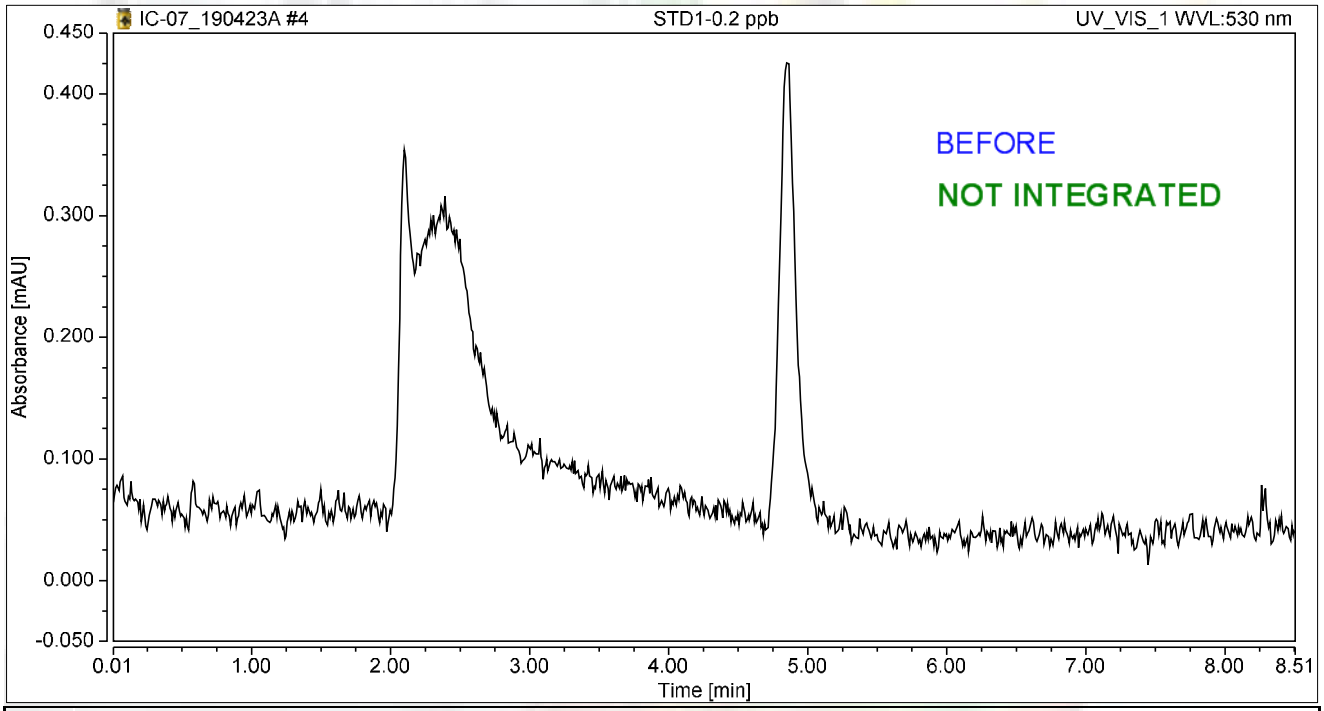
Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

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

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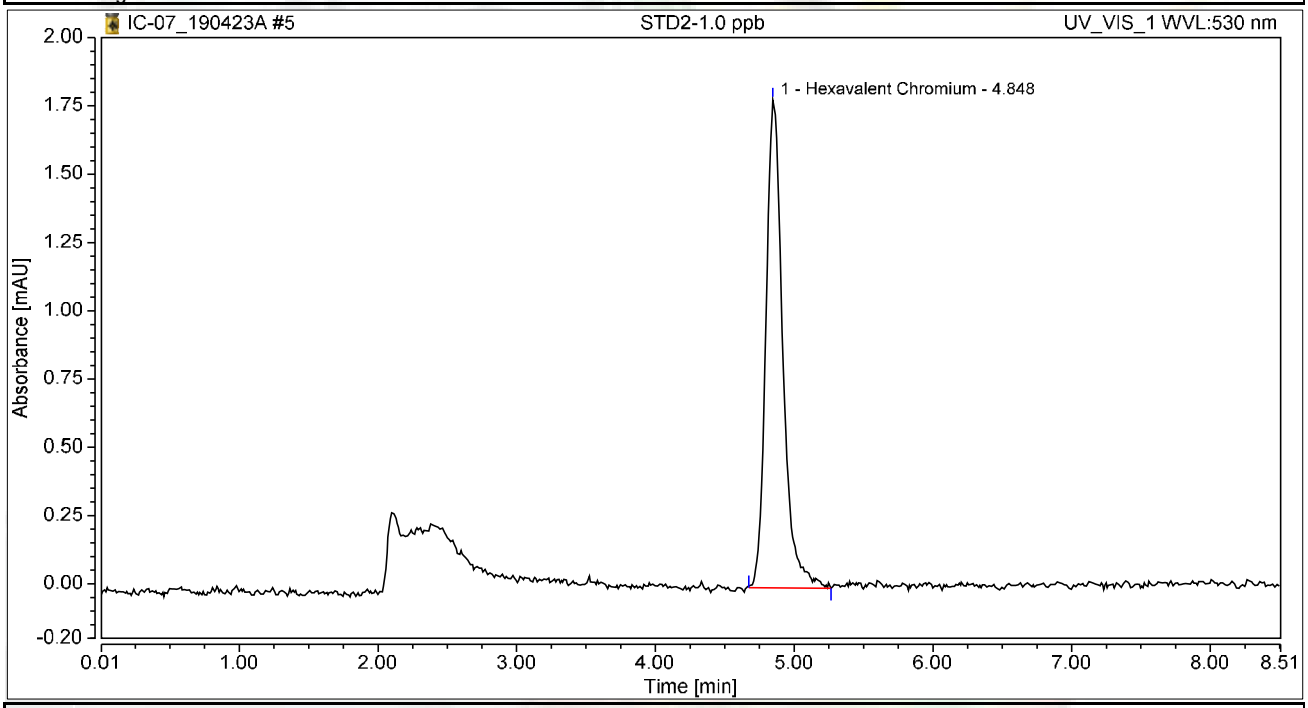
Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

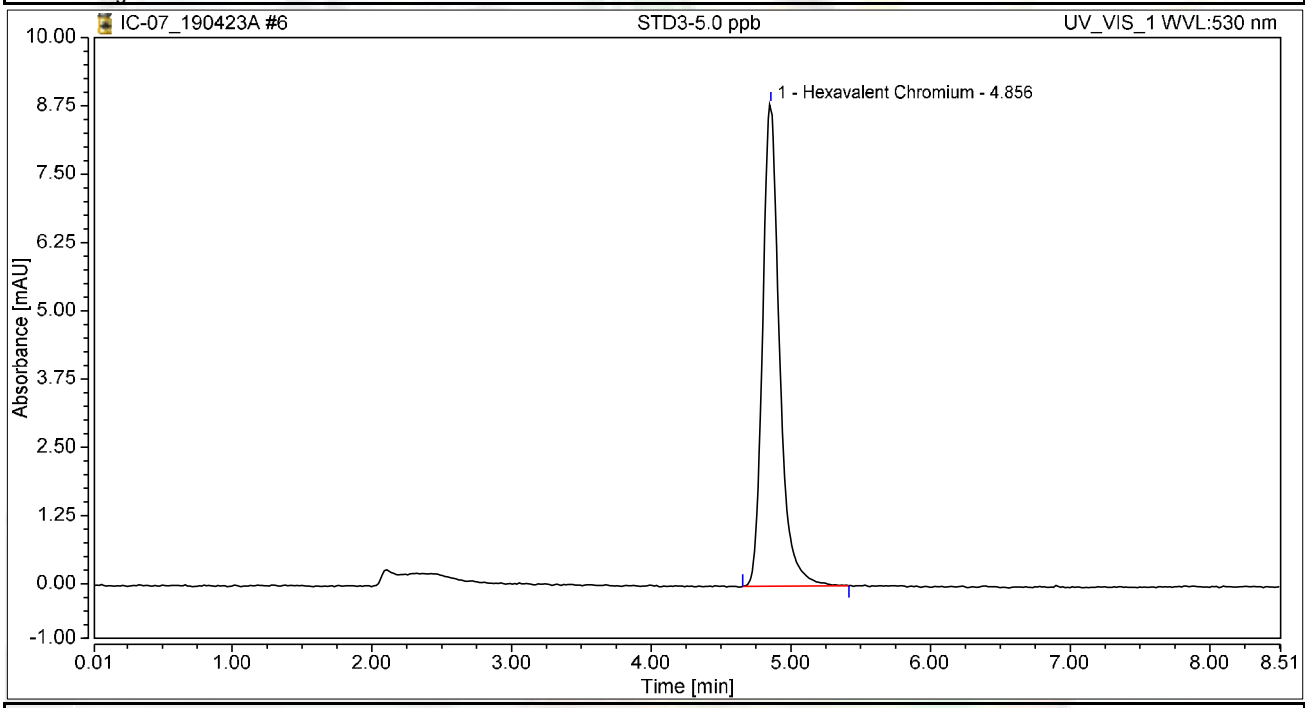
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.253	1.786	100.00	100.00	1.0148
Total:			**0.253**	**1.786**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

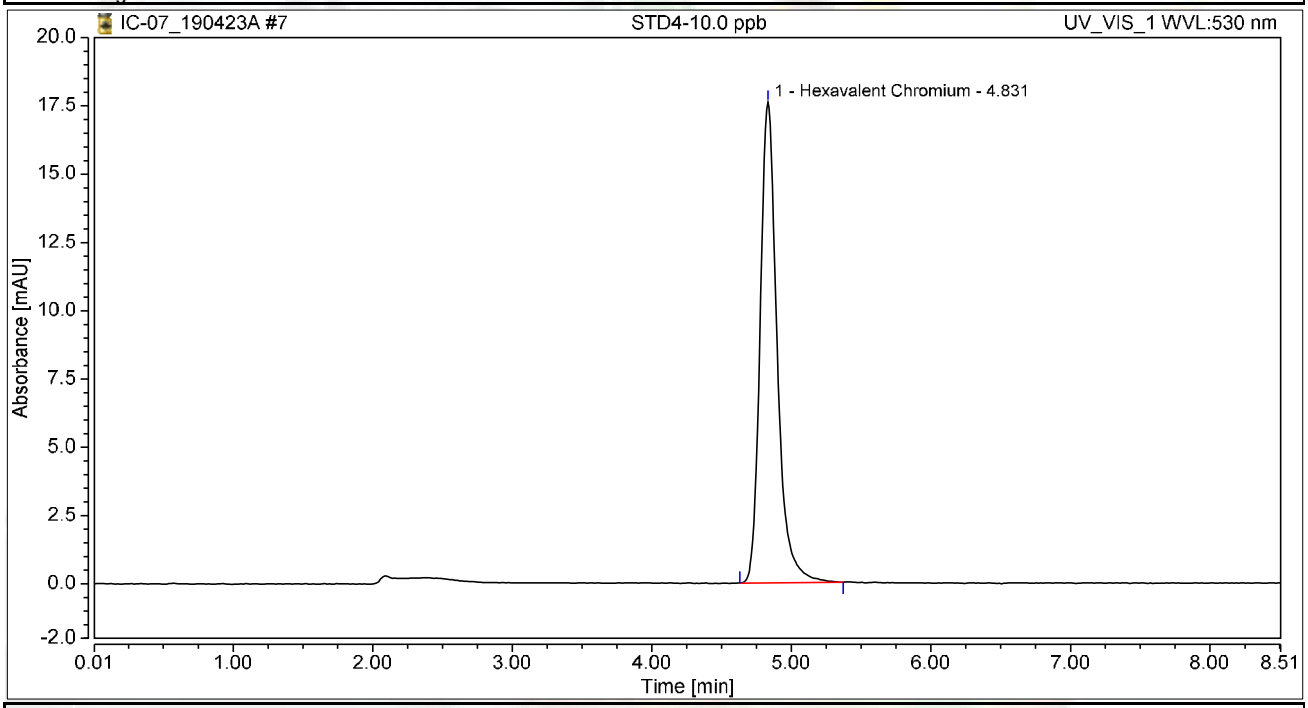
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.246	8.834	100.00	100.00	5.0054
Total:			**1.246**	**8.834**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

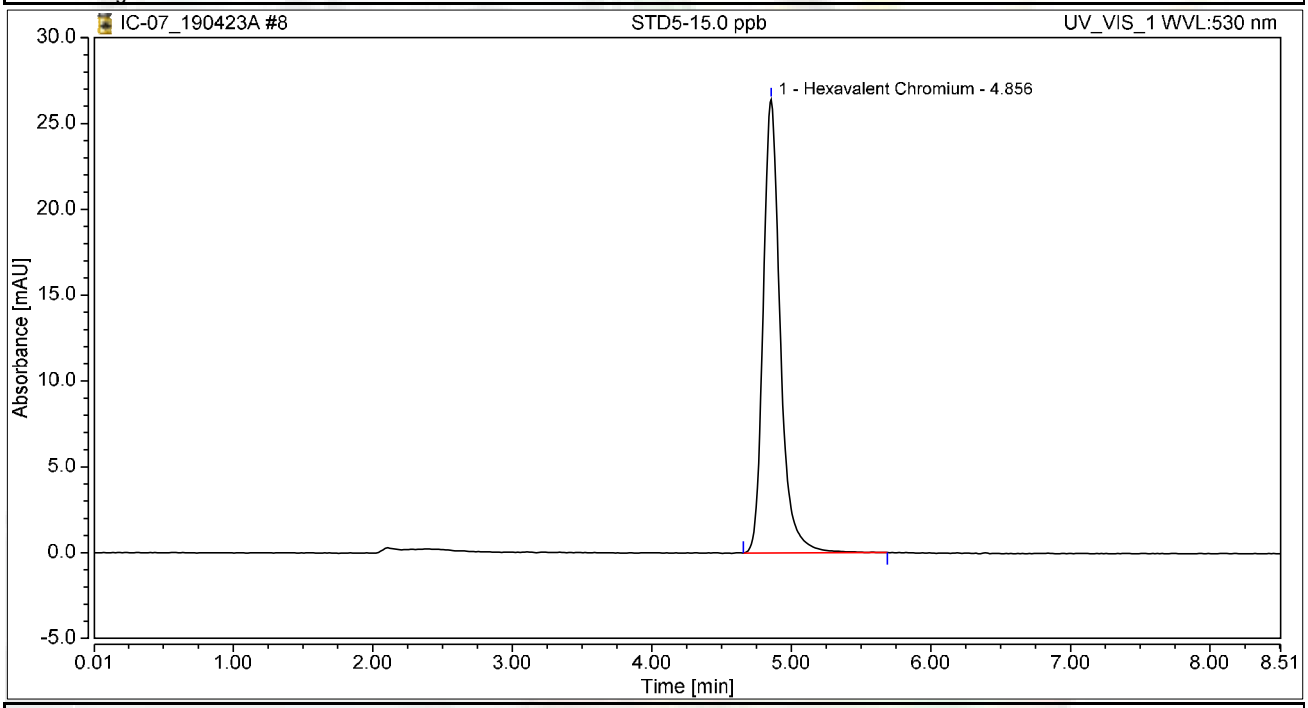
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	2.479	17.604	100.00	100.00	9.9587
Total:			**2.479**	**17.604**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

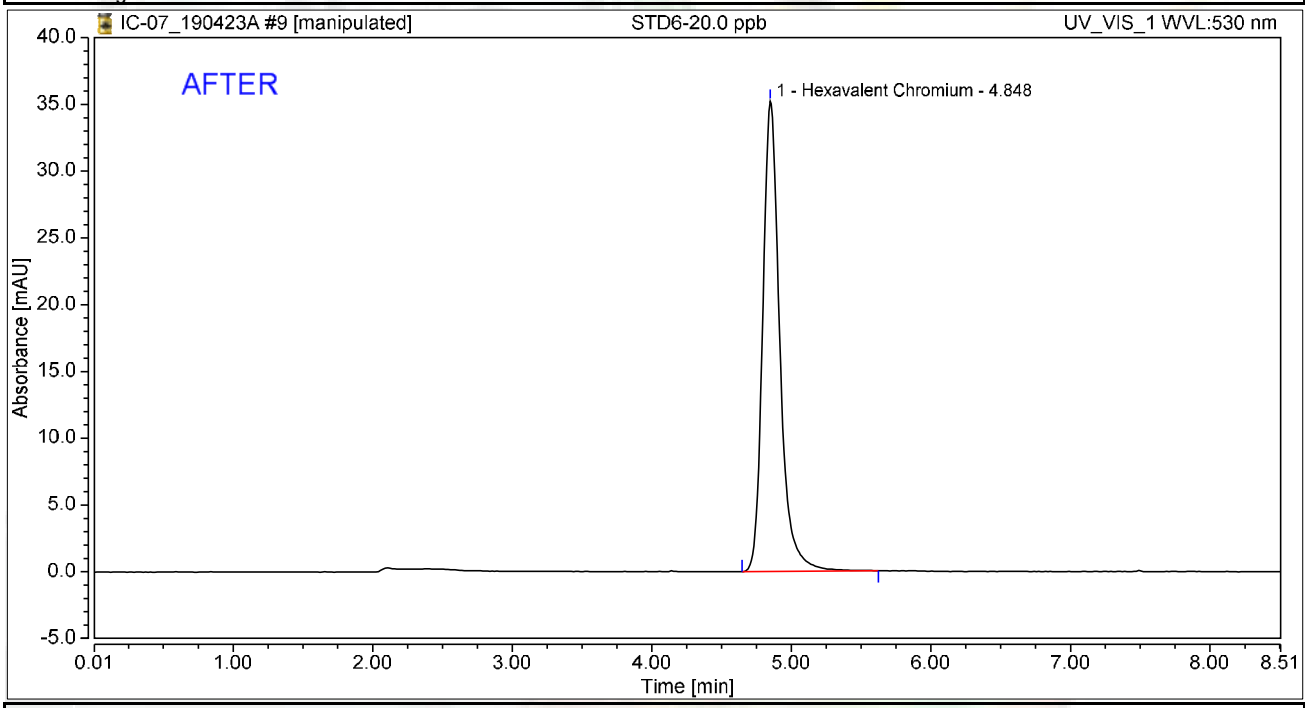
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	3.739	26.398	100.00	100.00	15.0197
Total:			**3.739**	**26.398**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	4.980	35.209	100.00	100.00	20.0036
Total:			**4.980**	**35.209**	**100.00**	**100.00**	

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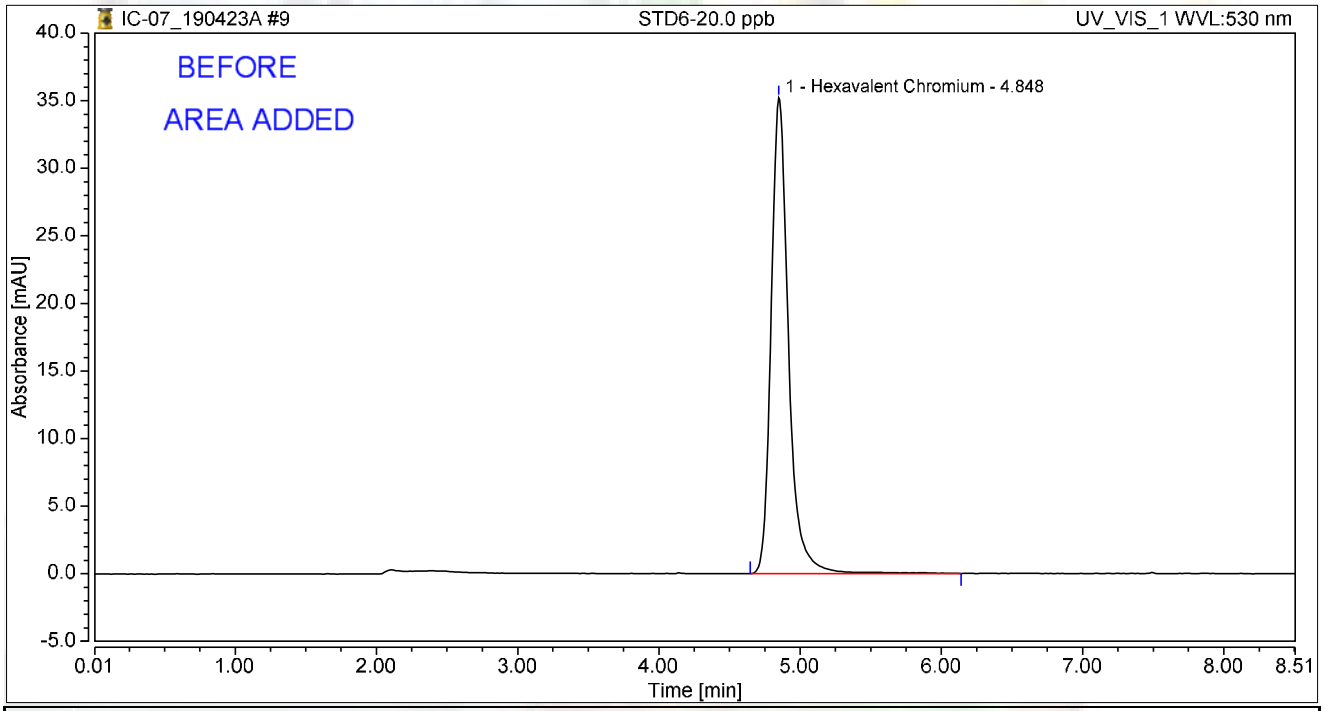
Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	5.038	35.224	100.00	100.00	20.1112
Total:			**5.038**	**35.224**	**100.00**	**100.00**	

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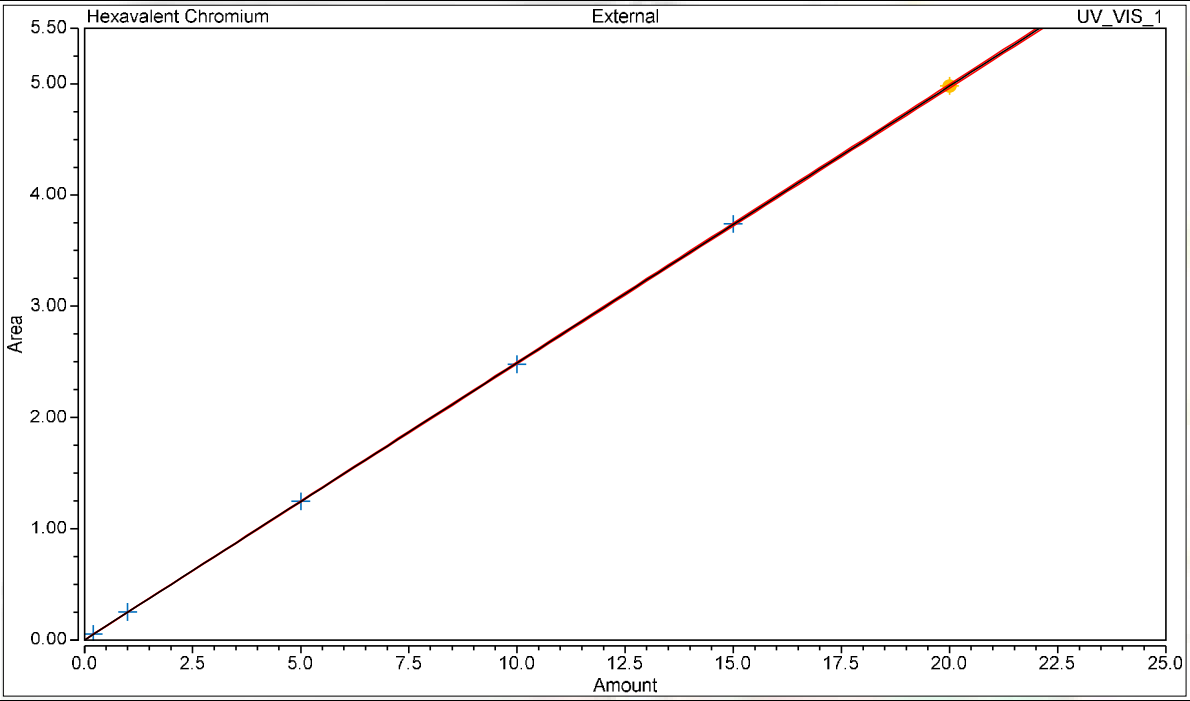
Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2490
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99999

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

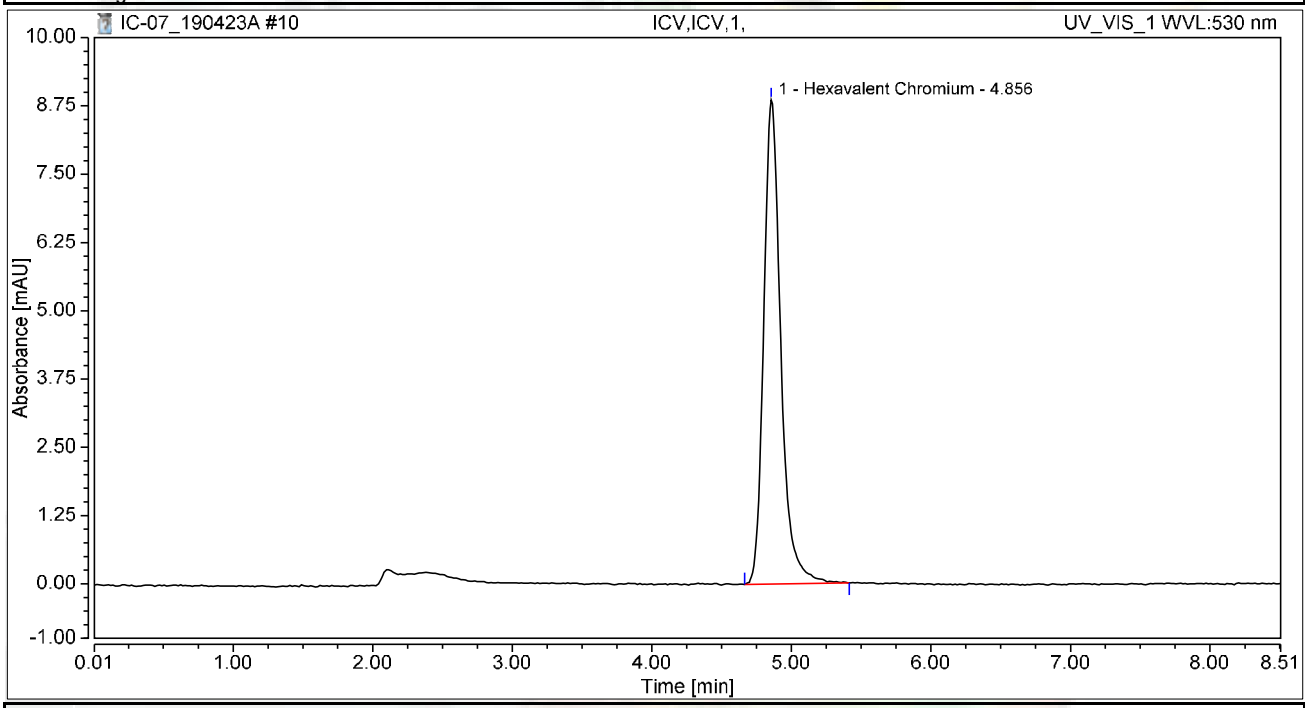
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0538	0.054	0.384
5	STD2-1.0 ppb	02	1.0000	0.2527	0.253	1.786
6	STD3-5.0 ppb	03	5.0000	1.2462	1.246	8.834
7	STD4-10.0 ppb	04	10.0000	2.4794	2.479	17.604
8	STD5-15.0 ppb	05	15.0000	3.7395	3.739	26.398
9	STD6-20.0 ppb	06	20.0000	4.9803	4.980	35.209

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

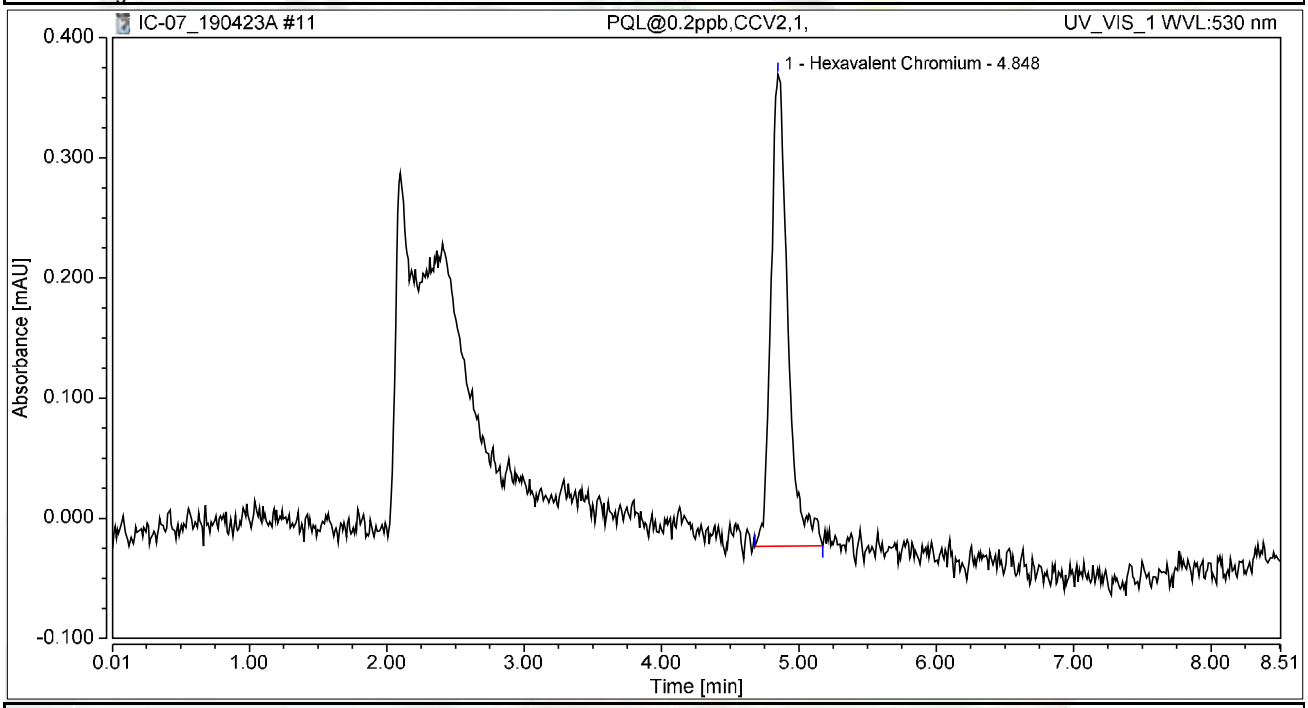
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.258	8.864	100.00	100.00	5.0544
Total:			**1.258**	**8.864**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

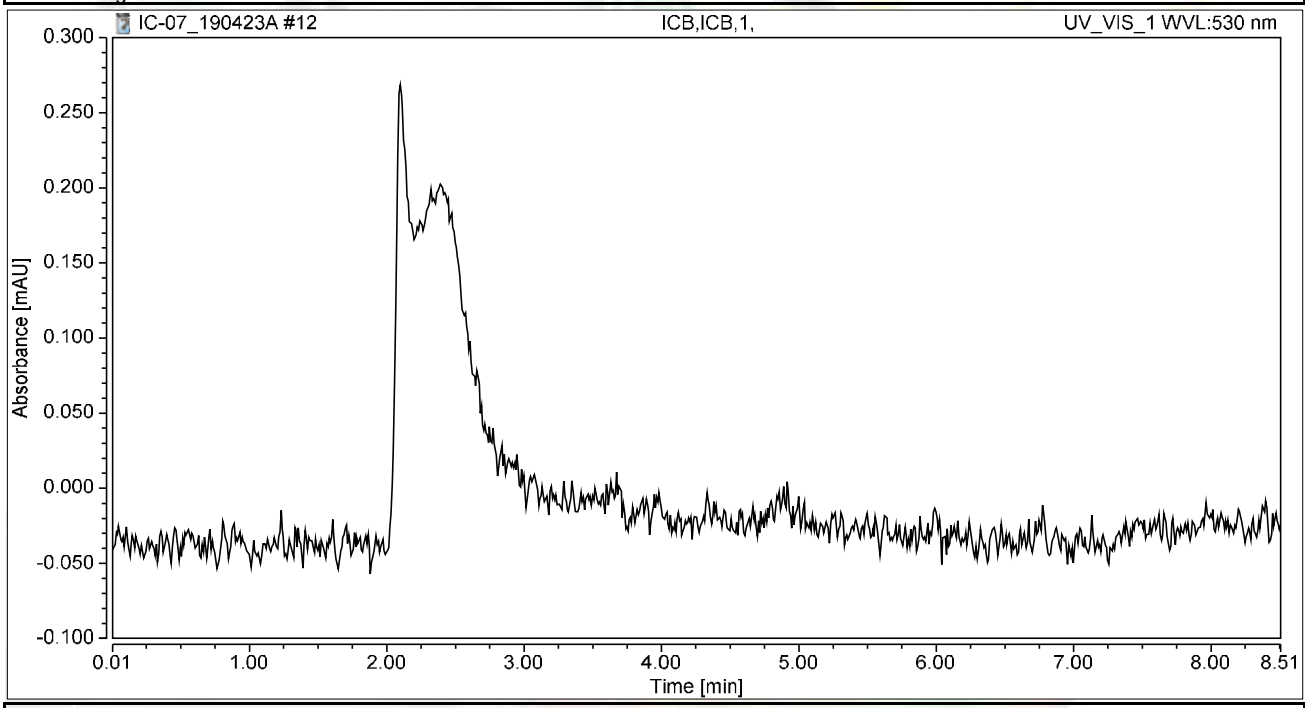
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.056	0.392	100.00	100.00	0.2256
Total:			**0.056**	**0.392**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

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

RAW DATA

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	04/23/19 10:30 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/23/19 10:41 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	04/23/19 10:51 AM	Reported
13	MB-R133438	MBLK	1	Hexavalent Chromium	04/23/19 11:00 AM	Reported
14	LCS-R133438	LCS	1	Hexavalent Chromium	04/23/19 11:10 AM	Reported
15	N035240-001A	SAMP	5	Hexavalent Chromium	04/23/19 11:19 AM	Not Reported
16	N035240-001AMS	MS	5	Hexavalent Chromium	04/23/19 11:29 AM	Not Reported
17	N035240-003A	SAMP	5	Hexavalent Chromium	04/23/19 11:38 AM	Not Reported
18	N035240-003AMS	MS	5	Hexavalent Chromium	04/23/19 11:48 AM	Not Reported
19	N035240-004A	SAMP	5	Hexavalent Chromium	04/23/19 11:57 AM	Reported
20	N035240-004AMS	MS	5	Hexavalent Chromium	04/23/19 12:07 PM	Reported
21	N035240-002A	SAMP	1	Hexavalent Chromium	04/23/19 12:16 PM	Reported
22	N035240-002AMS	MS	1	Hexavalent Chromium	04/23/19 12:25 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	04/23/19 12:35 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	04/23/19 12:44 PM	Reported
25	N035240-005A	SAMP	1	Hexavalent Chromium	04/23/19 12:54 PM	Reported
26	N035240-005AMS	MS	1	Hexavalent Chromium	04/23/19 1:03 PM	Reported
27	N035240-001A	SAMP	1	Hexavalent Chromium	04/23/19 1:13 PM	Reported
28	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 1:22 PM	Not Reported
29	N035240-003A	SAMP	1	Hexavalent Chromium	04/23/19 1:32 PM	Reported
30	N035240-003AMS	MS	1	Hexavalent Chromium	04/23/19 1:41 PM	Reported
31	N035240-004A	SAMP	1	Hexavalent Chromium	04/23/19 1:51 PM	Not Reported
32	N035240-004AMS	MS	1	Hexavalent Chromium	04/23/19 2:00 PM	Not Reported
33	N035240-004ADUP	DUP	5	Hexavalent Chromium	04/23/19 2:11 PM	Reported
34	N035240-004AMSD	MSD	5	Hexavalent Chromium	04/23/19 2:22 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	04/23/19 2:32 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	04/23/19 2:41 PM	Reported
37	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 2:51 PM	Reported
38	N035039-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:00 PM	Not Reported
39	N035039-009AMS	MS	1	Hexavalent Chromium	04/23/19 3:10 PM	Not Reported
40	N035065-002A	SAMP	1	Hexavalent Chromium	04/23/19 3:19 PM	Not Reported
41	N035065-002AMS	MS	1	Hexavalent Chromium	04/23/19 3:28 PM	Not Reported
42	N035023-012A	SAMP	1	Hexavalent Chromium	04/23/19 3:38 PM	Not Reported

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035023-012AMS	MS	1	Hexavalent Chromium	04/23/19 3:47 PM	Not Reported
44	N035065-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:57 PM	Not Reported
45	N035065-009AMS	MS	1	Hexavalent Chromium	04/23/19 4:06 PM	Not Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	04/23/19 4:16 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	04/23/19 4:25 PM	Reported
48	N035065-012A	SAMP	1	Hexavalent Chromium	04/23/19 4:35 PM	Not Reported
49	N035065-012AMS	MS	1	Hexavalent Chromium	04/23/19 4:44 PM	Not Reported
50	N035065-005A	SAMP	1	Hexavalent Chromium	04/23/19 4:54 PM	Not Reported
51	N035065-005AMS	MS	1	Hexavalent Chromium	04/23/19 5:03 PM	Not Reported
52	N035074-001A	SAMP	1	Hexavalent Chromium	04/23/19 5:13 PM	Not Reported
53	N035074-001AMS	MS	1	Hexavalent Chromium	04/23/19 5:22 PM	Not Reported
54	CCV-4	CCV	1	Hexavalent Chromium	04/23/19 5:31 PM	Reported
55	CCB-4	CCB	1	Hexavalent Chromium	04/23/19 5:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190423A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 09:17:37**
No. of Injections:	**58**	*Updated By:*	**ics 5000**

Injection Details

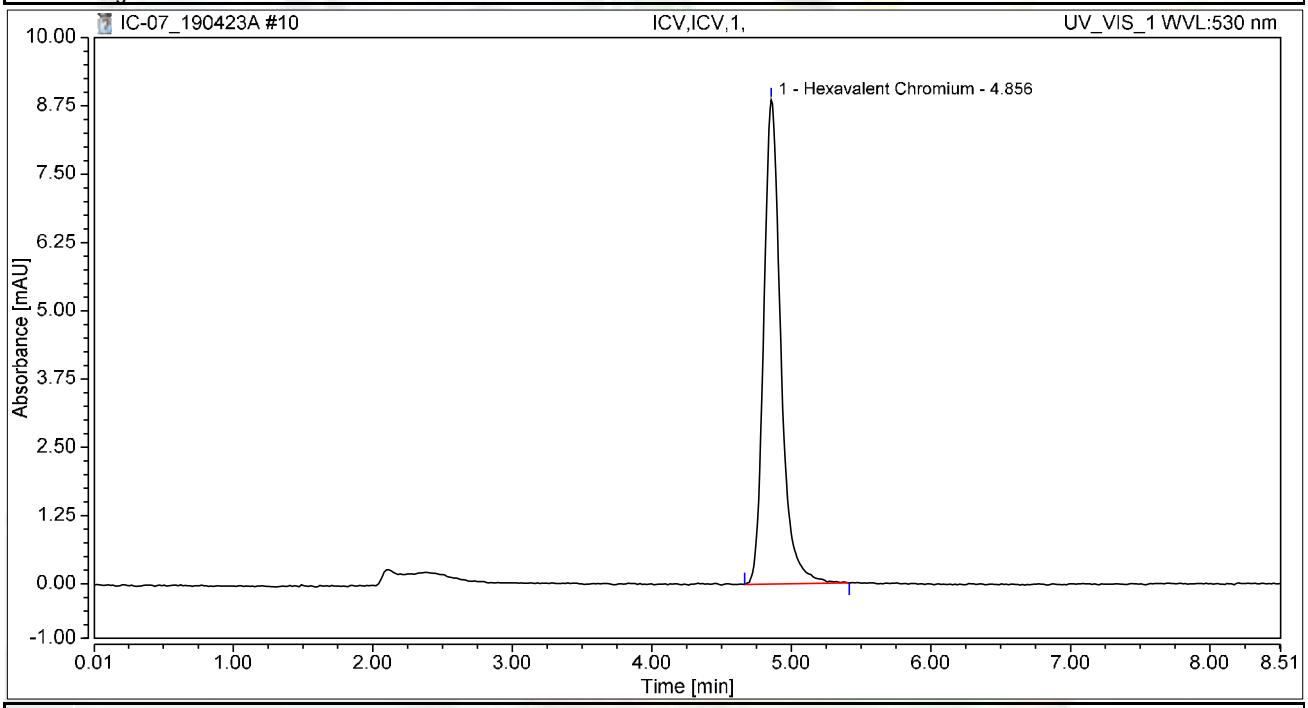
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	12	1000	Unknown		04/23/2019 10:30	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	13	1000	Unknown		04/23/2019 10:41	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		04/23/2019 10:51	Finished	ICB R190411C
13	MB-H2O,MBLK,1,	15	1000	Unknown		04/23/2019 11:00	Finished	MB R190411C
14	LCS-H2O,LCS,1,	16	1000	Unknown		04/23/2019 11:10	Finished	LCS @5ppb, IWST-190423B
15	N035240-001A,SAMF	17	1000	Unknown		04/23/2019 11:19	Finished	SAMP,2>10mL
16	N035240-001AMS,MS	18	1000	Unknown		04/23/2019 11:29	Finished	MS (1ppb), IWST-190423B,2>1
17	N035240-003A,SAMF	19	1000	Unknown		04/23/2019 11:38	Finished	SAMP,2>10mL
18	N035240-003AMS,MS	20	1000	Unknown		04/23/2019 11:48	Finished	MS (1ppb), IWST-190423B,2>1
19	N035240-004A,SAMF	21	1000	Unknown		04/23/2019 11:57	Finished	SAMP,2>10mL
20	N035240-004AMS,MS	22	1000	Unknown		04/23/2019 12:07	Finished	MS (1ppb), IWST-190423B,2>1
21	N035240-002A,SAMF	23	1000	Unknown		04/23/2019 12:16	Finished	SAMP,10mL
22	N035240-002AMS,MS	24	1000	Unknown		04/23/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>1
23	CCV-1,CCV1,1,	25	1000	Unknown		04/23/2019 12:35	Finished	CCV @10ppb, IWST-190423A
24	CCB-1,CCB,1,	26	1000	Unknown		04/23/2019 12:44	Finished	CCB R190411C
25	N035240-005A,SAMF	27	1000	Unknown		04/23/2019 12:54	Finished	SAMP,10mL
26	N035240-005AMS,MS	28	1000	Unknown		04/23/2019 13:03	Finished	MS (1ppb), IWST-190423B,10
27	N035240-001A,SAMF	29	1000	Unknown		04/23/2019 13:13	Finished	SAMP,10mL
28	N035240-001AMS,MS	30	1000	Unknown		04/23/2019 13:22	Finished	MS (1ppb), IWST-190423B,10
29	N035240-003A,SAMF	31	1000	Unknown		04/23/2019 13:32	Finished	SAMP,10mL
30	N035240-003AMS,MS	32	1000	Unknown		04/23/2019 13:41	Finished	MS (1ppb), IWST-190423B,10
31	N035240-004A,SAMF	33	1000	Unknown		04/23/2019 13:51	Finished	SAMP,10mL
32	N035240-004AMS,MS	34	1000	Unknown		04/23/2019 14:00	Finished	MS (1ppb), IWST-190423B,2>1
33	N035240-004ADUP,D	1	1000	Unknown		04/23/2019 14:11	Finished	DUP,2>10mL
34	N035240-004AMSD,M	2	1000	Unknown		04/23/2019 14:22	Finished	MSD (1ppb), IWST-190423B,2>
35	CCV-2,CCV,1,	3	1000	Unknown		04/23/2019 14:32	Finished	CCV @5ppb, IWST-190423A
36	CCB-2,CCB,1,	4	1000	Unknown		04/23/2019 14:41	Finished	CCB R190411C
37	N035240-001AMS,MS	5	1000	Unknown		04/23/2019 14:51	Finished	MS (1ppb), IWST-190423B,10
38	N035039-009A,SAMF	6	1000	Unknown		04/23/2019 15:00	Finished	SAMP,10mL
39	N035039-009AMS,MS	7	1000	Unknown		04/23/2019 15:10	Finished	MS (5ppb), IWST-190423B,10
40	N035065-002A,SAMF	8	1000	Unknown		04/23/2019 15:19	Finished	SAMP,10mL
41	N035065-002AMS,MS	9	1000	Unknown		04/23/2019 15:28	Finished	MS (5ppb), IWST-190423B,10
42	N035023-012A,SAMF	10	1000	Unknown		04/23/2019 15:38	Finished	SAMP,10mL
43	N035023-012AMS,MS	11	1000	Unknown		04/23/2019 15:47	Finished	MS (1ppb), IWST-190423B,10
44	N035065-009A,SAMF	12	1000	Unknown		04/23/2019 15:57	Finished	SAMP,10mL
45	N035065-009AMS,MS	13	1000	Unknown		04/23/2019 16:06	Finished	MS (1ppb), IWST-190423B,10
46	CCV-3,CCV1,1,	14	1000	Unknown		04/23/2019 16:16	Finished	CCV @10ppb, IWST-190423A
47	CCB-3,CCB,1,	15	1000	Unknown		04/23/2019 16:25	Finished	CCB R190411C
48	N035065-012A,SAMF	16	1000	Unknown		04/23/2019 16:35	Finished	SAMP,10mL
49	N035065-012AMS,MS	17	1000	Unknown		04/23/2019 16:44	Finished	MS (1ppb), IWST-190423B,10
50	N035065-005A,SAMF	18	1000	Unknown		04/23/2019 16:54	Finished	SAMP,10mL
51	N035065-005AMS,MS	19	1000	Unknown		04/23/2019 17:03	Finished	MS (1ppb), IWST-190423B,10
52	N035074-001A,SAMF	20	1000	Unknown		04/23/2019 17:13	Finished	SAMP,10mL
53	N035074-001AMS,MS	21	1000	Unknown		04/23/2019 17:22	Finished	MS (1ppb), IWST-190423B,10
54	CCV-4,CCV,1,	22	1000	Unknown		04/23/2019 17:31	Finished	CCV @5ppb, IWST-190423A
55	CCB-4,CCB,1,	23	1000	Unknown		04/23/2019 17:41	Finished	CCB R190411C
56	SHUTDOWN	24	1000	Unknown		04/23/2019 17:50	Finished	
57	Eluent: R190422A	25	1000	Unknown		n.a.	Finished	Eluent
58	PCR: R190422B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

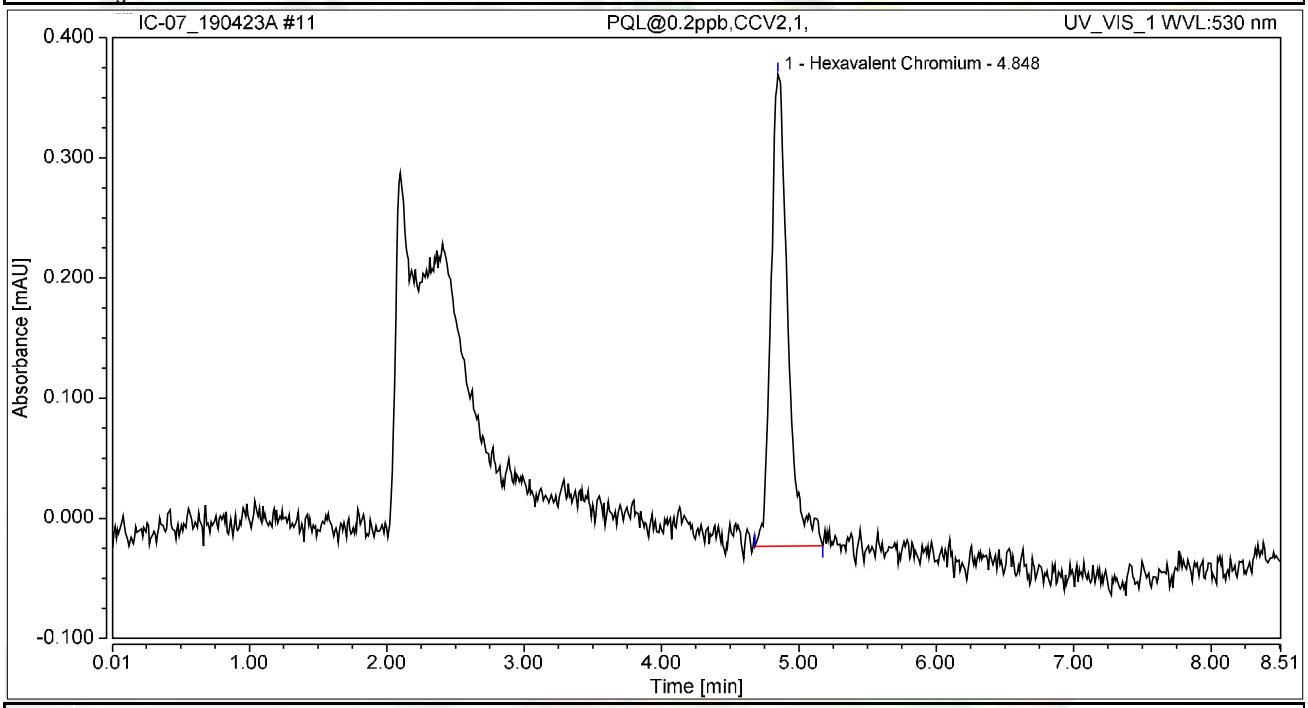
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.258	8.864	100.00	100.00	5.0544
Total:			**1.258**	**8.864**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

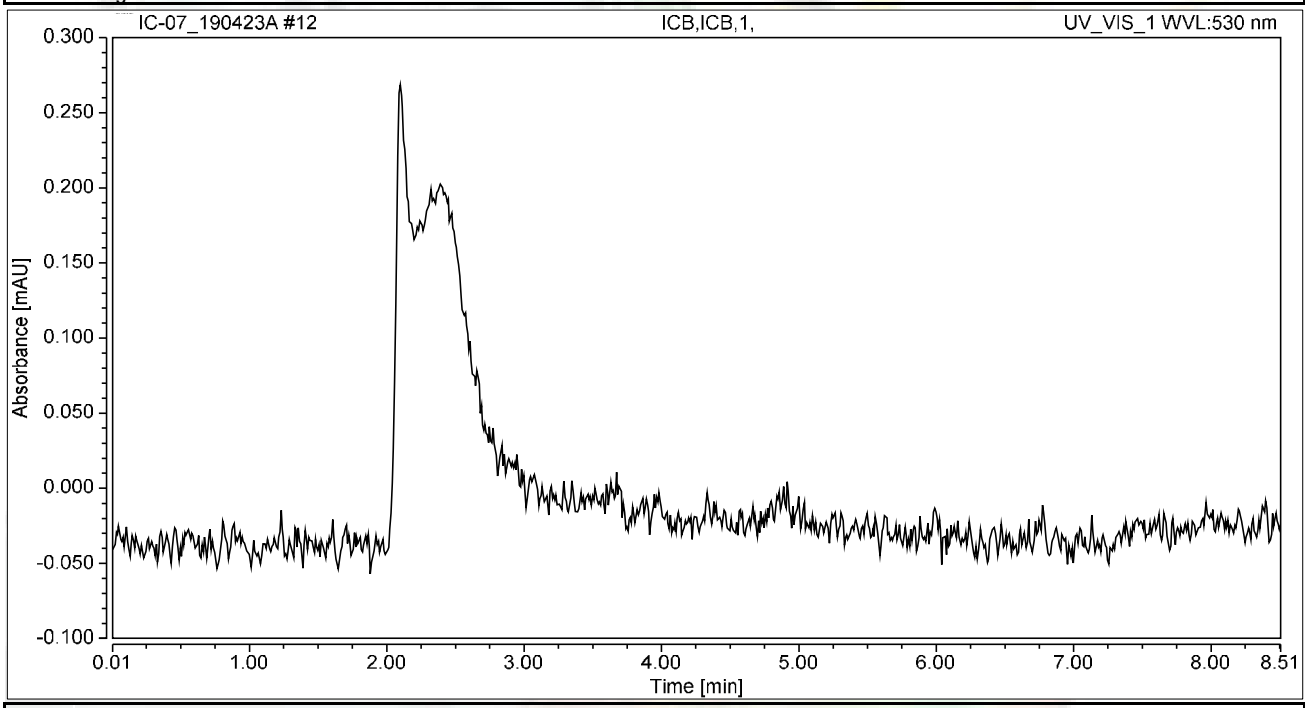
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.056	0.392	100.00	100.00	0.2256
Total:			**0.056**	**0.392**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

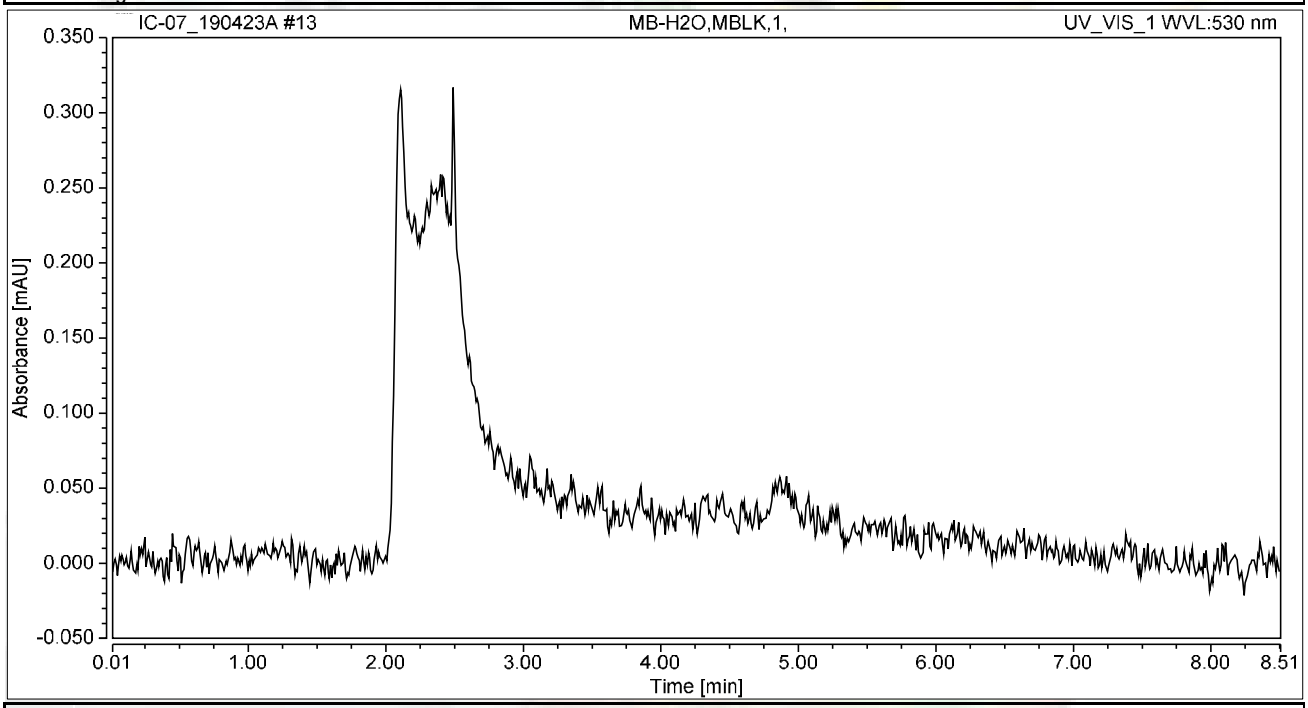
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

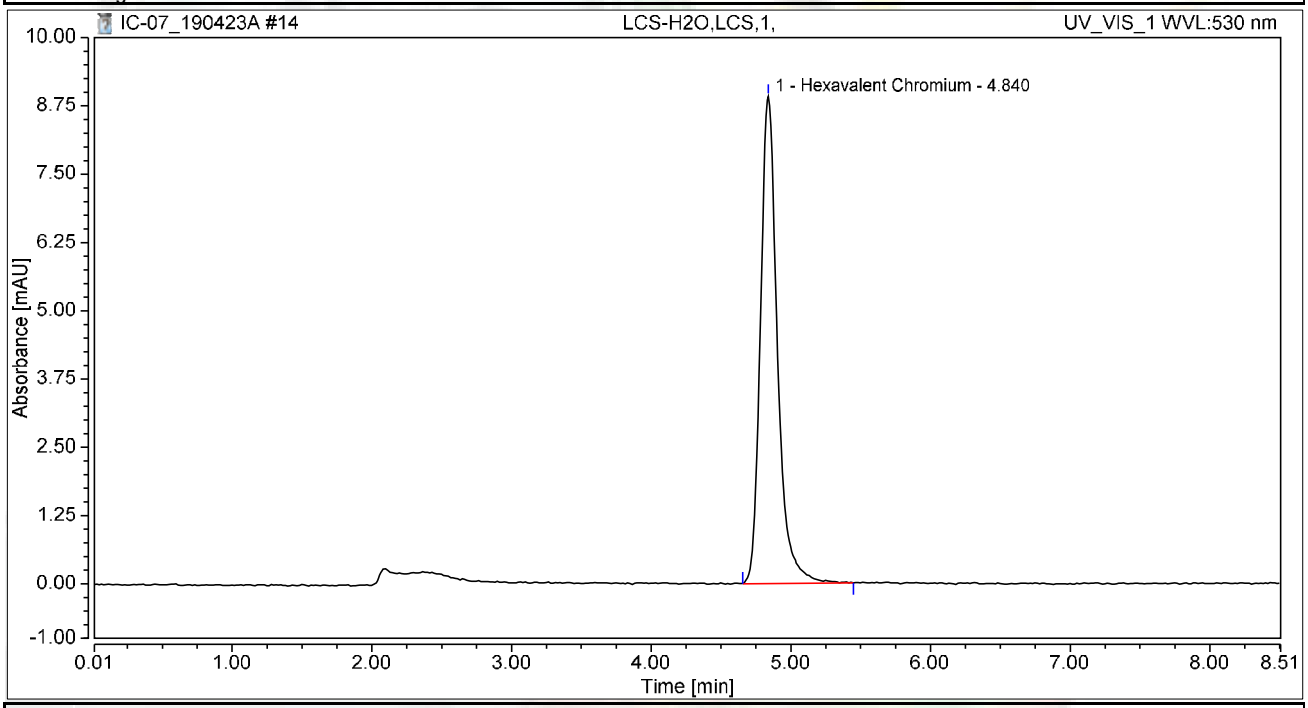
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

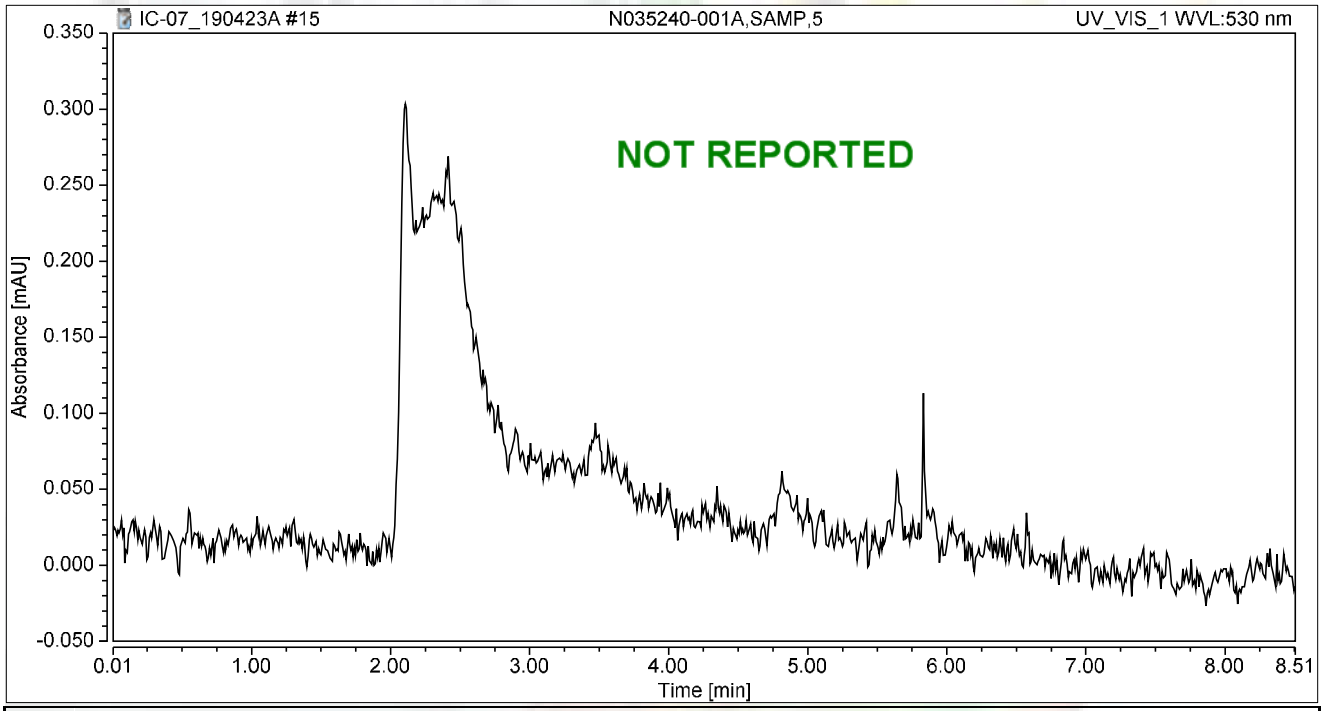
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	1.261	8.922	100.00	100.00	5.0638
Total:			**1.261**	**8.922**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

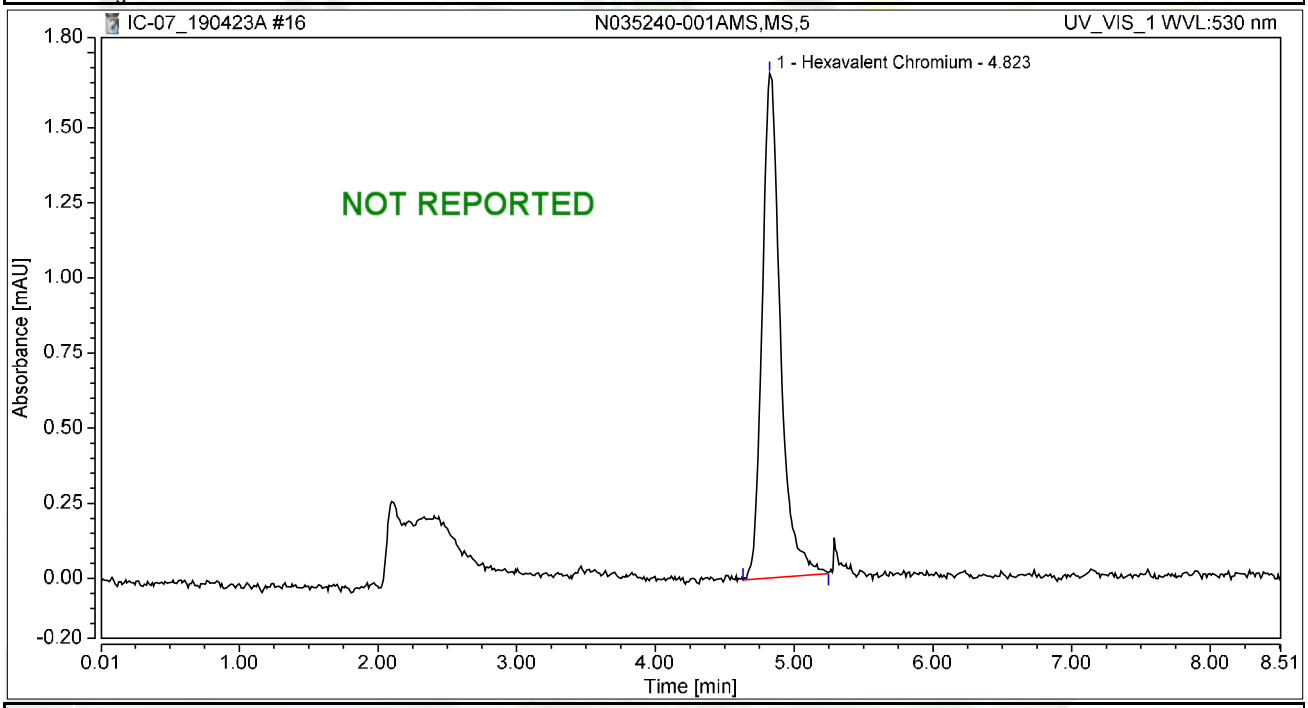
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 11:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

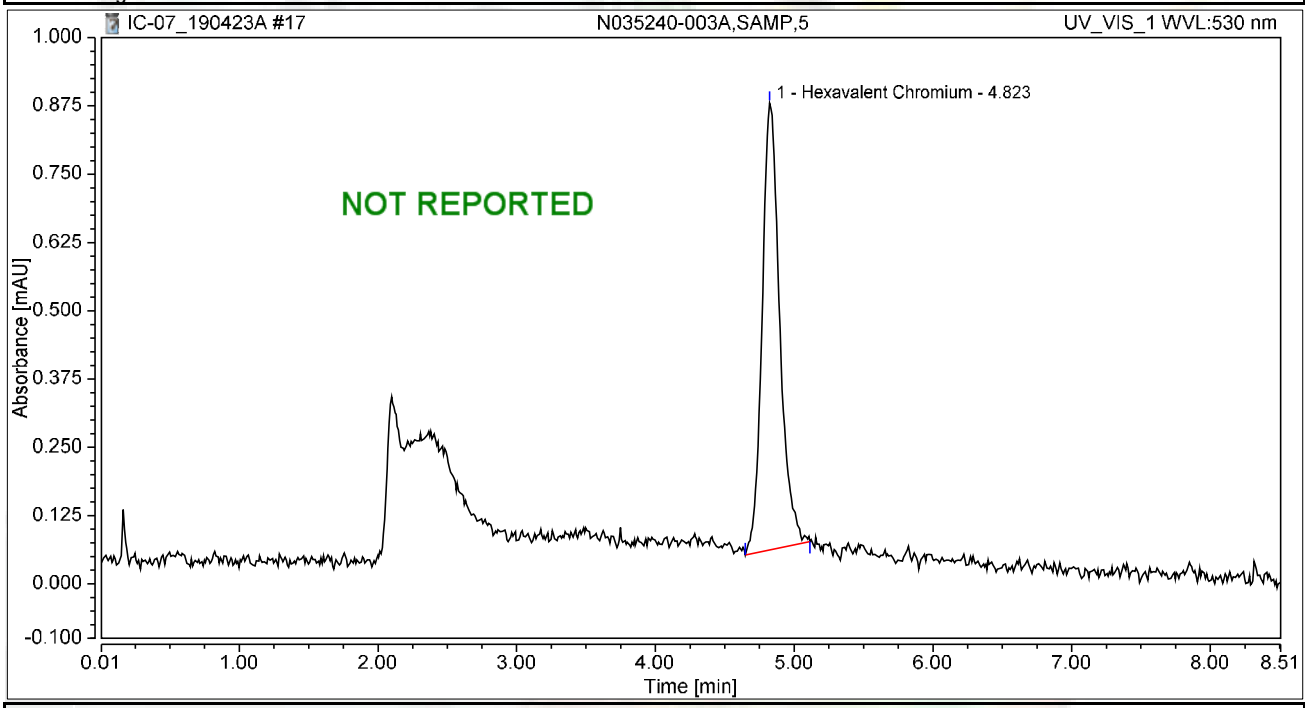
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.823	0.256	1.679	100.00	100.00	1.0287
Total:			**0.256**	**1.679**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

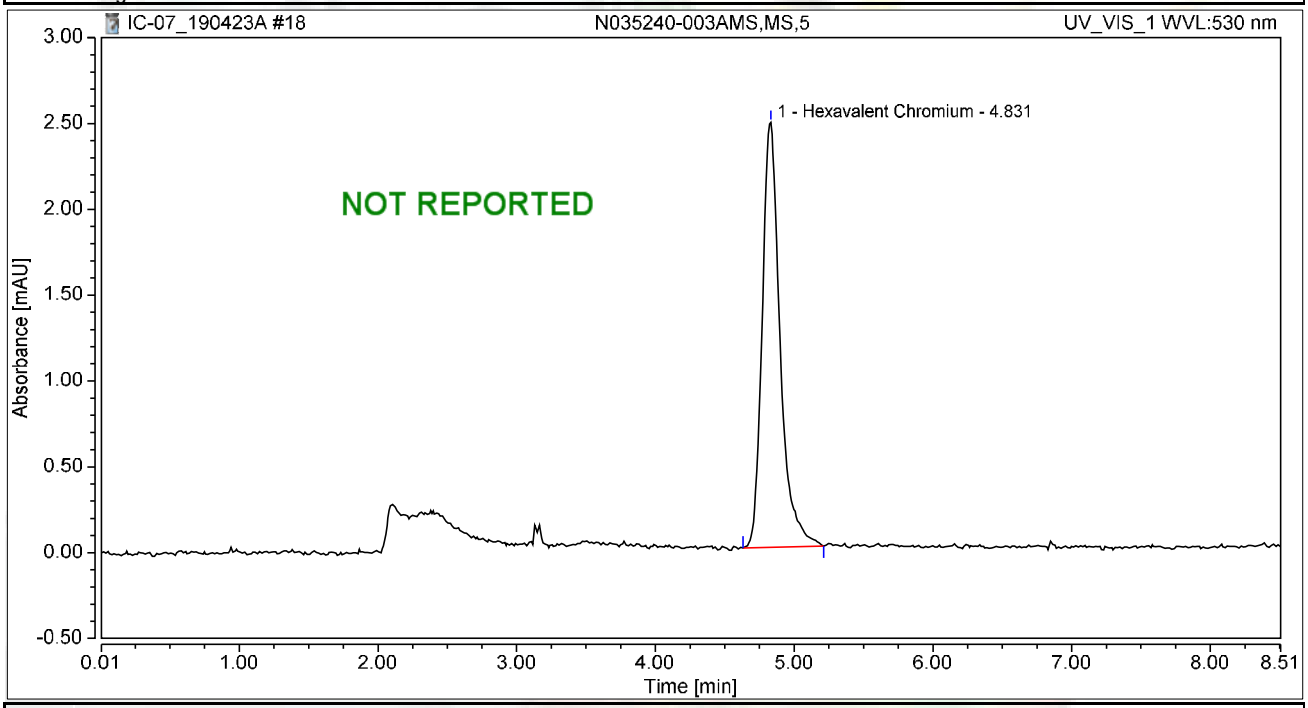
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.823	0.120	0.817	100.00	100.00	0.4831
Total:			**0.120**	**0.817**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-003AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 11:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

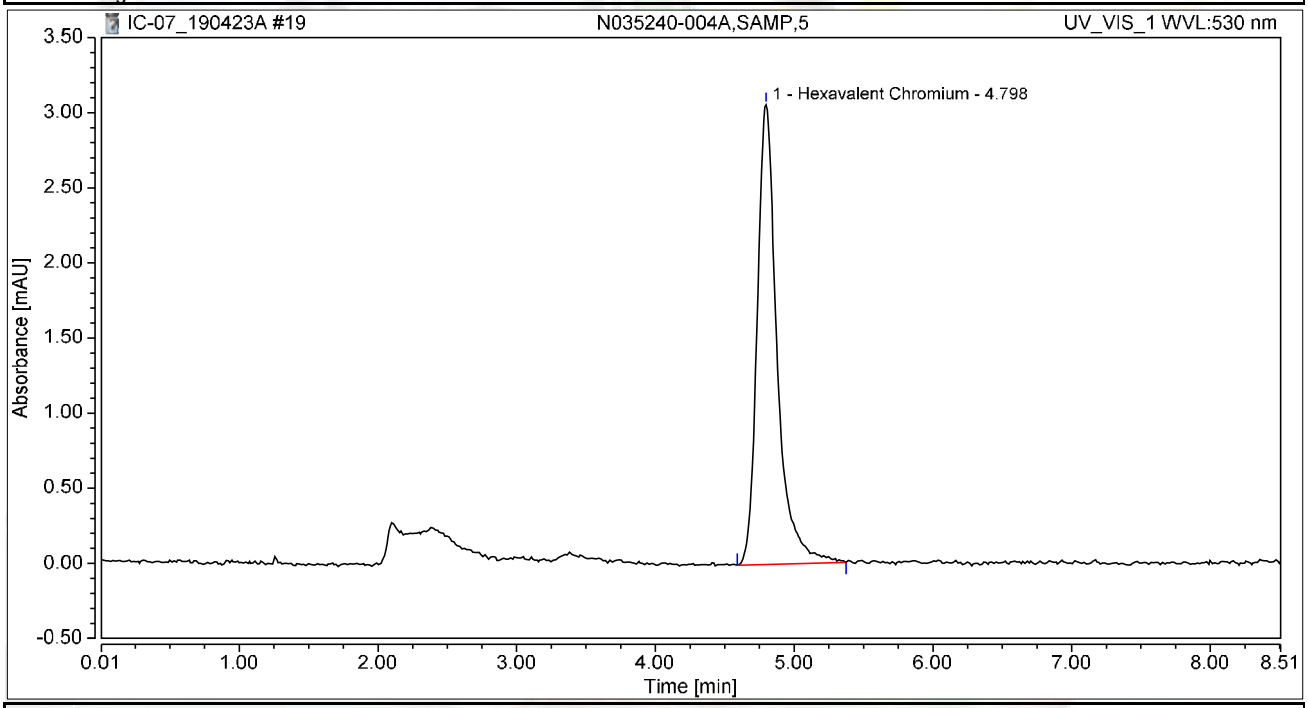
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.371	2.475	100.00	100.00	1.4887
Total:			**0.371**	**2.475**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-004A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

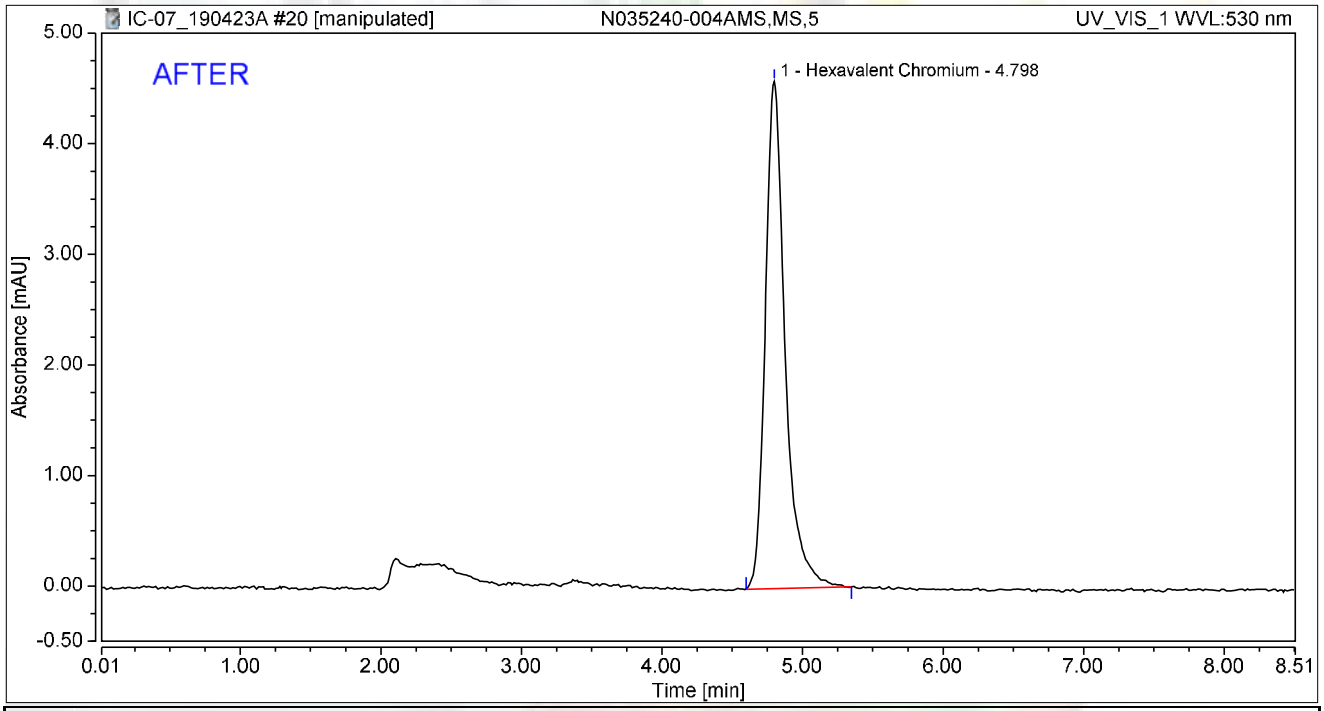
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.798	0.509	3.060	100.00	100.00	2.0459
Total:			**0.509**	**3.060**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-004AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 12:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.798	0.748	4.585	100.00	100.00	3.0049
Total:			**0.748**	**4.585**	**100.00**	**100.00**	

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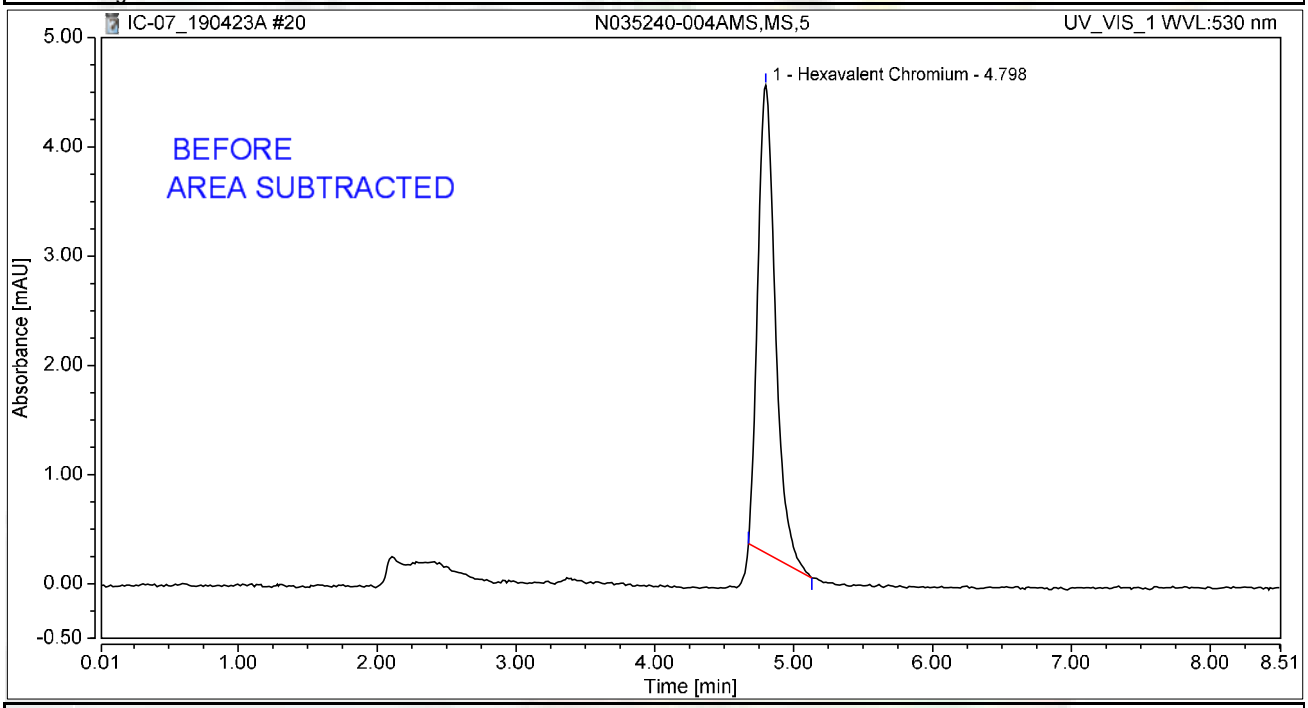
Chromatogram and Results

Injection Details

Injection Name:	**N035240-004AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 12:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.798	0.629	4.280	100.00	100.00	2.5245
Total:			**0.629**	**4.280**	**100.00**	**100.00**	

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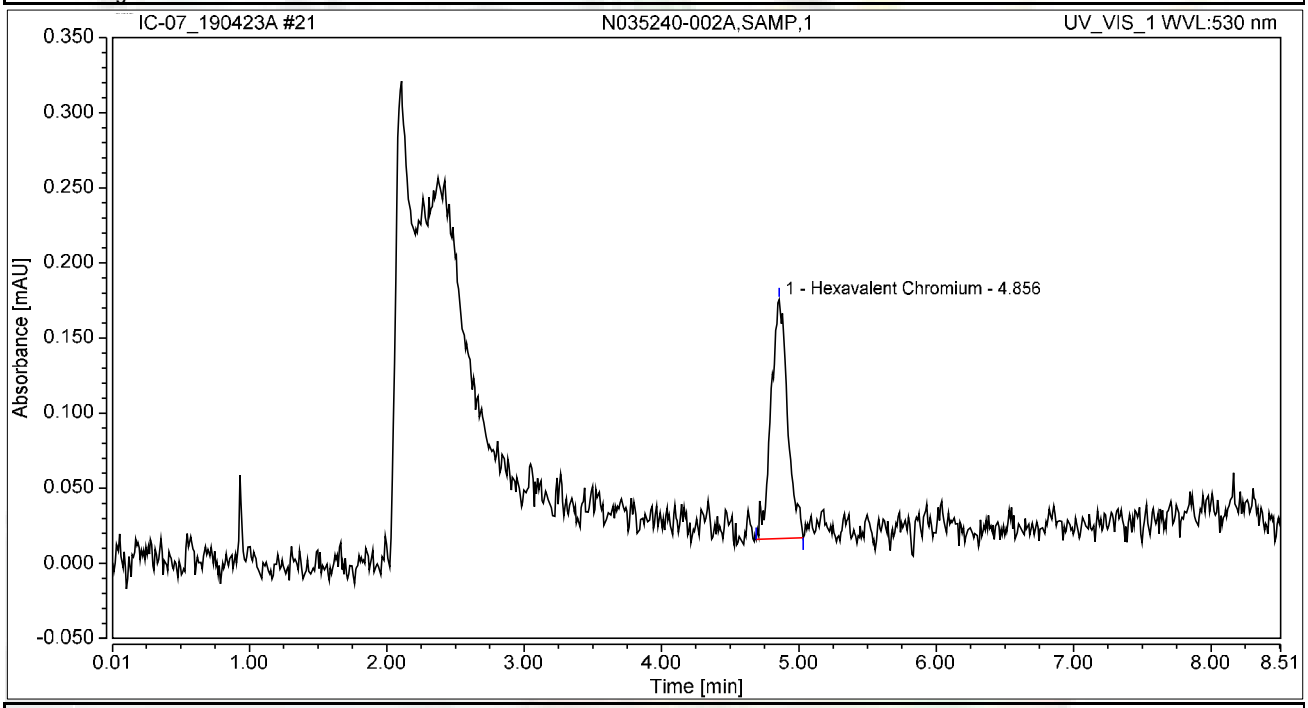
Chromatogram and Results

Injection Details

Injection Name:	**N035240-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 12:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

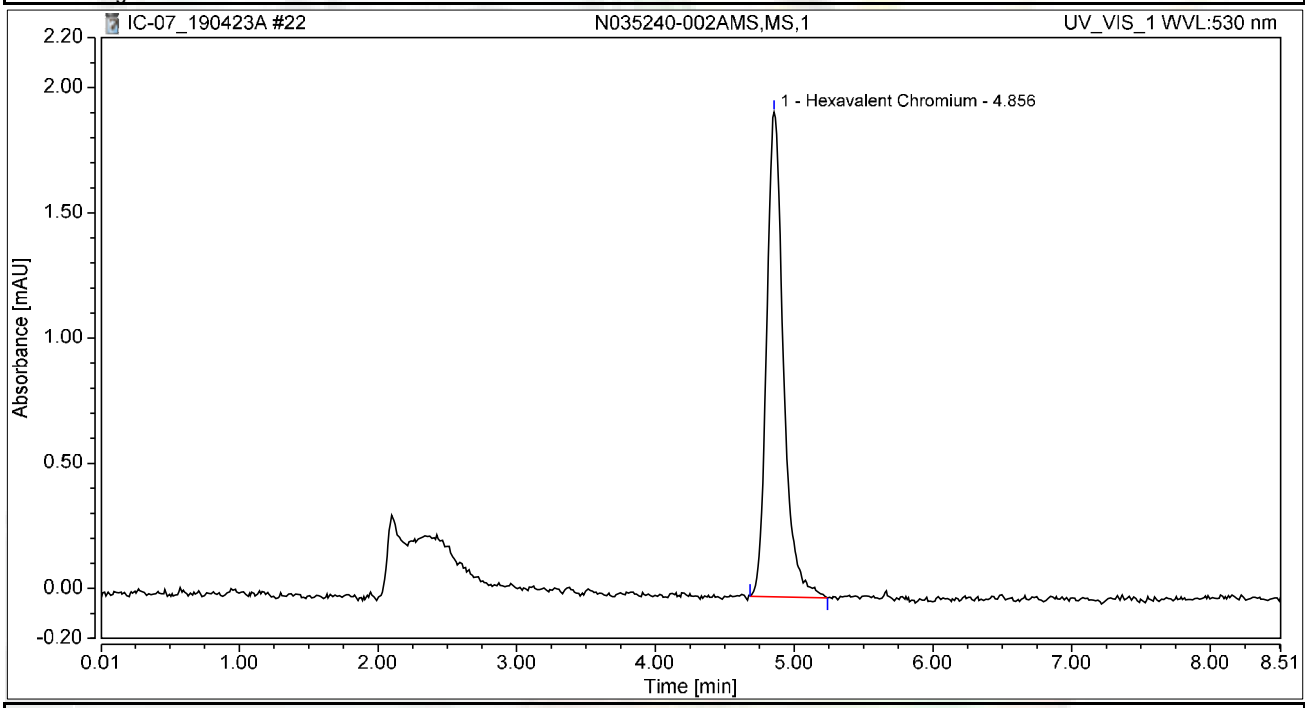
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.022	0.159	100.00	100.00	0.0893
Total:			**0.022**	**0.159**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 12:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

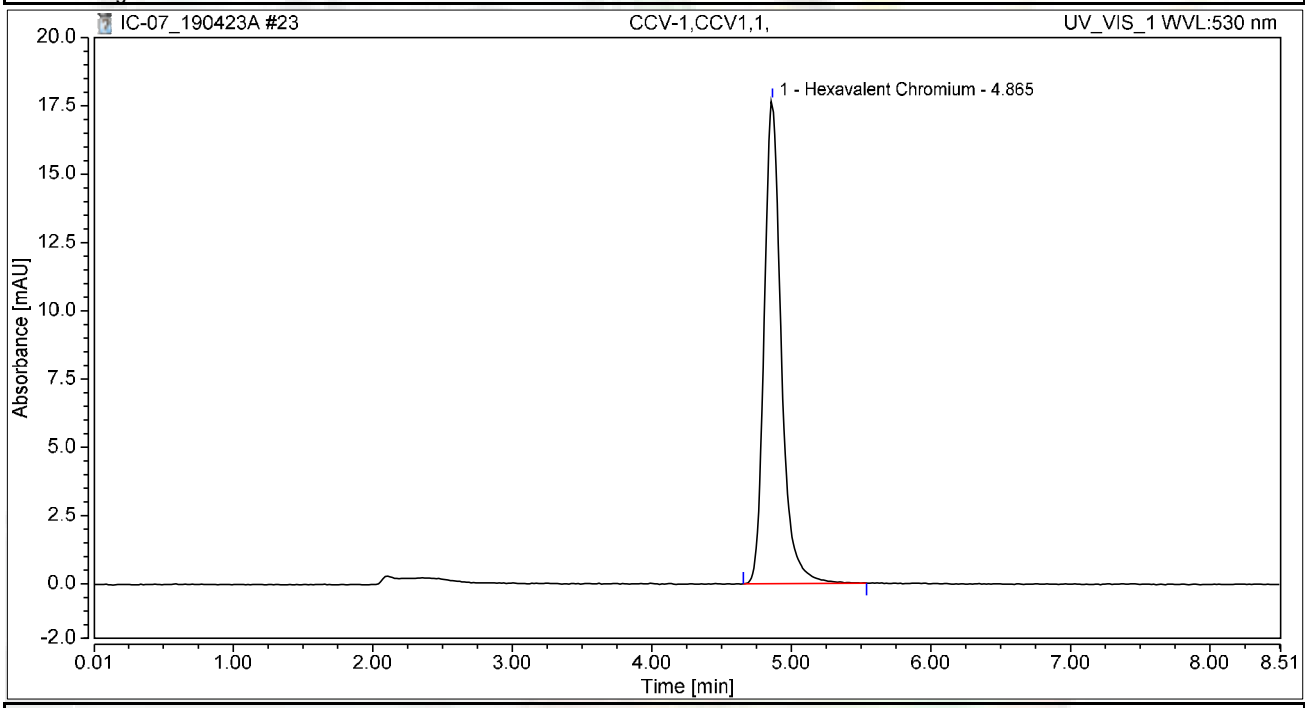
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.272	1.936	100.00	100.00	1.0930
Total:			**0.272**	**1.936**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 12:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

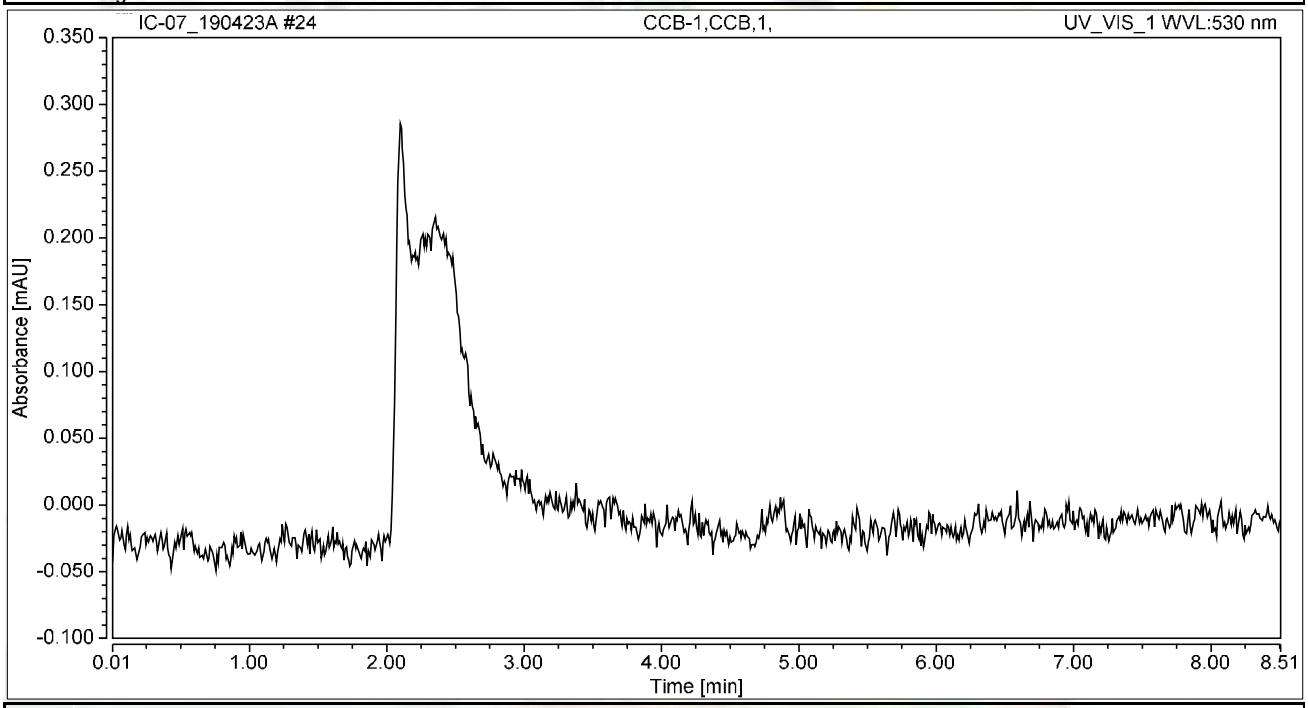
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	2.508	17.698	100.00	100.00	10.0743
Total:			**2.508**	**17.698**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 12:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

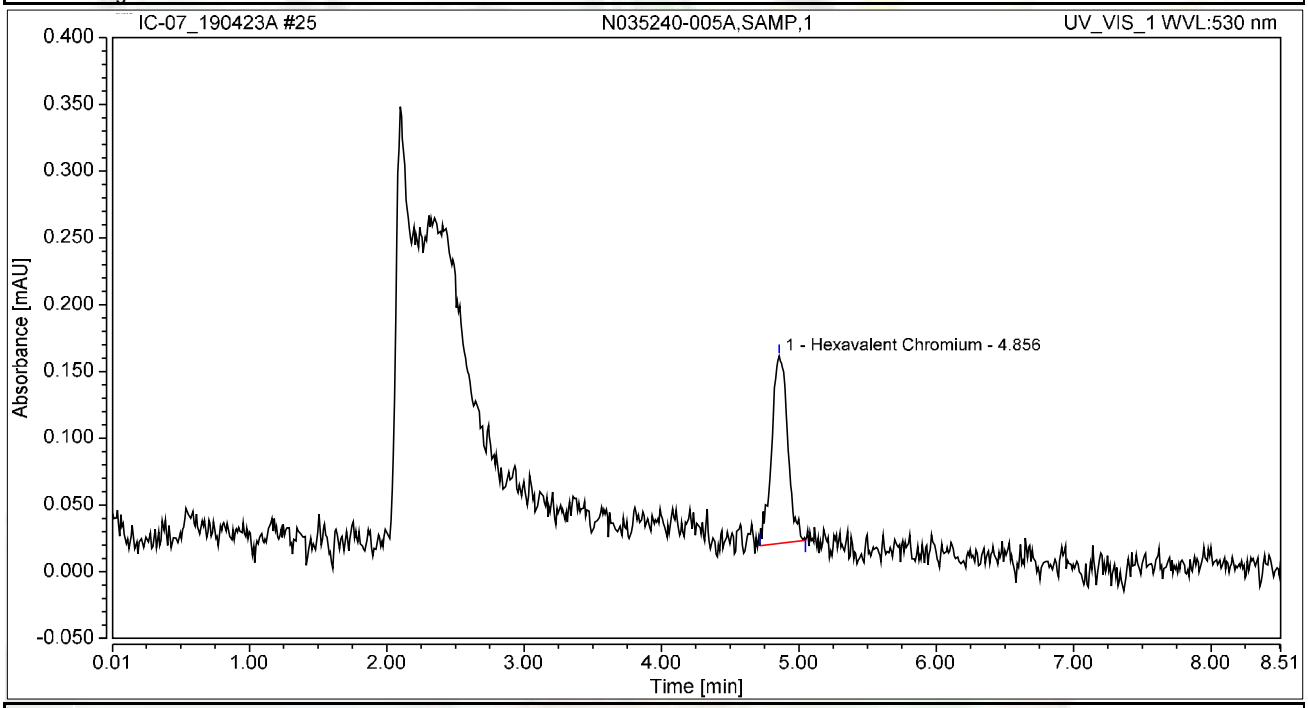
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 12:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

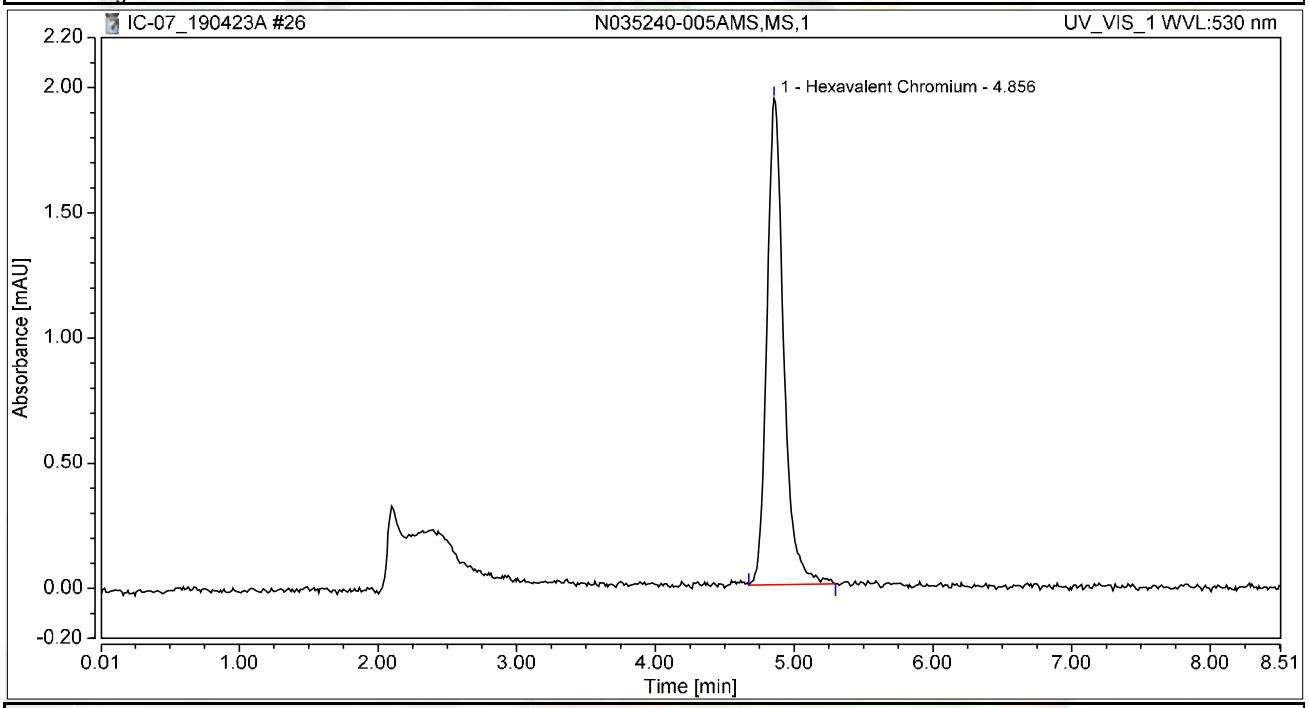
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.019	0.140	100.00	100.00	0.0763
Total:			**0.019**	**0.140**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-005AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 13:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

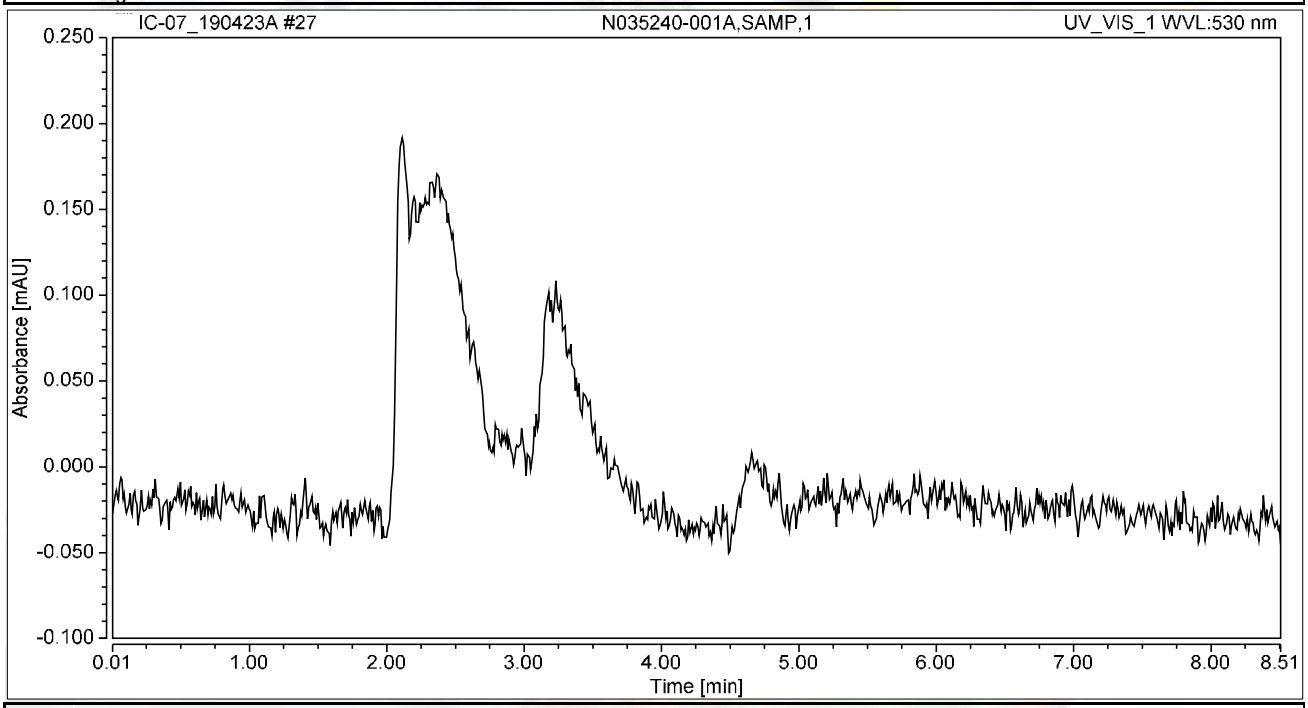
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.272	1.942	100.00	100.00	1.0939
Total:			**0.272**	**1.942**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 13:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

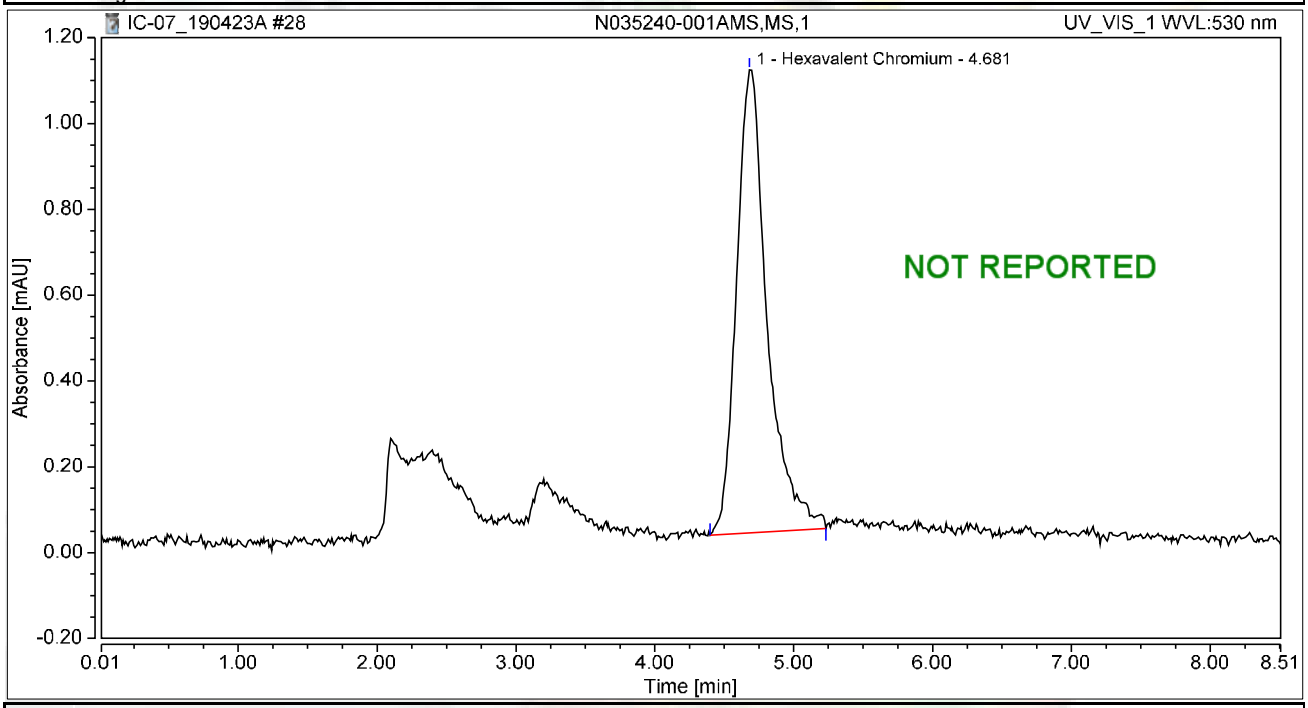
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 13:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

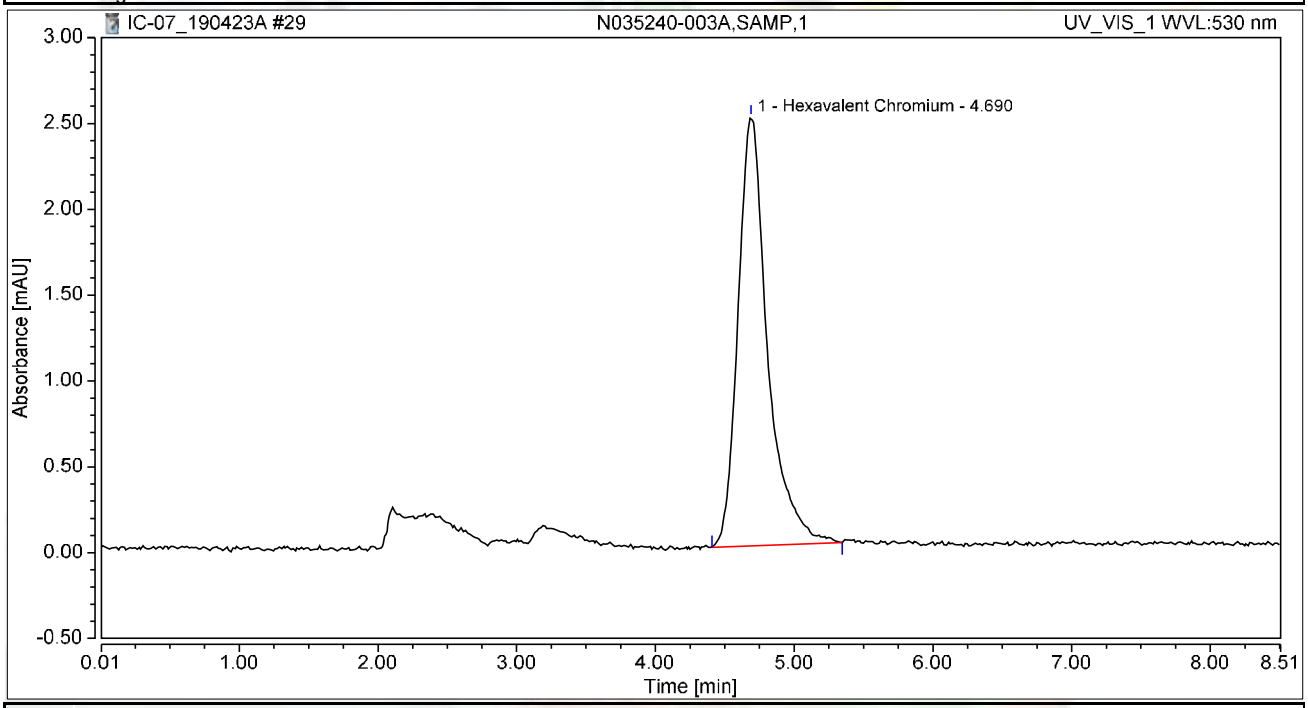
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.276	1.079	100.00	100.00	1.1082
Total:			**0.276**	**1.079**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 13:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

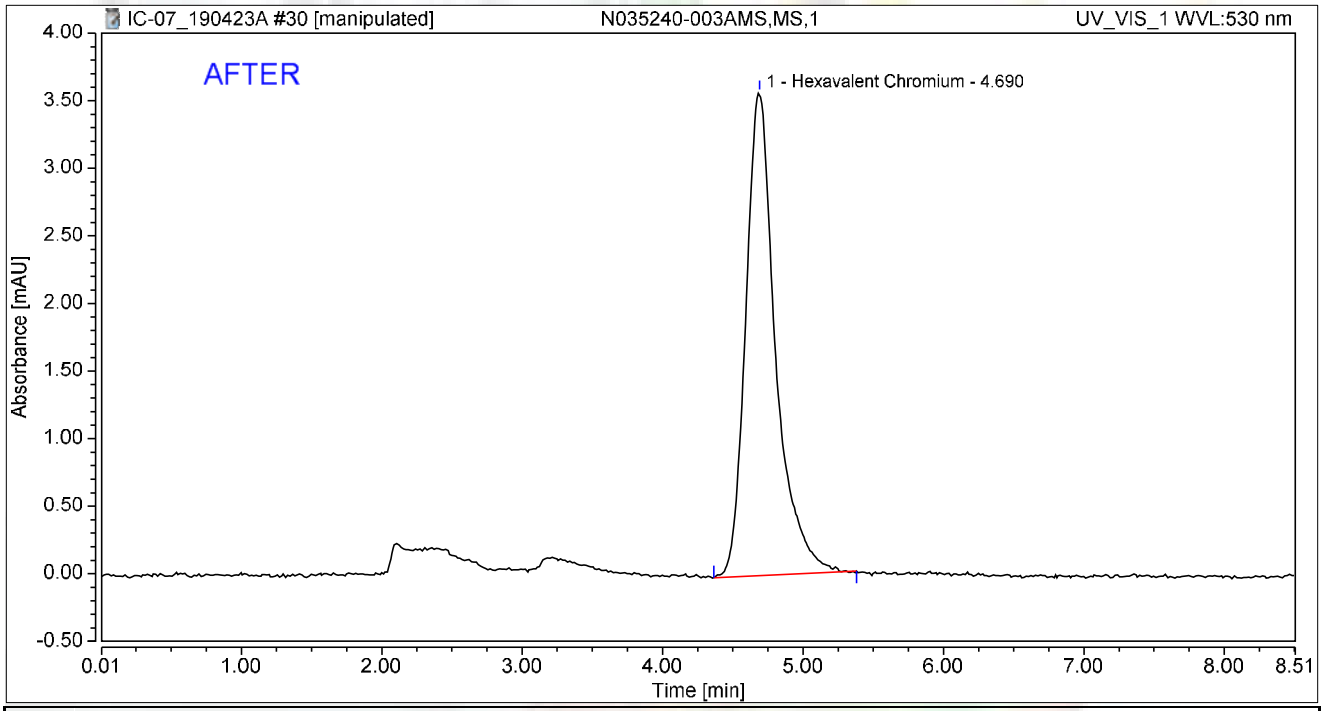
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.617	2.498	100.00	100.00	2.4789
Total:			**0.617**	**2.498**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 13:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.878	3.573	100.00	100.00	3.5266
Total:			**0.878**	**3.573**	**100.00**	**100.00**	

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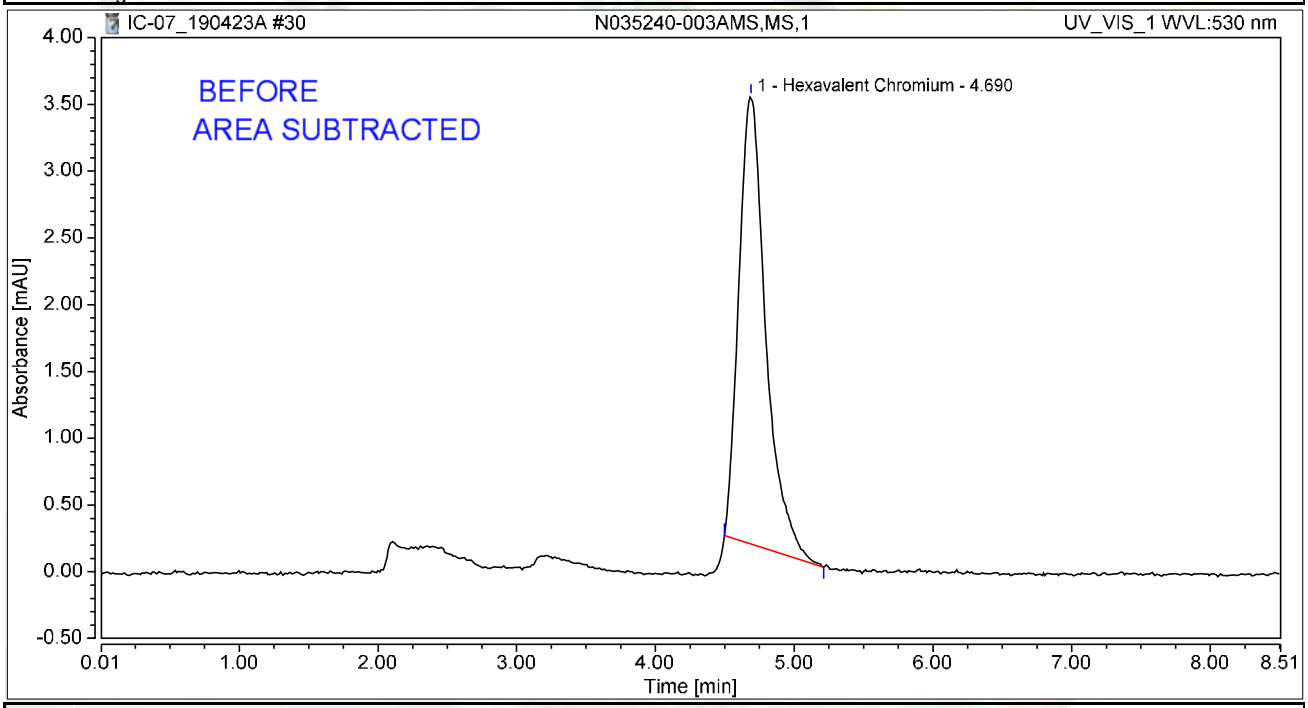
Chromatogram and Results

Injection Details

Injection Name:	**N035240-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 13:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.753	3.351	100.00	100.00	3.0259
Total:			**0.753**	**3.351**	**100.00**	**100.00**	

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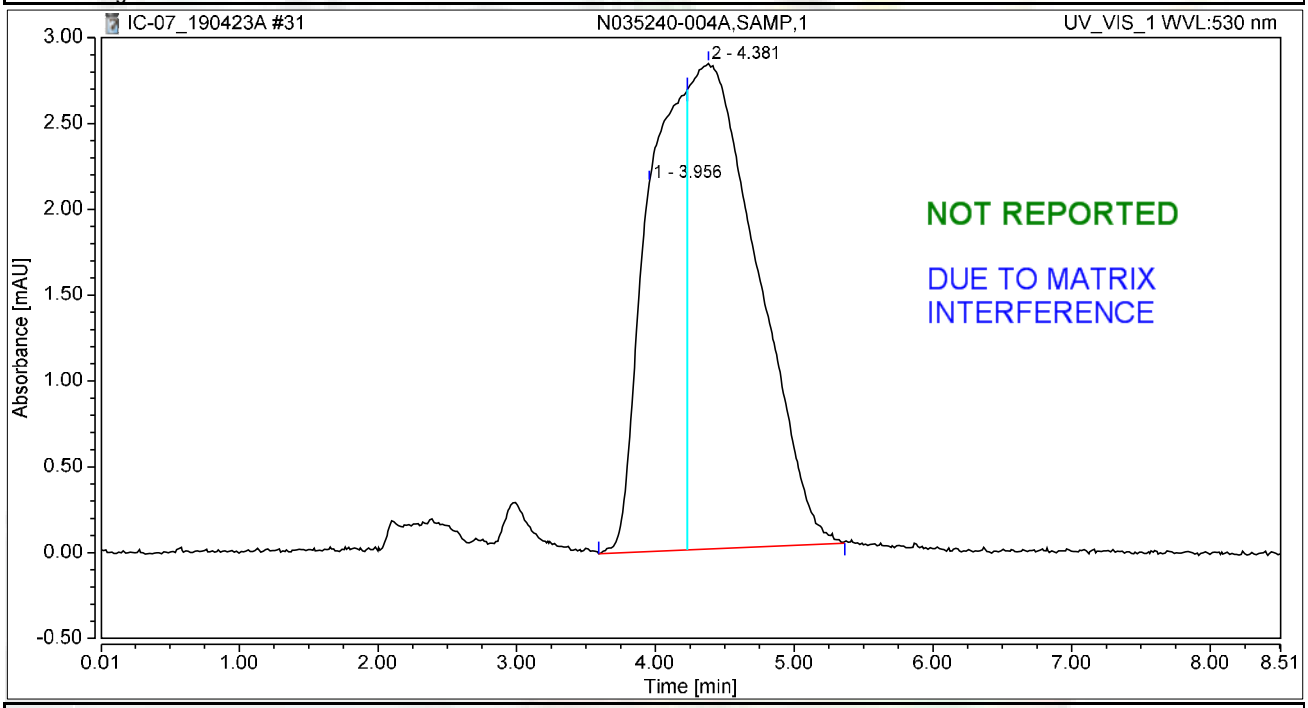
Chromatogram and Results

Injection Details

Injection Name:	**N035240-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 13:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

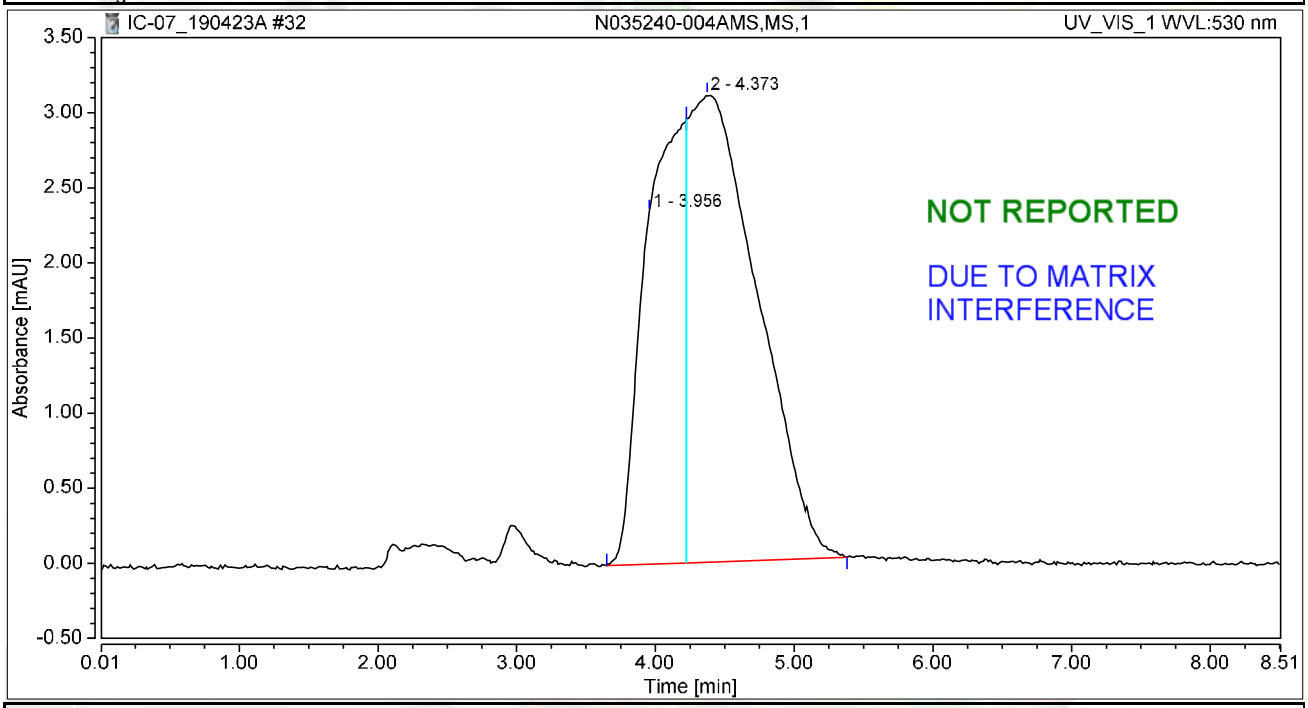
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.956	0.931	2.147	36.84	43.16	n.a.
2		4.381	1.595	2.828	63.16	56.84	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**2.526**	**4.975**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 14:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

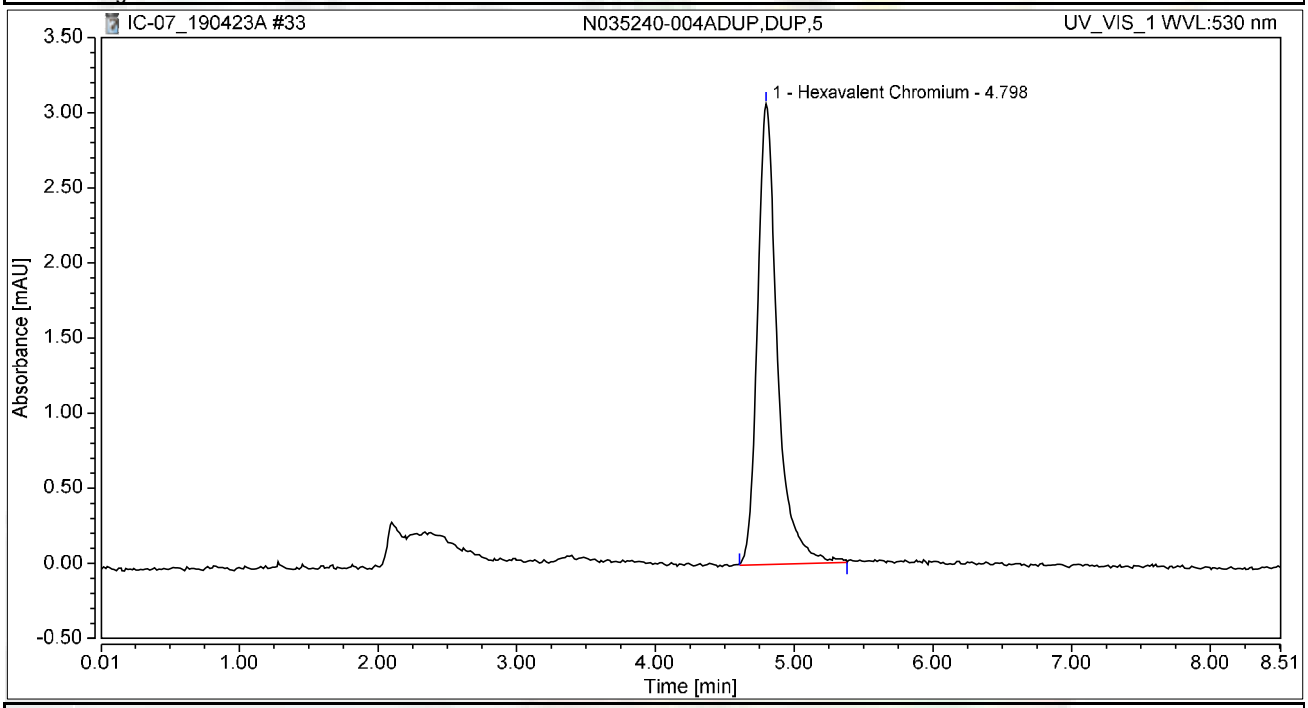
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.956	0.991	2.346	35.78	42.98	n.a.
2		4.373	1.778	3.112	64.22	57.02	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**2.769**	**5.458**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-004ADUP,DUP,5**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 14:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

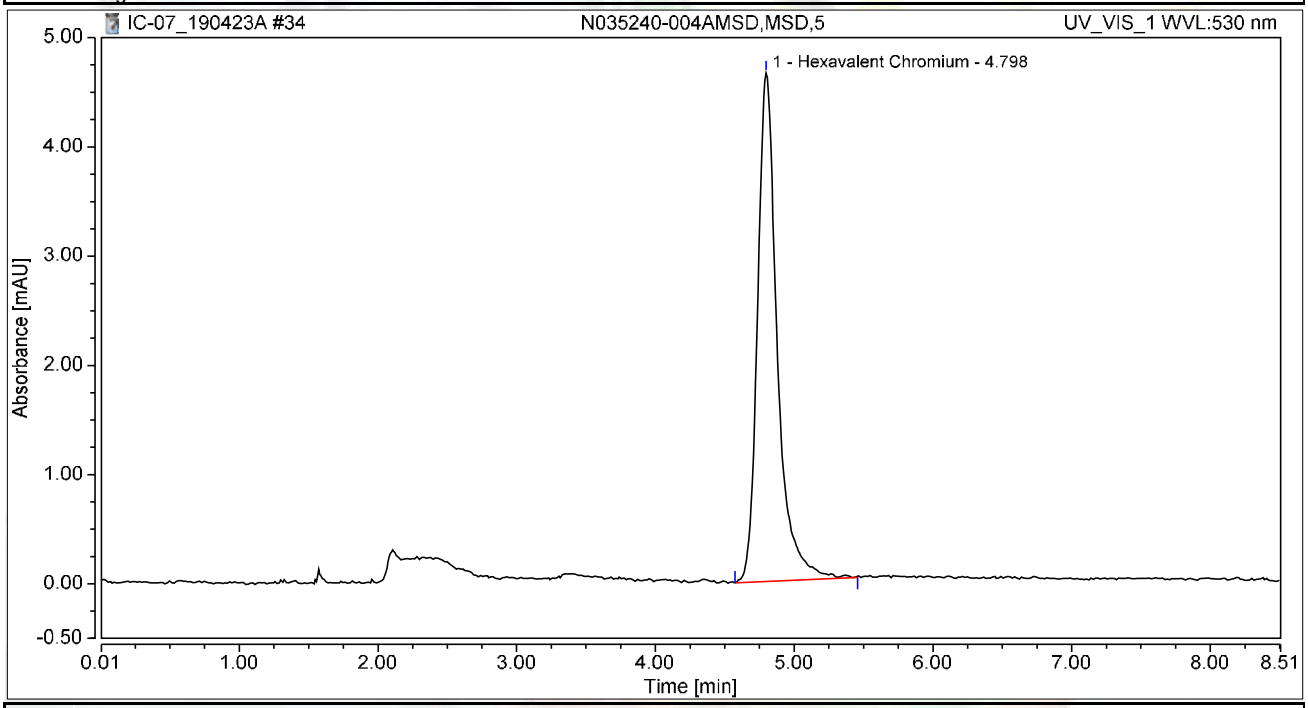
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.798	0.511	3.067	100.00	100.00	2.0544
Total:			**0.511**	**3.067**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-004AMSD,MSD,5**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 14:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

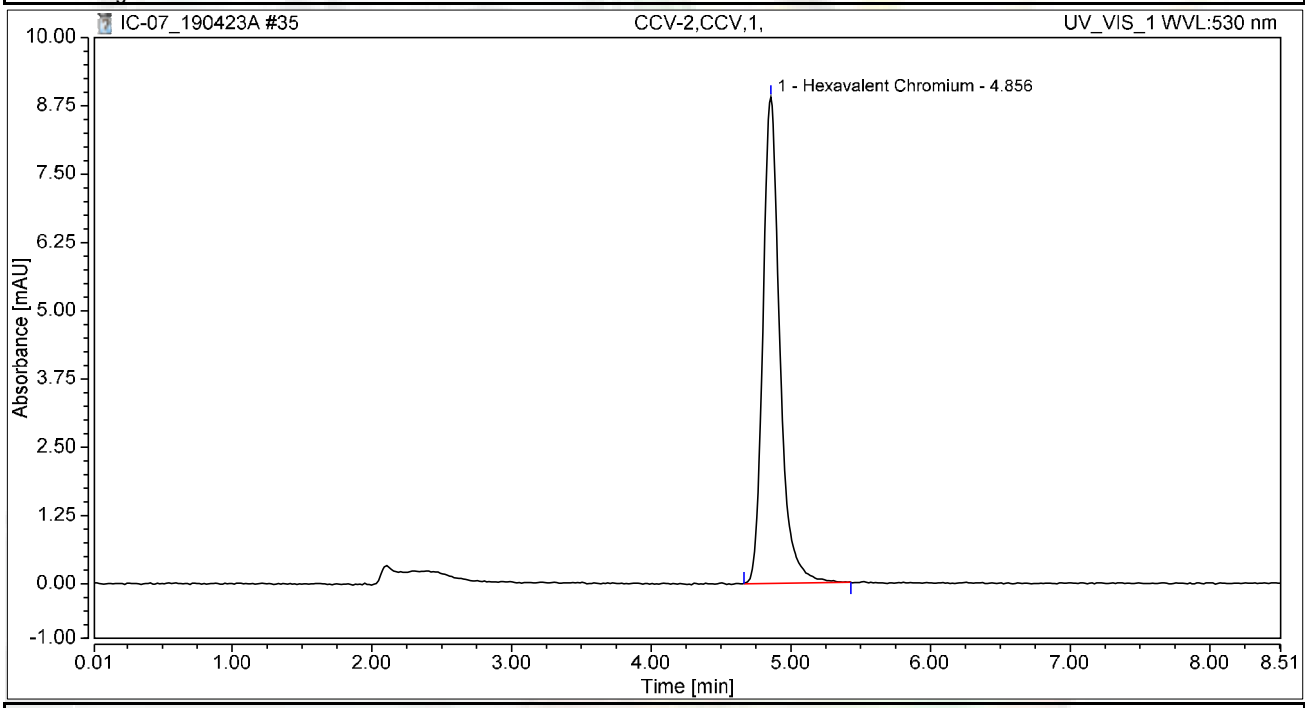
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.798	0.767	4.653	100.00	100.00	3.0807
Total:			**0.767**	**4.653**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 14:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

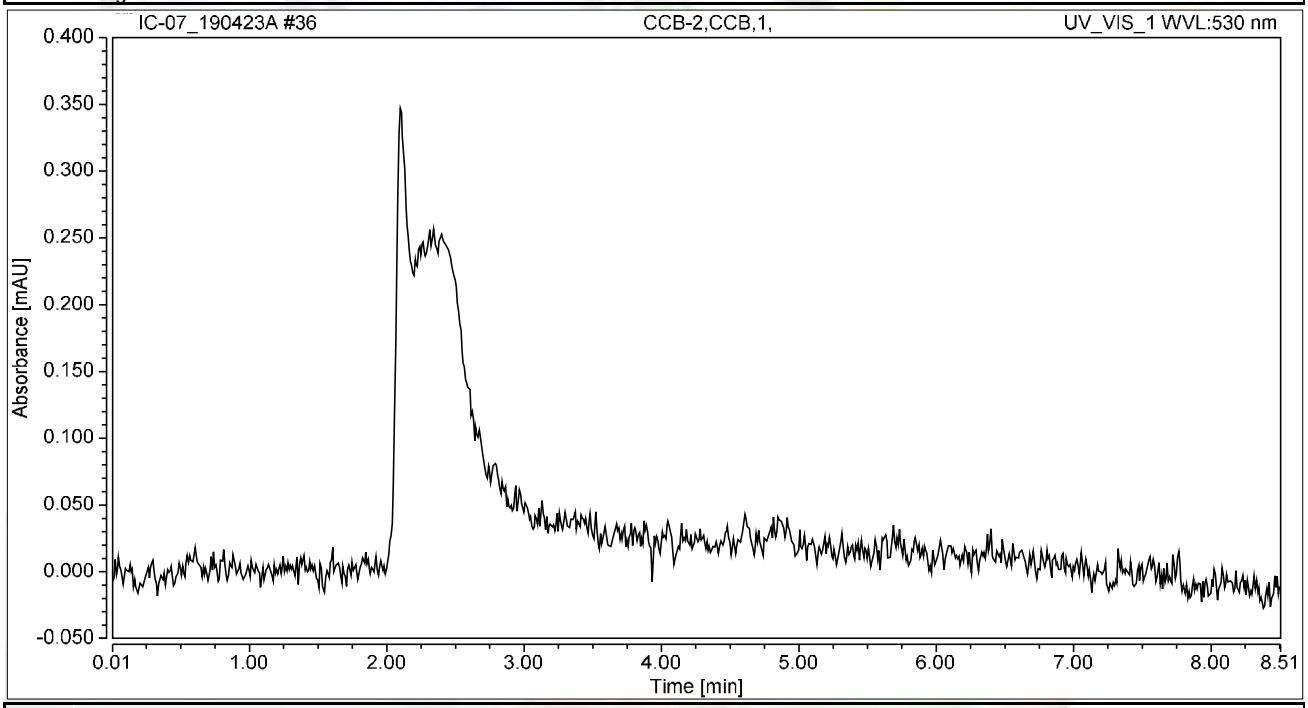
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.254	8.900	100.00	100.00	5.0370
Total:			**1.254**	**8.900**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 14:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

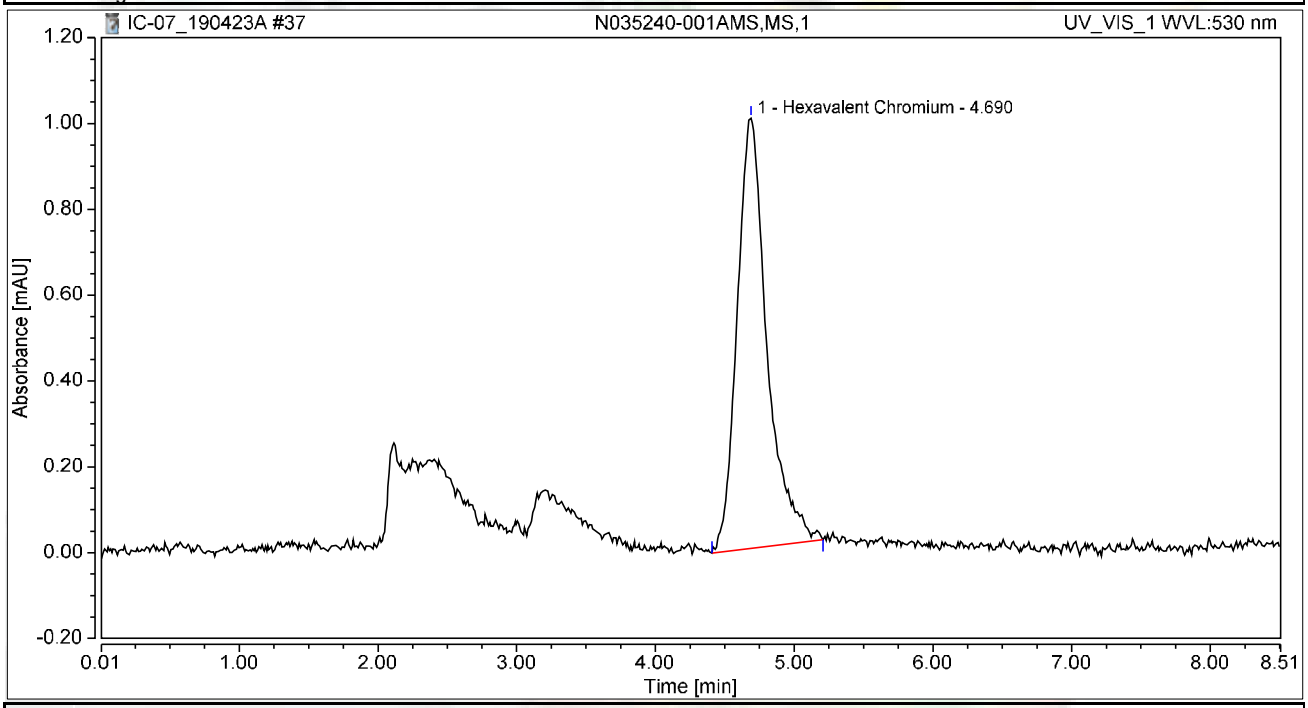
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 14:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

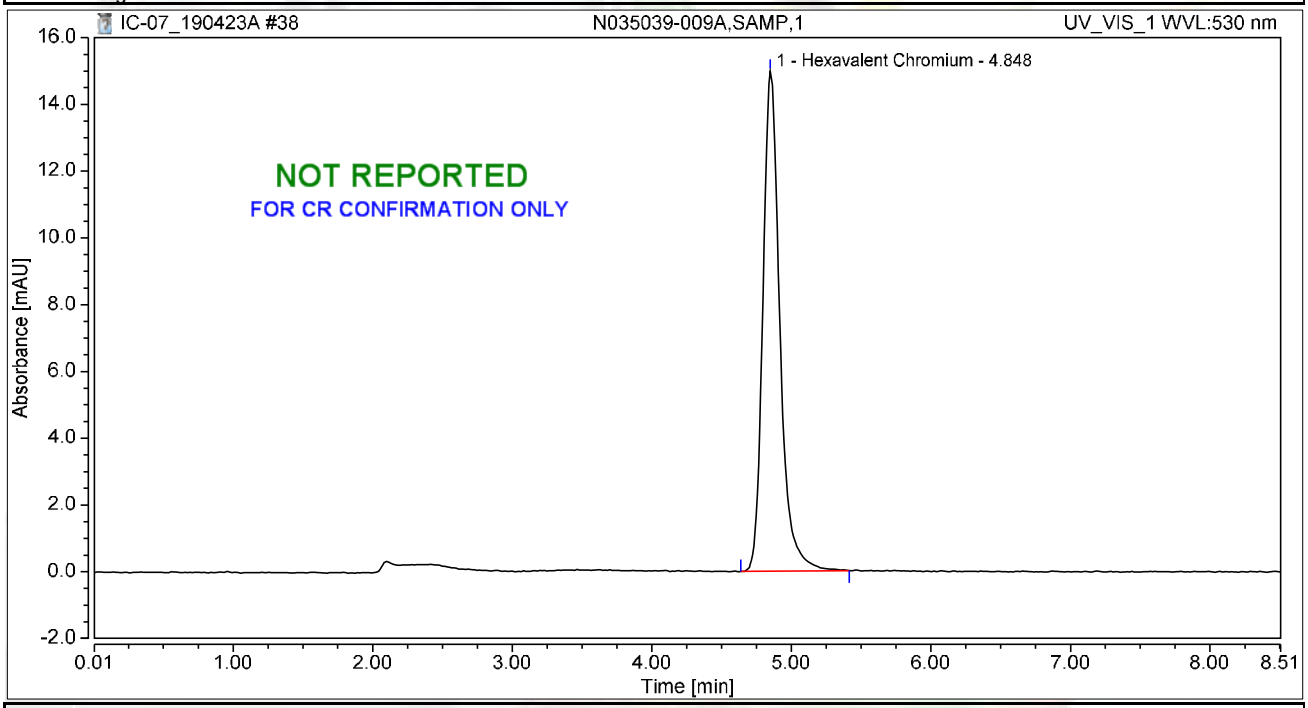
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.251	1.002	100.00	100.00	1.0066
Total:			**0.251**	**1.002**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035039-009A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 15:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

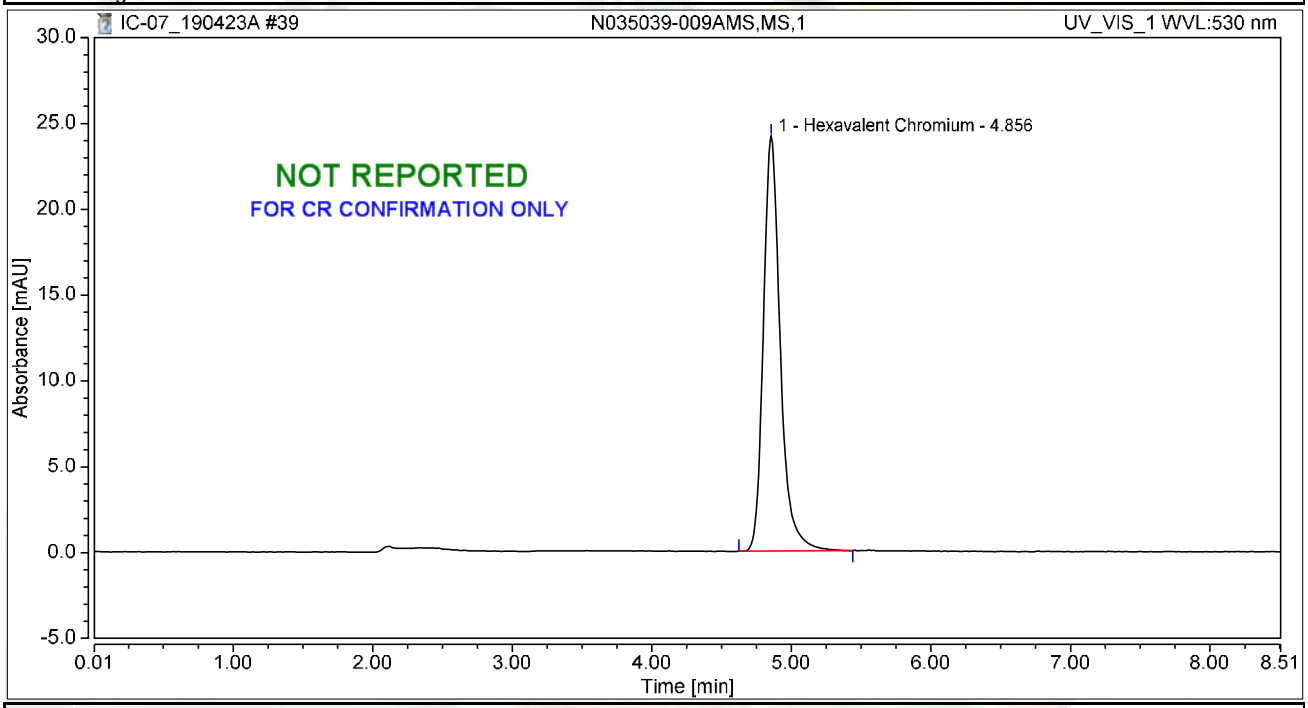
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	2.110	14.978	100.00	100.00	8.4765
Total:			**2.110**	**14.978**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035039-009AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 15:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

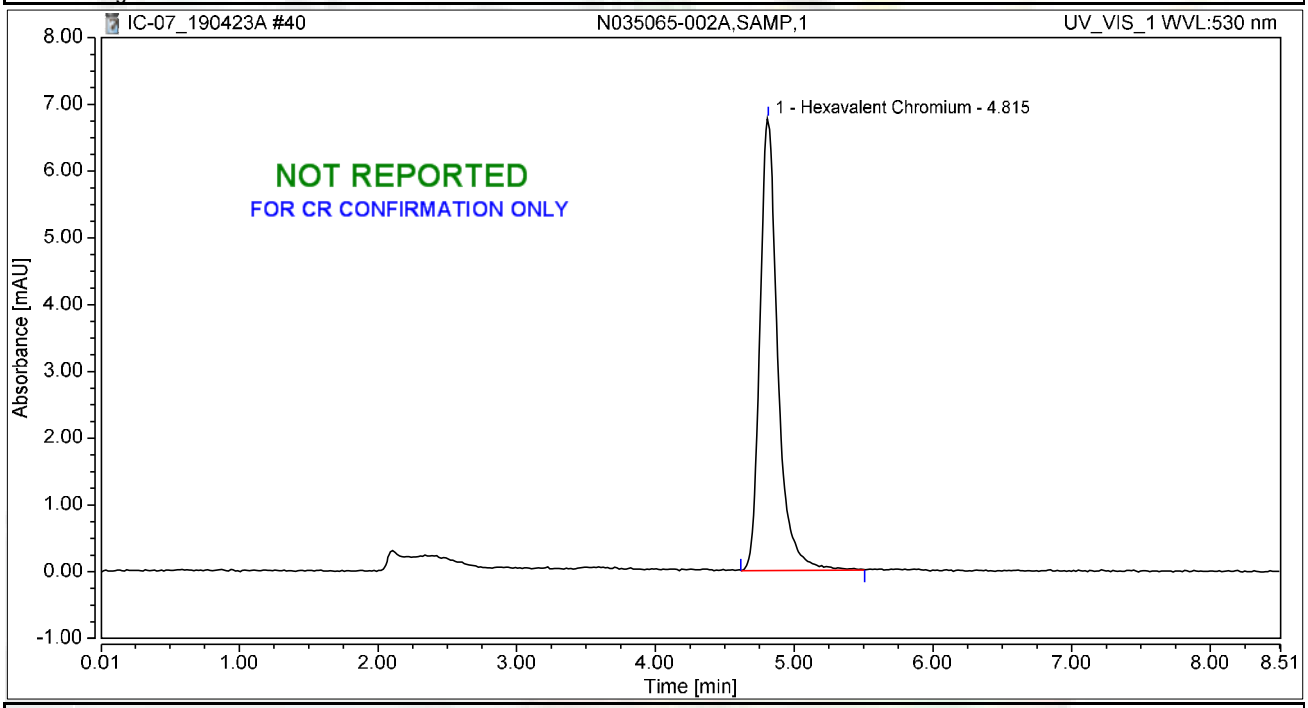
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	3.391	24.175	100.00	100.00	13.6203
Total:			**3.391**	**24.175**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035065-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 15:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

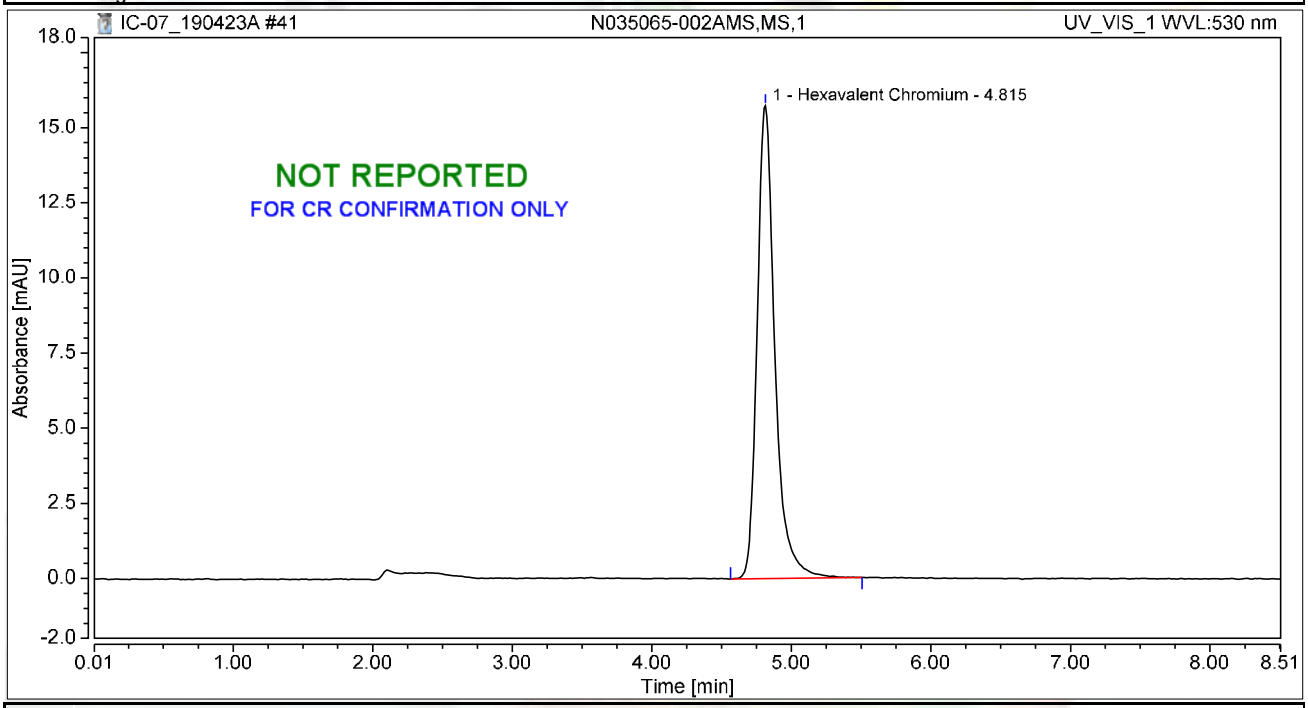
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.815	1.010	6.771	100.00	100.00	4.0583
Total:			**1.010**	**6.771**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035065-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 15:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

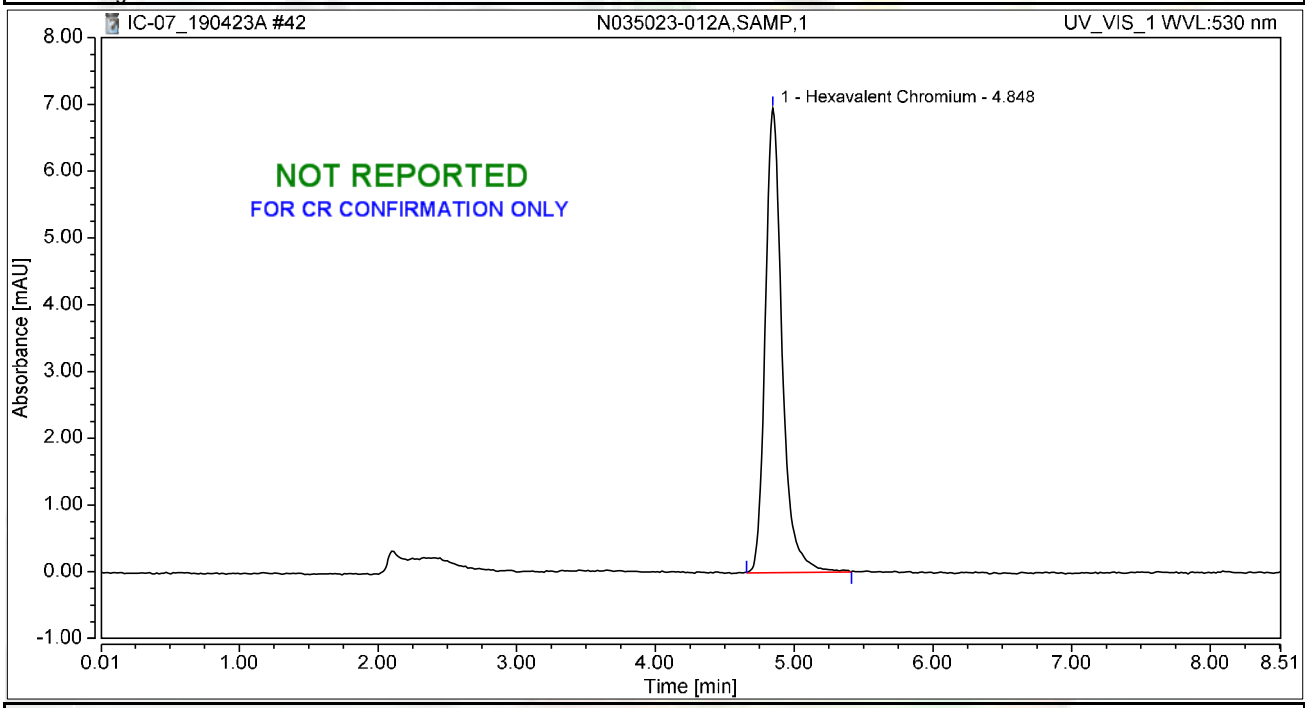
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.815	2.317	15.731	100.00	100.00	9.3057
Total:			**2.317**	**15.731**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035023-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 15:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

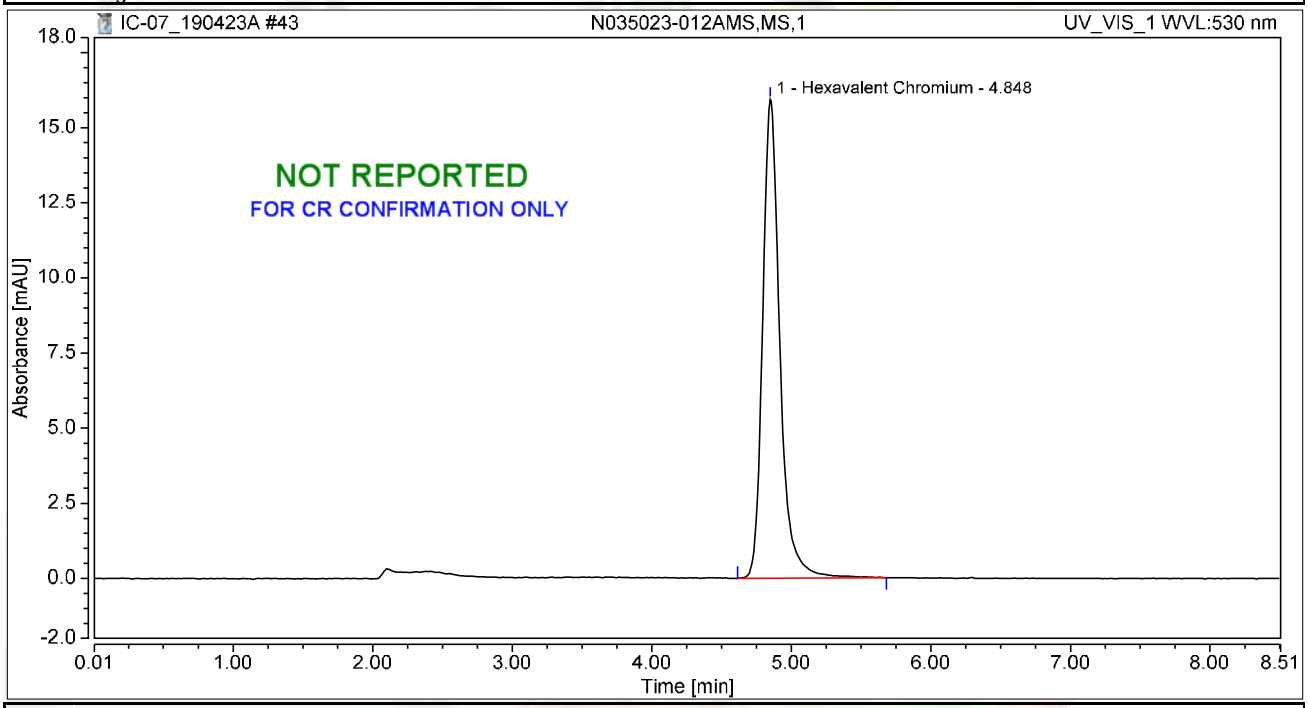
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.980	6.957	100.00	100.00	3.9372
Total:			**0.980**	**6.957**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035023-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 15:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

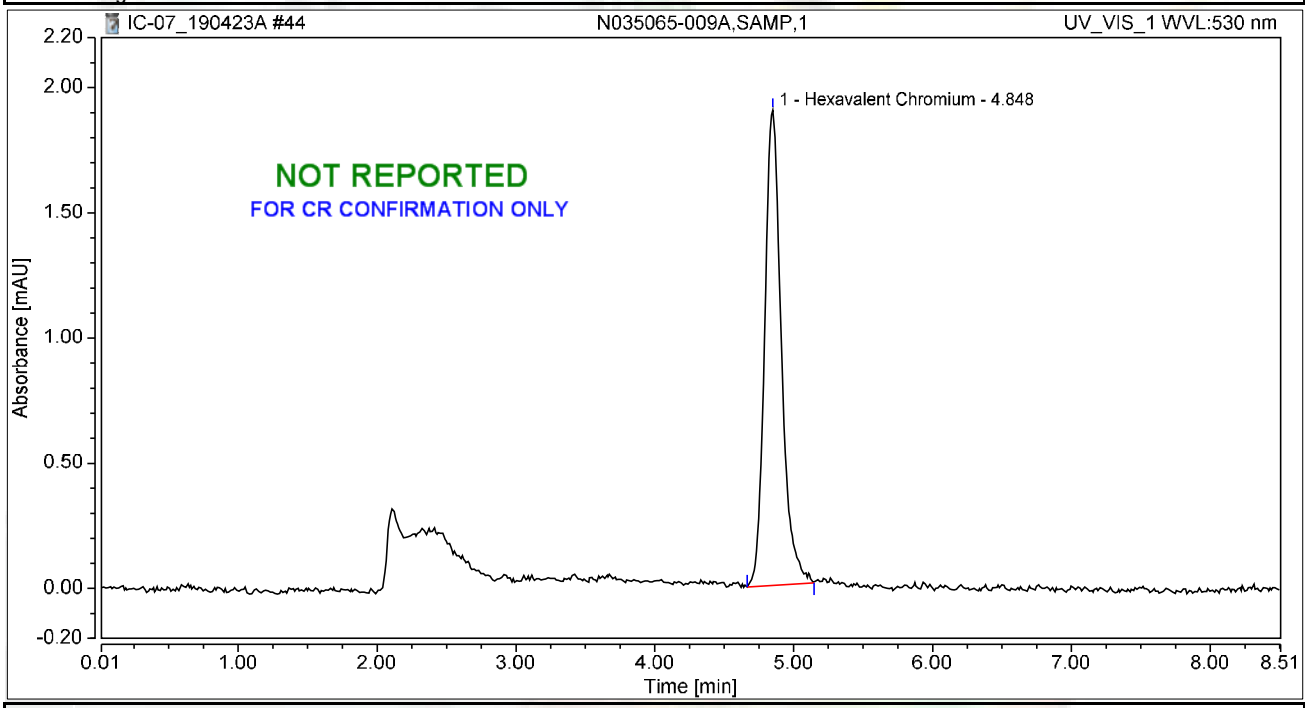
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	2.278	15.940	100.00	100.00	9.1516
Total:			**2.278**	**15.940**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035065-009A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 15:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

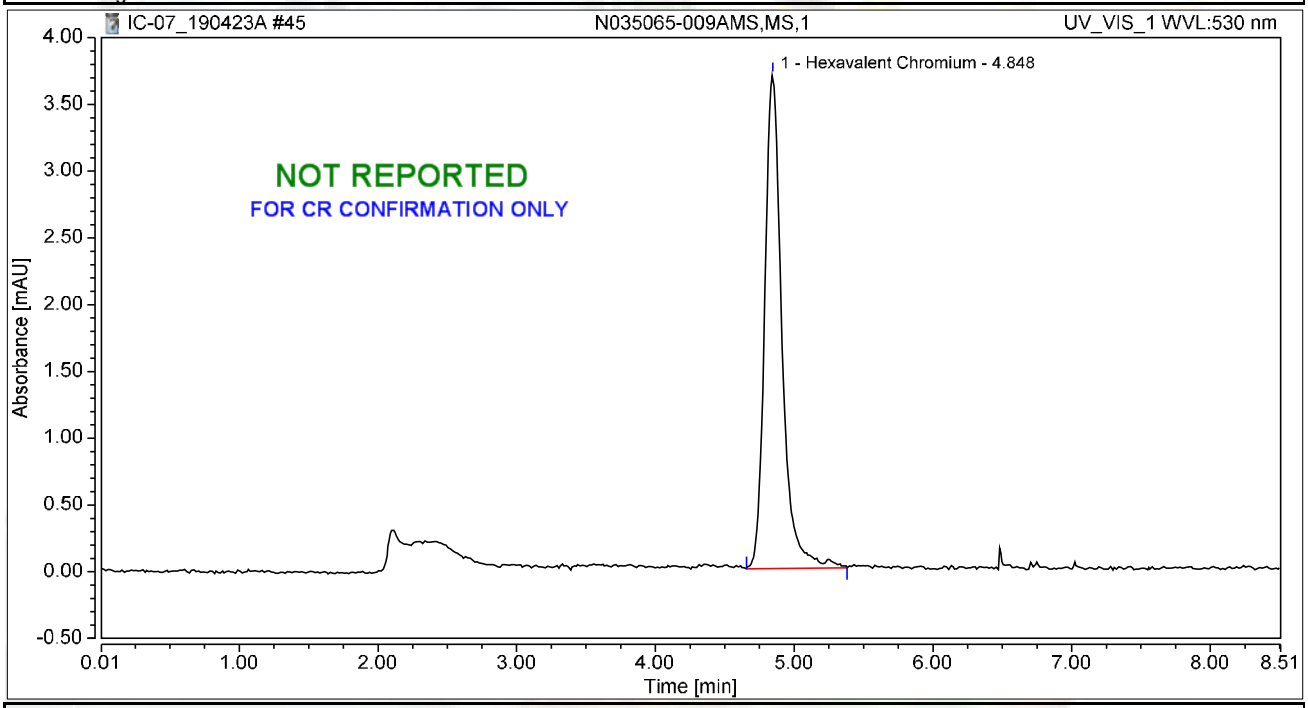
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.265	1.898	100.00	100.00	1.0643
Total:			**0.265**	**1.898**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035065-009AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 16:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

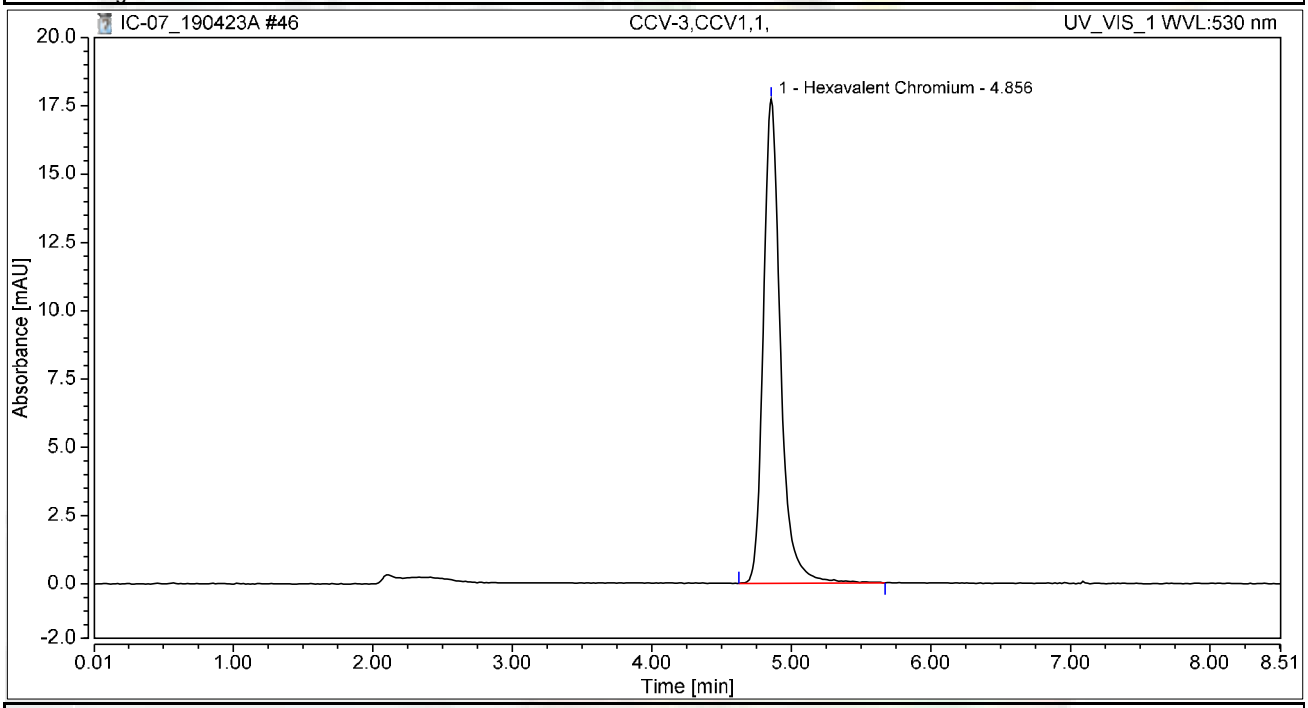
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.532	3.700	100.00	100.00	2.1387
Total:			**0.532**	**3.700**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 16:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

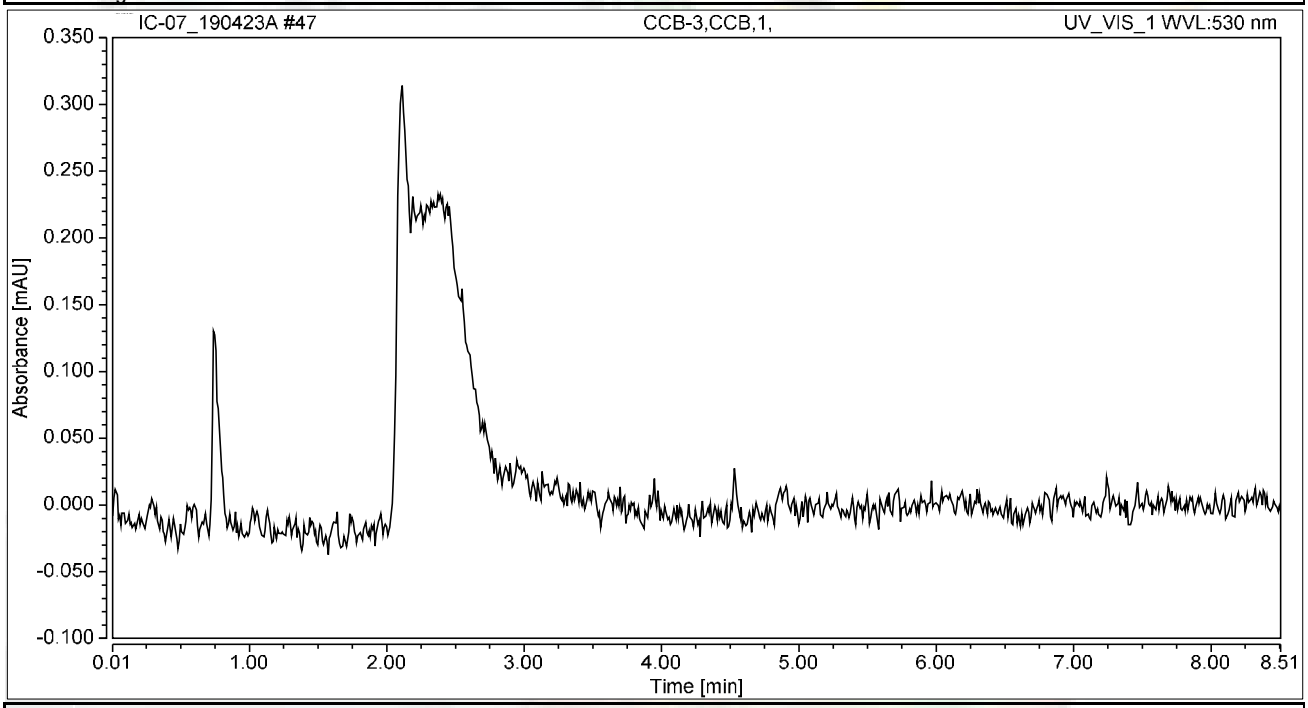
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.533	17.739	100.00	100.00	10.1755
Total:			**2.533**	**17.739**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 16:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

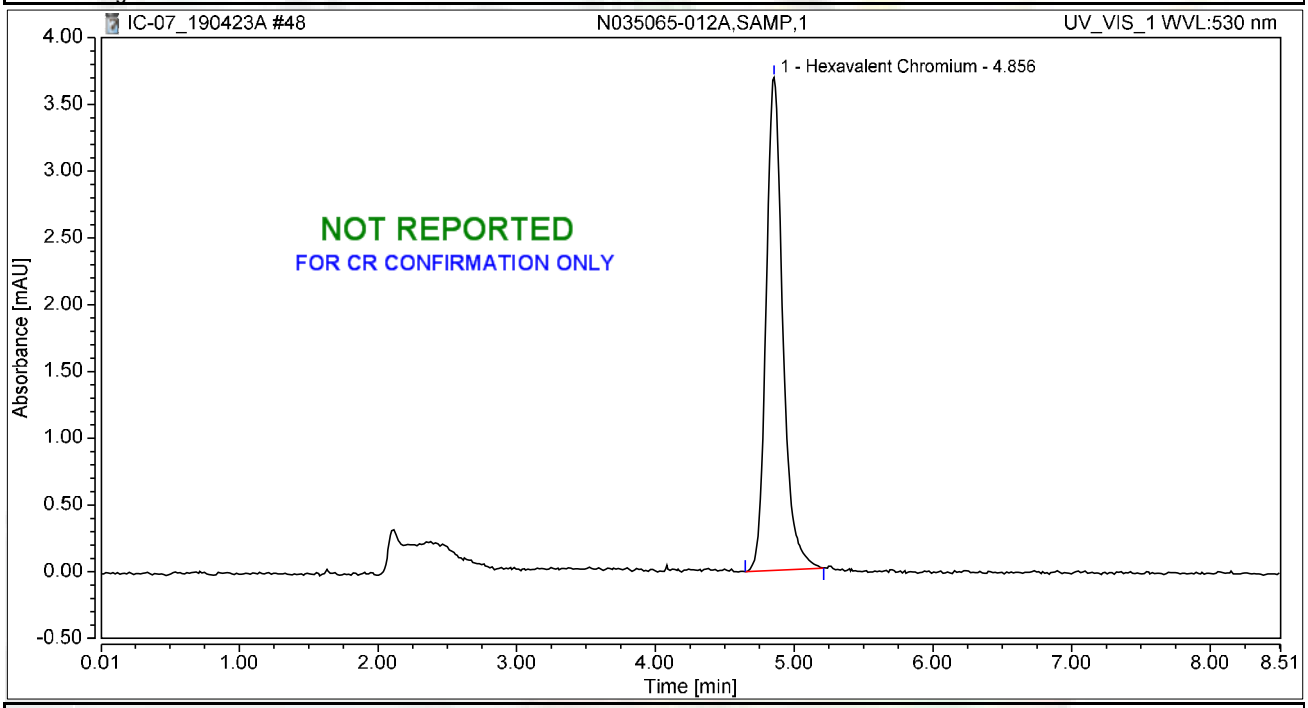
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035065-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 16:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

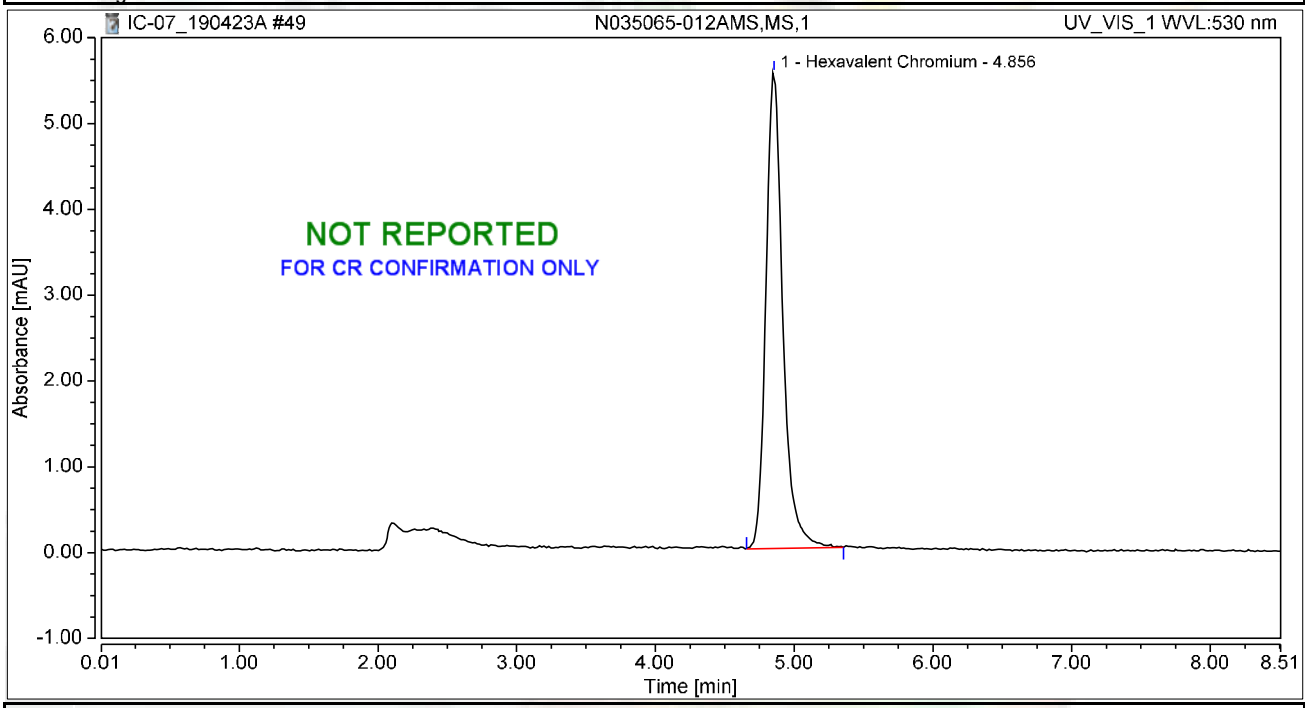
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.516	3.693	100.00	100.00	2.0730
Total:			**0.516**	**3.693**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035065-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 16:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

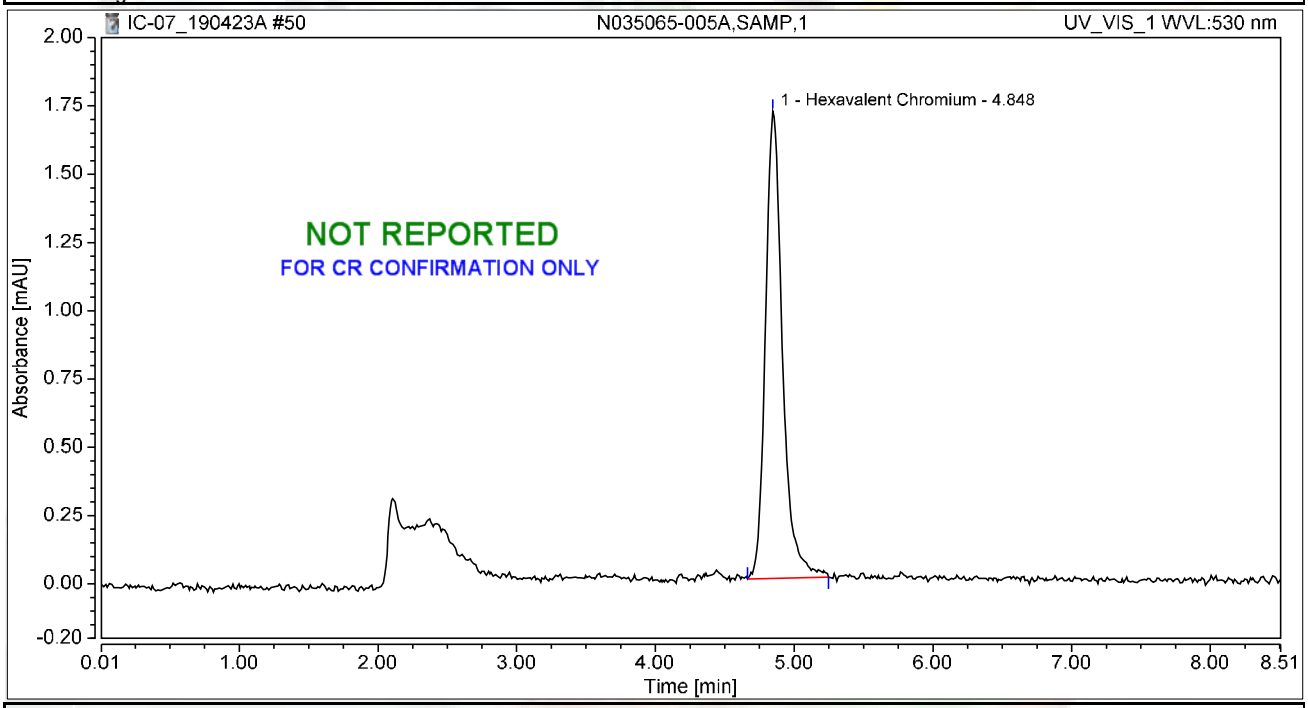
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.785	5.539	100.00	100.00	3.1547
Total:			**0.785**	**5.539**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035065-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 16:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

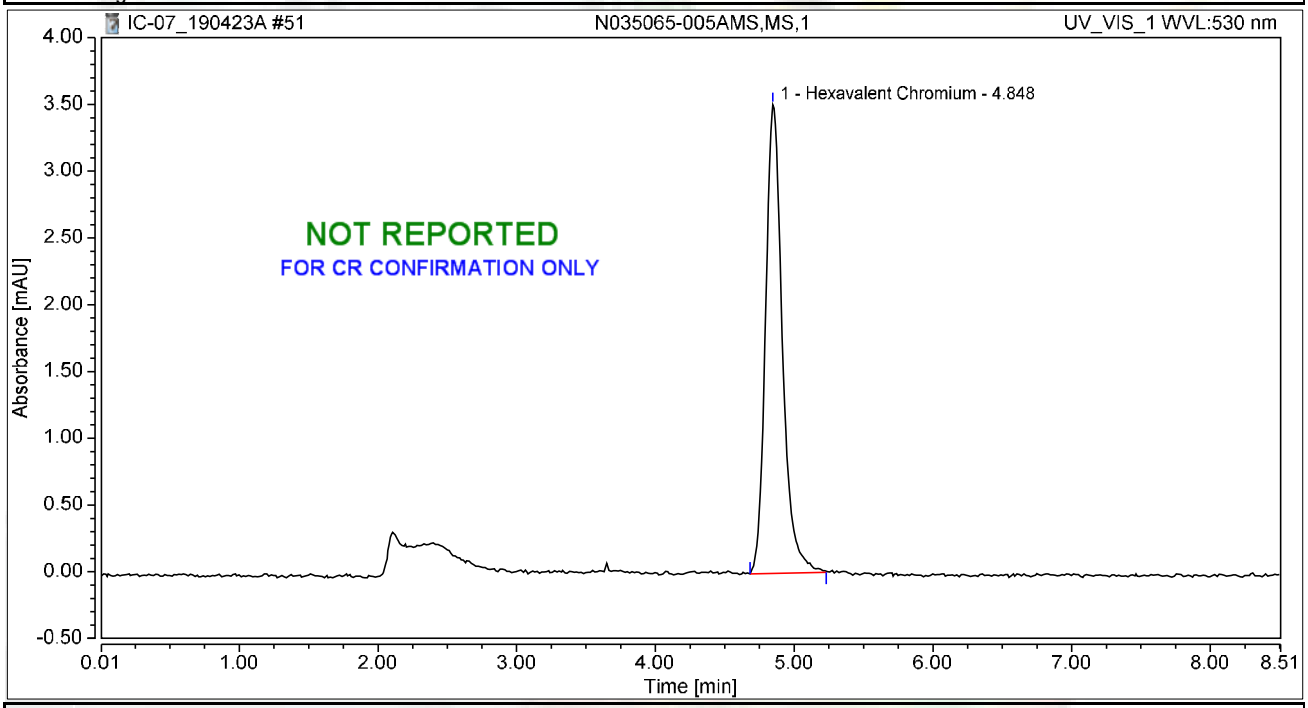
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.244	1.711	100.00	100.00	0.9784
Total:			**0.244**	**1.711**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035065-005AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 17:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

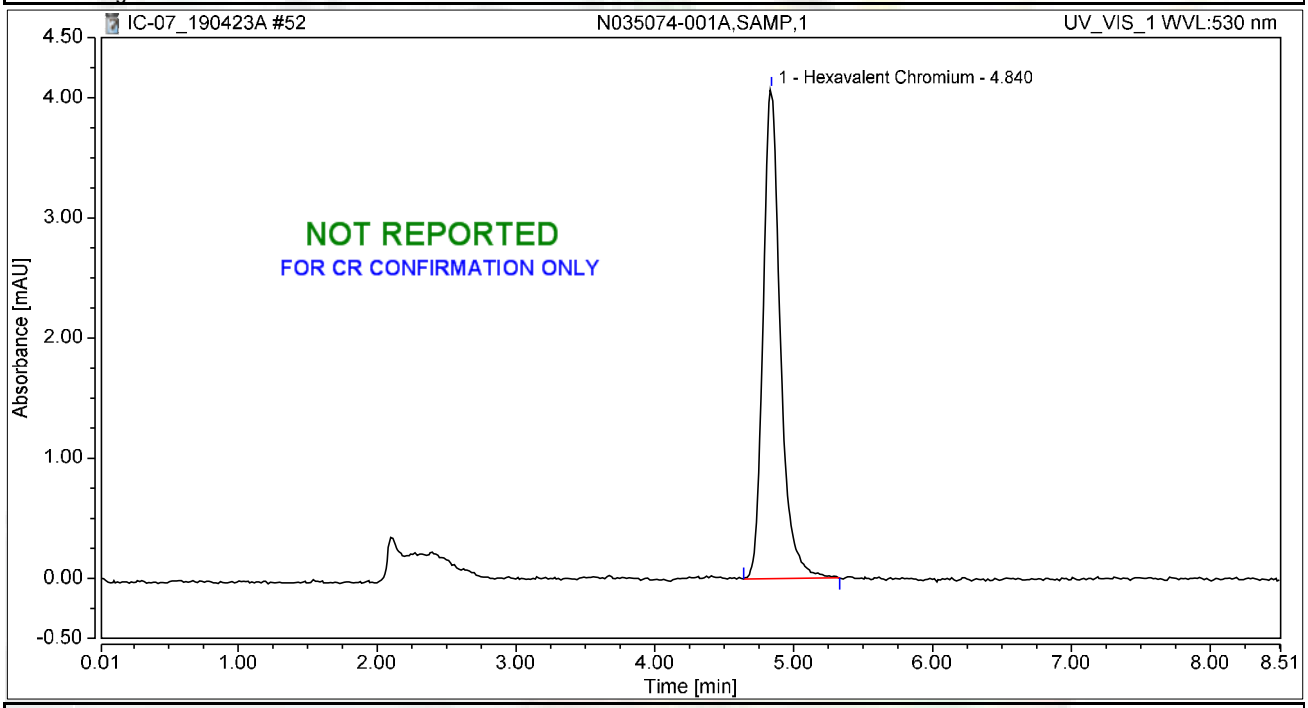
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.496	3.511	100.00	100.00	1.9902
Total:			**0.496**	**3.511**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035074-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 17:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

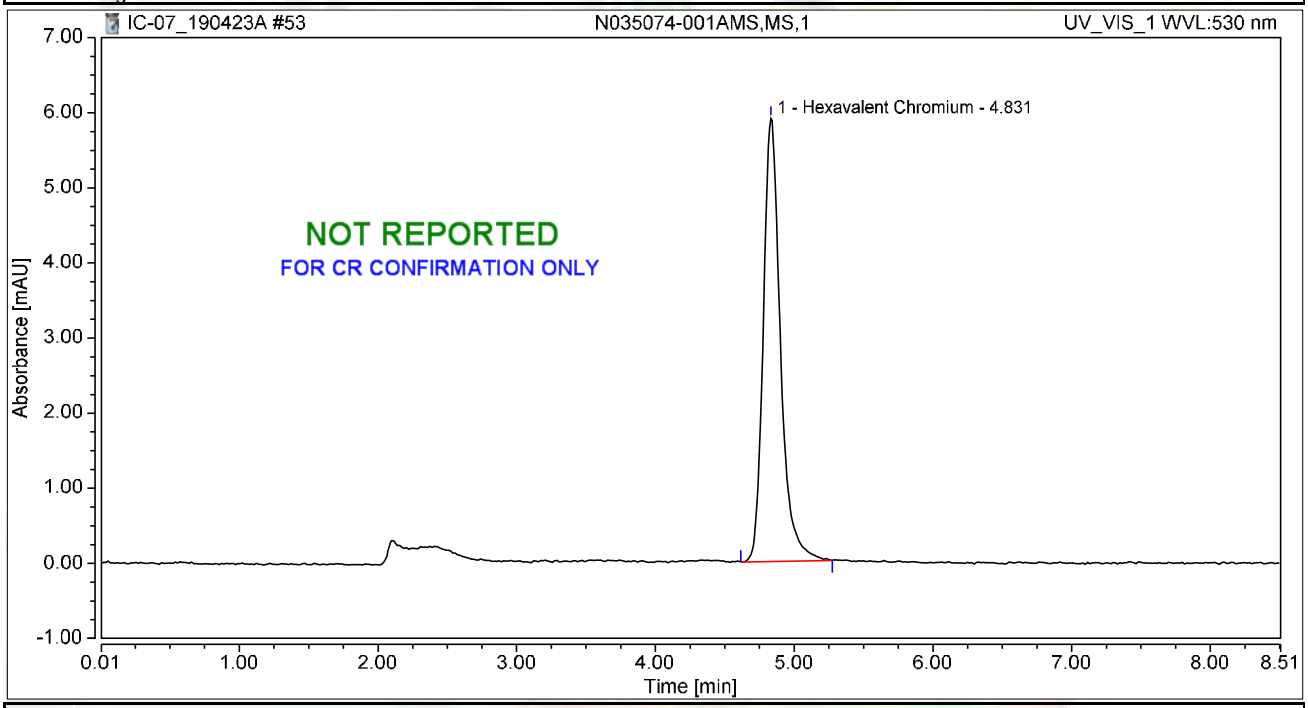
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	0.590	4.078	100.00	100.00	2.3683
Total:			**0.590**	**4.078**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035074-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 17:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

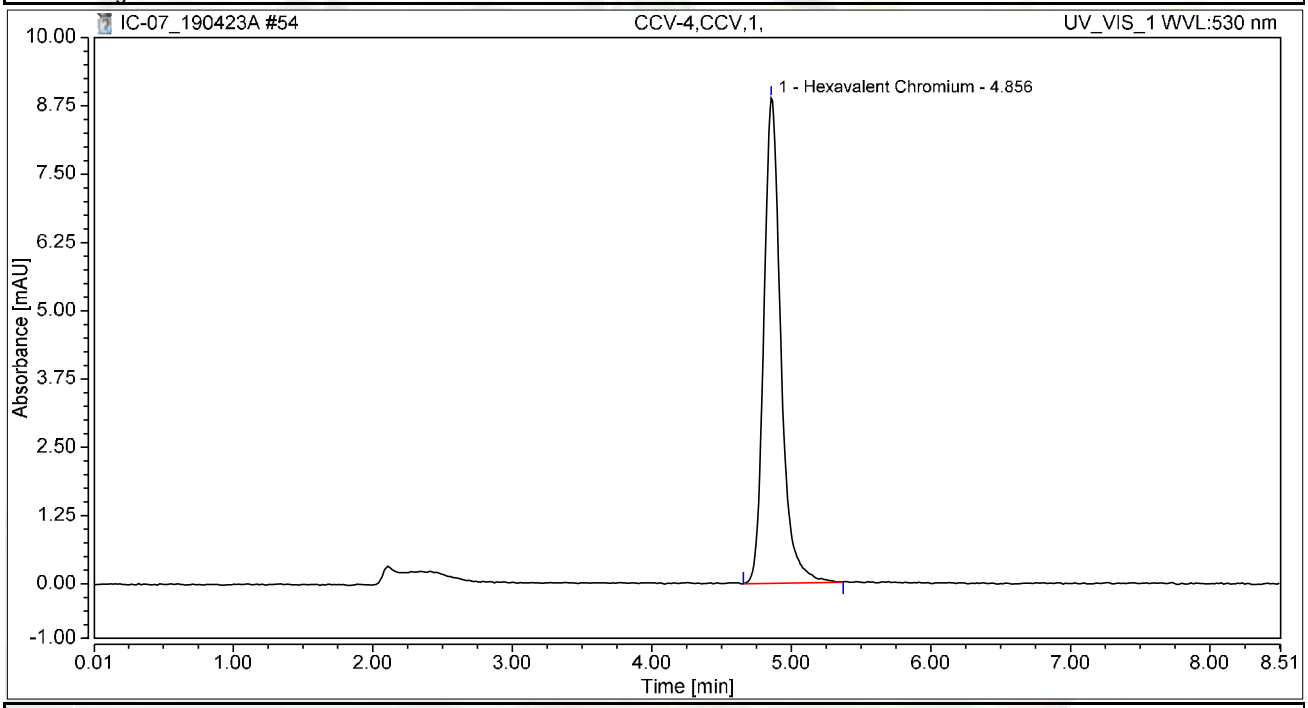
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.848	5.899	100.00	100.00	3.4061
Total:			**0.848**	**5.899**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 17:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

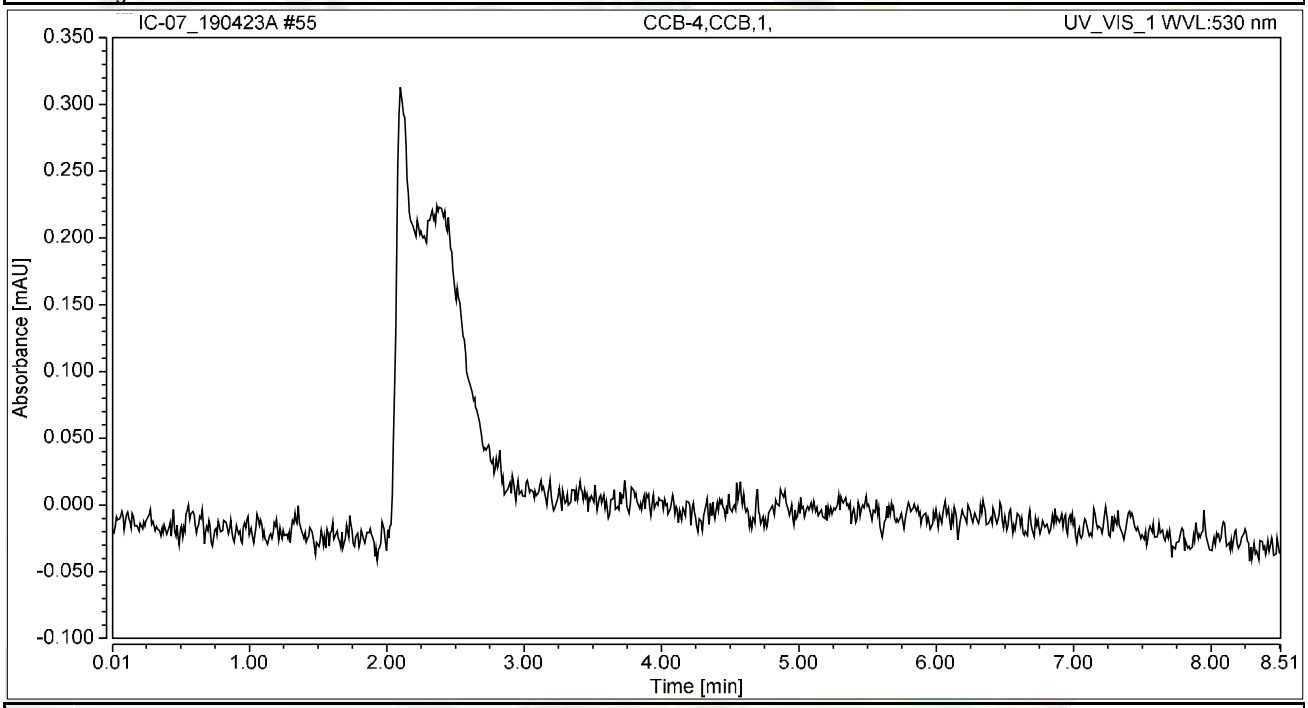
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.254	8.882	100.00	100.00	5.0353
Total:			**1.254**	**8.882**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 17:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

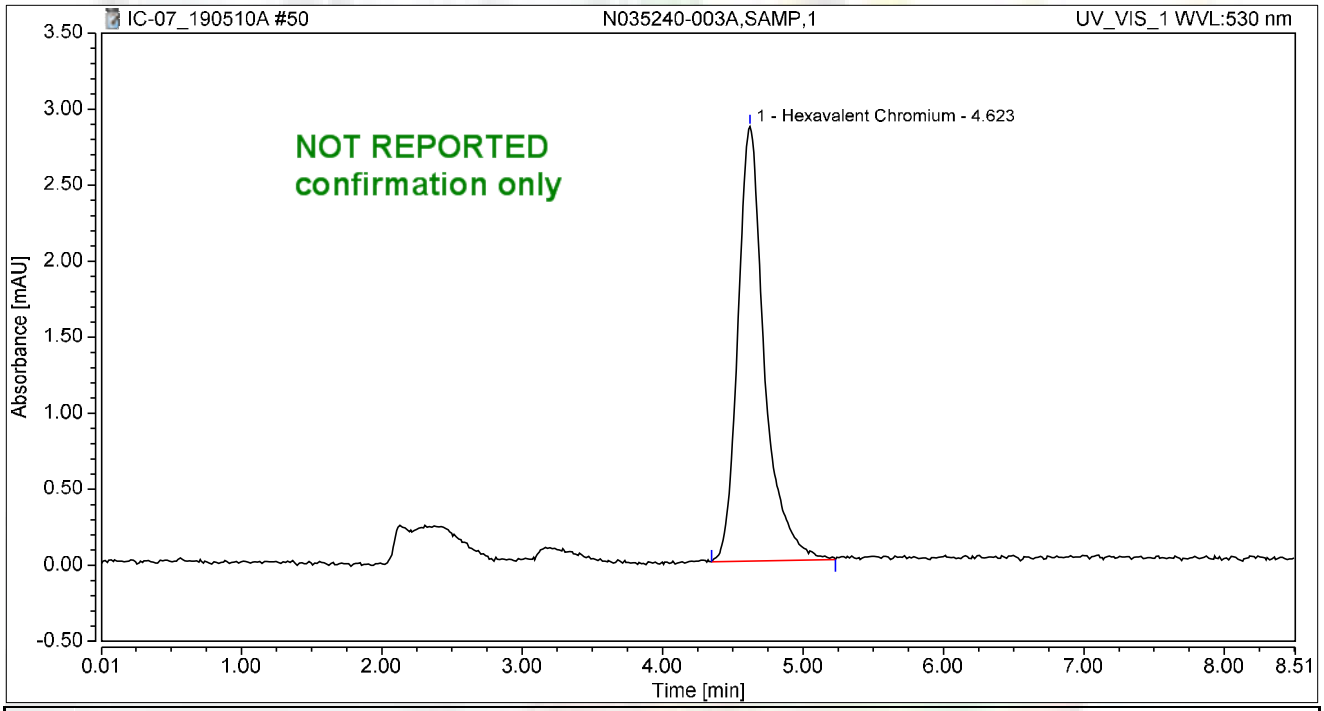
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 14:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

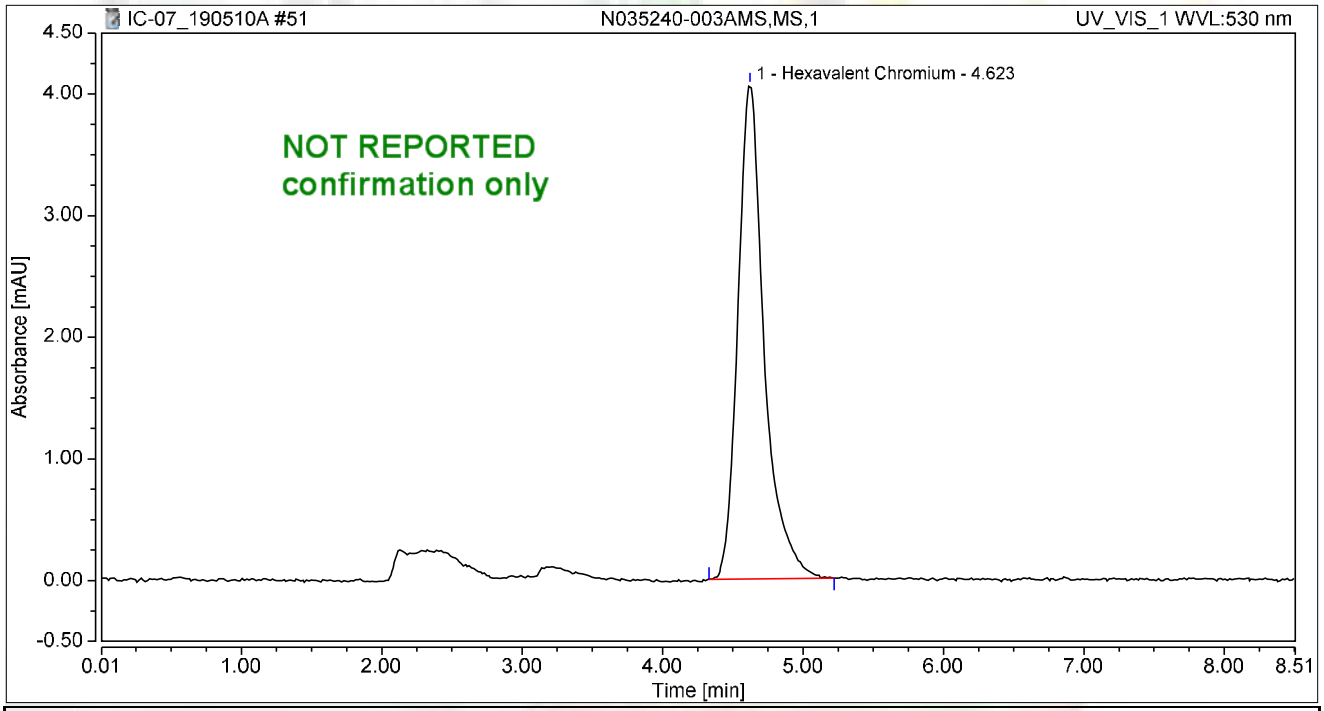
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.623	0.627	2.857	100.00	100.00	2.4880
Total:			**0.627**	**2.857**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 15:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.623	0.883	4.062	100.00	100.00	3.5018
Total:			**0.883**	**4.062**	**100.00**	**100.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133444 **Analyst:** QBM

ASSET #: N035153, 115, 240 **Date Analyzed:** 4/24/2019

Method: 4500_N03

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer QBM Date: 5/16/2019

2nd Level Reviewer NS Date: 5/16/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor ~~BGLE~~

For: **N035240-003C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	1.1451	*	1
	=	1.1451	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 1.1 mg/L

NS 5/16/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

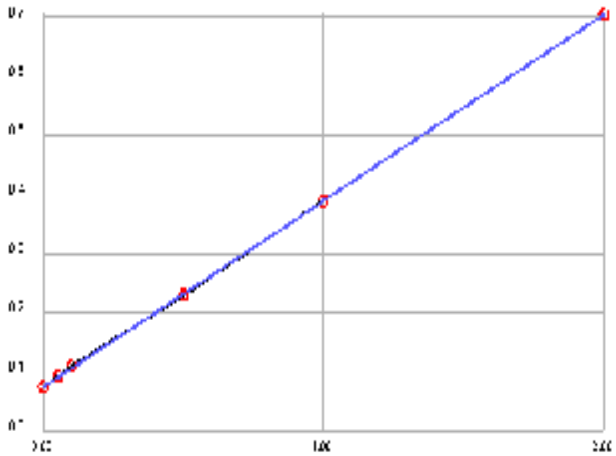
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3137x + 0.0753
Correlation	.999967

Calibrant	Energy	Set	Conc
1	0.0738	0.0000	-0.0048
2	0.0908	0.0500	0.0493
3	0.1103	0.1000	0.1115
4	0.2301	0.5000	0.4933
5	0.3888	1.0000	0.9991
6	0.7033	2.0000	2.0015

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **ICV**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.502	0.050	0.5000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **CCV**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362575**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.517	0.050	0.5000	0	103	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **CCV**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.484	0.050	0.5000	0	96.8	90	110				

Qualifiers:

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **ICB**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362565**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **CCB**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362576**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133444**
Client ID: **CCB**	Batch ID: **R133444**	TestNo: **SM4500-NO3**		Analysis Date: **4/24/2019**	SeqNo: **3362587**

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

Qualifiers:

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

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 04-24-2019 15:58
Time end: 04-24-2019 18:15

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	17:44:56	-0.0020		0.0747
2	<BLANK>	17:45:50	-0.0071		0.0731
3	<CAL1>	17:46:50	-0.0048	[0]	0.0738
4	<CAL2>	17:47:46	0.0493	[0.05]	0.0908
5	<CAL3>	17:48:41	0.1115	[0.1]	0.1103
6	<CAL4>	17:49:41	0.4933	[0.5]	0.2301
7	<CAL5>	17:50:37	0.9991	[1]	0.3888
8	<CAL6>	17:51:32	2.0015	[2]	0.7033
9	,BLANK,BLANK,1, NOT REPORTED	17:52:34	0.0156		0.0802
10	,ICV,ICV,1,	17:53:28	0.5016		0.2327
11	,ICB,ICB,1,	17:54:23	0.0038		0.0765
12	,MB-H2O,MBLK,1,	17:55:25	-0.0020		0.0747
13	,LCS-H2O,LCS,1,	17:56:19	0.5099		0.2353
14	,N035153-001B,SAMP,1,	17:57:14	0.0289		0.0844
15	,N035153-002B,SAMP,1,	17:58:10	0.6718		0.2861
16	,N035115-001B,SAMP,20,	17:59:12	0.6014		0.2640
17	,N035115-001BDUP,DUP,20,	17:59:54	0.6068		0.2657
18	,N035115-002B,SAMP,10,	18:00:43	0.5054		0.2339
19	,N035115-002BMS,MS,10,	18:01:25	1.0415		0.4021
20	,N035115-002BMSD,MSD,10,	18:02:15	1.0211		0.3957
21	,BLANK, NOT REPORTED	18:02:57	0.0047		0.0768
22	,CCV-1,CCV,1,	18:03:40	0.5172		0.2376
23	,CCB-1,CCB,1,	18:04:23	0.0181		0.0810
24	,N035240-001C,SAMP,1,	18:05:11	0.0057		0.0771
25	,N035153-008B,SAMP,1,	18:05:55	0.2077		0.1405
26	,N035240-003C,SAMP,1,	18:06:37	1.1451		0.4346

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035240-004C,SAMP,2,	18:07:26	0.7875		0.3224
28	,N035153-003B,SAMP,50,	18:08:08	0.3531		0.1861
29	,N035153-004B,SAMP,10,	18:08:52	0.6852		0.2903
30	,N035153-005B,SAMP,5,	18:09:41	0.6785		0.2882
31	,N035153-006B,SAMP,20,	18:10:23	0.5638		0.2522
32	,N035153-007B,SAMP,20,	18:11:07	0.4560		0.2184
33	,BLANK, NOT REPORTED	18:11:49	-0.0090		0.0725
34	,CCV-2,CCV,1,	18:12:38	0.4838		0.2271
35	,CCB-2,CCB,1,	18:13:20	-0.0058		0.0735

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 4/24/2019
Time Analyzed: 3:58 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190424E
Color reagent: R190424F
2% Copper Sulfate: R190424D
Ammonium Hydroxide: CINV-190402B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035115-001B		8.73							
N035115-002B		8.9							
N035153-001B		6.84							
N035153-002B		8.68							
N035153-003B		7.48							
N035153-004B		8.57							
N035153-005B		7.99							
N035153-006B		7.67							
N035153-007B		7.95							
N035153-008B		6.51							
N035240-001C		7.40							
N035240-003C		8.03							
N035240-004C		8.31							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73664
ASSET #: N035240
Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 5/9/2019

Method:

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

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

Comments:

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

1st Level Reviewer CEI Date: 5/16/2019

2nd Level Reviewer HSG Date: 5/16/2019

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

Chromium , ug/L = A * DF * PF

where:

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

For Sample **N035240-003D** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 5.53307 * 1

Chromium , ug/L = 5.53307

Reporting results in two significant figures,

Chromium , ug/L = 5.5

NS 5/16/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	12.87	15	PASS	0.13	3.16	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.48	1.28	15	PASS	0.51	2.92	15	PASS
Std3-5/50 ppb	ICAL	1	5.2	0.93	15	PASS	5.3	3	15	PASS
Std4-10/100 ppb	ICAL	1	10.27	1.5	15	PASS	10.3	1.23	15	PASS
Std5-20/200 ppb	ICAL	1	20.68	2.75	15	PASS	20.86	1.00022	15	PASS
Std6-40/400 ppb	ICAL	1	40.31	2.055	15	PASS	40.57	1.95	15	PASS
Std7-100/1000 ppb	ICAL	1	101.69	1.89	15	PASS	98.53	1.72	15	PASS
Std8-200/2000 ppb	ICAL	1	199.004	2.45	15	PASS	200.51	2.055	15	PASS
ICV	ICV	1	9.96	1.33	15	PASS	102.91	1.73	15	PASS
ICB	ICB	1	0.041	49.049	15	<PQL	0.062	21.59	15	<PQL
LLICV	CCV1	1	1.032	1.43	20	PASS	0.57	2.75	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.34	3.042	15	PASS	19.52	3.012	15	PASS
LLICV	CCV1	1	1.028	4.19	20	PASS	0.57	3.15	20	PASS
CCV1	CCV	1	20.32	1.66	15	PASS	20.19	2.5	15	PASS
CCB1	CCB	1	0.016	51.59	15	<PQL	0.046	2.58	15	PASS
CCV2	CCV	1	20.75	3.15	15	PASS	20.8	3.32	15	PASS
CCB2	CCB	1	0.0047	100.49	15	<PQL	0.076	14.67	15	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.38	2.26	15	PASS	18.81	1.84	15	PASS
MB-73664	MBLK	1	<0.000	N/A	15	<PQL	0.063	1.83	15	PASS
CCV3	CCV	1	20.001	2.11	15	PASS	20.023	2.32	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.059	17.89	15	<PQL
LCS-73664	LCS	1	9.92	2.96	15	PASS	102.77	2.69	15	PASS
N035260-001A	SAMP	1	<0.000	N/A	15	<PQL	0.037	8.74	15	PASS
N035260-001A	SAMP	5	<0.000	N/A	15	<PQL	0.0098	24.22	15	<PQL
N035260-001A-PS	PS	1	10.15	1.28	15	PASS	105.3	1.74	15	PASS
N035260-001A-MS	MS	1	10.29	1.47	15	PASS	107.39	2.08	15	PASS
N035260-001A-MSD	MSD	1	10.19	1.6	15	PASS	107.19	2.066	15	PASS
N035240-001D	SAMP	1	0.15	4.53	15	PASS	85.61	2.034	15	PASS
N035240-001D	SAMP	5	<0.000	N/A	15	<PQL	18.99	1.68	15	PASS
N035240-003D	SAMP	1	5.53	1.99	15	PASS	9.17	2.62	15	PASS
N035240-003D	SAMP	5	1.085	4.41	15	PASS	2.43	3.57	15	PASS
CCV4	CCV	1	20.47	2.77	15	PASS	20.32	2.67	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.045	23.79	15	<PQL
N035240-004D	SAMP	1	9.25	1.76	15	PASS	0.36	29.68	15	<PQL
N035240-004D	SAMP	5	1.85	2.62	15	PASS	1.25	2.2	15	PASS
N035250-001C	SAMP	1	0.65	4.83	15	PASS	149.86	5.56	15	PASS
N035250-001C	SAMP	5	<0.000	N/A	15	<PQL	31.94	1.83	15	PASS
N035250-002C	SAMP	1	<0.000	N/A	15	<PQL	1226.48	2.16	15	PASS

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035250-002C	SAMP	5	<0.000	N/A	15	<PQL	268.33	1.081	15	PASS
N035250-003C	SAMP	1	0.18	5.73	15	PASS	254.66	0.83	15	PASS
N035250-003C	SAMP	5	<0.000	N/A	15	<PQL	51.065	1.43	15	PASS
N035250-004C	SAMP	1	0.17	13.39	15	PASS	261.1	1.9	15	PASS
N035250-004C	SAMP	5	<0.000	N/A	15	<PQL	51.74	1.14	15	PASS
CCV5	CCV	1	18.52	0.69	15	PASS	19.0015	1.52	15	PASS
CCB5	CCB	1	0.014	63.8	15	<PQL	0.13	8.17	15	PASS
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.56	2.58	15	PASS	19.077	2.24	15	PASS
N035250-005C	SAMP	1	<0.000	N/A	15	<PQL	891.83	1.2	15	PASS
N035250-005C	SAMP	5	<0.000	N/A	15	<PQL	196.1	0.85	15	PASS
N035250-007C	SAMP	1	0.51	3.23	15	PASS	15.32	0.57	15	PASS
N035250-007C	SAMP	5	0.0018	361.38	15	<PQL	3.81	1.53	15	PASS
N035250-009C	SAMP	1	0.6	2.98	15	PASS	18.81	0.96	15	PASS
N035250-011C	SAMP	1	0.09	3.87	15	PASS	580.49	1.62	15	PASS
N035250-011C	SAMP	5	0.0097	72.053	15	<PQL	108.34	2.25	15	PASS
N035250-012C	SAMP	1	0.13	3.73	15	PASS	2145.075	1.65	15	PASS
N035250-012C	SAMP	5	<0.000	N/A	15	<PQL	458.45	1.46	15	PASS
N035250-014C	SAMP	1	46.34	0.63	15	PASS	27.37	1.13	15	PASS
CCV6	CCV	1	19.54	2.84	15	PASS	19.49	2.088	15	PASS
CCB6	CCB	1	0.014	70.07	15	<PQL	0.11	7.68	15	PASS
N035250-014C	SAMP	5	11.2	1.73	15	PASS	6.75	3.12	15	PASS
N035250-016C	SAMP	1	0.24	3.63	15	PASS	1265.81	2.69	15	PASS
N035250-016C	SAMP	5	<0.000	N/A	15	<PQL	275.35	1.33	15	PASS
N035250-017C	SAMP	1	0.17	2.34	15	PASS	455.49	1.042	15	PASS
N035250-017C	SAMP	5	<0.000	N/A	15	<PQL	86.35	1.91	15	PASS
N035250-002C	SAMP	10	<0.000	N/A	15	<PQL	122.86	2.017	15	PASS
N035250-003C	SAMP	5	<0.000	N/A	15	<PQL	52.77	2.012	15	PASS
N035250-004C	SAMP	5	<0.000	N/A	15	<PQL	53.42	2.29	15	PASS
N035250-005C	SAMP	10	<0.000	N/A	15	<PQL	88.6	2.43	15	PASS
N035250-012C	SAMP	25	<0.000	N/A	15	<PQL	18.82	2.73	15	PASS
CCV7	CCV	1	19.3	2.11	15	PASS	19.08	1.3	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	0.027	14.91	15	PASS
N035250-016C	SAMP	10	<0.000	N/A	15	<PQL	137.33	2.27	15	PASS
CCV8	CCV	1	20.21	4.11	15	PASS	20.66	2.64	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	0.13	14.14	15	PASS
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	20.055	2.19	15	PASS	18.34	2.31	15	PASS

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.095	22.84	15	<PQL	0.12	25.65	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.51	3.16	15	PASS	0.48	24.63	15	<PQL
Std3-5/50 ppb	ICAL	1	5.087	0.92	15	PASS	4.95	3.76	15	PASS
Std4-10/100 ppb	ICAL	1	10.2	1.17	15	PASS	10.29	4.99	15	PASS
Std5-20/200 ppb	ICAL	1	20.63	1.38	15	PASS	20.64	3.8	15	PASS
Std6-40/400 ppb	ICAL	1	40.67	0.39	15	PASS	40.73	1.5	15	PASS
Std7-100/1000 ppb	ICAL	1	100.069	0.057	15	PASS	99.85	1.32	15	PASS
Std8-200/2000 ppb	ICAL	1	199.76	1	15	PASS	199.85	0.37	15	PASS
ICV	ICV	1	10.093	1.0055	15	PASS	10.15	2.39	15	PASS
ICB	ICB	1	0.011	47.2	15	<PQL	0.038	1.6	15	PASS
LLICV	CCV1	1	0.12	9.99	20	PASS	0.51	19.98	20	PASS
ICSA1	ICSA	1	0.042	5.72	15	PASS	0.042	45.75	15	<PQL
ICSAB1	ICSAB	1	21.49	1.2	15	PASS	20.36	1.12	15	PASS
LLICV	CCV1	1	0.14	5.56	20	PASS	0.49	23.23	20	<PQL
CCV1	CCV	1	20.34	0.67	15	PASS	20.78	4.27	15	PASS
CCB1	CCB	1	0.031	37.5	15	<PQL	0.039	104.55	15	<PQL
CCV2	CCV	1	20.37	0.87	15	PASS	20.31	1.013	15	PASS
CCB2	CCB	1	0.019	68.013	15	<PQL	0.064	70.73	15	<PQL
ICSA2	ICSA	1	0.059	24.1	15	<PQL	0.032	44.35	15	<PQL
ICSAB2	ICSAB	1	21.45	1.57	15	PASS	20.46	2.28	15	PASS
MB-73664	MBLK	1	<0.000	N/A	15	<PQL	0.015	114.5	15	<PQL
CCV3	CCV	1	20.31	0.72	15	PASS	20.29	7.57	15	PASS
CCB3	CCB	1	0.0081	92.29	15	<PQL	0.037	56.51	15	<PQL
LCS-73664	LCS	1	9.93	1.37	15	PASS	10.072	4.4	15	PASS
N035260-001A	SAMP	1	<0.000	N/A	15	<PQL	0.0085	86.63	15	<PQL
N035260-001A	SAMP	5	<0.000	N/A	15	<PQL	0.022	35.29	15	<PQL
N035260-001A-PS	PS	1	10.3	1.37	15	PASS	9.96	3.97	15	PASS
N035260-001A-MS	MS	1	10.41	1.97	15	PASS	10.033	3.0026	15	PASS
N035260-001A-MSD	MSD	1	10.28	0.89	15	PASS	9.89	5.32	15	PASS
N035240-001D	SAMP	1	1.65	0.58	15	PASS	0.13	77.82	15	<PQL
N035240-001D	SAMP	5	0.33	7.79	15	PASS	0.037	67.36	15	<PQL
N035240-003D	SAMP	1	1.18	4.71	15	PASS	0.18	65.59	15	<PQL
N035240-003D	SAMP	5	0.22	18.91	15	NR!	0.073	45.33	15	<PQL
CCV4	CCV	1	20.37	1.22	15	PASS	20.82	1.81	15	PASS
CCB4	CCB	1	0.023	49.23	15	<PQL	0.05	35.45	15	<PQL
N035240-004D	SAMP	1	1.4	3.57	15	PASS	0.54	23.17	15	NR!
N035240-004D	SAMP	5	0.25	7.023	15	PASS	0.1	7.26	15	PASS
N035250-001C	SAMP	1	1.3	1.17	15	PASS	0.074	81.72	15	<PQL
N035250-001C	SAMP	5	0.26	10.34	15	PASS	0.02	34.12	15	<PQL
N035250-002C	SAMP	1	0.38	7.72	15	PASS	0.36	29.46	15	<PQL

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035250-002C	SAMP	5	0.084	1.55	15	PASS	0.1	44.39	15	<PQL
N035250-003C	SAMP	1	3.0026	2.83	15	PASS	0.04	64.84	15	<PQL
N035250-003C	SAMP	5	0.59	2.4	15	PASS	0.012	99.39	15	<PQL
N035250-004C	SAMP	1	3.023	2.74	15	PASS	0.14	13.35	15	PASS
N035250-004C	SAMP	5	0.62	2.17	15	PASS	0.036	32.72	15	<PQL
CCV5	CCV	1	20.16	0.5	15	PASS	20.92	7.36	15	PASS
CCB5	CCB	1	0.031	26.35	15	<PQL	0.021	35.059	15	<PQL
ICSA3	ICSA	1	0.04	14.36	15	PASS	0.015	173.21	15	<PQL
ICSAB3	ICSAB	1	20.98	0.74	15	PASS	20.51	3.35	15	PASS
N035250-005C	SAMP	1	4.62	3.07	15	PASS	0.44	15.22	15	<PQL
N035250-005C	SAMP	5	0.94	2.98	15	PASS	0.086	49.92	15	<PQL
N035250-007C	SAMP	1	10.34	0.62	15	PASS	0.22	31.01	15	<PQL
N035250-007C	SAMP	5	1.96	3.57	15	PASS	0.023	49.94	15	<PQL
N035250-009C	SAMP	1	25.71	0.95	15	PASS	0.068	48.33	15	<PQL
N035250-011C	SAMP	1	8.34	2.23	15	PASS	0.08	84.96	15	<PQL
N035250-011C	SAMP	5	1.64	3.39	15	PASS	0.026	107.73	15	<PQL
N035250-012C	SAMP	1	12.68	0.37	15	PASS	0.43	12.35	15	PASS
N035250-012C	SAMP	5	2.44	3.19	15	PASS	0.08	70.42	15	<PQL
N035250-014C	SAMP	1	0.86	2.34	15	PASS	2.05	5.77	15	PASS
CCV6	CCV	1	18.92	1.039	15	PASS	20.019	3.75	15	PASS
CCB6	CCB	1	0.02	49.9	15	<PQL	0.072	43.41	15	<PQL
N035250-014C	SAMP	5	0.18	9.78	15	PASS	0.44	22.73	15	<PQL
N035250-016C	SAMP	1	4.17	1.69	15	PASS	0.11	10.56	15	PASS
N035250-016C	SAMP	5	0.8	4.81	15	PASS	0.076	33.27	15	<PQL
N035250-017C	SAMP	1	0.82	1.26	15	PASS	0.086	39.48	15	<PQL
N035250-017C	SAMP	5	0.14	13.92	15	PASS	0.036	120.72	15	<PQL
N035250-002C	SAMP	10	0.029	60.028	15	<PQL	0.032	89.26	15	<PQL
N035250-003C	SAMP	5	0.57	7.055	15	PASS	0	N/A	15	<PQL
N035250-004C	SAMP	5	0.58	5.19	15	PASS	0.023	124.66	15	<PQL
N035250-005C	SAMP	10	0.43	5.59	15	PASS	0.035	114.78	15	<PQL
N035250-012C	SAMP	25	0.093	16.07	15	<PQL	0	N/A	15	<PQL
CCV7	CCV	1	19.057	1.14	15	PASS	20.68	6.63	15	PASS
CCB7	CCB	1	0.0088	106.27	15	<PQL	0.042	16.028	15	<PQL
N035250-016C	SAMP	10	0.41	2.26	15	PASS	0.031	50.77	15	<PQL
CCV8	CCV	1	19.11	0.42	15	PASS	19.9	2.66	15	PASS
CCB8	CCB	1	0.02	77.47	15	<PQL	0.024	91.7	15	<PQL
ICSA4	ICSA	1	0.032	37.45	15	<PQL	0.019	43.92	15	<PQL
ICSAB4	ICSAB	1	21.17	1.39	15	PASS	20.71	1.4	15	PASS

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.09	15.88	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.48	4.86	15	PASS
Std3-5/50 ppb	ICAL	1	4.74	1.24	15	PASS
Std4-10/100 ppb	ICAL	1	9.49	0.48	15	PASS
Std5-20/200 ppb	ICAL	1	19.18	0.88	15	PASS
Std6-40/400 ppb	ICAL	1	38.42	0.37	15	PASS
Std7-100/1000 ppb	ICAL	1	96.43	1.36	15	PASS
Std8-200/2000 ppb	ICAL	1	202.22	1.32	15	PASS
ICV	ICV	1	10.54	1	15	PASS
ICB	ICB	1	0.17	10.26	15	PASS
LLICV	CCV1	1	0.57	5.72	20	PASS
ICSA1	ICSA	1	0.12	11.047	15	PASS
ICSAB1	ICSAB	1	21.44	1.58	15	PASS
LLICV	CCV1	1	0.65	3.31	20	PASS
CCV1	CCV	1	18.71	1.33	15	PASS
CCB1	CCB	1	0.16	3.83	15	PASS
CCV2	CCV	1	18.54	0.22	15	PASS
CCB2	CCB	1	0.15	7.53	15	PASS
ICSA2	ICSA	1	0.086	17.23	15	<PQL
ICSAB2	ICSAB	1	20.85	1.79	15	PASS
MB-73664	MBLK	1	0.023	21.59	15	<PQL
CCV3	CCV	1	18.22	0.85	15	PASS
CCB3	CCB	1	0.13	6.33	15	PASS
LCS-73664	LCS	1	9.093	1.43	15	PASS
N035260-001A	SAMP	1	0.077	9.083	15	PASS
N035260-001A	SAMP	5	0.02	6.68	15	PASS
N035260-001A-PS	PS	1	9.84	1.19	15	PASS
N035260-001A-MS	MS	1	9.98	0.23	15	PASS
N035260-001A-MSD	MSD	1	10.046	0.38	15	PASS
N035240-001D	SAMP	1	17.43	1.24	15	PASS
N035240-001D	SAMP	5	3.33	1.62	15	PASS
N035240-003D	SAMP	1	8.64	1.28	15	PASS
N035240-003D	SAMP	5	1.7	1.62	15	PASS
CCV4	CCV	1	18.39	0.41	15	PASS
CCB4	CCB	1	0.12	12.38	15	PASS
N035240-004D	SAMP	1	19.48	0.63	15	PASS
N035240-004D	SAMP	5	3.71	0.9	15	PASS
N035250-001C	SAMP	1	34.96	0.54	15	PASS
N035250-001C	SAMP	5	6.89	0.63	15	PASS
N035250-002C	SAMP	1	3.79	1.36	15	PASS

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035250-002C	SAMP	5	0.75	1.8	15	PASS
N035250-003C	SAMP	1	73.25	0.42	15	PASS
N035250-003C	SAMP	5	14.53	1.28	15	PASS
N035250-004C	SAMP	1	73.76	1.2	15	PASS
N035250-004C	SAMP	5	14.46	1.31	15	PASS
CCV5	CCV	1	18.27	2.051	15	PASS
CCB5	CCB	1	0.17	4.33	15	PASS
ICSA3	ICSA	1	0.089	8.9	15	PASS
ICSAB3	ICSAB	1	20.049	1.084	15	PASS
N035250-005C	SAMP	1	14.66	1.49	15	PASS
N035250-005C	SAMP	5	2.89	1.34	15	PASS
N035250-007C	SAMP	1	126.57	1.59	15	PASS
N035250-007C	SAMP	5	24.38	1.15	15	PASS
N035250-009C	SAMP	1	3.49	1.43	15	PASS
N035250-011C	SAMP	1	10.93	0.78	15	PASS
N035250-011C	SAMP	5	2.17	1.87	15	PASS
N035250-012C	SAMP	1	27.76	0.77	15	PASS
N035250-012C	SAMP	5	5.45	0.54	15	PASS
N035250-014C	SAMP	1	10.42	1.34	15	PASS
CCV6	CCV	1	18.08	1.0056	15	PASS
CCB6	CCB	1	0.16	2.37	15	PASS
N035250-014C	SAMP	5	2.035	2.61	15	PASS
N035250-016C	SAMP	1	219.81	8.93	15	PASS
N035250-016C	SAMP	5	43.24	0.9	15	PASS
N035250-017C	SAMP	1	61.83	0.93	15	PASS
N035250-017C	SAMP	5	12.19	1.45	15	PASS
N035250-002C	SAMP	10	0.56	5.57	15	PASS
N035250-003C	SAMP	5	13.6	1.96	15	PASS
N035250-004C	SAMP	5	13.76	1.78	15	PASS
N035250-005C	SAMP	10	1.42	1.84	15	PASS
N035250-012C	SAMP	25	0.24	10.86	15	PASS
CCV7	CCV	1	18.36	1.61	15	PASS
CCB7	CCB	1	0.13	8.49	15	PASS
N035250-016C	SAMP	10	19.52	0.92	15	PASS
CCV8	CCV	1	18.031	1.72	15	PASS
CCB8	CCB	1	0.15	8.33	15	PASS
ICSA4	ICSA	1	0.19	5.76	15	PASS
ICSAB4	ICSAB	1	19.66	1.36	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190509A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0509001.D	RINSE	RINSE	1	05/09/19 10:01 AM
A0509002.D	Cal Blank	IBLK	1	05/09/19 10:06 AM
A0509003.D	Std1-0.1/1 ppb	ICAL	1	05/09/19 10:11 AM
A0509004.D	Std2-0.5/5 ppb	ICAL	1	05/09/19 10:17 AM
A0509005.D	Std3-5/50 ppb	ICAL	1	05/09/19 10:21 AM
A0509006.D	Std4-10/100 ppb	ICAL	1	05/09/19 10:26 AM
A0509007.D	Std5-20/200 ppb	ICAL	1	05/09/19 10:31 AM
A0509008.D	Std6-40/400 ppb	ICAL	1	05/09/19 10:36 AM
A0509009.D	Std7-100/1000 ppb	ICAL	1	05/09/19 10:41 AM
A0509010.D	Std8-200/2000 ppb	ICAL	1	05/09/19 10:46 AM
A0509011.D	ICV	ICV	1	05/09/19 10:51 AM
A0509012.D	ICB	ICB	1	05/09/19 10:55 AM
A0509013.D	LLICV	CCV1	1	05/09/19 11:01 AM
A0509014.D	ICSA1	ICSA	1	05/09/19 11:06 AM
A0509015.D	ICSAB1	ICSAB	1	05/09/19 11:11 AM
A0509016.D	LLICV	CCV1	1	05/09/19 11:16 AM
A0509017.D	N035153-005E	SAMP	5	05/09/19 11:21 AM
A0509018.D	MB-73773	MBLK	1	05/09/19 11:26 AM
A0509019.D	LCS-73773	LCS	1	05/09/19 11:31 AM
A0509020.D	N035459-001B	SAMP	1	05/09/19 11:37 AM
A0509021.D	N035459-001B	SAMP	5	05/09/19 11:42 AM
A0509022.D	N035459-001B-PS	PS	1	05/09/19 11:47 AM
A0509023.D	N035459-001B-MS	MS	1	05/09/19 11:52 AM
A0509024.D	N035459-001B-MSD	MSD	1	05/09/19 11:57 AM
A0509025.D	MB-73772	MBLK	1	05/09/19 12:01 PM
A0509026.D	LCS-73772	LCS	1	05/09/19 12:06 PM
A0509027.D	CCV1	CCV	1	05/09/19 12:11 PM
A0509028.D	CCB1	CCB	1	05/09/19 12:16 PM
A0509029.D	N035463-001A	SAMP	1	05/09/19 12:21 PM
A0509030.D	N035463-001A	SAMP	5	05/09/19 12:26 PM
A0509031.D	N035463-001A-PS	PS	1	05/09/19 12:31 PM
A0509032.D	N035463-001A-MS	MS	1	05/09/19 12:36 PM
A0509033.D	N035463-001A-MSD	MSD	1	05/09/19 12:41 PM
A0509034.D	N035463-001A	SAMP	25	05/09/19 12:51 PM
A0509035.D	N035463-001A-PS	PS	5	05/09/19 12:56 PM
A0509036.D	N035463-001A-MS	MS	5	05/09/19 1:01 PM
A0509037.D	N035463-001A-MSD	MSD	5	05/09/19 1:06 PM
A0509038.D	CCV2	CCV	1	05/09/19 1:11 PM
A0509039.D	CCB2	CCB	1	05/09/19 1:16 PM
A0509040.D	ICSA2	ICSA	1	05/09/19 1:21 PM
A0509041.D	ICSAB2	ICSAB	1	05/09/19 1:26 PM
A0509042.D	MB-73776	MBLK	1	05/09/19 2:11 PM

INJECTION LOG: 190509A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0509043.D	LCS-73776	LCS	1	05/09/19 2:17 PM
A0509044.D	N035464-001A	SAMP	5	05/09/19 2:22 PM
A0509045.D	N035464-001A	SAMP	25	05/09/19 2:27 PM
A0509046.D	N035464-001A-PS	PS	5	05/09/19 2:32 PM
A0509047.D	N035464-001A-MS	MS	5	05/09/19 2:37 PM
A0509048.D	N035464-001A-MSD	MSD	5	05/09/19 2:42 PM
A0509049.D	N035464-002A	SAMP	1	05/09/19 2:49 PM
A0509050.D	N035464-003A	SAMP	1	05/09/19 2:54 PM
A0509051.D	MB-73664	MBLK	1	05/09/19 2:59 PM
A0509052.D	CCV3	CCV	1	05/09/19 3:04 PM
A0509053.D	CCB3	CCB	1	05/09/19 3:09 PM
A0509054.D	LCS-73664	LCS	1	05/09/19 3:14 PM
A0509055.D	N035260-001A	SAMP	1	05/09/19 3:19 PM
A0509056.D	N035260-001A	SAMP	5	05/09/19 3:24 PM
A0509057.D	N035260-001A-PS	PS	1	05/09/19 3:29 PM
A0509058.D	N035260-001A-MS	MS	1	05/09/19 3:34 PM
A0509059.D	N035260-001A-MSD	MSD	1	05/09/19 3:39 PM
A0509060.D	N035240-001D	SAMP	1	05/09/19 3:44 PM
A0509061.D	N035240-001D	SAMP	5	05/09/19 3:49 PM
A0509062.D	N035240-003D	SAMP	1	05/09/19 3:54 PM
A0509063.D	N035240-003D	SAMP	5	05/09/19 3:59 PM
A0509064.D	CCV4	CCV	1	05/09/19 4:04 PM
A0509065.D	CCB4	CCB	1	05/09/19 4:09 PM
A0509066.D	N035240-004D	SAMP	1	05/09/19 4:14 PM
A0509067.D	N035240-004D	SAMP	5	05/09/19 4:19 PM
A0509068.D	N035250-001C	SAMP	1	05/09/19 4:24 PM
A0509069.D	N035250-001C	SAMP	5	05/09/19 4:29 PM
A0509070.D	N035250-002C	SAMP	1	05/09/19 4:34 PM
A0509071.D	N035250-002C	SAMP	5	05/09/19 4:39 PM
A0509072.D	N035250-003C	SAMP	1	05/09/19 4:44 PM
A0509073.D	N035250-003C	SAMP	5	05/09/19 4:48 PM
A0509074.D	N035250-004C	SAMP	1	05/09/19 4:53 PM
A0509075.D	N035250-004C	SAMP	5	05/09/19 4:58 PM
A0509076.D	CCV5	CCV	1	05/09/19 5:04 PM
A0509077.D	CCB5	CCB	1	05/09/19 5:09 PM
A0509078.D	ICSA3	ICSA	1	05/09/19 5:14 PM
A0509079.D	ICSAB3	ICSAB	1	05/09/19 5:19 PM
A0509080.D	N035250-005C	SAMP	1	05/09/19 5:24 PM
A0509081.D	N035250-005C	SAMP	5	05/09/19 5:29 PM
A0509082.D	N035250-007C	SAMP	1	05/09/19 5:34 PM
A0509083.D	N035250-007C	SAMP	5	05/09/19 5:39 PM
A0509084.D	N035250-009C	SAMP	1	05/09/19 5:45 PM

INJECTION LOG: 190509A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0509085.D	N035250-011C	SAMP	1	05/09/19 5:50 PM
A0509086.D	N035250-011C	SAMP	5	05/09/19 5:55 PM
A0509087.D	N035250-012C	SAMP	1	05/09/19 5:59 PM
A0509088.D	N035250-012C	SAMP	5	05/09/19 6:04 PM
A0509089.D	N035250-014C	SAMP	1	05/09/19 6:05 PM
A0509090.D	CCV6	CCV	1	05/09/19 6:18 PM
A0509091.D	CCB6	CCB	1	05/09/19 6:24 PM
A0509092.D	N035250-014C	SAMP	5	05/09/19 6:29 PM
A0509093.D	N035250-016C	SAMP	1	05/09/19 6:34 PM
A0509094.D	N035250-016C	SAMP	5	05/09/19 6:40 PM
A0509095.D	N035250-017C	SAMP	1	05/09/19 6:45 PM
A0509096.D	N035250-017C	SAMP	5	05/09/19 6:50 PM
A0509097.D	N035250-002C	SAMP	10	05/09/19 6:55 PM
A0509098.D	N035250-003C	SAMP	5	05/09/19 7:00 PM
A0509099.D	N035250-004C	SAMP	5	05/09/19 7:05 PM
A0509100.D	N035250-005C	SAMP	10	05/09/19 7:10 PM
A0509101.D	N035250-012C	SAMP	25	05/09/19 7:15 PM
A0509102.D	CCV7	CCV	1	05/09/19 7:20 PM
A0509103.D	CCB7	CCB	1	05/09/19 7:24 PM
A0509104.D	N035250-016C	SAMP	10	05/09/19 7:29 PM
A0509105.D	N035418-001B	SAMP	25	05/09/19 7:34 PM
A0509106.D	N035418-001B	SAMP	125	05/09/19 7:39 PM
A0509107.D	N035418-001B-PS	PS	25	05/09/19 7:44 PM
A0509108.D	N035418-001B-MS	MS	25	05/09/19 7:49 PM
A0509109.D	N035418-001B-MSD	MSD	25	05/09/19 7:54 PM
A0509110.D	N035442-001B	SAMP	10	05/09/19 7:59 PM
A0509111.D	CCV8	CCV	1	05/09/19 8:04 PM
A0509112.D	CCB8	CCB	1	05/09/19 8:09 PM
A0509113.D	ICSA4	ICSA	1	05/09/19 8:13 PM
A0509114.D	ICSAB4	ICSAB	1	05/09/19 8:19 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/2/2019 7:33:02 A**
Prep End Date: **5/2/2019 12:00:00**
Reviewed/ Date: NS 5/16/2019
Initials/ Date: for
Prep Batch **73664** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-10**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73664	Aqueous		25	☐	0	0	25	1.000		
MB-73664	Aqueous		25	☐	0	0	25	1.000		
N035240-001D	Groundwater	<2	25	☐	0	0	25	1.000		
N035240-003D	Groundwater	<2	25	☐	0	0	25	1.000		
N035240-004D	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-001C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-002C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-003C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-004C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-005C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-007C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-009C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-011C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-012C	Groundwater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/2/2019 7:33:02 A**
Prep End Date: **5/2/2019 12:00:00**
Reviewed/ Date: NS 5/16/2019
Initials/ Date: for
Prep Batch **73664** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-10**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035250-014C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-016C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-017C	Groundwater	<2	25	☐	0	0	25	1.000		
N035260-001A	Water	<2	25	☐	0	0	25	1.000		
N035260-001A-MS	Water	<2	25	☐	0	0	25	1.000		
N035260-001A-MS	Water	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 9 May 2019 09:36:31 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	200697.00	0.00	
24	Mg	573260.00	0.00	
25	Mg	119898.00	0.00	
26	Mg	87509.90	0.00	
59	Co	735434.00	0.00	
115	In	1276420.00	0.00	
206	Pb	392479.00	0.00	
207	Pb	344188.00	0.00	
208	Pb	838787.00	0.00	

RSD (%)

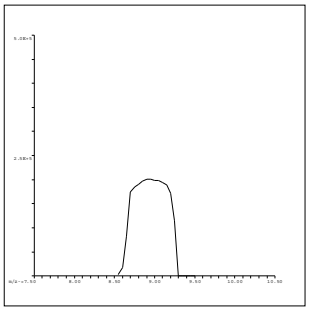
Element		Actual	Required	Flag
9	Be	0.94	5.00	
24	Mg	0.62	5.00	
25	Mg	1.88	5.00	
26	Mg	4.69	5.00	
59	Co	0.83	5.00	
115	In	0.82	5.00	
206	Pb	0.80	5.00	
207	Pb	1.80	5.00	
208	Pb	0.80	5.00	

Ion Ratio

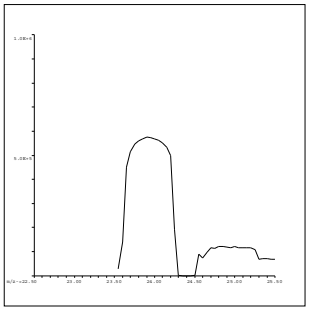
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

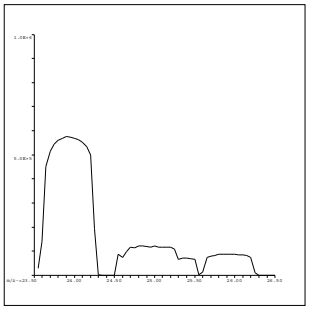
Element	Actual	Required	Flag



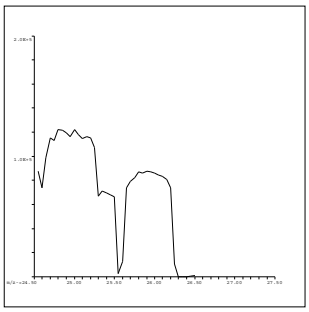
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



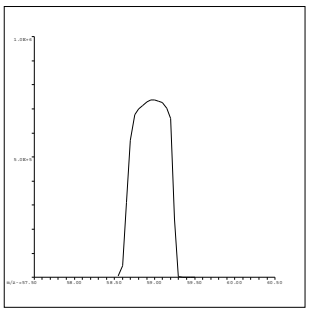
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



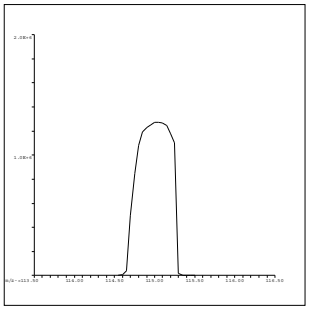
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



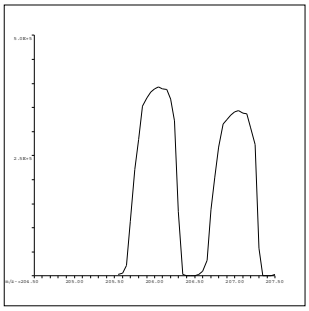
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



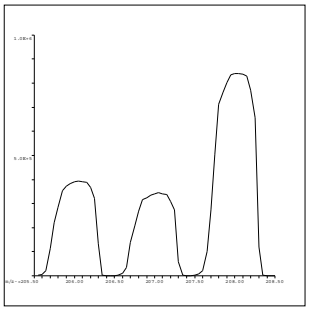
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



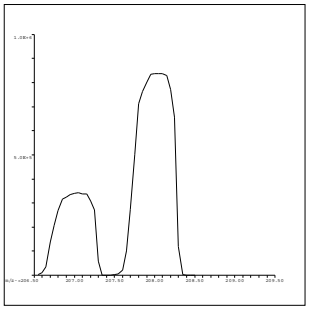
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190509A

Instrument ID: ICPMS-02

Analyte	Data File	A0509002.D	A0509003.D	A0509004.D	A0509005.D	A0509006.D	A0509007.D	A0509008.D	A0509009.D	A0509010.D	
	Acq. Date-Time	05/09/2019 10:06 AM	05/09/2019 10:11 AM	05/09/2019 10:17 AM	05/09/2019 10:21 AM	05/09/2019 10:26 AM	05/09/2019 10:31 AM	05/09/2019 10:36 AM	05/09/2019 10:41 AM	05/09/2019 10:46 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	164620.6		179960.3	165484.8	166978.2	166645.4	168801.4	171502.5	170975.6	
55 Mn [2]	CPS	167.6		3747.2	34219.5	66986.2	135218.8	266238.5	656697.9	1332097.8	1.0000
52 Cr [2]	CPS	1201.1		7606.4	63653.2	125618.5	251145.5	494707.9	1266215.9	2468810.5	0.9999
72 Ge (ISTD) [1]	CPS	76388.4		76679.6	74822	74707	75032.2	74708.7	73884.9	72926	
78 Se [1]	CPS	0		133.3	1343.5	2788.1	5616.8	11039.8	26766.4	52878.4	1.0000
72 Ge (ISTD) [2]	CPS	120990.7	120409.1	122932.6	120252.7	121223.4	120646.4	120714.3	120526.9	117125.8	
75 As [2]	CPS	97.8	242.2	894.3	7854.4	15779.7	31656.5	62346.5	153031.2	296764	1.0000
103 Rh (ISTD) [2]	CPS	3174634.2		3207372.1	3136361.4	3148443.4	3123909.1	3122653.8	3094172.6	3033255.5	
95 Mo [2]	CPS	133.3		3781.7	35298.9	70845.1	141924.3	284077.3	706358	1451941.1	0.9998

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.093	0.10	10.00	0	101	90	110				
Manganese	102.911	0.50	100.0	0	103	90	110				
Molybdenum	10.540	0.50	10.00	0	105	90	110				
Selenium	10.152	0.50	10.00	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380589**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.119	0.10	0.1000	0	119	80	120				
Manganese	0.570	0.50	0.5000	0	114	80	120				
Molybdenum	0.572	0.50	0.5000	0	114	80	120				
Selenium	0.505	0.50	0.5000	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.344	0.10	20.00	0	102	90	110				
Manganese	20.189	0.50	20.00	0	101	90	110				
Molybdenum	18.710	0.50	20.00	0	93.5	90	110				
Selenium	20.775	0.50	20.00	0	104	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.367	0.10	20.00	0	102	90	110				
Manganese	20.804	0.50	20.00	0	104	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	18.538	0.50	20.00	0	92.7	90	110				
Selenium	20.306	0.50	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.311	0.10	20.00	0	102	90	110				
Manganese	20.023	0.50	20.00	0	100	90	110				
Molybdenum	18.222	0.50	20.00	0	91.1	90	110				
Selenium	20.287	0.50	20.00	0	101	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.366	0.10	20.00	0	102	90	110				
Manganese	20.323	0.50	20.00	0	102	90	110				
Molybdenum	18.394	0.50	20.00	0	92.0	90	110				
Selenium	20.819	0.50	20.00	0	104	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.165	0.10	20.00	0	101	90	110				
Manganese	19.001	0.50	20.00	0	95.0	90	110				
Molybdenum	18.275	0.50	20.00	0	91.4	90	110				
Selenium	20.923	0.50	20.00	0	105	90	110				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.920	0.10	20.00	0	94.6	90	110				
Manganese	19.487	0.50	20.00	0	97.4	90	110				
Molybdenum	18.080	0.50	20.00	0	90.4	90	110				
Selenium	20.019	0.50	20.00	0	100	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.057	0.10	20.00	0	95.3	90	110				
Manganese	19.080	0.50	20.00	0	95.4	90	110				
Molybdenum	18.364	0.50	20.00	0	91.8	90	110				
Selenium	20.679	0.50	20.00	0	103	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.108	0.10	20.00	0	95.5	90	110				
Manganese	20.657	0.50	20.00	0	103	90	110				
Molybdenum	18.031	0.50	20.00	0	90.2	90	110				
Selenium	19.896	0.50	20.00	0	99.5	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ICV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.960	1.0	10.00	0	99.6	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ZZZZZZ**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.032	1.0	1.000	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.324	1.0	20.00	0	102	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.747	1.0	20.00	0	104	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.001	1.0	20.00	0	100	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.467	1.0	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.522	1.0	20.00	0	92.6	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.539	1.0	20.00	0	97.7	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.305	1.0	20.00	0	96.5	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.214	1.0	20.00	0	101	90	110				

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380604**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380615**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380629**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380667**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ICB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379633**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379649**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379660**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379674**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379686**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380549**

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

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380563**

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

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380575**

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

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380584**

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

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSA**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSAB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.491	0.10	20.00	0	107	80	120				
Manganese	19.525	0.50	20.00	0	97.6	80	120				
Molybdenum	21.436	0.50	20.00	0	107	80	120				
Selenium	20.363	0.50	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSA**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380616**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSAB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.447	0.10	20.00	0	107	80	120				
Manganese	18.815	0.50	20.00	0	94.1	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSAB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	20.854	0.50	20.00	0	104	80	120				
Selenium	20.459	0.50	20.00	0	102	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSA**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSAB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380655**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.981	0.10	20.00	0	105	80	120				
Manganese	19.077	0.50	20.00	0	95.4	80	120				
Molybdenum	20.049	0.50	20.00	0	100	80	120				
Selenium	20.511	0.50	20.00	0	103	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSA**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSAB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.169	0.10	20.00	0	106	80	120				
Manganese	18.344	0.50	20.00	0	91.7	80	120				
Molybdenum	19.661	0.50	20.00	0	98.3	80	120				
Selenium	20.712	0.50	20.00	0	104	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	ICSA1	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	133781
Client ID:	ICSA	Batch ID:	R133781	TestNo:	EPA 6020			Analysis Date:	5/9/2019	SeqNo:	3379635

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

Sample ID	ICSAB1	SampType:	ICSAB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	133781
Client ID:	ICSAB	Batch ID:	R133781	TestNo:	EPA 6020			Analysis Date:	5/9/2019	SeqNo:	3379636

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.339	1.0	20.00	0	102	80	120				

Sample ID	ICSA2	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	133781
Client ID:	ICSA	Batch ID:	R133781	TestNo:	EPA 6020			Analysis Date:	5/9/2019	SeqNo:	3379661

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

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	133781
Client ID:	ICSAB	Batch ID:	R133781	TestNo:	EPA 6020			Analysis Date:	5/9/2019	SeqNo:	3379662

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.375	1.0	20.00	0	102	80	120				

Sample ID	ICSA3	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	133781
Client ID:	ICSA	Batch ID:	R133781	TestNo:	EPA 6020			Analysis Date:	5/9/2019	SeqNo:	3380550

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ICSAB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.556	1.0	20.00	0	103	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ICSA**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380585**

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

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ICSAB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.055	1.0	20.00	0	100	80	120				

Qualifiers:

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	164620.6	164620.6	100	PASS	70-125	120990.7	120990.7	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	165036.6	164620.6	100.25	PASS	70-125	120409.1	120990.7	99.52	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	179960.3	164620.6	109.32	PASS	70-125	122932.6	120990.7	101.6	PASS	70-125
Std3-5/50 ppb	ICAL	1	165484.8	164620.6	100.52	PASS	70-125	120252.7	120990.7	99.39	PASS	70-125
Std4-10/100 ppb	ICAL	1	166978.2	164620.6	101.43	PASS	70-125	121223.4	120990.7	100.19	PASS	70-125
Std5-20/200 ppb	ICAL	1	166645.4	164620.6	101.23	PASS	70-125	120646.4	120990.7	99.72	PASS	70-125
Std6-40/400 ppb	ICAL	1	168801.4	164620.6	102.54	PASS	70-125	120714.3	120990.7	99.77	PASS	70-125
Std7-100/1000 ppb	ICAL	1	171502.5	164620.6	104.18	PASS	70-125	120526.9	120990.7	99.62	PASS	70-125
Std8-200/2000 ppb	ICAL	1	170975.6	164620.6	103.86	PASS	70-125	117125.8	120990.7	96.81	PASS	70-125
ICV	ICV	1	165120.1	164620.6	100.3	PASS	70-125	118242.9	120990.7	97.73	PASS	70-125
ICB	ICB	1	182202.9	164620.6	110.68	PASS	70-125	125226.2	120990.7	103.5	PASS	70-125
LLICV	CCV1	1	156421.3	164620.6	95.019	PASS	70-125	115090.5	120990.7	95.12	PASS	70-125
ICSA1	ICSA	1	174051.1	164620.6	105.73	PASS	70-125	121198.9	120990.7	100.17	PASS	70-125
ICSAB1	ICSAB	1	183909	164620.6	111.72	PASS	70-125	125603.6	120990.7	103.81	PASS	70-125
LLICV	CCV1	1	184975	164620.6	112.36	PASS	70-125	132829.1	120990.7	109.78	PASS	70-125
CCV1	CCV	1	191575.3	164620.6	116.37	PASS	70-125	133600.5	120990.7	110.42	PASS	70-125
CCB1	CCB	1	182050.4	164620.6	110.59	PASS	70-125	131362.6	120990.7	108.57	PASS	70-125
CCV2	CCV	1	194572	164620.6	118.19	PASS	70-125	138872	120990.7	114.78	PASS	70-125
CCB2	CCB	1	186371.8	164620.6	113.21	PASS	70-125	136361	120990.7	112.7	PASS	70-125
ICSA2	ICSA	1	191230.7	164620.6	116.16	PASS	70-125	131504.1	120990.7	108.69	PASS	70-125
ICSAB2	ICSAB	1	196261.9	164620.6	119.22	PASS	70-125	133404.3	120990.7	110.26	PASS	70-125
MB-73664	MBLK	1	183113.9	164620.6	111.23	PASS	70-125	127015.6	120990.7	104.98	PASS	70-125
CCV3	CCV	1	174177.9	164620.6	105.81	PASS	70-125	122131.3	120990.7	100.94	PASS	70-125
CCB3	CCB	1	165671.6	164620.6	100.64	PASS	70-125	119652.3	120990.7	98.89	PASS	70-125
LCS-73664	LCS	1	168519.9	164620.6	102.37	PASS	70-125	120887.1	120990.7	99.91	PASS	70-125
N035260-001A	SAMP	1	164069.9	164620.6	99.67	PASS	70-125	118135.1	120990.7	97.64	PASS	70-125
N035260-001A	SAMP	5	160377.7	164620.6	97.42	PASS	70-125	117622	120990.7	97.22	PASS	70-125
N035260-001A-PS	PS	1	177622.8	164620.6	107.9	PASS	70-125	123788.9	120990.7	102.31	PASS	70-125
N035260-001A-MS	MS	1	174925.5	164620.6	106.26	PASS	70-125	123910.6	120990.7	102.41	PASS	70-125
N035260-001A-MSD	MSD	1	176796.9	164620.6	107.4	PASS	70-125	125364.7	120990.7	103.62	PASS	70-125
N035240-001D	SAMP	1	163304	164620.6	99.2	PASS	70-125	102895	120990.7	85.044	PASS	70-125
N035240-001D	SAMP	5	187981.6	164620.6	114.19	PASS	70-125	126965	120990.7	104.94	PASS	70-125
N035240-003D	SAMP	1	173854.8	164620.6	105.61	PASS	70-125	111037.3	120990.7	91.77	PASS	70-125
N035240-003D	SAMP	5	193478.4	164620.6	117.53	PASS	70-125	131326.6	120990.7	108.54	PASS	70-125
CCV4	CCV	1	197321.8	164620.6	119.86	PASS	70-125	137608.1	120990.7	113.73	PASS	70-125
CCB4	CCB	1	185811.3	164620.6	112.87	PASS	70-125	131592.5	120990.7	108.76	PASS	70-125
N035240-004D	SAMP	1	167785.3	164620.6	101.92	PASS	70-125	100532.2	120990.7	83.091	PASS	70-125
N035240-004D	SAMP	5	202237.2	164620.6	122.85	PASS	70-125	132705.7	120990.7	109.68	PASS	70-125
N035250-001C	SAMP	1	193703	164620.6	117.67	PASS	70-125	112188.5	120990.7	92.72	PASS	70-125
N035250-001C	SAMP	5	209892.6	164620.6	127.5	NR!	70-125	136777.2	120990.7	113.05	PASS	70-125
N035250-002C	SAMP	1	202045.8	164620.6	122.73	PASS	70-125	121670.8	120990.7	100.56	PASS	70-125

INTERNAL STANDARD: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035250-002C	SAMP	5	222055.9	164620.6	134.89	NR!	70-125	142458.2	120990.7	117.74	PASS	70-125
N035250-003C	SAMP	1	182507.2	164620.6	110.87	PASS	70-125	107017.6	120990.7	88.45	PASS	70-125
N035250-003C	SAMP	5	211424.4	164620.6	128.43	NR!	70-125	137446.2	120990.7	113.6	PASS	70-125
N035250-004C	SAMP	1	179176.6	164620.6	108.84	PASS	70-125	106833.1	120990.7	88.3	PASS	70-125
N035250-004C	SAMP	5	208738.2	164620.6	126.8	NR!	70-125	136795.6	120990.7	113.06	PASS	70-125
CCV5	CCV	1	187782.2	164620.6	114.07	PASS	70-125	119262	120990.7	98.57	PASS	70-125
CCB5	CCB	1	163527	164620.6	99.34	PASS	70-125	121222.5	120990.7	100.19	PASS	70-125
ICSA3	ICSA	1	195225.7	164620.6	118.59	PASS	70-125	137155.3	120990.7	113.36	PASS	70-125
ICSAB3	ICSAB	1	188320.7	164620.6	114.4	PASS	70-125	132589.3	120990.7	109.59	PASS	70-125
N035250-005C	SAMP	1	182279.5	164620.6	110.73	PASS	70-125	117455.4	120990.7	97.078	PASS	70-125
N035250-005C	SAMP	5	203774.1	164620.6	123.78	PASS	70-125	140401.8	120990.7	116.04	PASS	70-125
N035250-007C	SAMP	1	188154.9	164620.6	114.3	PASS	70-125	120847.5	120990.7	99.88	PASS	70-125
N035250-007C	SAMP	5	205234.6	164620.6	124.67	PASS	70-125	141305.5	120990.7	116.79	PASS	70-125
N035250-009C	SAMP	1	203802.9	164620.6	123.8	PASS	70-125	127345.5	120990.7	105.25	PASS	70-125
N035250-011C	SAMP	1	191976.7	164620.6	116.62	PASS	70-125	130138.5	120990.7	107.56	PASS	70-125
N035250-011C	SAMP	5	193529	164620.6	117.56	PASS	70-125	138969.2	120990.7	114.86	PASS	70-125
N035250-012C	SAMP	1	168440.6	164620.6	102.32	PASS	70-125	103947.8	120990.7	85.91	PASS	70-125
N035250-012C	SAMP	5	205269.6	164620.6	124.69	PASS	70-125	134223.6	120990.7	110.94	PASS	70-125
N035250-014C	SAMP	1	172592.7	164620.6	104.84	PASS	70-125	100752.8	120990.7	83.27	PASS	70-125
CCV6	CCV	1	168776	164620.6	102.52	PASS	70-125	118699.8	120990.7	98.11	PASS	70-125
CCB6	CCB	1	149318.8	164620.6	90.7	PASS	70-125	113840	120990.7	94.09	PASS	70-125
N035250-014C	SAMP	5	176233.1	164620.6	107.05	PASS	70-125	126706.8	120990.7	104.72	PASS	70-125
N035250-016C	SAMP	1	152596.2	164620.6	92.7	PASS	70-125	91954.4	120990.7	76.001	PASS	70-125
N035250-016C	SAMP	5	210501.7	164620.6	127.87	NR!	70-125	130808.4	120990.7	108.11	PASS	70-125
N035250-017C	SAMP	1	168472.4	164620.6	102.34	PASS	70-125	104156.8	120990.7	86.087	PASS	70-125
N035250-017C	SAMP	5	202299.1	164620.6	122.89	PASS	70-125	137114.7	120990.7	113.33	PASS	70-125
N035250-002C	SAMP	10	165771.5	164620.6	100.7	PASS	70-125	118265.4	120990.7	97.75	PASS	70-125
N035250-003C	SAMP	5	173478.1	164620.6	105.38	PASS	70-125	118380.4	120990.7	97.84	PASS	70-125
N035250-004C	SAMP	5	170248.4	164620.6	103.42	PASS	70-125	117419.3	120990.7	97.048	PASS	70-125
N035250-005C	SAMP	10	169366.7	164620.6	102.88	PASS	70-125	123870.7	120990.7	102.38	PASS	70-125
N035250-012C	SAMP	25	168603.2	164620.6	102.42	PASS	70-125	124834.8	120990.7	103.18	PASS	70-125
CCV7	CCV	1	165756.4	164620.6	100.69	PASS	70-125	115346.4	120990.7	95.33	PASS	70-125
CCB7	CCB	1	186055.4	164620.6	113.02	PASS	70-125	137232.8	120990.7	113.42	PASS	70-125
N035250-016C	SAMP	10	142501.5	164620.6	86.56	PASS	70-125	104858.7	120990.7	86.67	PASS	70-125
CCV8	CCV	1	156089.4	164620.6	94.82	PASS	70-125	116946	120990.7	96.66	PASS	70-125
CCB8	CCB	1	140571.4	164620.6	85.39	PASS	70-125	108043.3	120990.7	89.3	PASS	70-125
ICSA4	ICSA	1	180268.5	164620.6	109.51	PASS	70-125	118861.3	120990.7	98.24	PASS	70-125
ICSAB4	ICSAB	1	180025.4	164620.6	109.36	PASS	70-125	122147.6	120990.7	100.96	PASS	70-125

INTERNAL STANDARD: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	76388.4	76388.4	100	PASS	70-125	3174634.2	3174634.2	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	75661.8	76388.4	99.049	PASS	70-125	3190798.6	3174634.2	100.51	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	76679.6	76388.4	100.38	PASS	70-125	3207372.1	3174634.2	101.03	PASS	70-125
Std3-5/50 ppb	ICAL	1	74822	76388.4	97.95	PASS	70-125	3136361.4	3174634.2	98.79	PASS	70-125
Std4-10/100 ppb	ICAL	1	74707	76388.4	97.8	PASS	70-125	3148443.4	3174634.2	99.17	PASS	70-125
Std5-20/200 ppb	ICAL	1	75032.2	76388.4	98.22	PASS	70-125	3123909.1	3174634.2	98.4	PASS	70-125
Std6-40/400 ppb	ICAL	1	74708.7	76388.4	97.8	PASS	70-125	3122653.8	3174634.2	98.36	PASS	70-125
Std7-100/1000 ppb	ICAL	1	73884.9	76388.4	96.72	PASS	70-125	3094172.6	3174634.2	97.47	PASS	70-125
Std8-200/2000 ppb	ICAL	1	72926	76388.4	95.47	PASS	70-125	3033255.5	3174634.2	95.55	PASS	70-125
ICV	ICV	1	72024.3	76388.4	94.29	PASS	70-125	3125027.6	3174634.2	98.44	PASS	70-125
ICB	ICB	1	73485.3	76388.4	96.2	PASS	70-125	3329207.5	3174634.2	104.87	PASS	70-125
LLICV	CCV1	1	70988.5	76388.4	92.93	PASS	70-125	3037553	3174634.2	95.68	PASS	70-125
ICSA1	ICSA	1	72362.2	76388.4	94.73	PASS	70-125	2942680.5	3174634.2	92.69	PASS	70-125
ICSAB1	ICSAB	1	77688.6	76388.4	101.7	PASS	70-125	3004536.8	3174634.2	94.64	PASS	70-125
LLICV	CCV1	1	85672.9	76388.4	112.15	PASS	70-125	3379955.9	3174634.2	106.47	PASS	70-125
CCV1	CCV	1	79911.7	76388.4	104.61	PASS	70-125	3518444.8	3174634.2	110.83	PASS	70-125
CCB1	CCB	1	79004.8	76388.4	103.43	PASS	70-125	3464216.4	3174634.2	109.12	PASS	70-125
CCV2	CCV	1	82007.7	76388.4	107.36	PASS	70-125	3664035.7	3174634.2	115.42	PASS	70-125
CCB2	CCB	1	80686.8	76388.4	105.63	PASS	70-125	3600043.5	3174634.2	113.4	PASS	70-125
ICSA2	ICSA	1	77042.5	76388.4	100.86	PASS	70-125	3293528.4	3174634.2	103.75	PASS	70-125
ICSAB2	ICSAB	1	77892.1	76388.4	101.97	PASS	70-125	3283883.4	3174634.2	103.44	PASS	70-125
MB-73664	MBLK	1	80276.8	76388.4	105.09	PASS	70-125	3500553	3174634.2	110.27	PASS	70-125
CCV3	CCV	1	75439.4	76388.4	98.76	PASS	70-125	3388624.3	3174634.2	106.74	PASS	70-125
CCB3	CCB	1	73500.9	76388.4	96.22	PASS	70-125	3328449	3174634.2	104.85	PASS	70-125
LCS-73664	LCS	1	73984.1	76388.4	96.85	PASS	70-125	3373964.8	3174634.2	106.28	PASS	70-125
N035260-001A	SAMP	1	71997.6	76388.4	94.25	PASS	70-125	3307100.3	3174634.2	104.17	PASS	70-125
N035260-001A	SAMP	5	71360.5	76388.4	93.42	PASS	70-125	3269568	3174634.2	102.99	PASS	70-125
N035260-001A-PS	PS	1	77342.6	76388.4	101.25	PASS	70-125	3373473.1	3174634.2	106.26	PASS	70-125
N035260-001A-MS	MS	1	77935.4	76388.4	102.03	PASS	70-125	3343284.1	3174634.2	105.31	PASS	70-125
N035260-001A-MSD	MSD	1	78989.6	76388.4	103.41	PASS	70-125	3373846.4	3174634.2	106.28	PASS	70-125
N035240-001D	SAMP	1	57463.3	76388.4	75.23	PASS	70-125	2481517.7	3174634.2	78.17	PASS	70-125
N035240-001D	SAMP	5	75191.8	76388.4	98.43	PASS	70-125	3183392	3174634.2	100.28	PASS	70-125
N035240-003D	SAMP	1	60674.8	76388.4	79.43	PASS	70-125	2643863.6	3174634.2	83.28	PASS	70-125
N035240-003D	SAMP	5	76127.3	76388.4	99.66	PASS	70-125	3256762.7	3174634.2	102.59	PASS	70-125
CCV4	CCV	1	81764.4	76388.4	107.04	PASS	70-125	3661824.1	3174634.2	115.35	PASS	70-125
CCB4	CCB	1	79728.8	76388.4	104.37	PASS	70-125	3585646.3	3174634.2	112.95	PASS	70-125
N035240-004D	SAMP	1	51698.5	76388.4	67.68	NR!	70-125	2289746	3174634.2	72.13	PASS	70-125
N035240-004D	SAMP	5	74221.6	76388.4	97.16	PASS	70-125	3230172.5	3174634.2	101.75	PASS	70-125
N035250-001C	SAMP	1	58250.5	76388.4	76.26	PASS	70-125	2585092.3	3174634.2	81.43	PASS	70-125
N035250-001C	SAMP	5	76873.2	76388.4	100.63	PASS	70-125	3367520.4	3174634.2	106.08	PASS	70-125
N035250-002C	SAMP	1	63858.1	76388.4	83.6	PASS	70-125	2819458.1	3174634.2	88.81	PASS	70-125

INTERNAL STANDARD: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035250-002C	SAMP	5	80025.5	76388.4	104.76	PASS	70-125	3490437.4	3174634.2	109.95	PASS	70-125
N035250-003C	SAMP	1	53032.8	76388.4	69.43	NR!	70-125	2436786.9	3174634.2	76.76	PASS	70-125
N035250-003C	SAMP	5	76763.4	76388.4	100.49	PASS	70-125	3363377.5	3174634.2	105.95	PASS	70-125
N035250-004C	SAMP	1	53745.1	76388.4	70.36	PASS	70-125	2451222.5	3174634.2	77.21	PASS	70-125
N035250-004C	SAMP	5	76410.5	76388.4	100.03	PASS	70-125	3376109	3174634.2	106.35	PASS	70-125
CCV5	CCV	1	68705.4	76388.4	89.94	PASS	70-125	3285398.1	3174634.2	103.49	PASS	70-125
CCB5	CCB	1	72959.7	76388.4	95.51	PASS	70-125	3312316.8	3174634.2	104.34	PASS	70-125
ICSA3	ICSA	1	79537.4	76388.4	104.12	PASS	70-125	3470920.9	3174634.2	109.33	PASS	70-125
ICSAB3	ICSAB	1	78728.5	76388.4	103.06	PASS	70-125	3341796.1	3174634.2	105.27	PASS	70-125
N035250-005C	SAMP	1	65686.5	76388.4	85.99	PASS	70-125	2864957.2	3174634.2	90.25	PASS	70-125
N035250-005C	SAMP	5	82203.1	76388.4	107.61	PASS	70-125	3550644.6	3174634.2	111.84	PASS	70-125
N035250-007C	SAMP	1	66943.5	76388.4	87.64	PASS	70-125	2903169.3	3174634.2	91.45	PASS	70-125
N035250-007C	SAMP	5	81441.4	76388.4	106.61	PASS	70-125	3546495.6	3174634.2	111.71	PASS	70-125
N035250-009C	SAMP	1	72353.2	76388.4	94.72	PASS	70-125	3330472.6	3174634.2	104.91	PASS	70-125
N035250-011C	SAMP	1	76052.3	76388.4	99.56	PASS	70-125	3279467.5	3174634.2	103.3	PASS	70-125
N035250-011C	SAMP	5	84218.8	76388.4	110.25	PASS	70-125	3599690.1	3174634.2	113.39	PASS	70-125
N035250-012C	SAMP	1	55911.1	76388.4	73.19	PASS	70-125	2470842.3	3174634.2	77.83	PASS	70-125
N035250-012C	SAMP	5	76665	76388.4	100.36	PASS	70-125	3351175.4	3174634.2	105.56	PASS	70-125
N035250-014C	SAMP	1	56782	76388.4	74.33	PASS	70-125	2640672.6	3174634.2	83.18	PASS	70-125
CCV6	CCV	1	68233.2	76388.4	89.32	PASS	70-125	3498631.4	3174634.2	110.21	PASS	70-125
CCB6	CCB	1	68301.6	76388.4	89.41	PASS	70-125	3193743.3	3174634.2	100.6	PASS	70-125
N035250-014C	SAMP	5	75241.8	76388.4	98.5	PASS	70-125	3320266.3	3174634.2	104.59	PASS	70-125
N035250-016C	SAMP	1	46163	76388.4	60.43	NR!	70-125	2135543.9	3174634.2	67.27	NR!	70-125
N035250-016C	SAMP	5	72682.2	76388.4	95.15	PASS	70-125	3213387.9	3174634.2	101.22	PASS	70-125
N035250-017C	SAMP	1	53158.8	76388.4	69.59	NR!	70-125	2436353.4	3174634.2	76.74	PASS	70-125
N035250-017C	SAMP	5	76679.6	76388.4	100.38	PASS	70-125	3389714.7	3174634.2	106.77	PASS	70-125
N035250-002C	SAMP	10	65966.7	76388.4	86.36	PASS	70-125	3182943.1	3174634.2	100.26	PASS	70-125
N035250-003C	SAMP	5	66307.7	76388.4	86.8	PASS	70-125	2973334.8	3174634.2	93.66	PASS	70-125
N035250-004C	SAMP	5	65974.2	76388.4	86.37	PASS	70-125	2969542	3174634.2	93.54	PASS	70-125
N035250-005C	SAMP	10	71152.7	76388.4	93.15	PASS	70-125	3218946.8	3174634.2	101.4	PASS	70-125
N035250-012C	SAMP	25	72588.3	76388.4	95.025	PASS	70-125	3334722	3174634.2	105.04	PASS	70-125
CCV7	CCV	1	66757.4	76388.4	87.39	PASS	70-125	3416109	3174634.2	107.61	PASS	70-125
CCB7	CCB	1	79990	76388.4	104.71	PASS	70-125	3804822.7	3174634.2	119.85	PASS	70-125
N035250-016C	SAMP	10	60070.5	76388.4	78.64	PASS	70-125	2717180.7	3174634.2	85.59	PASS	70-125
CCV8	CCV	1	69199.8	76388.4	90.59	PASS	70-125	3331247.1	3174634.2	104.93	PASS	70-125
CCB8	CCB	1	63328.4	76388.4	82.9	PASS	70-125	3076813.9	3174634.2	96.92	PASS	70-125
ICSA4	ICSA	1	66029	76388.4	86.44	PASS	70-125	3299608.5	3174634.2	103.94	PASS	70-125
ICSAB4	ICSAB	1	70795.8	76388.4	92.68	PASS	70-125	3226840.4	3174634.2	101.64	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035240
Test Method: EPA 6020
Analysis Date: 5/9/2019

Matrix: Groundwater
Batch No.: 73664

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035260-001A DT 5x	Arsenic	As	µg/L	0	NA	0		10
N035260-001A DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N035260-001A DT 5x	Molybdenum	Mo	µg/L	0	NA	0		10
N035260-001A DT 5x	Selenium	Se	µg/L	0	NA	0		10
N035260-001A DT 5x	Chromium	Cr	µg/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035260-001A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133763**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.963	0.10	10.00	0	99.6	80	120				

Sample ID **N035260-001A-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.302	0.10	10.00	0	103	80	120				
Manganese	105.295	0.50	100.0	0	105	80	120				
Molybdenum	9.841	0.50	10.00	0	98.4	80	120				
Selenium	9.956	0.50	10.00	0	99.6	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035240
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N035260-001A-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID:	**ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.149	1.0	10.00	0	101	80	120				

Qualifiers:

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

MDL STUDY

Method Detection Limit

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

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

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

Method Detection Limit

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

Matrix: Water
Units: ug/L

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

May 14, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N035250

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on April 23, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Silvicano for

Quennie Manimtim
Laboratory Director

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

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (46 ug/L) and hexavalent chromium (93 ug/L) for sample N035250-014 (TW-02D-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 300.0:

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

Analytical Comments for EPA 6020_Dissolved:

Because the results for total dissolved chromium (46 ug/L) and hexavalent chromium (93 ug/L) for sample N035250-014 (TW-02D-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 49 and 82 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

ASSET Laboratories

Date: *14-May-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035250
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035250-001A	MW-52M-Q219	Groundwater	4/23/2019 11:10:00 AM	4/23/2019	5/14/2019
N035250-001B	MW-52M-Q219	Groundwater	4/23/2019 11:10:00 AM	4/23/2019	5/14/2019
N035250-001C	MW-52M-Q219	Groundwater	4/23/2019 11:10:00 AM	4/23/2019	5/14/2019
N035250-002A	MW-52S-Q219	Groundwater	4/23/2019 11:45:00 AM	4/23/2019	5/14/2019
N035250-002B	MW-52S-Q219	Groundwater	4/23/2019 11:45:00 AM	4/23/2019	5/14/2019
N035250-002C	MW-52S-Q219	Groundwater	4/23/2019 11:45:00 AM	4/23/2019	5/14/2019
N035250-003A	MW-52D-Q219	Groundwater	4/23/2019 11:12:00 AM	4/23/2019	5/14/2019
N035250-003B	MW-52D-Q219	Groundwater	4/23/2019 11:12:00 AM	4/23/2019	5/14/2019
N035250-003C	MW-52D-Q219	Groundwater	4/23/2019 11:12:00 AM	4/23/2019	5/14/2019
N035250-004A	MW-908-Q219	Groundwater	4/23/2019 11:32:00 AM	4/23/2019	5/14/2019
N035250-004B	MW-908-Q219	Groundwater	4/23/2019 11:32:00 AM	4/23/2019	5/14/2019
N035250-004C	MW-908-Q219	Groundwater	4/23/2019 11:32:00 AM	4/23/2019	5/14/2019
N035250-005A	MW-32-035-Q219	Groundwater	4/23/2019 1:44:00 PM	4/23/2019	5/14/2019
N035250-005B	MW-32-035-Q219	Groundwater	4/23/2019 1:44:00 PM	4/23/2019	5/14/2019
N035250-005C	MW-32-035-Q219	Groundwater	4/23/2019 1:44:00 PM	4/23/2019	5/14/2019
N035250-006A	MW-32-035-EB-Q219	Groundwater	4/23/2019 1:55:00 PM	4/23/2019	5/14/2019
N035250-007A	MW-33-040-Q219	Groundwater	4/23/2019 3:33:00 PM	4/23/2019	5/14/2019
N035250-007B	MW-33-040-Q219	Groundwater	4/23/2019 3:33:00 PM	4/23/2019	5/14/2019
N035250-007C	MW-33-040-Q219	Groundwater	4/23/2019 3:33:00 PM	4/23/2019	5/14/2019
N035250-007D	MW-33-040-Q219	Groundwater	4/23/2019 3:33:00 PM	4/23/2019	5/14/2019
N035250-008A	MW-42-055-EB-Q219	Groundwater	4/23/2019 2:49:00 PM	4/23/2019	5/14/2019
N035250-009A	MW-42-055-Q219	Groundwater	4/23/2019 2:39:00 PM	4/23/2019	5/14/2019
N035250-009B	MW-42-055-Q219	Groundwater	4/23/2019 2:39:00 PM	4/23/2019	5/14/2019
N035250-009C	MW-42-055-Q219	Groundwater	4/23/2019 2:39:00 PM	4/23/2019	5/14/2019
N035250-010A	MW-42-065-EB-Q219	Groundwater	4/23/2019 2:45:00 PM	4/23/2019	5/14/2019
N035250-011A	MW-42-065-Q219	Groundwater	4/23/2019 2:38:00 PM	4/23/2019	5/14/2019
N035250-011B	MW-42-065-Q219	Groundwater	4/23/2019 2:38:00 PM	4/23/2019	5/14/2019
N035250-011C	MW-42-065-Q219	Groundwater	4/23/2019 2:38:00 PM	4/23/2019	5/14/2019
N035250-012A	MW-22-Q219	Groundwater	4/23/2019 10:02:00 AM	4/23/2019	5/14/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035250
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035250-012B	MW-22-Q219	Groundwater	4/23/2019 10:02:00 AM	4/23/2019	5/14/2019
N035250-012C	MW-22-Q219	Groundwater	4/23/2019 10:02:00 AM	4/23/2019	5/14/2019
N035250-013A	MW-702-Q219	Groundwater	4/23/2019 3:20:00 PM	4/23/2019	5/14/2019
N035250-014A	TW-02D-Q219	Groundwater	4/23/2019 9:00:00 AM	4/23/2019	5/14/2019
N035250-014B	TW-02D-Q219	Groundwater	4/23/2019 9:00:00 AM	4/23/2019	5/14/2019
N035250-014C	TW-02D-Q219	Groundwater	4/23/2019 9:00:00 AM	4/23/2019	5/14/2019
N035250-015A	MW-701-Q219	Groundwater	4/23/2019 3:55:00 PM	4/23/2019	5/14/2019
N035250-016A	MW-53D-Q219	Groundwater	4/23/2019 12:35:00 PM	4/23/2019	5/14/2019
N035250-016B	MW-53D-Q219	Groundwater	4/23/2019 12:35:00 PM	4/23/2019	5/14/2019
N035250-016C	MW-53D-Q219	Groundwater	4/23/2019 12:35:00 PM	4/23/2019	5/14/2019
N035250-017A	MW-53M-Q219	Groundwater	4/23/2019 12:30:00 PM	4/23/2019	5/14/2019
N035250-017B	MW-53M-Q219	Groundwater	4/23/2019 12:30:00 PM	4/23/2019	5/14/2019
N035250-017C	MW-53M-Q219	Groundwater	4/23/2019 12:30:00 PM	4/23/2019	5/14/2019
N035250-018A	MW-33-040-EB-Q219	Groundwater	4/23/2019 3:45:00 PM	4/23/2019	5/14/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52S-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	9400	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-908-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-32-035-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	7400	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-040-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	8700	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-055-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:39:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-065-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:38:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-22-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 10:02:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 9:00:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	4600	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:35:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	24000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035250-004BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133439**
Client ID: **ZZZZZZ** Batch ID: **R133439** TestNo: **EPA 120.1** Analysis Date: **4/24/2019** SeqNo: **3362209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19460.000	0.10						19440	0.103	2	

Sample ID: **N035250-016BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133439**
Client ID: **ZZZZZZ** Batch ID: **R133439** TestNo: **EPA 120.1** Analysis Date: **4/24/2019** SeqNo: **3362217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	24500.000	0.10						24400	0.409	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 9:00:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190424F**	QC Batch: **73555**			PrepDate:	**4/24/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2800	33	33		mg/L	1	4/24/2019 01:06 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **LCS-73555**	SampType: **LCS**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/24/2019**	RunNo: **133532**
Client ID: **LCSW**	Batch ID: **73555**	TestNo: **SM2540C**		Analysis Date: **4/24/2019**	SeqNo: **3367211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	958.000	10	1000	0	95.8	80	120				

Sample ID: **MB-73555**	SampType: **MBLK**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/24/2019**	RunNo: **133532**
Client ID: **PBW**	Batch ID: **73555**	TestNo: **SM2540C**		Analysis Date: **4/24/2019**	SeqNo: **3367212**

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

Sample ID: **N035249-004BDUP**	SampType: **DUP**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/24/2019**	RunNo: **133532**
Client ID: **ZZZZZZ**	Batch ID: **73555**	TestNo: **SM2540C**		Analysis Date: **4/24/2019**	SeqNo: **3367217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	60400.000	500						57900	4.23	5	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 10:27 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 04:24 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52S-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 04:51 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190509A**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 04:34 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 11:07 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 04:44 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-908-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 12:03 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190509A**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 04:53 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-32-035-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 06:08 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190509A**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 05:24 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-32-035-EB-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 1:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 11:25 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-040-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 06:27 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 05:34 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-055-EB-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:49:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 08:02 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-055-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:39:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 02:16 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190509A**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 05:45 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-065-EB-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 08:21 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-065-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:38:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 02:25 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190509A**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 05:50 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-22-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 10:02:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 01:00 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190509A**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 05:59 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-702-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 08:40 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 9:00:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	93	0.66	4.0		µg/L	20	4/24/2019 02:54 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	46	0.13	1.0		µg/L	1	5/9/2019 06:05 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-701-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 08:59 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:35:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 01:19 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 06:34 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 01:57 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 06:45 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-040-EB-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 09:36 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133474**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **PBW**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363781**

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

Sample ID: **LCS-R133474**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **LCSW**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363782**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.040	0.20	5.000	0	101	90	110				

Sample ID: **N035250-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.961	1.0	5.000	0	99.2	90	110				

Sample ID: **N035250-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.025	1.0	5.000	0	101	90	110				

Sample ID: **N035250-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363788**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.018	0.20	1.000	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.155	1.0	5.000	0	103	90	110				

Sample ID: **N035250-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.959	1.0	5.000	0	99.2	90	110				

Sample ID: **N035250-016AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.986	1.0	5.000	0	99.7	90	110				

Sample ID: **N035250-017AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363800**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.037	1.0	5.000	0	101	90	110				

Sample ID: **N035250-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.074	0.20	1.000	0	107	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.077	0.20	1.000	0	108	90	110				

Sample ID: **N035250-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	194.764	4.0	100.0	92.86	102	90	110				

Sample ID: **N035251-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0	104	90	110				

Sample ID: **N035251-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363812**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	964.700	20	500.0	466.7	99.6	90	110				

Sample ID: **N035250-014AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	193.654	4.0	100.0	92.86	101	90	110	194.8	0.572	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035251-002ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	472.350	20						466.7	1.21	20	

Sample ID: **N035250-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363816**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.026	0.20	1.000	0	103	90	110				

Sample ID: **N035250-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.048	0.20	1.000	0	105	90	110				

Sample ID: **N035250-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.077	0.20	1.000	0	108	90	110				

Sample ID: **N035250-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.987	0.20	1.000	0	98.7	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.022	0.20	1.000	0	102	90	110				

Sample ID: **N035250-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID: **N035250-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID: **N035250-018AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.014	0.20	1.000	0	101	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-73664**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **PBW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379672**

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

Sample ID: **LCS-73664**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **LCSW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.923	1.0	10.00	0	99.2	85	115				

Sample ID: **N035260-001A-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.289	1.0	10.00	0	103	75	125				

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.193	1.0	10.00	0	102	75	125	10.29	0.935	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 9:00:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190425D**	QC Batch: **R133470**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	180	1.2	5.0		mg/L	1	4/25/2019 09:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R133470**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **LCSW**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	104.348	5.0	100.0	0	104	85	115				

Sample ID: **MB-R133470**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **PBW**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363653**

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

Sample ID: **N035251-002CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363657**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	169.565	5.0						166.3	1.94	30	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	267.391	5.0	100.0	166.3	101	75	125				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	265.217	5.0	100.0	166.3	98.9	75	125	267.4	0.816	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035250
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035250-014

Client Sample ID: TW-02D-Q219
Collection Date: 4/23/2019 9:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Bromide	ND	0.098	2.5		mg/L	5	4/25/2019 04:16 PM
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Chloride	1200	4.6	250		mg/L	500	4/25/2019 01:18 PM
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Sulfate	330	1.1	25		mg/L	50	4/25/2019 01:33 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R133486_BR**	SampType: **MBLK**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **PBW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364600**

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

Sample ID: **LCS-R133486_BR**	SampType: **LCS**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **LCSW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.270	0.50	1.250	0	102	90	110				

Sample ID: **N035250-014BDUP**	SampType: **DUP**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.380	2.5						0.3910	0	20	

Sample ID: **N035250-014BMS**	SampType: **MS**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364608**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.620	2.5	6.250	0.3910	99.7	80	120				

Sample ID: **N035250-014BMSD**	SampType: **MSD**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.454	2.5	6.250	0.3910	97.0	80	120	6.620	2.54	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R133486_CL**	SampType: **MBLK**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **PBW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364546**

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

Sample ID: **LCS-R133486_CL**	SampType: **LCS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **LCSW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.043	0.50	2.000	0	102	90	110				

Sample ID: **N035251-001CDUP**	SampType: **DUP**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	346.220	25						350.9	1.35	20	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3154.650	250	1000	2198	95.7	80	120				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364563**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3196.000	250	1000	2198	99.8	80	120	3155	1.30	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N035250-014BMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2231.350	250	1000	1226	101	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R133486_SO4**	SampType: **MBLK**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **PBW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364573**

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

Sample ID: **LCS-R133486_SO4**	SampType: **LCS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **LCSW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.039	0.50	4.000	0	101	90	110				

Sample ID: **N035251-001CDUP**	SampType: **DUP**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	238.670	25						241.6	1.21	20	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	708.475	25	200.0	509.4	99.5	80	120				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	714.125	25	200.0	509.4	102	80	120	708.5	0.794	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N035250-014BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133486**
Client ID: **ZZZZZZ** Batch ID: **R133486** TestNo: **EPA 300.0** Analysis Date: **4/25/2019** SeqNo: **3364593**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	529.265	25	200.0	332.5	98.4	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-040-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190425F**	QC Batch: **R133477**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	4/25/2019

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R133477**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **PBW**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363864**

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

Sample ID: **LCS-R133477**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **LCSW**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.3	85	115				

Sample ID: **N035180-003BDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.148	0.50						8.542	6.85	20	

Sample ID: **N035180-004BMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	6.403	0.25	2.500	3.990	96.5	75	125				

Sample ID: **N035180-004BMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	6.310	0.25	2.500	3.990	92.8	75	125	6.403	1.47	20	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	5/9/2019 04:24 PM
Manganese	150	0.26	0.50		µg/L	1	5/9/2019 04:24 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52S-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	0.38	0.081	0.10		µg/L	1	5/9/2019 04:34 PM
Manganese	1200	2.6	5.0		µg/L	10	5/9/2019 06:55 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	3.0	0.081	0.10		µg/L	1	5/9/2019 04:44 PM
Manganese	260	1.3	2.5		µg/L	5	5/9/2019 07:00 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-908-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	3.0	0.081	0.10		µg/L	1	5/9/2019 04:53 PM
Manganese	270	1.3	2.5		µg/L	5	5/9/2019 07:05 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-32-035-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	4.6	0.081	0.10		µg/L	1	5/9/2019 05:24 PM
Manganese	890	2.6	5.0		µg/L	10	5/9/2019 07:10 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-040-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	10	0.081	0.10		µg/L	1	5/9/2019 05:34 PM
Manganese	15	0.26	0.50		µg/L	1	5/9/2019 05:34 PM
Molybdenum	130	0.21	0.50		µg/L	1	5/9/2019 05:34 PM
Selenium	ND	0.36	0.50		µg/L	1	5/9/2019 05:34 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-055-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:39:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	26	0.081	0.10		µg/L	1	5/9/2019 05:45 PM
Manganese	19	0.26	0.50		µg/L	1	5/9/2019 05:45 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-065-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:38:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	8.3	0.081	0.10		µg/L	1	5/9/2019 05:50 PM
Manganese	540	1.3	2.5		µg/L	5	5/9/2019 05:55 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-22-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 10:02:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	13	0.081	0.10		µg/L	1	5/9/2019 05:59 PM
Manganese	1900	26	50		µg/L	100	5/9/2019 07:15 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 9:00:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Manganese	27	0.26	0.50		µg/L	1	5/9/2019 06:05 PM
Molybdenum	10	0.21	0.50		µg/L	1	5/9/2019 06:05 PM
Selenium	2.0	0.36	0.50		µg/L	1	5/9/2019 06:05 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:35:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	4.2	0.081	0.10		µg/L	1	5/9/2019 06:34 PM
Manganese	1400	2.6	5.0		µg/L	10	5/9/2019 07:29 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	0.82	0.081	0.10		µg/L	1	5/9/2019 06:45 PM
Manganese	430	1.3	2.5		µg/L	5	5/9/2019 06:50 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-73664**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **PBW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-73664**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **LCSW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.933	0.10	10.00	0	99.3	85	115				
Manganese	102.767	0.50	100.0	0	103	85	115				
Molybdenum	9.093	0.50	10.00	0	90.9	85	115				
Selenium	10.072	0.50	10.00	0	101	85	115				

Sample ID: **N035260-001A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.412	0.10	10.00	0	104	75	125				
Manganese	107.388	0.50	100.0	0	107	75	125				
Molybdenum	9.982	0.50	10.00	0	99.8	75	125				
Selenium	10.033	0.50	10.00	0	100	75	125				

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.282	0.10	10.00	0	103	75	125	9.960	3.18	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.187	0.50	100.0	0	107	75	125	106.8	0.365	20	
Molybdenum	10.046	0.50	10.00	0	100	75	125	10.31	2.58	20	
Selenium	9.887	0.50	10.00	0	98.9	75	125	9.852	0.358	20	

Qualifiers:

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

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
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Page 1 of 2

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition (Y / N): 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 4
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-057
Submitted By: Jason Mahn	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: Project Manager			6. Method of Cooling: Ice
Signature: Date: 4/23/19	Sampled By: Jason Mahn		Sample Temp: 5.0/5.6°C
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*		
Project Name: PG&E Topock - GMP	Signature: Date: 4/23/19		Courier: Tracking No.:
Project Number: RC000753.801D			

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

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	250 mL poly: Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	250 mL poly: Oxygen and Deuterium Isotopes (CFIRM), Ice	2x250 mL poly: Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	1 liter poly: Alkalinity, Total as CaCO3 (SM2320B)	1 liter poly: Bromide, Sulfate, Chloride (EPA 300.0)	1 liter poly: Fluoride (EPA 300.0)	1 liter poly: Specific Conductance (EPA 120.1)	1 liter poly: Total Dissolved Solids (SM92540)	125 mL poly: Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4	3x40 mL poly: Total Organic Carbon (SM5310C); H2SO4	500 mL poly: Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se	500 mL poly: Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na	500 mL poly: Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn	500 mL poly: Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni,	500 mL poly: Metals Dissolved (EPA7470A FF) Hg; HNO3	500 mL poly: Dissolved Metals (SW 6010B); HNO3 Potassium	500 mL poly: Total metals, Chromium (non-filter) (EPA 200.8), HNO3	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035250-01	MW-52M-Q219	4/23/2019	1110				X				X							X				E	4	P	BNS	
2	-02	MW-52S-Q219	4/23/2019	1145				X				X							X				E	4	P	BNS	
3	-03	MW-52D-Q219	4/23/2019	1112				X				X							X				E	4	P	BNS	
4	-04	MW-908-Q219	4/23/2019	1132				X				X							X				E	4	P	BNS	
5	-05	MW-32-035-Q219	4/23/2019	1344				X				X							X				E	4	P	BNS	
6	-06	MW-32-035-EB-Q219	4/23/2019	1355		X																	E	4	P	BNS	
7	-07	MW-33-040-Q219	4/22/2019	1533				X				X		X		X							E	1	P	B	
8	-08	MW-42-055-EB-Q219	4/23/2019	1449		X																	E	5	P	BNS	
9	-09	MW-42-055-Q219	4/23/2019	1439				X				X											E	1	P	B	
10	-10	MW-42-065-EB-Q219	4/23/2019	1445		X													X				E	4	P	BN	
11	-11	MW-42-065-Q219	4/23/2019	1438				X				X											E	1	P	B	
12	-12	MW-22-Q219	4/23/2019	1002		X						X							X				E	4	P	BN	
13	-13	MW-702-Q219	4/23/2019	1520		X																	E	3	P	BNS	
1	-14	TW-02D-Q219	4/23/2019	0900		X			X	X		X	X				X						E	1	P	B	
15	-15	MW-701-Q219	4/23/2019	1555		X																	E	3	P	BNS	
																							E	1	P	B	

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Jason Mahn	4/23/19 1630	JORDAN MOE	4-23-19 1630
JORDAN MOE	4-23-19 2000	JORDAN MOE	4-23-19 2000

Turn Around Time (TAT)

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

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

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

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

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

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

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CHAIN OF CUSTODY RECORD

Page 2 of 2

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes		EDD Requirement		QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:		Excel EDD		RTNE	Y N
				Geotracker		RWQCB ✓	1. Chilled ✓
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com daniel.moore@critigen.com	Address:		Labspec		CalTrans	2. Headspace
				Others ✓		LEVEL III	3. Container Intact ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-057	Specify: RWQCB		LEVEL IV	4. Seal Present ✓
Submitted By: Jason Mahn		Phone: 949-727-1400, ext 200	Fax:	Global ID:		Regulatory	5. IR number 2
Title: Project Manager	Phone: 916-786-3302 Fax:					Specify State:	6. Method of Cooling: ICE
Signature: Date: 4/23/19	Sampled By: Jason Mahn	Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface					Sample Temp: 5.0 / 5.6 °C
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.						Courier:
Project Name: PG&E Topock - GMP	Signature: Date: 4/23/19						Tracking No.:
Project Number: RC000753.801D							

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	250 mL poly Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	250 mL poly Oxygen and Deuterium Isotopes (CFIRM), Ice	2x250 mL poly Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	1 liter poly Alkalinity, Total as CaCO3 (SM2320B)	1 liter poly Bromide, Sulfate, Chloride (EPA 300.0)	1 liter poly Fluoride (EPA 300.0)	1 liter poly Specific Conductance (EPA 120.1)	1 liter poly Total Dissolved Solids (SM92540)	125 mL poly Nitrate/Nitrite (SM4500NO3) Nitrate; H2SO4	3x40 mL poly Total Organic Carbon (SM5310C); H2SO4	500 mL poly Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se	500 mL poly Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na	500 mL poly Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn	500 mL poly Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni,	500 mL poly Metals Dissolved (EPA7470A FF) Hg; HNO3	500 mL poly Dissolved Metals (SW 6010B); HNO3 Potassium	500 mL poly Total metals, Chromium (non-filter) (EPA 200.8), HNO3	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035250-16	MW-53D-Q219	4/23/2019	1235				X				X						X					E	4	P	BNS	
2	-17	MW-53M-Q219	4/23/2019	1230				X				X						X					E	4	P	BNS	
3	-18	MW-33-040-EB-Q219	4/23/2019	1545		X																	E	1	P	BNS	

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Jason Mahn	4/23/19 1630	JORDAN IGO	4-23-19 1630
JORDAN IGO	4-23-19 2000	JORDAN IGO	4-23-19 2000

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

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Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=60% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
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7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

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

White=Laboratory Copy
Yellow=Customer's Copy

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

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec	CalTrans	2. Headspace
Submitted By: Jason Mahn		Phone: 949-727-1400, ext 200 Fax:	Others ✓	LEVEL III	3. Container Intact
Title:	Phone: 916-786-3302 Fax:	P.O.# SWA-ASSET-C9817-057	Specify: RWQCB	LEVEL IV	4. Seal Present
			Global ID:	Regulatory	5. IR number
				Specify State:	6. Method of Cooling:
					Sample Temp:

Signature: Date:

I hereby authorize ASSET Labs to perform the tests indicated below.

Project Name: PG&E Topock - GMP

Project Number: RC000753.801D

Sampled By:

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

Signature: Date:

Courier:

Tracking No.:

Matrix

Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH — 250 mL poly	Oxygen and Deuterium Isotopes (CFIRM), Ice — 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH — 2x250 mL poly	Alkalinity, Total as CaCO3 (SM2320B) — 1 liter poly	Bromide, Sulfate, Chloride (EPA 300.0) — 1 liter poly	Fluoride (EPA 300.0) — 1 liter poly	Specific Conductance (EPA 120.1) — 1 liter poly	Total Dissolved Solids (SM92540) — 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 — 125 mL poly	Total Organic Carbon (SM5310C); H2SO4 — 3x40 mL poly	Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se — 500 mL poly	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na — 500 mL poly	Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, — 500 mL poly	Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, — 500 mL poly	Metals Dissolved (EPA7470A FF) Hg; HNO3 — 500 mL poly	Dissolved Metals (SW 6010B); HNO3 Potassium — 500 mL poly	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 — 500 mL poly					Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1																															
2																															
3																															
4																															
5																															
6																															
7		MW-33-040-Q219	4/23/2019					X				X		X		X											E	5	P	BNS	
8		MW-33-040-EB-Q219	4/23/2019			X																					E	5	P	BNS	
9																															
10																															
11																															
12		MW-701-Q219	4/23/2019			X																					E	1	P	B	

Reliquished by (Signature and Printed Name): Date/Time: Received by (Signature and Printed Name): Date/Time:

Reliquished by (Signature and Printed Name): Date/Time: Received by (Signature and Printed Name): Date/Time:

Reliquished by (Signature and Printed Name): Date/Time: Received by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

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

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

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

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

Preservatives:

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

Container Type:

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

White=Laboratory Copy

Yellow=Customer's Copy

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CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD		RTNE				
			Geotracker		RWQCB	✓	1. Chilled		
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Labspec		CalTrans		2. Headspace		
			Others	✓	LEVEL III		3. Container Intact		
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Specify: RWQCB		LEVEL IV		4. Seal Present		
		P.O.# SWA-ASSET-C9817-057			Regulatory		5. IR number		
Submitted By:		Phone: 949-727-1400, ext 200 Fax:	Global ID:		Specify State:		6. Method of Cooling:		
Title:	Phone: 916-786-3302 Fax:						Sample Temp:		
Signature: Date:	Sampled By:								

I hereby authorize ASSET Labs to perform the tests indicated below.

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

Project Name: PG&E Topock - GMP
Project Number: RC000753.801D

Signature: Date:

Matrix

Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Oxygen and Deuterium Isotopes (CFIRM), Ice 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Fluoride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Dissolved metals (SW 6020) HNO3 As, Cr, Mn, Mo, Se 500 mL poly	Dissolved Metals (SW 6010B); HNO3 Cr, Mn, Mo, Se 500 mL poly	Dissolved metals (SW 6020) HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn 500 mL poly	Dissolved Metals (SW 6010B); HNO3 As, Cr, Mn 500 mL poly	Metals Dissolved (EPA7470A FF) Hg; HNO3 500 mL poly	Dissolved Metals (SW 6010B); HNO3 Potassium 500 mL poly	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 500 mL poly	Dissolved metals (SW 6020) HNO3 As, Cr, Mn, Mo, Se 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		TW-02D-Q219	4/23/2019			X			X	X		X	X				X								E	3	P	BNS	
2		MW-52M-Q219	4/23/2019					X				X							X							E	4	P	BNS	
3		MW-52S-Q219	4/23/2019					X				X							X							E	4	P	BNS	
4		MW-52D-Q219	4/23/2019					X				X							X							E	4	P	BNS	
5		MW-908-Q219	4/23/2019					X				X							X							E	4	P	BNS	
6																													
7		MW-32-035-Q219	4/23/2019					X				X							X							E	4	P	BNS	
8		MW-32-035-EB-Q219	4/23/2019			X																				E	1	P	B	
9																													
10																													

Reliquished by (Signature and Printed Name): Date/Time: Received by (Signature and Printed Name): Date/Time:

Reliquished by (Signature and Printed Name): Date/Time: Received by (Signature and Printed Name): Date/Time:

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

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

Terms
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9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

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

Container Type:

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

White=Laboratory Copy
Yellow=Customer's Copy

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CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec	CalTrans	2. Headspace
Submitted By:		Phone: 949-727-1400, ext 200 Fax:	Others ✓	LEVEL III	3. Container Intact
Title:	Phone: 916-786-3302 Fax:	P.O.# SWA-ASSET-C9817-057	Specify: RWQCB	LEVEL IV	4. Seal Present
Signature: Date:	Sampled By:	Global ID:		Regulatory	5. IR number
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*			Specify State:	6. Method of Cooling:
Project Name: PG&E Topock - GMP	Signature: Date:				Sample Temp:
Project Number: RC000753.801D					Courier: Tracking No.:

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

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Fluoride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Dissolved metals (SW 6020), HNO3 As, Cr, Mg, Mn, Mo, Se (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly)	Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 As, Cr, Mn (500 mL poly)	Metals Dissolved (EPA7470A FF) Hg; HNO3 (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly)	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		MW-42-055-EB-Q219	4/23/2019			X																		E	1	P	B	
2		MW-42-055-Q219	4/23/2019					X				X							X						E	3	P	BN	
3		MW-42-065-EB-Q219	4/23/2019			X																			E	1	P	B	
4		MW-42-065-Q219	4/23/2019					X				X							X						E	3	P	BN	
5		MW-22-Q219	4/23/2019			X						X							X						E	3	P	BN	
6		MW-702-Q219	4/23/2019			X																			E	1	P	B	
7																												
8		MW-53D-Q219	4/23/2019					X				X							X						E	3	P	BN	
9		MW-53M-Q219	4/23/2019					X				X							X						E	3	P	BN	
10																												

Reliquished by (Signature and Printed Name): Date/Time: | Received by (Signature and Printed Name): Date/Time:

Reliquished by (Signature and Printed Name): Date/Time: | Received by (Signature and Printed Name): Date/Time:

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- [ ] D = 3 Workdays
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H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

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

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	4/23/2019	Workorder:	N035250
Rep sample Temp (Deg C):	5.0/5.6	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments: See Correspondence.

Checklist Completed By: YR 4/26/2019

Reviewed By: LG 042919

Sample Control

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Wednesday, April 24, 2019 9:44 AM
To: samplecontrol.lv@assetlaboratories.com; Yoandra Rodriguez; nancy@assetlaboratories.com; marlon@assetlaboratories.com; Tina Rice
Subject: RE: N035250 and N035251 COCs and Work Order Summaries for Samples Received 4/23/2019
Attachments: PGE Topock GMP Floodplain COC 2Q 2019_rev2.xlsx

Importance: High

Hi Yoandra,
Please use these revised COCs as an addendum to the ones submitted for SDG N035250. The analyte lists are correct on this version. Please use the sample times from the original batch of COCs and send out a revised login.

Thanks,
Laura

From: Madsen, Laura
Sent: Wednesday, April 24, 2019 11:24 AM
To: Sample Control <samplecontrol.lv@assetlaboratories.com>; Yoandra Rodriguez <yoandra@assetlaboratories.com>; nancy@assetlaboratories.com; Marlon Cartin <marlon@assetlaboratories.com>; Tina Rice <Tina.Rice@critigen.com>
Subject: RE: N035250 and N035251 COCs and Work Order Summaries for Samples Received 4/23/2019

Hi Yoandra,
There are some issues with the metals lists on the COCs in both SDGs. It was a cut and paste issue in the field, so I'll be sending you corrected COCs shortly with the right list of metals for each sample to edit the logins.

I apologize for the confusion.

Thanks,
Laura

From: Sample Control <samplecontrol.lv@assetlaboratories.com>
Sent: Wednesday, April 24, 2019 10:40 AM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Sean.Maurel@arcadis.com; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Nicholas.Vadpey@arcadis.com; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; jmahn@blainetech.com; Borelis, Mariah <Mariah.Borelis@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
Subject: N035250 and N035251 COCs and Work Order Summaries for Samples Received 4/23/2019

Hi Dan Bush:

Enclosed are COCs and WO Summaries for samples received 4/23/2019. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Mary Ann Balilu
Sample Control Officer



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ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | **P:** 562.219.7435 | **F:** 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | **P:** 702.307.2659 | **F:** 702.307.2691
www.assetlaboratories.com

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Virus-free. www.avast.com

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

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Wednesday, April 24, 2019 9:08 AM
To: Yoandra Rodriguez
Cc: maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo'; 'Sonny. Lorenzo'
Subject: RE: PG&E Topock - GMP, RC000753.801D (Asset Labs No. N035250)

Correct. 4/23 is the right date.

Thanks,
Laura

From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Sent: Wednesday, April 24, 2019 10:33 AM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Cc: maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>
Subject: PG&E Topock - GMP, RC000753.801D (Asset Labs No. N035250)

Hi Laura,

Sample 7 (MW-33-040-Q219): Collection date is 4/22/19 on COC and 4/23/19 on labels.

We followed sample labels. Please confirm.

COC is attached for reference.

--
Thanks,

Yoandra Rodriguez
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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ASSET Laboratories

WORK ORDER Summary

24-Apr-19

WorkOrder: N035250

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035250-001A	MW-52M-Q219	4/23/2019 11:10:00 AM	5/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-001B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-001C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-002A	MW-52S-Q219	4/23/2019 11:45:00 AM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-002B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-002C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-003A	MW-52D-Q219	4/23/2019 11:12:00 AM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-003B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-003C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-004A	MW-908-Q219	4/23/2019 11:32:00 AM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-004B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-004C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-005A	MW-32-035-Q219	4/23/2019 1:44:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-005B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

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Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035250-005C	MW-32-035-Q219	4/23/2019 1:44:00 PM	5/7/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-006A	MW-32-035-EB-Q219	4/23/2019 1:55:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-007A	MW-33-040-Q219	4/23/2019 3:33:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-007B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-007C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-007D			5/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035250-008A	MW-42-055-EB-Q219	4/23/2019 2:49:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-009A	MW-42-055-Q219	4/23/2019 2:39:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-009B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-009C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-010A	MW-42-065-EB-Q219	4/23/2019 2:45:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-011A	MW-42-065-Q219	4/23/2019 2:38:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-011B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-011C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

24-Apr-19

WorkOrder: N035250

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035250-012A	MW-22-Q219	4/23/2019 10:02:00 AM	5/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-012B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-012C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-013A	MW-702-Q219	4/23/2019 3:20:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-014A	TW-02D-Q219	4/23/2019 9:00:00 AM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-014B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			5/7/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			5/7/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			5/7/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/7/2019		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	LSR
N035250-014C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-015A	MW-701-Q219	4/23/2019 3:55:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-016A	MW-53D-Q219	4/23/2019 12:35:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-016B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-016C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

24-Apr-19

WorkOrder: N035250

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035250-016C	MW-53D-Q219	4/23/2019 12:35:00 PM	5/7/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-017A	MW-53M-Q219	4/23/2019 12:30:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-017B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-017C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-018A	MW-33-040-EB-Q219	4/23/2019 3:45:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-019A	FOLDER	5/7/2019	5/7/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/7/2019		Folder	Folder	☐	☐	☐	LAB
			5/7/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035250

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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May 14, 2019

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

TEL: (916) 786-3302
FAX: Workorder No.: N035250

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on April 23, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Sibucao for

Quennie Manimtim
Laboratory Director

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CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035250

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (46 ug/L) and hexavalent chromium (93 ug/L) for sample N035250-014 (TW-02D-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 300.0:

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

Analytical Comments for EPA 6020_Dissolved:

Because the results for total dissolved chromium (46 ug/L) and hexavalent chromium (93 ug/L) for sample N035250-014 (TW-02D-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 49 and 82 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

ASSET Laboratories

Date: *14-May-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035250
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035250-001A	MW-52M-Q219	Groundwater	4/23/2019 11:10:00 AM	4/23/2019	5/14/2019
N035250-001B	MW-52M-Q219	Groundwater	4/23/2019 11:10:00 AM	4/23/2019	5/14/2019
N035250-001C	MW-52M-Q219	Groundwater	4/23/2019 11:10:00 AM	4/23/2019	5/14/2019
N035250-002A	MW-52S-Q219	Groundwater	4/23/2019 11:45:00 AM	4/23/2019	5/14/2019
N035250-002B	MW-52S-Q219	Groundwater	4/23/2019 11:45:00 AM	4/23/2019	5/14/2019
N035250-002C	MW-52S-Q219	Groundwater	4/23/2019 11:45:00 AM	4/23/2019	5/14/2019
N035250-003A	MW-52D-Q219	Groundwater	4/23/2019 11:12:00 AM	4/23/2019	5/14/2019
N035250-003B	MW-52D-Q219	Groundwater	4/23/2019 11:12:00 AM	4/23/2019	5/14/2019
N035250-003C	MW-52D-Q219	Groundwater	4/23/2019 11:12:00 AM	4/23/2019	5/14/2019
N035250-004A	MW-908-Q219	Groundwater	4/23/2019 11:32:00 AM	4/23/2019	5/14/2019
N035250-004B	MW-908-Q219	Groundwater	4/23/2019 11:32:00 AM	4/23/2019	5/14/2019
N035250-004C	MW-908-Q219	Groundwater	4/23/2019 11:32:00 AM	4/23/2019	5/14/2019
N035250-005A	MW-32-035-Q219	Groundwater	4/23/2019 1:44:00 PM	4/23/2019	5/14/2019
N035250-005B	MW-32-035-Q219	Groundwater	4/23/2019 1:44:00 PM	4/23/2019	5/14/2019
N035250-005C	MW-32-035-Q219	Groundwater	4/23/2019 1:44:00 PM	4/23/2019	5/14/2019
N035250-006A	MW-32-035-EB-Q219	Groundwater	4/23/2019 1:55:00 PM	4/23/2019	5/14/2019
N035250-007A	MW-33-040-Q219	Groundwater	4/23/2019 3:33:00 PM	4/23/2019	5/14/2019
N035250-007B	MW-33-040-Q219	Groundwater	4/23/2019 3:33:00 PM	4/23/2019	5/14/2019
N035250-007C	MW-33-040-Q219	Groundwater	4/23/2019 3:33:00 PM	4/23/2019	5/14/2019
N035250-007D	MW-33-040-Q219	Groundwater	4/23/2019 3:33:00 PM	4/23/2019	5/14/2019
N035250-008A	MW-42-055-EB-Q219	Groundwater	4/23/2019 2:49:00 PM	4/23/2019	5/14/2019
N035250-009A	MW-42-055-Q219	Groundwater	4/23/2019 2:39:00 PM	4/23/2019	5/14/2019
N035250-009B	MW-42-055-Q219	Groundwater	4/23/2019 2:39:00 PM	4/23/2019	5/14/2019
N035250-009C	MW-42-055-Q219	Groundwater	4/23/2019 2:39:00 PM	4/23/2019	5/14/2019
N035250-010A	MW-42-065-EB-Q219	Groundwater	4/23/2019 2:45:00 PM	4/23/2019	5/14/2019
N035250-011A	MW-42-065-Q219	Groundwater	4/23/2019 2:38:00 PM	4/23/2019	5/14/2019
N035250-011B	MW-42-065-Q219	Groundwater	4/23/2019 2:38:00 PM	4/23/2019	5/14/2019
N035250-011C	MW-42-065-Q219	Groundwater	4/23/2019 2:38:00 PM	4/23/2019	5/14/2019
N035250-012A	MW-22-Q219	Groundwater	4/23/2019 10:02:00 AM	4/23/2019	5/14/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035250
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035250-012B	MW-22-Q219	Groundwater	4/23/2019 10:02:00 AM	4/23/2019	5/14/2019
N035250-012C	MW-22-Q219	Groundwater	4/23/2019 10:02:00 AM	4/23/2019	5/14/2019
N035250-013A	MW-702-Q219	Groundwater	4/23/2019 3:20:00 PM	4/23/2019	5/14/2019
N035250-014A	TW-02D-Q219	Groundwater	4/23/2019 9:00:00 AM	4/23/2019	5/14/2019
N035250-014B	TW-02D-Q219	Groundwater	4/23/2019 9:00:00 AM	4/23/2019	5/14/2019
N035250-014C	TW-02D-Q219	Groundwater	4/23/2019 9:00:00 AM	4/23/2019	5/14/2019
N035250-015A	MW-701-Q219	Groundwater	4/23/2019 3:55:00 PM	4/23/2019	5/14/2019
N035250-016A	MW-53D-Q219	Groundwater	4/23/2019 12:35:00 PM	4/23/2019	5/14/2019
N035250-016B	MW-53D-Q219	Groundwater	4/23/2019 12:35:00 PM	4/23/2019	5/14/2019
N035250-016C	MW-53D-Q219	Groundwater	4/23/2019 12:35:00 PM	4/23/2019	5/14/2019
N035250-017A	MW-53M-Q219	Groundwater	4/23/2019 12:30:00 PM	4/23/2019	5/14/2019
N035250-017B	MW-53M-Q219	Groundwater	4/23/2019 12:30:00 PM	4/23/2019	5/14/2019
N035250-017C	MW-53M-Q219	Groundwater	4/23/2019 12:30:00 PM	4/23/2019	5/14/2019
N035250-018A	MW-33-040-EB-Q219	Groundwater	4/23/2019 3:45:00 PM	4/23/2019	5/14/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52S-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	9400	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-908-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-32-035-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	7400	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-040-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	8700	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-055-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:39:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-065-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:38:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-22-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 10:02:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 9:00:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	4600	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:35:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	24000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035250-004BDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **133439**
Client ID: **ZZZZZZ**	Batch ID: **R133439**	TestNo: **EPA 120.1**		Analysis Date: **4/24/2019**	SeqNo: **3362209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19460.000	0.10						19440	0.103	2	

Sample ID: **N035250-016BDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **133439**
Client ID: **ZZZZZZ**	Batch ID: **R133439**	TestNo: **EPA 120.1**		Analysis Date: **4/24/2019**	SeqNo: **3362217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	24500.000	0.10						24400	0.409	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 9:00:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190424F**	QC Batch: **73555**			PrepDate:	**4/24/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	2800	33	33		mg/L	1	4/24/2019 01:06 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **LCS-73555**	SampType: **LCS**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/24/2019**	RunNo: **133532**
Client ID: **LCSW**	Batch ID: **73555**	TestNo: **SM2540C**		Analysis Date: **4/24/2019**	SeqNo: **3367211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	958.000	10	1000	0	95.8	80	120				

Sample ID: **MB-73555**	SampType: **MBLK**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/24/2019**	RunNo: **133532**
Client ID: **PBW**	Batch ID: **73555**	TestNo: **SM2540C**		Analysis Date: **4/24/2019**	SeqNo: **3367212**

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

Sample ID: **N035249-004BDUP**	SampType: **DUP**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/24/2019**	RunNo: **133532**
Client ID: **ZZZZZZ**	Batch ID: **73555**	TestNo: **SM2540C**		Analysis Date: **4/24/2019**	SeqNo: **3367217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	60400.000	500						57900	4.23	5	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 10:27 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 04:24 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52S-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_190424A** QC Batch: **R133474** PrepDate: Analyst: **RAB**							
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 04:51 PM
DISSOLVED METALS BY ICP-MS							
EPA 3010A **EPA 6020**							
RunID: **NV00922-ICP7_190509A** QC Batch: **73664** PrepDate: **5/2/2019** Analyst: **CEI**							
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 04:34 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 11:07 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190509A**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 04:44 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-908-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 12:03 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 04:53 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-32-035-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 06:08 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 05:24 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-32-035-EB-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 1:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 11:25 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-040-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 06:27 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 05:34 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-055-EB-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:49:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 08:02 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-055-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:39:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 02:16 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 05:45 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-065-EB-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 08:21 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-065-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:38:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 02:25 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 05:50 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-22-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 10:02:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 01:00 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 05:59 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-702-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 08:40 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035250
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035250-014

Client Sample ID: TW-02D-Q219
Collection Date: 4/23/2019 9:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	93	0.66	4.0		µg/L	20	4/24/2019 02:54 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	46	0.13	1.0		µg/L	1	5/9/2019 06:05 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-701-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:55:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 08:59 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:35:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 01:19 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 06:34 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	4/24/2019 01:57 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190509A** QC Batch: **73664**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/9/2019 06:45 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-040-EB-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 09:36 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133474**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **PBW**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363781**

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

Sample ID: **LCS-R133474**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **LCSW**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363782**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.040	0.20	5.000	0	101	90	110				

Sample ID: **N035250-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.961	1.0	5.000	0	99.2	90	110				

Sample ID: **N035250-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.025	1.0	5.000	0	101	90	110				

Sample ID: **N035250-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363788**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.018	0.20	1.000	0	102	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.155	1.0	5.000	0	103	90	110				

Sample ID: **N035250-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.959	1.0	5.000	0	99.2	90	110				

Sample ID: **N035250-016AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.986	1.0	5.000	0	99.7	90	110				

Sample ID: **N035250-017AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363800**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.037	1.0	5.000	0	101	90	110				

Sample ID: **N035250-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.074	0.20	1.000	0	107	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.077	0.20	1.000	0	108	90	110				

Sample ID: **N035250-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	194.764	4.0	100.0	92.86	102	90	110				

Sample ID: **N035251-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0	104	90	110				

Sample ID: **N035251-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363812**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	964.700	20	500.0	466.7	99.6	90	110				

Sample ID: **N035250-014AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	193.654	4.0	100.0	92.86	101	90	110	194.8	0.572	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035251-002ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	472.350	20						466.7	1.21	20	

Sample ID: **N035250-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363816**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.026	0.20	1.000	0	103	90	110				

Sample ID: **N035250-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.048	0.20	1.000	0	105	90	110				

Sample ID: **N035250-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.077	0.20	1.000	0	108	90	110				

Sample ID: **N035250-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.987	0.20	1.000	0	98.7	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.022	0.20	1.000	0	102	90	110				

Sample ID: **N035250-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID: **N035250-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID: **N035250-018AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.014	0.20	1.000	0	101	90	110				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-73664**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **PBW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379672**

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

Sample ID: **LCS-73664**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **LCSW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.923	1.0	10.00	0	99.2	85	115				

Sample ID: **N035260-001A-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.289	1.0	10.00	0	103	75	125				

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133781**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3379680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.193	1.0	10.00	0	102	75	125	10.29	0.935	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-02D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 9:00:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190425D**	QC Batch: **R133470**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	180	1.2	5.0		mg/L	1	4/25/2019 09:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R133470**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **LCSW**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	104.348	5.0	100.0	0	104	85	115				

Sample ID: **MB-R133470**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **PBW**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363653**

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

Sample ID: **N035251-002CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363657**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	169.565	5.0						166.3	1.94	30	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	267.391	5.0	100.0	166.3	101	75	125				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	265.217	5.0	100.0	166.3	98.9	75	125	267.4	0.816	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035250
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035250-014

Client Sample ID: TW-02D-Q219
Collection Date: 4/23/2019 9:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Bromide	ND	0.098	2.5		mg/L	5	4/25/2019 04:16 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Chloride	1200	4.6	250		mg/L	500	4/25/2019 01:18 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Sulfate	330	1.1	25		mg/L	50	4/25/2019 01:33 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID: **MB-R133486_BR**	SampType: **MBLK**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **PBW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364600**

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

Sample ID: **LCS-R133486_BR**	SampType: **LCS**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **LCSW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.270	0.50	1.250	0	102	90	110				

Sample ID: **N035250-014BDUP**	SampType: **DUP**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	0.380	2.5						0.3910	0	20	

Sample ID: **N035250-014BMS**	SampType: **MS**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364608**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.620	2.5	6.250	0.3910	99.7	80	120				

Sample ID: **N035250-014BMSD**	SampType: **MSD**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	6.454	2.5	6.250	0.3910	97.0	80	120	6.620	2.54	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R133486_CL**	SampType: **MBLK**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **PBW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364546**

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

Sample ID: **LCS-R133486_CL**	SampType: **LCS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **LCSW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.043	0.50	2.000	0	102	90	110				

Sample ID: **N035251-001CDUP**	SampType: **DUP**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	346.220	25						350.9	1.35	20	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3154.650	250	1000	2198	95.7	80	120				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364563**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3196.000	250	1000	2198	99.8	80	120	3155	1.30	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N035250-014BMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2231.350	250	1000	1226	101	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R133486_SO4**	SampType: **MBLK**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **PBW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364573**

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

Sample ID: **LCS-R133486_SO4**	SampType: **LCS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **LCSW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.039	0.50	4.000	0	101	90	110				

Sample ID: **N035251-001CDUP**	SampType: **DUP**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	238.670	25						241.6	1.21	20	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	708.475	25	200.0	509.4	99.5	80	120				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	714.125	25	200.0	509.4	102	80	120	708.5	0.794	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N035250-014BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133486**
Client ID: **ZZZZZZ** Batch ID: **R133486** TestNo: **EPA 300.0** Analysis Date: **4/25/2019** SeqNo: **3364593**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	529.265	25	200.0	332.5	98.4	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-040-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 3:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190425F**	QC Batch: **R133477**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	4/25/2019

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R133477**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **133477**			
Client ID: **PBW**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**			SeqNo: **3363864**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R133477**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **133477**			
Client ID: **LCSW**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**			SeqNo: **3363865**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.3	85	115				

Sample ID: **N035180-003BDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **133477**			
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**			SeqNo: **3363869**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.148	0.50						8.542	6.85	20	

Sample ID: **N035180-004BMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **133477**			
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**			SeqNo: **3363871**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	6.403	0.25	2.500	3.990	96.5	75	125				

Sample ID: **N035180-004BMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **133477**			
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**			SeqNo: **3363872**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	6.310	0.25	2.500	3.990	92.8	75	125	6.403	1.47	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	5/9/2019 04:24 PM
Manganese	150	0.26	0.50		µg/L	1	5/9/2019 04:24 PM

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52S-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	0.38	0.081	0.10		µg/L	1	5/9/2019 04:34 PM
Manganese	1200	2.6	5.0		µg/L	10	5/9/2019 06:55 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-52D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	3.0	0.081	0.10		µg/L	1	5/9/2019 04:44 PM
Manganese	260	1.3	2.5		µg/L	5	5/9/2019 07:00 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-908-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 11:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	3.0	0.081	0.10		µg/L	1	5/9/2019 04:53 PM
Manganese	270	1.3	2.5		µg/L	5	5/9/2019 07:05 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-32-035-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	4.6	0.081	0.10		µg/L	1	5/9/2019 05:24 PM
Manganese	890	2.6	5.0		µg/L	10	5/9/2019 07:10 PM

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035250
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035250-007

Client Sample ID: MW-33-040-Q219
Collection Date: 4/23/2019 3:33:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	10	0.081	0.10		µg/L	1	5/9/2019 05:34 PM
Manganese	15	0.26	0.50		µg/L	1	5/9/2019 05:34 PM
Molybdenum	130	0.21	0.50		µg/L	1	5/9/2019 05:34 PM
Selenium	ND	0.36	0.50		µg/L	1	5/9/2019 05:34 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-055-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:39:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	26	0.081	0.10		µg/L	1	5/9/2019 05:45 PM
Manganese	19	0.26	0.50		µg/L	1	5/9/2019 05:45 PM

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-42-065-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 2:38:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	8.3	0.081	0.10		µg/L	1	5/9/2019 05:50 PM
Manganese	540	1.3	2.5		µg/L	5	5/9/2019 05:55 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-22-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 10:02:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	13	0.081	0.10		µg/L	1	5/9/2019 05:59 PM
Manganese	1900	26	50		µg/L	100	5/9/2019 07:15 PM

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035250
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035250-014

Client Sample ID: TW-02D-Q219
Collection Date: 4/23/2019 9:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Manganese	27	0.26	0.50		µg/L	1	5/9/2019 06:05 PM
Molybdenum	10	0.21	0.50		µg/L	1	5/9/2019 06:05 PM
Selenium	2.0	0.36	0.50		µg/L	1	5/9/2019 06:05 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53D-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:35:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	4.2	0.081	0.10		µg/L	1	5/9/2019 06:34 PM
Manganese	1400	2.6	5.0		µg/L	10	5/9/2019 07:29 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-53M-Q219
Lab Order:	N035250	**Collection Date:**	4/23/2019 12:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035250-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190509E**	QC Batch: **73664**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	0.82	0.081	0.10		µg/L	1	5/9/2019 06:45 PM
Manganese	430	1.3	2.5		µg/L	5	5/9/2019 06:50 PM

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-73664**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **PBW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-73664**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **LCSW**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.933	0.10	10.00	0	99.3	85	115				
Manganese	102.767	0.50	100.0	0	103	85	115				
Molybdenum	9.093	0.50	10.00	0	90.9	85	115				
Selenium	10.072	0.50	10.00	0	101	85	115				

Sample ID: **N035260-001A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.412	0.10	10.00	0	104	75	125				
Manganese	107.388	0.50	100.0	0	107	75	125				
Molybdenum	9.982	0.50	10.00	0	99.8	75	125				
Selenium	10.033	0.50	10.00	0	100	75	125				

Sample ID: **N035260-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **73664**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/9/2019**	SeqNo: **3380635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.282	0.10	10.00	0	103	75	125	9.960	3.18	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035260-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/2/2019** RunNo: **133800**
Client ID: **ZZZZZZ** Batch ID: **73664** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **5/9/2019** SeqNo: **3380635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.187	0.50	100.0	0	107	75	125	106.8	0.365	20	
Molybdenum	10.046	0.50	10.00	0	100	75	125	10.31	2.58	20	
Selenium	9.887	0.50	10.00	0	98.9	75	125	9.852	0.358	20	

Qualifiers:

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

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

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Page 1 of 2

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition (Y / N): 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 4; 6. Method of Cooling: Ice
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#: SWA-ASSET-C9817-057
Submitted By: Jason Mahn	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: Project Manager			Sample Temp: 5.0/5.6°C
Signature: Date: 4/23/19	Sampled By: Jason Mahn	Matrix: Ground x Sediment; Potable Soil; NPDES Other Solid; Surface	Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: Date: 4/23/19		
Project Number: RC000753.801D			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	250 mL poly: Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	250 mL poly: Oxygen and Deuterium Isotopes (CFIRM), Ice	2x250 mL poly: Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	1 liter poly: Alkalinity, Total as CaCO3 (SM2320B)	1 liter poly: Bromide, Sulfate, Chloride (EPA 300.0)	1 liter poly: Fluoride (EPA 300.0)	1 liter poly: Specific Conductance (EPA 120.1)	1 liter poly: Total Dissolved Solids (SM92540)	125 mL poly: Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4	3x40 mL poly: Total Organic Carbon (SM5310C); H2SO4	500 mL poly: Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se	500 mL poly: Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na	500 mL poly: Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn	500 mL poly: Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni,	500 mL poly: Metals Dissolved (EPA7470A FF) Hg; HNO3	500 mL poly: Dissolved Metals (SW 6010B); HNO3 Potassium	500 mL poly: Total metals, Chromium (non-filter) (EPA 200.8), HNO3	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035250-01	MW-52M-Q219	4/23/2019	1110				X				X							X				E	4	P	BNS	
2	-02	MW-52S-Q219	4/23/2019	1145				X				X							X				E	4	P	BNS	
3	-03	MW-52D-Q219	4/23/2019	1112				X				X							X				E	4	P	BNS	
4	-04	MW-908-Q219	4/23/2019	1132				X				X							X				E	4	P	BNS	
5	-05	MW-32-035-Q219	4/23/2019	1344				X				X							X				E	4	P	BNS	
6	-06	MW-32-035-EB-Q219	4/23/2019	1355		X																	E	1	P	B	
7	-07	MW-33-040-Q219	4/22/2019	1533				X				X		X		X							E	5	P	BNS	
8	-08	MW-42-055-EB-Q219	4/23/2019	1449		X																	E	1	P	B	
9	-09	MW-42-055-Q219	4/23/2019	1439				X				X							X				E	4	P	BN	
10	-10	MW-42-065-EB-Q219	4/23/2019	1445		X																	E	1	P	B	
11	-11	MW-42-065-Q219	4/23/2019	1438				X				X							X				E	4	P	BN	
12	-12	MW-22-Q219	4/23/2019	1002		X						X							X				E	3	P	BNS	
13	-13	MW-702-Q219	4/23/2019	1520		X																	E	1	P	B	
1	-14	TW-02D-Q219	4/23/2019	0900		X			X	X		X	X				X						E	3	P	BNS	
15	-15	MW-701-Q219	4/23/2019	1555		X																	E	1	P	B	

Relinquished by (Signature and Printed Name)	Date/Time	Received by (Signature and Printed Name)	Date/Time
Jason Mahn	4/23/19 1830	JORDAN MOE	4-23-19 1830
JORDAN MOE	4-23-19 2000	JORDAN MOE	4-23-19 2000

Turn Around Time (TAT)

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

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

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

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

Preservatives:

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

Container Type:

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

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes		EDD Requirement		QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:		Excel EDD		RTNE	Y N
				Geotracker		RWQCB ✓	1. Chilled ✓
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com daniel.moore@critigen.com	Address:		Labspec		CalTrans	2. Headspace
				Others ✓		LEVEL III	3. Container Intact ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-057	Specify: RWQCB		LEVEL IV	4. Seal Present ✓
Submitted By: Jason Mahn		Phone: 949-727-1400, ext 200	Fax:	Global ID:		Regulatory	5. IR number 2
Title: Project Manager	Phone: 916-786-3302 Fax:					Specify State:	6. Method of Cooling: Ice
Signature: Date: 4/23/19	Sampled By: Jason Mahn	Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface					Sample Temp: 5.0 / 5.6 °C
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.						Courier:
Project Name: PG&E Topock - GMP	Signature: Date: 4/23/19						Tracking No.:
Project Number: RC000753.801D							

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	250 mL poly Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	250 mL poly Oxygen and Deuterium Isotopes (CFIRM), Ice	2x250 mL poly Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	1 liter poly Alkalinity, Total as CaCO3 (SM2320B)	1 liter poly Bromide, Sulfate, Chloride (EPA 300.0)	1 liter poly Fluoride (EPA 300.0)	1 liter poly Specific Conductance (EPA 120.1)	1 liter poly Total Dissolved Solids (SM92540)	125 mL poly Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4	3x40 mL poly Total Organic Carbon (SM5310C); H2SO4	500 mL poly Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se	500 mL poly Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na	500 mL poly Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn	500 mL poly Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni,	500 mL poly Metals Dissolved (EPA7470A FF) Hg; HNO3	500 mL poly Dissolved Metals (SW 6010B); HNO3 Potassium	500 mL poly Total metals, Chromium (non-filter) (EPA 200.8), HNO3	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035250-16	MW-53D-Q219	4/23/2019	1235				X				X						X					E	4	P	BNS	
2	-17	MW-53M-Q219	4/23/2019	1230				X				X						X					E	4	P	BNS	
3	-18	MW-33-040-EB-Q219	4/23/2019	1545		X																	E	1	P	BNS	

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Jason Mahn	4/23/19 1630	JORDAN IGO	4-23-19 1630
JORDAN IGO	4-23-19 2000	JORDAN IGO	4-23-19 2000

Turn Around Time (TAT)

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

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

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

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

Preservatives:

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

Container Type:

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

White=Laboratory Copy
Yellow=Customer's Copy

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

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD		RTNE				
			Geotracker		RWQCB	✓	1. Chilled		
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Labspec		CalTrans		2. Headspace		
			Others	✓	LEVEL III		3. Container Intact		
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-057	Specify: RWQCB		LEVEL IV		4. Seal Present		
					Regulatory		5. IR number		
Submitted By: Jason Mahn		Phone: 949-727-1400, ext 200 Fax:	Global ID:		Specify State:		6. Method of Cooling:		
Title:	Phone: 916-786-3302 Fax:								
Signature: Date:	Sampled By:						Sample Temp:		

I hereby authorize ASSET Labs to perform the tests indicated below.

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Project Name: PG&E Topock - GMP
Project Number: RC000753.801D
Signature: Date:

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

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Fluoride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly)	Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, (500 mL poly)	Metals Dissolved (EPA7470A FF) Hg; HNO3 (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly)	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1																										
2																										
3																										
4																										
5																										
6																										
7		MW-33-040-Q219	4/23/2019					X				X		X		X								E	5	P	BNS	
8		MW-33-040-EB-Q219	4/23/2019			X																		E	5	P	BNS	
9																												
10																												
11																												
12		MW-701-Q219	4/23/2019			X																		E	1	P	B	

Reliquished by (Signature and Printed Name): Date/Time: Received by (Signature and Printed Name): Date/Time:

Reliquished by (Signature and Printed Name): Date/Time: Received by (Signature and Printed Name): Date/Time:

Reliquished by (Signature and Printed Name): Date/Time: Received by (Signature and Printed Name): Date/Time:

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

Container Type:

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

White=Laboratory Copy
Yellow=Customer's Copy

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CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD		RTNE				
			Geotracker		RWQCB	✓	1. Chilled		
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Labspec		CalTrans		2. Headspace		
			Others	✓	LEVEL III		3. Container Intact		
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Specify: RWQCB		LEVEL IV		4. Seal Present		
		P.O.# SWA-ASSET-C9817-057			Regulatory		5. IR number		
Submitted By:		Phone: 949-727-1400, ext 200 Fax:	Global ID:		Specify State:		6. Method of Cooling:		
Title:	Phone: 916-786-3302 Fax:						Sample Temp:		
Signature: Date:	Sampled By:								

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Project Name: PG&E Topock - GMP
Project Number: RC000753.801D

Signature: Date:

Matrix

Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Oxygen and Deuterium Isotopes (CFIRM), Ice 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Fluoride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Dissolved metals (SW 6020) HNO3 As, Cr, Mn, Mo, Se 500 mL poly	Dissolved Metals (SW 6010B); HNO3 Cr, Mn, Mo, Se 500 mL poly	Dissolved metals (SW 6020) HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn 500 mL poly	Dissolved Metals (SW 6010B); HNO3 As, Cr, Mn 500 mL poly	Metals Dissolved (EPA7470A FF) Hg; HNO3 500 mL poly	Dissolved Metals (SW 6010B); HNO3 Potassium 500 mL poly	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 500 mL poly	Dissolved metals (SW 6020) HNO3 As, Cr, Mn, Mo, Se 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		TW-02D-Q219	4/23/2019			X			X	X		X	X				X								E	3	P	BNS	
2		MW-52M-Q219	4/23/2019					X				X							X							E	4	P	BNS	
3		MW-52S-Q219	4/23/2019					X				X							X							E	4	P	BNS	
4		MW-52D-Q219	4/23/2019					X				X							X							E	4	P	BNS	
5		MW-908-Q219	4/23/2019					X				X							X							E	4	P	BNS	
6																													
7		MW-32-035-Q219	4/23/2019					X				X							X							E	4	P	BNS	
8		MW-32-035-EB-Q219	4/23/2019			X																				E	1	P	B	
9																													
10																													

Reliquished by (Signature and Printed Name): Date/Time: Received by (Signature and Printed Name): Date/Time:

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Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
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Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Labspec		CalTrans		2. Headspace		
			Others	✓	LEVEL III		3. Container Intact		
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Specify: RWQCB		LEVEL IV		4. Seal Present		
		P.O.# SWA-ASSET-C9817-057			Regulatory		5. IR number		
Submitted By:		Phone: 949-727-1400, ext 200 Fax:	Global ID:		Specify State:		6. Method of Cooling:		
Title:	Phone: 916-786-3302 Fax:						Sample Temp:		
Signature: Date:	Sampled By:								

I hereby authorize ASSET Labs to perform the tests indicated below.

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Project Name: PG&E Topock - GMP
Project Number: RC000753.801D

Signature: Date:

Matrix

Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Fluoride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Dissolved metals (SW 6020), HNO3 As, Cr, Mg, Mn, Mo, Se (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly)	Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 As, Cr, Mn (500 mL poly)	Metals Dissolved (EPA7470A FF) Hg; HNO3 (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly)	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		MW-42-055-EB-Q219	4/23/2019			X																		E	1	P	B	
2		MW-42-055-Q219	4/23/2019					X				X							X						E	3	P	BN	
3		MW-42-065-EB-Q219	4/23/2019			X																			E	1	P	B	
4		MW-42-065-Q219	4/23/2019					X				X							X						E	3	P	BN	
5		MW-22-Q219	4/23/2019			X						X							X						E	3	P	BN	
6		MW-702-Q219	4/23/2019			X																			E	1	P	B	
7																													
8		MW-53D-Q219	4/23/2019					X				X							X						E	3	P	BN	
9		MW-53M-Q219	4/23/2019					X				X							X						E	3	P	BN	
10																													

Reliquished by (Signature and Printed Name): Date/Time: | Received by (Signature and Printed Name): Date/Time:

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Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	4/23/2019	Workorder:	N035250
Rep sample Temp (Deg C):	5.0/5.6	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments: See Correspondence.

Checklist Completed By: YR 4/26/2019

Reviewed By: LG 042919

Sample Control

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Wednesday, April 24, 2019 9:44 AM
To: samplecontrol.lv@assetlaboratories.com; Yoandra Rodriguez; nancy@assetlaboratories.com; marlon@assetlaboratories.com; Tina Rice
Subject: RE: N035250 and N035251 COCs and Work Order Summaries for Samples Received 4/23/2019
Attachments: PGE Topock GMP Floodplain COC 2Q 2019_rev2.xlsx

Importance: High

Hi Yoandra,
Please use these revised COCs as an addendum to the ones submitted for SDG N035250. The analyte lists are correct on this version. Please use the sample times from the original batch of COCs and send out a revised login.

Thanks,
Laura

From: Madsen, Laura
Sent: Wednesday, April 24, 2019 11:24 AM
To: Sample Control <samplecontrol.lv@assetlaboratories.com>; Yoandra Rodriguez <yoandra@assetlaboratories.com>; nancy@assetlaboratories.com; Marlon Cartin <marlon@assetlaboratories.com>; Tina Rice <Tina.Rice@critigen.com>
Subject: RE: N035250 and N035251 COCs and Work Order Summaries for Samples Received 4/23/2019

Hi Yoandra,
There are some issues with the metals lists on the COCs in both SDGs. It was a cut and paste issue in the field, so I'll be sending you corrected COCs shortly with the right list of metals for each sample to edit the logins.

I apologize for the confusion.

Thanks,
Laura

From: Sample Control <samplecontrol.lv@assetlaboratories.com>
Sent: Wednesday, April 24, 2019 10:40 AM
To: Bush, Dan <Dan.Bush@arcadis.com>; Dan Moore <Daniel.Moore@critigen.com>
Cc: Madsen, Laura <Laura.Madsen@arcadis.com>; Sean.Maurel@arcadis.com; Tina Rice <Tina.Rice@critigen.com>; Kalib Sumter <Kalib.Sumter@critigen.com>; rsunjara@blainetech.com; Nicholas.Vadpey@arcadis.com; Harmon, Alison <Ali.Harmon@arcadis.com>; Serna, Erica <Erica.Serna@arcadis.com>; jmahn@blainetech.com; Borelis, Mariah <Mariah.Borelis@arcadis.com>; Bloes, Marty <mbloes@pivox.com>
Subject: N035250 and N035251 COCs and Work Order Summaries for Samples Received 4/23/2019

Hi Dan Bush:

Enclosed are COCs and WO Summaries for samples received 4/23/2019. If you have any questions, please contact your Project Manager listed below.

Marlon Cartin
3151 W. Post Road
Las Vegas, Nevada
89118
Tel. No.: (702)-307-2659 Ext. 410
Cel. No.: (702)-439-0421
Email: marlon@assetlaboratories.com

Thank you for using ASSET Laboratories.

Sincerely,
Mary Ann Balilu
Sample Control Officer



ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | **P:** 562.219.7435 | **F:** 562.219.7436
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | **P:** 702.307.2659 | **F:** 702.307.2691
www.assetlaboratories.com

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

From: Madsen, Laura <Laura.Madsen@arcadis.com>
Sent: Wednesday, April 24, 2019 9:08 AM
To: Yoandra Rodriguez
Cc: maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo'; 'Sonny. Lorenzo'
Subject: RE: PG&E Topock - GMP, RC000753.801D (Asset Labs No. N035250)

Correct. 4/23 is the right date.

Thanks,
Laura

From: Yoandra Rodriguez <yoandra@assetlaboratories.com>
Sent: Wednesday, April 24, 2019 10:33 AM
To: Madsen, Laura <Laura.Madsen@arcadis.com>
Cc: maryann.balilu@assetlaboratoriesph.com; 'Andreafe. Gallardo' <andrea.gallardo@assetlaboratories.com>; 'Sonny. Lorenzo' <sonny.lorenzo@assetlaboratories.com>
Subject: PG&E Topock - GMP, RC000753.801D (Asset Labs No. N035250)

Hi Laura,

Sample 7 (MW-33-040-Q219): Collection date is 4/22/19 on COC and 4/23/19 on labels.

We followed sample labels. Please confirm.

COC is attached for reference.

--
Thanks,

Yoandra Rodriguez
Sample Control Officer
Nevada: 3151 W. Post Road, Las Vegas, NV 89118 | P: 702.307.2659 | F: 702.307.2691
California: 11110 Artesia Blvd., Ste. B, Cerritos, CA 90703 | P: 562.219.7435 | F: 562.219.7436

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ASSET Laboratories

WORK ORDER Summary

24-Apr-19

WorkOrder: N035250

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035250-001A	MW-52M-Q219	4/23/2019 11:10:00 AM	5/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-001B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-001C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-002A	MW-52S-Q219	4/23/2019 11:45:00 AM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-002B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-002C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-003A	MW-52D-Q219	4/23/2019 11:12:00 AM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-003B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-003C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-004A	MW-908-Q219	4/23/2019 11:32:00 AM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-004B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-004C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-005A	MW-32-035-Q219	4/23/2019 1:44:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-005B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

WORK ORDER Summary

24-Apr-19

WorkOrder: N035250

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035250-005C	MW-32-035-Q219	4/23/2019 1:44:00 PM	5/7/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-006A	MW-32-035-EB-Q219	4/23/2019 1:55:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-007A	MW-33-040-Q219	4/23/2019 3:33:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-007B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-007C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-007D			5/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035250-008A	MW-42-055-EB-Q219	4/23/2019 2:49:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-009A	MW-42-055-Q219	4/23/2019 2:39:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-009B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-009C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-010A	MW-42-065-EB-Q219	4/23/2019 2:45:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-011A	MW-42-065-Q219	4/23/2019 2:38:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-011B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-011C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

24-Apr-19

WorkOrder: N035250

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035250-012A	MW-22-Q219	4/23/2019 10:02:00 AM	5/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-012B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-012C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-013A	MW-702-Q219	4/23/2019 3:20:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-014A	TW-02D-Q219	4/23/2019 9:00:00 AM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-014B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			5/7/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			5/7/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			5/7/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/7/2019		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	LSR
N035250-014C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-015A	MW-701-Q219	4/23/2019 3:55:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-016A	MW-53D-Q219	4/23/2019 12:35:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-016B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-016C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

24-Apr-19

WorkOrder: N035250

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035250-016C	MW-53D-Q219	4/23/2019 12:35:00 PM	5/7/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-017A	MW-53M-Q219	4/23/2019 12:30:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-017B			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035250-017C			5/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035250-018A	MW-33-040-EB-Q219	4/23/2019 3:45:00 PM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035250-019A	FOLDER	5/7/2019	5/7/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/7/2019		Folder	Folder	☐	☐	☐	LAB
			5/7/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035250

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Ria Abes	EPA 218.6, EPA 300.0
Lilia Ramit	EPA 120.1, SM 2540C, SM 2320 B

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133439 **Analyst:** LSR

ASSET #: N035250 **Date Analyzed:** 24-Apr

Method: EPA 120.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer Silvia Ramit Date: 4/29/2019

2nd Level Reviewer 5/7/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 4/23/19 1135
Analyst: LSR

Standard	Std ID	Reading	Comments
11.26 us/cm	CINV-181011A	11.41 @18.5C	% Rec: (90-110%)
1410	190107D	1414 @18.6C	
9965	190218B	9940 @18.6C	
100390	190218C	100500 @18.6C	

	Sample ID	Matrix	Reading	Comments
1	N035240-1B	H_2O	10220 @18.0C	
2	3B		9810 @17.8C	
3	4B		19280 @18.0C	
4	4B DUP		19330 @18.0C	
5				
6				
7				
8	1413 us/cm	CINV-181022A	1454 @18.5C	
9	10000	B	9970 @18.6C	
10	99922	CINV-190111H	99600 @18.6C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Julia Ramit 4/29/2019

Date: 4/24/19 1045
Analyst: LSR

Standard	Std ID	Reading	Comments
11.26 us/cm	CINV-181011A	11.42 @19.5C	% Rec: (90-110%)
1410	190107D	1412 @19.4C	
9965	190218B	9910 @19.2C	
100390	190218C	100200 @19.2C	

	Sample ID	Matrix	Reading	Comments
1	N035250-1B	H_2O	13690 @18.5C	
2	2B		9390 @18.6C	STD CHECK
3	3B		19220 @18.8C	1413 CINV181022A
4	4B		19440 @19.0C	= 1423 @ 20.9°C
5	4B DUP		19460 @19.3C	10000 CINV181022B
6	5B		7440 @19.2C	= 9630 @ 20.9°C
7	LSN 4/2 ~~6~~ 7B		8670 @19.4C	99922 CINV190111H
8	9B		1000 @18.8C	= 94800 @ 21.1°C
9	11B		2200 @19.6C	
10	12B		13930 @19.0C	
~~Dup~~	14B		4580 @19.3C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

Conductivity Logbook

Date: 4/24/19 1045 KR

Analyst: LSR

CONTD

Standard	Std ID	Reading	Comments
~~1413~~ 11.26 µS/cm	GNV-181011A	11.42 @19.5°C	% Rec: (90-110%)
1410	190107D	1412 @19.4°C	
9965	190218B	9910 @19.2°C	
100390	190218C	100200 @19.2°C	

	Sample ID	Matrix	Reading	Comments
1	N035250-16B	H_2O	24400 @20.2°C	
2	16BDUP		24500 @19.9°C	
3	17B		18470 @19.5°C	
4	N035251-1C		1867 @20.1°C	
5	2C		7430 @20.0°C	
6				
7				
8	1413 µS/cm	GNV-181022A	1405 @21.5°C	
9	10000	B	9680 @21.5°C	
10	99922	GNV-190111H	95100 @21.6°C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 4/25/19 1110

Analyst: KR

Julia Ramit 4/29/2019

Standard	Std ID	Reading	Comments
11.26 µS/cm	GNV-181011A	11.45 @21.4°C	% Rec: (90-110%)
1410	190107D	1422 @21.4°C	
9965	190218B	10040 @21.5°C	
100390	190218C	101100 @21.5°C	

	Sample ID	Matrix	Reading	Comments
1	N035274-1B	H_2O	1805 @20.9°C	STD CHECK
2	2B		10140 @20.0°C	1413 GNV 181022A
3	3B		5720 @19.8°C	= 1462 @23.0°C
4	6B		7910 @19.7°C	10000 GNV 181022B
5	8B		9690 @20.1°C	= 9820 @22.8°C
6	9B		11870 @19.9°C	99922 GNV 190111H
7	11B		4810 @20.1°C	= 95900 @22.7°C
8	13B		6630 @20.2°C	
9	14B		6650 @19.7°C KR 4/25	
10	14BDUP		6640 @19.8°C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73555 **Analyst:** LSR

ASSET #: N035250 **Date Analyzed:** 24-Apr

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

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer Silvia Ramit Date: 4/30/2019

2nd Level Reviewer 5/7/2019 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

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

Where:

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

For **N035250-014B,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(49.2861 - 49.2010)*1000000}{30}$$
$$= 2836.6667 \text{ mg/L}$$

Reporting result in two significant figures,

TDS= 2800 mg/L

Julia Ramit 4/30/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **4/24/2019 1:06:53 P**
Prep End Date:

Reviewed/ Date:
Initials/ Date: Lilia Ramit 4/30/2019

Prep Batch **73555** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit** Prep Factor Units **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73555	Water	1105190409A	100	☐	0	0	100	1.000		
MB-73555	Water		100	☐	0	0	100	1.000		
N035249-001B	Water	3210	100 /40	☐	0	0	100	1.000		
N035249-002B	Water	24400	100 /5	☐	0	0	100	1.000		
N035249-003B	Water	28300	100 /5	☐	0	0	100	1.000		
N035249-004B	Water	43600	100 /2	☐	0	0	100	1.000		
N035249-004B-DU	Water	]	100 /2	☐	0	0	100	1.000		
N035249-005B	Water	13310	100 /10	☐	0	0	100	1.000		
N035249-006B	Water	17080	100 /10	☐	0	0	100	1.000		
N035249-007B	Water	5190	100 /20	☐	0	0	100	1.000		
N035249-008B	Water	8370	100 /20	☐	0	0	100	1.000		
N035249-009B	Water	13340	100 /10	☐	0	0	100	1.000		
N035250-014B	Groundwater	4580	100 /30	☐	0	0	100	1.000		

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

10407
10408

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **4/24/2019 1:06:53 P**
Prep End Date: **4/25/2019 10:45:00**
Reviewed/ Date: 5/7/2019
Initials/ Date: Lilia Ramit 4/30/2019
Prep Batch **73555** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73555	Water		100	☐	0	0	100	1.000		
MB-73555	Water		100	☐	0	0	100	1.000		
N035249-001B	Water		40	☐	0	0	100	2.500		
N035249-002B	Water		5	☐	0	0	100	20.000		
N035249-003B	Water		5	☐	0	0	100	20.000		
N035249-004B	Water		2	☐	0	0	100	50.000		
N035249-004B-DU	Water		2	☐	0	0	100	50.000		
N035249-005B	Water		10	☐	0	0	100	10.000		
N035249-006B	Water		10	☐	0	0	100	10.000		
N035249-007B	Water		20	☐	0	0	100	5.000		
N035249-008B	Water		20	☐	0	0	100	5.000		
N035249-009B	Water		10	☐	0	0	100	10.000		
N035250-014B	Groundwater		30	☐	0	0	100	3.333		

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

Number	Reagent Name
10407	Glass Fiber Filter, 47mm
10408	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190409A	1000 ppm NaCl	LCS	100

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
4/24/19 1300 EC	MB 73555	100	68.0892 68.0895	68.0898 68.0896	
CC	LCS 73557	100	69.7737 69.7734	69.8693 69.8692	
R	N035249-1B	40	48.1068 48.1072	48.2210 48.2206	
A	2B	5	48.8941 48.8944	49.0201 49.0197	
IF	3B	5	60.7844 60.7848	60.9869 60.9865	
IB	4B	2	60.6161 60.6166	60.7326 60.7324	
IX	4B DUP	2	60.5366 60.5370	60.6580 60.6578	
W	5B	10	50.7375 50.7378	50.8503 50.8505	
V	6B	10	48.9128 48.9132	49.0688 49.0685	
IE	7B	20	49.3424 49.3428	49.4417 49.4417	

Julia Ramit 4/30/2019 ASSET Laboratories Logbook#15

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
4/24/19 N	N035249-8B	20	49.9522 49.9525	50.0723 50.0721	
H	9B	10	49.6037 49.6041	49.7156 49.7156	
P	N035250-14B	30	49.2005 49.2010	49.2864 49.2861	
	Julia Ramit		4/30/2019		
	49.9998		@ 1045 4/25/19		

ASSET Laboratories

Logbook#15

TOTAL DISSOLVED SOLIDS, TDS

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

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

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
4/25/2019									
MB-73555	100	68.0895	68.0896	1	1	1			MBLK
LCS-73555	100	69.7734	69.8692	958	1	958			LCS
N035249-001B	40	48.1072	48.2206	1134	2.5	2835	3210	0.883	SAMP
N035249-002B	5	48.8944	49.0197	1253	20	25060	24400	1.027	SAMP
N035249-003B	5	60.7848	60.9865	2017	20	40340	28300	1.425	SAMP
N035249-004B	2	60.6166	60.7324	1158	50	57900	43600	1.328	SAMP
N035249-004BDUP	2	60.537	60.6578	1208	50	60400	43600	1.385	DUP
N035249-005B	10	50.7378	50.8505	1127	10	11270	13310	0.847	SAMP
N035249-006B	10	48.9132	49.0685	1553	10	15530	17080	0.909	SAMP
N035249-007B	20	49.3428	49.4417	989	5	4945	5190	0.953	SAMP
N035249-008B	20	49.9525	50.0721	1196	5	5980	8370	0.714	SAMP
N035249-009B	10	49.6041	49.7156	1115	10	11150	13340	0.836	SAMP
N035250-014B	30	49.201	49.2861	851	3.33333333	2836.66667	4580	0.619	SAMP

Julia Ramit 4/30/2019

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133474
ASSET #: N035250

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 4/24/2019

Method:

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

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

Comments: Dilution was necessary in N035250-001A/~~002A~~/003A/004A/012A/016A/017A due to matrix interference.
MS and RT failed at 1X.

SECOND LEVEL REVIEW:

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

1st Level Reviewer: rba Date: 5/7/2019

2nd Level Reviewer: 5/7/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

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

FORMULA:

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

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

where:

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

For Sample **N035250-014A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.6430 * 20$$

$$Cr^{+6}, \mu g/L = 92.8600$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 93}$$

ANALYSIS RUN LOG

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	04/23/19 10:30 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/23/19 10:41 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	04/23/19 10:51 AM	Reported
13	MB-R133438	MBLK	1	Hexavalent Chromium	04/23/19 11:00 AM	Reported
14	LCS-R133438	LCS	1	Hexavalent Chromium	04/23/19 11:10 AM	Reported
15	N035240-001A	SAMP	5	Hexavalent Chromium	04/23/19 11:19 AM	Not Reported
16	N035240-001AMS	MS	5	Hexavalent Chromium	04/23/19 11:29 AM	Not Reported
17	N035240-003A	SAMP	5	Hexavalent Chromium	04/23/19 11:38 AM	Not Reported
18	N035240-003AMS	MS	5	Hexavalent Chromium	04/23/19 11:48 AM	Not Reported
19	N035240-004A	SAMP	5	Hexavalent Chromium	04/23/19 11:57 AM	Reported
20	N035240-004AMS	MS	5	Hexavalent Chromium	04/23/19 12:07 PM	Reported
21	N035240-002A	SAMP	1	Hexavalent Chromium	04/23/19 12:16 PM	Reported
22	N035240-002AMS	MS	1	Hexavalent Chromium	04/23/19 12:25 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	04/23/19 12:35 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	04/23/19 12:44 PM	Reported
25	N035240-005A	SAMP	1	Hexavalent Chromium	04/23/19 12:54 PM	Reported
26	N035240-005AMS	MS	1	Hexavalent Chromium	04/23/19 1:03 PM	Reported
27	N035240-001A	SAMP	1	Hexavalent Chromium	04/23/19 1:13 PM	Reported
28	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 1:22 PM	Not Reported
29	N035240-003A	SAMP	1	Hexavalent Chromium	04/23/19 1:32 PM	Reported
30	N035240-003AMS	MS	1	Hexavalent Chromium	04/23/19 1:41 PM	Reported
31	N035240-004A	SAMP	1	Hexavalent Chromium	04/23/19 1:51 PM	Not Reported
32	N035240-004AMS	MS	1	Hexavalent Chromium	04/23/19 2:00 PM	Not Reported
33	N035240-004ADUP	DUP	5	Hexavalent Chromium	04/23/19 2:11 PM	Reported
34	N035240-004AMSD	MSD	5	Hexavalent Chromium	04/23/19 2:22 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	04/23/19 2:32 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	04/23/19 2:41 PM	Reported
37	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 2:51 PM	Reported
38	N035039-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:00 PM	Not Reported
39	N035039-009AMS	MS	1	Hexavalent Chromium	04/23/19 3:10 PM	Not Reported
40	N035065-002A	SAMP	1	Hexavalent Chromium	04/23/19 3:19 PM	Not Reported
41	N035065-002AMS	MS	1	Hexavalent Chromium	04/23/19 3:28 PM	Not Reported
42	N035023-012A	SAMP	1	Hexavalent Chromium	04/23/19 3:38 PM	Not Reported

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035023-012AMS	MS	1	Hexavalent Chromium	04/23/19 3:47 PM	Not Reported
44	N035065-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:57 PM	Not Reported
45	N035065-009AMS	MS	1	Hexavalent Chromium	04/23/19 4:06 PM	Not Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	04/23/19 4:16 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	04/23/19 4:25 PM	Reported
48	N035065-012A	SAMP	1	Hexavalent Chromium	04/23/19 4:35 PM	Not Reported
49	N035065-012AMS	MS	1	Hexavalent Chromium	04/23/19 4:44 PM	Not Reported
50	N035065-005A	SAMP	1	Hexavalent Chromium	04/23/19 4:54 PM	Not Reported
51	N035065-005AMS	MS	1	Hexavalent Chromium	04/23/19 5:03 PM	Not Reported
52	N035074-001A	SAMP	1	Hexavalent Chromium	04/23/19 5:13 PM	Not Reported
53	N035074-001AMS	MS	1	Hexavalent Chromium	04/23/19 5:22 PM	Not Reported
54	CCV-4	CCV	1	Hexavalent Chromium	04/23/19 5:31 PM	Reported
55	CCB-4	CCB	1	Hexavalent Chromium	04/23/19 5:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190423A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 09:17:37**
No. of Injections:	**58**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	12	1000	Unknown		04/23/2019 10:30	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	13	1000	Unknown		04/23/2019 10:41	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		04/23/2019 10:51	Finished	ICB R190411C
13	MB-H2O,MBLK,1,	15	1000	Unknown		04/23/2019 11:00	Finished	MB R190411C
14	LCS-H2O,LCS,1,	16	1000	Unknown		04/23/2019 11:10	Finished	LCS @5ppb, IWST-190423B
15	N035240-001A,SAMF	17	1000	Unknown		04/23/2019 11:19	Finished	SAMP,2>10mL
16	N035240-001AMS,MS	18	1000	Unknown		04/23/2019 11:29	Finished	MS (1ppb), IWST-190423B,2>
17	N035240-003A,SAMF	19	1000	Unknown		04/23/2019 11:38	Finished	SAMP,2>10mL
18	N035240-003AMS,MS	20	1000	Unknown		04/23/2019 11:48	Finished	MS (1ppb), IWST-190423B,2>
19	N035240-004A,SAMF	21	1000	Unknown		04/23/2019 11:57	Finished	SAMP,2>10mL
20	N035240-004AMS,MS	22	1000	Unknown		04/23/2019 12:07	Finished	MS (1ppb), IWST-190423B,2>
21	N035240-002A,SAMF	23	1000	Unknown		04/23/2019 12:16	Finished	SAMP,10mL
22	N035240-002AMS,MS	24	1000	Unknown		04/23/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>
23	CCV-1,CCV1,1,	25	1000	Unknown		04/23/2019 12:35	Finished	CCV @10ppb, IWST-190423A
24	CCB-1,CCB,1,	26	1000	Unknown		04/23/2019 12:44	Finished	CCB R190411C
25	N035240-005A,SAMF	27	1000	Unknown		04/23/2019 12:54	Finished	SAMP,10mL
26	N035240-005AMS,MS	28	1000	Unknown		04/23/2019 13:03	Finished	MS (1ppb), IWST-190423B,10
27	N035240-001A,SAMF	29	1000	Unknown		04/23/2019 13:13	Finished	SAMP,10mL
28	N035240-001AMS,MS	30	1000	Unknown		04/23/2019 13:22	Finished	MS (1ppb), IWST-190423B,10
29	N035240-003A,SAMF	31	1000	Unknown		04/23/2019 13:32	Finished	SAMP,10mL
30	N035240-003AMS,MS	32	1000	Unknown		04/23/2019 13:41	Finished	MS (1ppb), IWST-190423B,10
31	N035240-004A,SAMF	33	1000	Unknown		04/23/2019 13:51	Finished	SAMP,10mL
32	N035240-004AMS,MS	34	1000	Unknown		04/23/2019 14:00	Finished	MS (1ppb), IWST-190423B,2>
33	N035240-004ADUP,D	1	1000	Unknown		04/23/2019 14:11	Finished	DUP,2>10mL
34	N035240-004AMSD,M	2	1000	Unknown		04/23/2019 14:22	Finished	MSD (1ppb), IWST-190423B,2
35	CCV-2,CCV,1,	3	1000	Unknown		04/23/2019 14:32	Finished	CCV @5ppb, IWST-190423A
36	CCB-2,CCB,1,	4	1000	Unknown		04/23/2019 14:41	Finished	CCB R190411C
37	N035240-001AMS,MS	5	1000	Unknown		04/23/2019 14:51	Finished	MS (1ppb), IWST-190423B,10
38	N035039-009A,SAMF	6	1000	Unknown		04/23/2019 15:00	Finished	SAMP,10mL
39	N035039-009AMS,MS	7	1000	Unknown		04/23/2019 15:10	Finished	MS (5ppb), IWST-190423B,10
40	N035065-002A,SAMF	8	1000	Unknown		04/23/2019 15:19	Finished	SAMP,10mL
41	N035065-002AMS,MS	9	1000	Unknown		04/23/2019 15:28	Finished	MS (5ppb), IWST-190423B,10
42	N035023-012A,SAMF	10	1000	Unknown		04/23/2019 15:38	Finished	SAMP,10mL
43	N035023-012AMS,MS	11	1000	Unknown		04/23/2019 15:47	Finished	MS (1ppb), IWST-190423B,10
44	N035065-009A,SAMF	12	1000	Unknown		04/23/2019 15:57	Finished	SAMP,10mL
45	N035065-009AMS,MS	13	1000	Unknown		04/23/2019 16:06	Finished	MS (1ppb), IWST-190423B,10
46	CCV-3,CCV1,1,	14	1000	Unknown		04/23/2019 16:16	Finished	CCV @10ppb, IWST-190423A
47	CCB-3,CCB,1,	15	1000	Unknown		04/23/2019 16:25	Finished	CCB R190411C
48	N035065-012A,SAMF	16	1000	Unknown		04/23/2019 16:35	Finished	SAMP,10mL
49	N035065-012AMS,MS	17	1000	Unknown		04/23/2019 16:44	Finished	MS (1ppb), IWST-190423B,10
50	N035065-005A,SAMF	18	1000	Unknown		04/23/2019 16:54	Finished	SAMP,10mL
51	N035065-005AMS,MS	19	1000	Unknown		04/23/2019 17:03	Finished	MS (1ppb), IWST-190423B,10
52	N035074-001A,SAMF	20	1000	Unknown		04/23/2019 17:13	Finished	SAMP,10mL
53	N035074-001AMS,MS	21	1000	Unknown		04/23/2019 17:22	Finished	MS (1ppb), IWST-190423B,10
54	CCV-4,CCV,1,	22	1000	Unknown		04/23/2019 17:31	Finished	CCV @5ppb, IWST-190423A
55	CCB-4,CCB,1,	23	1000	Unknown		04/23/2019 17:41	Finished	CCB R190411C
56	SHUTDOWN	24	1000	Unknown		04/23/2019 17:50	Finished	
57	Eluent: R190422A	25	1000	Unknown		n.a.	Finished	Eluent
58	PCR: R190422B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

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Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	04/24/19 9:13 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	04/24/19 9:24 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/24/19 9:34 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	04/24/19 9:43 AM	Reported
14	MB-R133474	MBLK	1	Hexavalent Chromium	04/24/19 9:53 AM	Reported
15	LCS-R133474	LCS	1	Hexavalent Chromium	04/24/19 10:02 AM	Reported
16	N035250-001A	SAMP	5	Hexavalent Chromium	04/24/19 10:27 AM	Reported
17	N035250-001AMS	MS	5	Hexavalent Chromium	04/24/19 10:38 AM	Reported
18	N035250-002A	SAMP	5	Hexavalent Chromium	04/24/19 10:48 AM	Not Reported
19	N035250-002AMS	MS	5	Hexavalent Chromium	04/24/19 10:57 AM	Not Reported
20	N035250-003A	SAMP	5	Hexavalent Chromium	04/24/19 11:07 AM	Reported
21	N035250-003AMS	MS	5	Hexavalent Chromium	04/24/19 11:16 AM	Reported
22	N035250-006A	SAMP	1	Hexavalent Chromium	04/24/19 11:25 AM	Reported
23	N035250-006AMS	MS	1	Hexavalent Chromium	04/24/19 11:35 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	04/24/19 11:44 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	04/24/19 11:54 AM	Reported
26	N035250-004A	SAMP	5	Hexavalent Chromium	04/24/19 12:03 PM	Reported
27	N035250-004AMS	MS	5	Hexavalent Chromium	04/24/19 12:13 PM	Reported
28	N035250-005A	SAMP	5	Hexavalent Chromium	04/24/19 12:22 PM	Not Reported
29	N035250-005AMS	MS	5	Hexavalent Chromium	04/24/19 12:32 PM	Not Reported
30	N035250-007A	SAMP	5	Hexavalent Chromium	04/24/19 12:41 PM	Not Reported
31	N035250-007AMS	MS	5	Hexavalent Chromium	04/24/19 12:51 PM	Not Reported
32	N035250-012A	SAMP	5	Hexavalent Chromium	04/24/19 1:00 PM	Reported
33	N035250-012AMS	MS	5	Hexavalent Chromium	04/24/19 1:10 PM	Reported
34	N035250-016A	SAMP	5	Hexavalent Chromium	04/24/19 1:19 PM	Reported
35	N035250-016AMS	MS	5	Hexavalent Chromium	04/24/19 1:28 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	04/24/19 1:38 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	04/24/19 1:47 PM	Reported
38	N035250-017A	SAMP	5	Hexavalent Chromium	04/24/19 1:57 PM	Reported
39	N035250-017AMS	MS	5	Hexavalent Chromium	04/24/19 2:06 PM	Reported
40	N035250-009A	SAMP	1	Hexavalent Chromium	04/24/19 2:16 PM	Reported
41	N035250-011A	SAMP	1	Hexavalent Chromium	04/24/19 2:25 PM	Reported
42	N035250-009AMS	MS	1	Hexavalent Chromium	04/24/19 2:35 PM	Reported

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Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035250-011AMS	MS	1	Hexavalent Chromium	04/24/19 2:44 PM	Reported
44	N035250-014A	SAMP	20	Hexavalent Chromium	04/24/19 2:54 PM	Reported
45	N035250-014AMS	MS	20	Hexavalent Chromium	04/24/19 3:03 PM	Reported
46	N035251-001A	SAMP	1	Hexavalent Chromium	04/24/19 3:13 PM	Reported
47	N035251-001AMS	MS	1	Hexavalent Chromium	04/24/19 3:22 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	04/24/19 3:31 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	04/24/19 3:41 PM	Reported
50	N035251-002A	SAMP	100	Hexavalent Chromium	04/24/19 3:50 PM	Reported
51	N035251-002AMS	MS	100	Hexavalent Chromium	04/24/19 4:00 PM	Reported
52	N035250-014AMSD	MSD	20	Hexavalent Chromium	04/24/19 4:09 PM	Reported
53	N035251-002ADUP	DUP	100	Hexavalent Chromium	04/24/19 4:19 PM	Reported
54	N035250-001A	SAMP	1	Hexavalent Chromium	04/24/19 4:31 PM	Not Reported
55	N035250-001AMS	MS	1	Hexavalent Chromium	04/24/19 4:42 PM	Not Reported
56	N035250-002A	SAMP	1	Hexavalent Chromium	04/24/19 4:51 PM	Reported
57	N035250-002AMS	MS	1	Hexavalent Chromium	04/24/19 5:02 PM	Reported
58	N035250-003A	SAMP	1	Hexavalent Chromium	04/24/19 5:12 PM	Not Reported
59	N035250-003AMS	MS	1	Hexavalent Chromium	04/24/19 5:21 PM	Not Reported
60	CCV-5	CCV	1	Hexavalent Chromium	04/24/19 5:30 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	04/24/19 5:40 PM	Reported
62	N035250-004A	SAMP	1	Hexavalent Chromium	04/24/19 5:49 PM	Not Reported
63	N035250-004AMS	MS	1	Hexavalent Chromium	04/24/19 5:59 PM	Not Reported
64	N035250-005A	SAMP	1	Hexavalent Chromium	04/24/19 6:08 PM	Reported
65	N035250-005AMS	MS	1	Hexavalent Chromium	04/24/19 6:18 PM	Reported
66	N035250-007A	SAMP	1	Hexavalent Chromium	04/24/19 6:27 PM	Reported
67	N035250-007AMS	MS	1	Hexavalent Chromium	04/24/19 6:37 PM	Reported
68	N035250-012A	SAMP	1	Hexavalent Chromium	04/24/19 6:46 PM	Not Reported
69	N035250-012AMS	MS	1	Hexavalent Chromium	04/24/19 6:56 PM	Not Reported
70	N035250-016A	SAMP	1	Hexavalent Chromium	04/24/19 7:05 PM	Not Reported
71	N035250-016AMS	MS	1	Hexavalent Chromium	04/24/19 7:15 PM	Not Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	04/24/19 7:24 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	04/24/19 7:33 PM	Reported
74	N035250-017A	SAMP	1	Hexavalent Chromium	04/24/19 7:43 PM	Not Reported
75	N035250-017AMS	MS	1	Hexavalent Chromium	04/24/19 7:52 PM	Not Reported
76	N035250-008A	SAMP	1	Hexavalent Chromium	04/24/19 8:02 PM	Reported
77	N035250-008AMS	MS	1	Hexavalent Chromium	04/24/19 8:11 PM	Reported
78	N035250-010A	SAMP	1	Hexavalent Chromium	04/24/19 8:21 PM	Reported
79	N035250-010AMS	MS	1	Hexavalent Chromium	04/24/19 8:30 PM	Reported
80	N035250-013A	SAMP	1	Hexavalent Chromium	04/24/19 8:40 PM	Reported
81	N035250-013AMS	MS	1	Hexavalent Chromium	04/24/19 8:49 PM	Reported
82	N035250-015A	SAMP	1	Hexavalent Chromium	04/24/19 8:59 PM	Reported
83	N035250-015AMS	MS	1	Hexavalent Chromium	04/24/19 9:08 PM	Reported
84	CCV-7	CCV	1	Hexavalent Chromium	04/24/19 9:18 PM	Reported

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Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	CCB-7	CCB	1	Hexavalent Chromium	04/24/19 9:27 PM	Reported
86	N035250-018A	SAMP	1	Hexavalent Chromium	04/24/19 9:36 PM	Reported
87	N035250-018AMS	MS	1	Hexavalent Chromium	04/24/19 9:46 PM	Reported
88	CCV-8	CCV1	1	Hexavalent Chromium	04/24/19 9:55 PM	Reported
89	CCB-8	CCB	1	Hexavalent Chromium	04/24/19 10:05 PM	Reported
90	BLANK	BLANK	1	Hexavalent Chromium	04/24/19 10:14 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190424A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 22:45:10**
No. of Injections:	**93**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		04/24/2019 09:13	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		04/24/2019 09:24	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		04/24/2019 09:34	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		04/24/2019 09:43	Finished	CCB R190411C
14	MB-H2O,MBLK,1,	5	1000	Unknown		04/24/2019 09:53	Finished	MB R190411C
15	LCS-H2O,LCS,1,	6	1000	Unknown		04/24/2019 10:02	Finished	LCS @5ppb, IWST-190423B
16	N035250-001A,SAMP	1	1000	Unknown		04/24/2019 10:27	Finished	SAMP,2>10mL
17	N035250-001AMS,MS	2	1000	Unknown		04/24/2019 10:38	Finished	MS (1ppb), IWST-190423B,2>1
18	N035250-002A,SAMP	3	1000	Unknown		04/24/2019 10:48	Finished	SAMP,2>10mL
19	N035250-002AMS,MS	4	1000	Unknown		04/24/2019 10:57	Finished	MS (1ppb), IWST-190423B,2>1
20	N035250-003A,SAMP	5	1000	Unknown		04/24/2019 11:07	Finished	SAMP,2>10mL
21	N035250-003AMS,MS	6	1000	Unknown		04/24/2019 11:16	Finished	MS (1ppb), IWST-190423B,2>1
22	N035250-006A,SAMP	7	1000	Unknown		04/24/2019 11:25	Finished	SAMP,10mL
23	N035250-006AMS,MS	8	1000	Unknown		04/24/2019 11:35	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	9	1000	Unknown		04/24/2019 11:44	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	10	1000	Unknown		04/24/2019 11:54	Finished	CCB R190411C
26	N035250-004A,SAMP	11	1000	Unknown		04/24/2019 12:03	Finished	SAMP,2>10mL
27	N035250-004AMS,MS	12	1000	Unknown		04/24/2019 12:13	Finished	MS (1ppb), IWST-190423B,2>1
28	N035250-005A,SAMP	13	1000	Unknown		04/24/2019 12:22	Finished	SAMP,2>10mL
29	N035250-005AMS,MS	14	1000	Unknown		04/24/2019 12:32	Finished	MS (1ppb), IWST-190423B,2>1
30	N035250-007A,SAMP	15	1000	Unknown		04/24/2019 12:41	Finished	SAMP,2>10mL
31	N035250-007AMS,MS	16	1000	Unknown		04/24/2019 12:51	Finished	MS (1ppb), IWST-190423B,2>1
32	N035250-012A,SAMP	17	1000	Unknown		04/24/2019 13:00	Finished	SAMP,2>10mL
33	N035250-012AMS,MS	18	1000	Unknown		04/24/2019 13:10	Finished	MS (1ppb), IWST-190423B,2>1
34	N035250-016A,SAMP	19	1000	Unknown		04/24/2019 13:19	Finished	SAMP,2>10mL
35	N035250-016AMS,MS	20	1000	Unknown		04/24/2019 13:28	Finished	MS (1ppb), IWST-190423B,2>1
36	CCV-3,CCV,1,	21	1000	Unknown		04/24/2019 13:38	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	22	1000	Unknown		04/24/2019 13:47	Finished	CCB R190411C
38	N035250-017A,SAMP	23	1000	Unknown		04/24/2019 13:57	Finished	SAMP,2>10mL
39	N035250-017AMS,MS	24	1000	Unknown		04/24/2019 14:06	Finished	MS (1ppb), IWST-190423B,2>1
40	N035250-009A,SAMP	25	1000	Unknown		04/24/2019 14:16	Finished	SAMP,10mL
41	N035250-011A,SAMP	26	1000	Unknown		04/24/2019 14:25	Finished	SAMP,10mL
42	N035250-009AMS,MS	27	1000	Unknown		04/24/2019 14:35	Finished	MS (1ppb), IWST-190423B,10
43	N035250-011AMS,MS	28	1000	Unknown		04/24/2019 14:44	Finished	MS (1ppb), IWST-190423B,10
44	N035250-014A,SAMP	29	1000	Unknown		04/24/2019 14:54	Finished	SAMP,0.5>10mL
45	N035250-014AMS,MS	30	1000	Unknown		04/24/2019 15:03	Finished	MS (5ppb), IWST-190423B,0.5
46	N035251-001A,SAMP	31	1000	Unknown		04/24/2019 15:13	Finished	SAMP,10mL
47	N035251-001AMS,MS	32	1000	Unknown		04/24/2019 15:22	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	33	1000	Unknown		04/24/2019 15:31	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	34	1000	Unknown		04/24/2019 15:41	Finished	CCB R190411C
50	N035251-002A,SAMP	35	1000	Unknown		04/24/2019 15:50	Finished	SAMP,0.1>10mL
51	N035251-002AMS,MS	36	1000	Unknown		04/24/2019 16:00	Finished	MS (5ppb), IWST-190423B,0.1
52	N035250-014AMSD,M	37	1000	Unknown		04/24/2019 16:09	Finished	MSD (5ppb), IWST-190423B,0.
53	N035251-002ADUP,D	38	1000	Unknown		04/24/2019 16:19	Finished	DUP,0.1>10mL
54	N035250-001A,SAMP	1	1000	Unknown		04/24/2019 16:31	Finished	SAMP,10mL
55	N035250-001AMS,MS	2	1000	Unknown		04/24/2019 16:42	Finished	MS (1ppb), IWST-190423B,10
56	N035250-002A,SAMP	3	1000	Unknown		04/24/2019 16:51	Finished	SAMP,10mL
57	N035250-002AMS,MS	4	1000	Unknown		04/24/2019 17:02	Finished	MS (1ppb), IWST-190423B,10
58	N035250-003A,SAMP	5	1000	Unknown		04/24/2019 17:12	Finished	SAMP,10mL
59	N035250-003AMS,MS	6	1000	Unknown		04/24/2019 17:21	Finished	MS (1ppb), IWST-190423B,10
60	CCV-5,CCV,1,	7	1000	Unknown		04/24/2019 17:30	Finished	CCV @5ppb, IWST-190423A

61	CCB-5,CCB,1,	8	1000	Unknown		04/24/2019 17:40	Finished	CCB R190411C
62	N035250-004A,SAMP	9	1000	Unknown		04/24/2019 17:49	Finished	SAMP,10mL
63	N035250-004AMS,MS	10	1000	Unknown		04/24/2019 17:59	Finished	MS (1ppb), IWST-190423B,10
64	N035250-005A,SAMP	11	1000	Unknown		04/24/2019 18:08	Finished	SAMP,10mL
65	N035250-005AMS,MS	12	1000	Unknown		04/24/2019 18:18	Finished	MS (1ppb), IWST-190423B,10
66	N035250-007A,SAMP	13	1000	Unknown		04/24/2019 18:27	Finished	SAMP,10mL
67	N035250-007AMS,MS	14	1000	Unknown		04/24/2019 18:37	Finished	MS (1ppb), IWST-190423B,10
68	N035250-012A,SAMP	15	1000	Unknown		04/24/2019 18:46	Finished	SAMP,10mL
69	N035250-012AMS,MS	16	1000	Unknown		04/24/2019 18:56	Finished	MS (1ppb), IWST-190423B,10
70	N035250-016A,SAMP	17	1000	Unknown		04/24/2019 19:05	Finished	SAMP,10mL
71	N035250-016AMS,MS	18	1000	Unknown		04/24/2019 19:15	Finished	MS (1ppb), IWST-190423B,10
72	CCV-6,CCV1,1,	19	1000	Unknown		04/24/2019 19:24	Finished	CCV @10ppb, IWST-190423A
73	CCB-6,CCB,1,	20	1000	Unknown		04/24/2019 19:33	Finished	CCB R190411C
74	N035250-017A,SAMP	21	1000	Unknown		04/24/2019 19:43	Finished	SAMP,10mL
75	N035250-017AMS,MS	22	1000	Unknown		04/24/2019 19:52	Finished	MS (1ppb), IWST-190423B,10
76	N035250-008A,SAMP	23	1000	Unknown		04/24/2019 20:02	Finished	SAMP,10mL
77	N035250-008AMS,MS	24	1000	Unknown		04/24/2019 20:11	Finished	MS (1ppb), IWST-190423B,10
78	N035250-010A,SAMP	25	1000	Unknown		04/24/2019 20:21	Finished	SAMP,10mL
79	N035250-010AMS,MS	26	1000	Unknown		04/24/2019 20:30	Finished	MS (1ppb), IWST-190423B,10
80	N035250-013A,SAMP	27	1000	Unknown		04/24/2019 20:40	Finished	SAMP,10mL
81	N035250-013AMS,MS	28	1000	Unknown		04/24/2019 20:49	Finished	MS (1ppb), IWST-190423B,10
82	N035250-015A,SAMP	29	1000	Unknown		04/24/2019 20:59	Finished	SAMP,10mL
83	N035250-015AMS,MS	30	1000	Unknown		04/24/2019 21:08	Finished	MS (1ppb), IWST-190423B,10
84	CCV-7,CCV,1,	31	1000	Unknown		04/24/2019 21:18	Finished	CCV @5ppb, IWST-190423A
85	CCB-7,CCB,1,	32	1000	Unknown		04/24/2019 21:27	Finished	CCB R190411C
86	N035250-018A,SAMP	33	1000	Unknown		04/24/2019 21:36	Finished	SAMP,10mL
87	N035250-018AMS,MS	34	1000	Unknown		04/24/2019 21:46	Finished	MS (1ppb), IWST-190423B,10
88	CCV-8,CCV1,1,	35	1000	Unknown		04/24/2019 21:55	Finished	CCV @10ppb, IWST-190423A
89	CCB-8,CCB,1,	36	1000	Unknown		04/24/2019 22:05	Finished	CCB R190411C
90	BLANK	37	1000	Unknown		04/24/2019 22:14	Finished	BLANK
91	SHUTDOWN	38	1000	Unknown		04/24/2019 22:24	Finished	
92	Eluent: R190424A	39	1000	Unknown		n.a.	Finished	Eluent
93	PCR: R190424B	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 4/24/19
Time Prepared: 1005
Prepared By: [illegible]

SLOPE: 96.3%
pH 7 - 6.99
4 - 4.01
10 - 10.01

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90424A
NH4OH + NH4SO4 buffer: M90411C

6N NaOH: M90329A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M35250-001A	9.56	–	-250ml	-250ml		1/2
2)	1A	9.49	–				2/2
3)	2A	8.33	9.33			+10 dps NaOH	1/2
4)	2A	8.29	9.30			+10 " "	2/2
5)	3A	9.56	–				1/2
6)	3A	9.60	–				2/2
7)	4A	9.62	–				1/2
8)	4A	9.65	–				2/2
9)	5A	8.81	9.32			+7 " "	1/2
10)	5A	8.72	9.32			+8 " "	2/2
11)	6A	9.67	–				1/1
12)	7A	9.52	–				1/2
13)	7A	9.51	–				2/2
14)	8A	9.59	–				1/1
15)	9A	9.49	–				1/2
	9A	9.46	–				2/2

Sample Preparation

Date Prepared: 4/24/19
Time Prepared: 1005H
Prepared By: [illegible]

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90424A
NH4OH + NH4SO4 buffer: M90411C

6N NaOH: M90411C

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M35250-10A	9.57	–	-250ml	-250ml		1/1
2)	11A	9.37	–				1/2
3)	11A	9.36	–				2/2
4)	12A	8.11	9.32			+10 dps NaOH	1/1
5)	13A	9.57	–				1/1
6)	14A	9.31	–				1/1
7)	15A	9.62	–				1/1
8)	16A	9.47	–				1/2
9)	16A	9.49	–				2/2
10)	17A	9.50	–				1/2
11)	17A	9.57	–				2/2
12)	18A	9.64	–				1/1
13)	M35251-1A	9.26	9.40			+2 " "	
14)	2A	9.21	9.42			+3 " "	
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 4/23/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0538	0.2527	1.2462	2.4794	3.7395	4.9803	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ICV**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3363775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3363776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.226	0.20	0.2000	0	113	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCV**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.936	0.20	5.000	0	98.7	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.217	0.20	0.2000	0	109	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363789**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.913	0.20	10.00	0	99.1	95	105				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCV**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.949	0.20	5.000	0	99.0	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.849	0.20	10.00	0	98.5	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCV**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.925	0.20	5.000	0	98.5	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.892	0.20	10.00	0	98.9	95	105				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCV**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.896	0.20	5.000	0	97.9	95	105				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-8** SampType: **CCV1** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.735	0.20	10.00	0	97.3	95	105				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ICB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3363777**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363780**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363790**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363798**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363810**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363818**

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

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363824**

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

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363834**

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

Sample ID **CCB-8**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363838**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.831	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.848	
CCV-8	4.856	

Average	4.852
Actual RT Window	4.772 - 4.932
Applied RT Window	4.652 - 5.052

MB-R133474	N.A.	N.A.
LCS-R133474	4.856	PASS
N035250-001A	N.A.	N.A.
N035250-001AMS	4.815	PASS
N035250-002A	N.A.	N.A.
N035250-002AMS	4.831	PASS
N035250-003A	N.A.	N.A.
N035250-003AMS	4.790	PASS
N035250-006A	N.A.	N.A.
N035250-006AMS	4.856	PASS
N035250-004A	N.A.	N.A.
N035250-004AMS	4.790	PASS
N035250-005A	N.A.	N.A.
N035250-005AMS	4.831	PASS
N035250-007A	N.A.	N.A.
N035250-007AMS	4.831	PASS
N035250-012A	N.A.	N.A.
N035250-012AMS	4.815	PASS
N035250-016A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.831	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.848	
CCV-8	4.856	
Average	4.852	
Actual RT Window	4.772 - 4.932	
Applied RT Window	4.652 - 5.052	
N035250-016AMS	4.773	PASS
N035250-017A	N.A.	N.A.
N035250-017AMS	4.798	PASS
N035250-009A	N.A.	N.A.
N035250-011A	N.A.	N.A.
N035250-009AMS	4.848	PASS
N035250-011AMS	4.831	PASS
N035250-014A	4.848	PASS
N035250-014AMS	4.856	PASS
N035251-001A	N.A.	N.A.
N035251-001AMS	4.831	PASS
N035251-002A	4.856	PASS
N035251-002AMS	4.856	PASS
N035250-014AMSD	4.856	PASS
N035251-002ADUP	4.856	PASS
N035250-001A	N.A.	N.A.
N035250-001AMS	4.523	FAIL
N035250-002A	N.A.	N.A.
N035250-002AMS	4.706	PASS
N035250-003A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.831	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.848	
CCV-8	4.856	
Average	4.852	
Actual RT Window	4.772 - 4.932	
Applied RT Window	4.652 - 5.052	
N035250-003AMS	N.A.	N.A.
N035250-004A	N.A.	N.A.
N035250-004AMS	N.A.	N.A.
N035250-005A	N.A.	N.A.
N035250-005AMS	4.748	PASS
N035250-007A	N.A.	N.A.
N035250-007AMS	4.723	PASS
N035250-012A	N.A.	N.A.
N035250-012AMS	4.581	FAIL
N035250-016A	N.A.	N.A.
N035250-016AMS	N.A.	N.A.
N035250-017A	N.A.	N.A.
N035250-017AMS	N.A.	N.A.
N035250-008A	N.A.	N.A.
N035250-008AMS	4.856	PASS
N035250-010A	N.A.	N.A.
N035250-010AMS	4.856	PASS
N035250-013A	N.A.	N.A.
N035250-013AMS	4.865	PASS
N035250-015A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.831	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.848	
CCV-8	4.856	
Average	4.852	
Actual RT Window	4.772 - 4.932	
Applied RT Window	4.652 - 5.052	
N035250-015AMS	4.856	PASS
N035250-018A	N.A.	N.A.
N035250-018AMS	4.856	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

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

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

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

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

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

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	04/23/19 10:30 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/23/19 10:41 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	04/23/19 10:51 AM	Reported
13	MB-R133438	MBLK	1	Hexavalent Chromium	04/23/19 11:00 AM	Reported
14	LCS-R133438	LCS	1	Hexavalent Chromium	04/23/19 11:10 AM	Reported
15	N035240-001A	SAMP	5	Hexavalent Chromium	04/23/19 11:19 AM	Not Reported
16	N035240-001AMS	MS	5	Hexavalent Chromium	04/23/19 11:29 AM	Not Reported
17	N035240-003A	SAMP	5	Hexavalent Chromium	04/23/19 11:38 AM	Not Reported
18	N035240-003AMS	MS	5	Hexavalent Chromium	04/23/19 11:48 AM	Not Reported
19	N035240-004A	SAMP	5	Hexavalent Chromium	04/23/19 11:57 AM	Reported
20	N035240-004AMS	MS	5	Hexavalent Chromium	04/23/19 12:07 PM	Reported
21	N035240-002A	SAMP	1	Hexavalent Chromium	04/23/19 12:16 PM	Reported
22	N035240-002AMS	MS	1	Hexavalent Chromium	04/23/19 12:25 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	04/23/19 12:35 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	04/23/19 12:44 PM	Reported
25	N035240-005A	SAMP	1	Hexavalent Chromium	04/23/19 12:54 PM	Reported
26	N035240-005AMS	MS	1	Hexavalent Chromium	04/23/19 1:03 PM	Reported
27	N035240-001A	SAMP	1	Hexavalent Chromium	04/23/19 1:13 PM	Reported
28	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 1:22 PM	Not Reported
29	N035240-003A	SAMP	1	Hexavalent Chromium	04/23/19 1:32 PM	Reported
30	N035240-003AMS	MS	1	Hexavalent Chromium	04/23/19 1:41 PM	Reported
31	N035240-004A	SAMP	1	Hexavalent Chromium	04/23/19 1:51 PM	Not Reported
32	N035240-004AMS	MS	1	Hexavalent Chromium	04/23/19 2:00 PM	Not Reported
33	N035240-004ADUP	DUP	5	Hexavalent Chromium	04/23/19 2:11 PM	Reported
34	N035240-004AMSD	MSD	5	Hexavalent Chromium	04/23/19 2:22 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	04/23/19 2:32 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	04/23/19 2:41 PM	Reported
37	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 2:51 PM	Reported
38	N035039-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:00 PM	Not Reported
39	N035039-009AMS	MS	1	Hexavalent Chromium	04/23/19 3:10 PM	Not Reported
40	N035065-002A	SAMP	1	Hexavalent Chromium	04/23/19 3:19 PM	Not Reported
41	N035065-002AMS	MS	1	Hexavalent Chromium	04/23/19 3:28 PM	Not Reported
42	N035023-012A	SAMP	1	Hexavalent Chromium	04/23/19 3:38 PM	Not Reported

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035023-012AMS	MS	1	Hexavalent Chromium	04/23/19 3:47 PM	Not Reported
44	N035065-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:57 PM	Not Reported
45	N035065-009AMS	MS	1	Hexavalent Chromium	04/23/19 4:06 PM	Not Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	04/23/19 4:16 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	04/23/19 4:25 PM	Reported
48	N035065-012A	SAMP	1	Hexavalent Chromium	04/23/19 4:35 PM	Not Reported
49	N035065-012AMS	MS	1	Hexavalent Chromium	04/23/19 4:44 PM	Not Reported
50	N035065-005A	SAMP	1	Hexavalent Chromium	04/23/19 4:54 PM	Not Reported
51	N035065-005AMS	MS	1	Hexavalent Chromium	04/23/19 5:03 PM	Not Reported
52	N035074-001A	SAMP	1	Hexavalent Chromium	04/23/19 5:13 PM	Not Reported
53	N035074-001AMS	MS	1	Hexavalent Chromium	04/23/19 5:22 PM	Not Reported
54	CCV-4	CCV	1	Hexavalent Chromium	04/23/19 5:31 PM	Reported
55	CCB-4	CCB	1	Hexavalent Chromium	04/23/19 5:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190423A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 09:17:37**
No. of Injections:	**58**	*Updated By:*	**ics 5000**

Injection Details

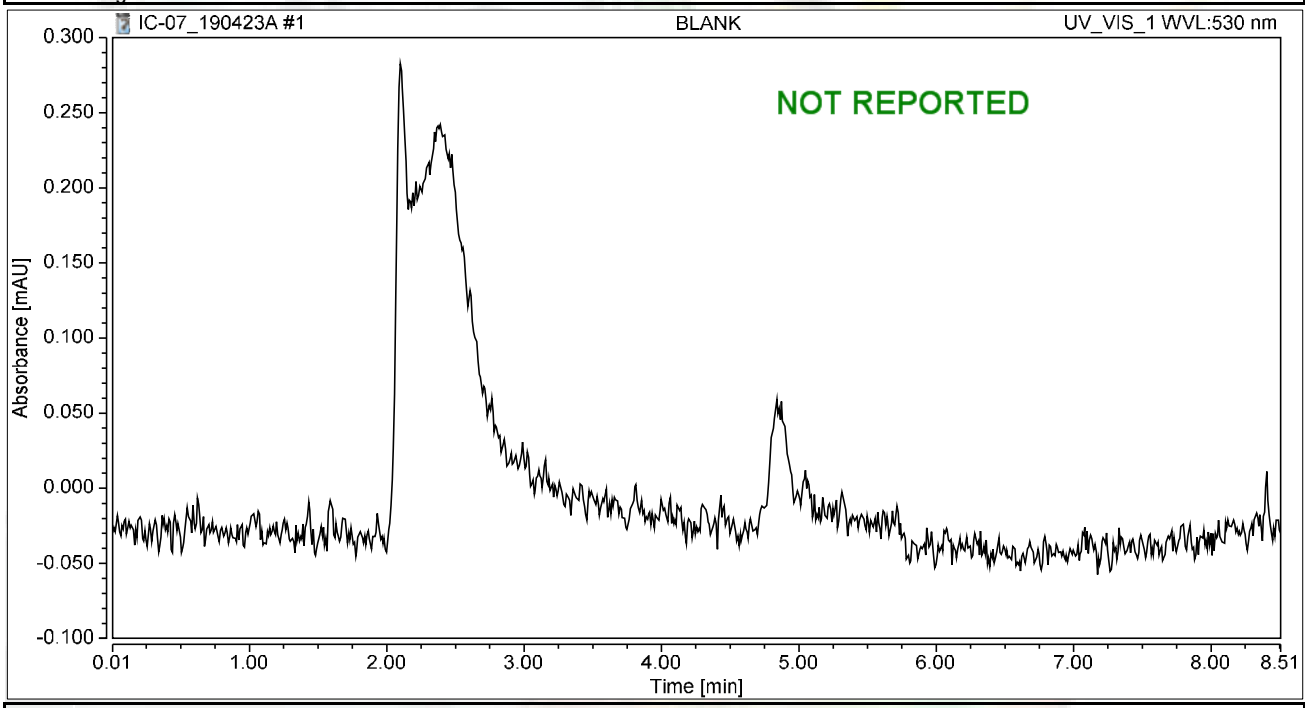
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	12	1000	Unknown		04/23/2019 10:30	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	13	1000	Unknown		04/23/2019 10:41	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		04/23/2019 10:51	Finished	ICB R190411C
13	MB-H2O,MBLK,1,	15	1000	Unknown		04/23/2019 11:00	Finished	MB R190411C
14	LCS-H2O,LCS,1,	16	1000	Unknown		04/23/2019 11:10	Finished	LCS @5ppb, IWST-190423B
15	N035240-001A,SAMF	17	1000	Unknown		04/23/2019 11:19	Finished	SAMP,2>10mL
16	N035240-001AMS,MS	18	1000	Unknown		04/23/2019 11:29	Finished	MS (1ppb), IWST-190423B,2>1
17	N035240-003A,SAMF	19	1000	Unknown		04/23/2019 11:38	Finished	SAMP,2>10mL
18	N035240-003AMS,MS	20	1000	Unknown		04/23/2019 11:48	Finished	MS (1ppb), IWST-190423B,2>1
19	N035240-004A,SAMF	21	1000	Unknown		04/23/2019 11:57	Finished	SAMP,2>10mL
20	N035240-004AMS,MS	22	1000	Unknown		04/23/2019 12:07	Finished	MS (1ppb), IWST-190423B,2>1
21	N035240-002A,SAMF	23	1000	Unknown		04/23/2019 12:16	Finished	SAMP,10mL
22	N035240-002AMS,MS	24	1000	Unknown		04/23/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>1
23	CCV-1,CCV1,1,	25	1000	Unknown		04/23/2019 12:35	Finished	CCV @10ppb, IWST-190423A
24	CCB-1,CCB,1,	26	1000	Unknown		04/23/2019 12:44	Finished	CCB R190411C
25	N035240-005A,SAMF	27	1000	Unknown		04/23/2019 12:54	Finished	SAMP,10mL
26	N035240-005AMS,MS	28	1000	Unknown		04/23/2019 13:03	Finished	MS (1ppb), IWST-190423B,10
27	N035240-001A,SAMF	29	1000	Unknown		04/23/2019 13:13	Finished	SAMP,10mL
28	N035240-001AMS,MS	30	1000	Unknown		04/23/2019 13:22	Finished	MS (1ppb), IWST-190423B,10
29	N035240-003A,SAMF	31	1000	Unknown		04/23/2019 13:32	Finished	SAMP,10mL
30	N035240-003AMS,MS	32	1000	Unknown		04/23/2019 13:41	Finished	MS (1ppb), IWST-190423B,10
31	N035240-004A,SAMF	33	1000	Unknown		04/23/2019 13:51	Finished	SAMP,10mL
32	N035240-004AMS,MS	34	1000	Unknown		04/23/2019 14:00	Finished	MS (1ppb), IWST-190423B,2>1
33	N035240-004ADUP,D	1	1000	Unknown		04/23/2019 14:11	Finished	DUP,2>10mL
34	N035240-004AMSD,M	2	1000	Unknown		04/23/2019 14:22	Finished	MSD (1ppb), IWST-190423B,2>
35	CCV-2,CCV,1,	3	1000	Unknown		04/23/2019 14:32	Finished	CCV @5ppb, IWST-190423A
36	CCB-2,CCB,1,	4	1000	Unknown		04/23/2019 14:41	Finished	CCB R190411C
37	N035240-001AMS,MS	5	1000	Unknown		04/23/2019 14:51	Finished	MS (1ppb), IWST-190423B,10
38	N035039-009A,SAMF	6	1000	Unknown		04/23/2019 15:00	Finished	SAMP,10mL
39	N035039-009AMS,MS	7	1000	Unknown		04/23/2019 15:10	Finished	MS (5ppb), IWST-190423B,10
40	N035065-002A,SAMF	8	1000	Unknown		04/23/2019 15:19	Finished	SAMP,10mL
41	N035065-002AMS,MS	9	1000	Unknown		04/23/2019 15:28	Finished	MS (5ppb), IWST-190423B,10
42	N035023-012A,SAMF	10	1000	Unknown		04/23/2019 15:38	Finished	SAMP,10mL
43	N035023-012AMS,MS	11	1000	Unknown		04/23/2019 15:47	Finished	MS (1ppb), IWST-190423B,10
44	N035065-009A,SAMF	12	1000	Unknown		04/23/2019 15:57	Finished	SAMP,10mL
45	N035065-009AMS,MS	13	1000	Unknown		04/23/2019 16:06	Finished	MS (1ppb), IWST-190423B,10
46	CCV-3,CCV1,1,	14	1000	Unknown		04/23/2019 16:16	Finished	CCV @10ppb, IWST-190423A
47	CCB-3,CCB,1,	15	1000	Unknown		04/23/2019 16:25	Finished	CCB R190411C
48	N035065-012A,SAMF	16	1000	Unknown		04/23/2019 16:35	Finished	SAMP,10mL
49	N035065-012AMS,MS	17	1000	Unknown		04/23/2019 16:44	Finished	MS (1ppb), IWST-190423B,10
50	N035065-005A,SAMF	18	1000	Unknown		04/23/2019 16:54	Finished	SAMP,10mL
51	N035065-005AMS,MS	19	1000	Unknown		04/23/2019 17:03	Finished	MS (1ppb), IWST-190423B,10
52	N035074-001A,SAMF	20	1000	Unknown		04/23/2019 17:13	Finished	SAMP,10mL
53	N035074-001AMS,MS	21	1000	Unknown		04/23/2019 17:22	Finished	MS (1ppb), IWST-190423B,10
54	CCV-4,CCV,1,	22	1000	Unknown		04/23/2019 17:31	Finished	CCV @5ppb, IWST-190423A
55	CCB-4,CCB,1,	23	1000	Unknown		04/23/2019 17:41	Finished	CCB R190411C
56	SHUTDOWN	24	1000	Unknown		04/23/2019 17:50	Finished	
57	Eluent: R190422A	25	1000	Unknown		n.a.	Finished	Eluent
58	PCR: R190422B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 08:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

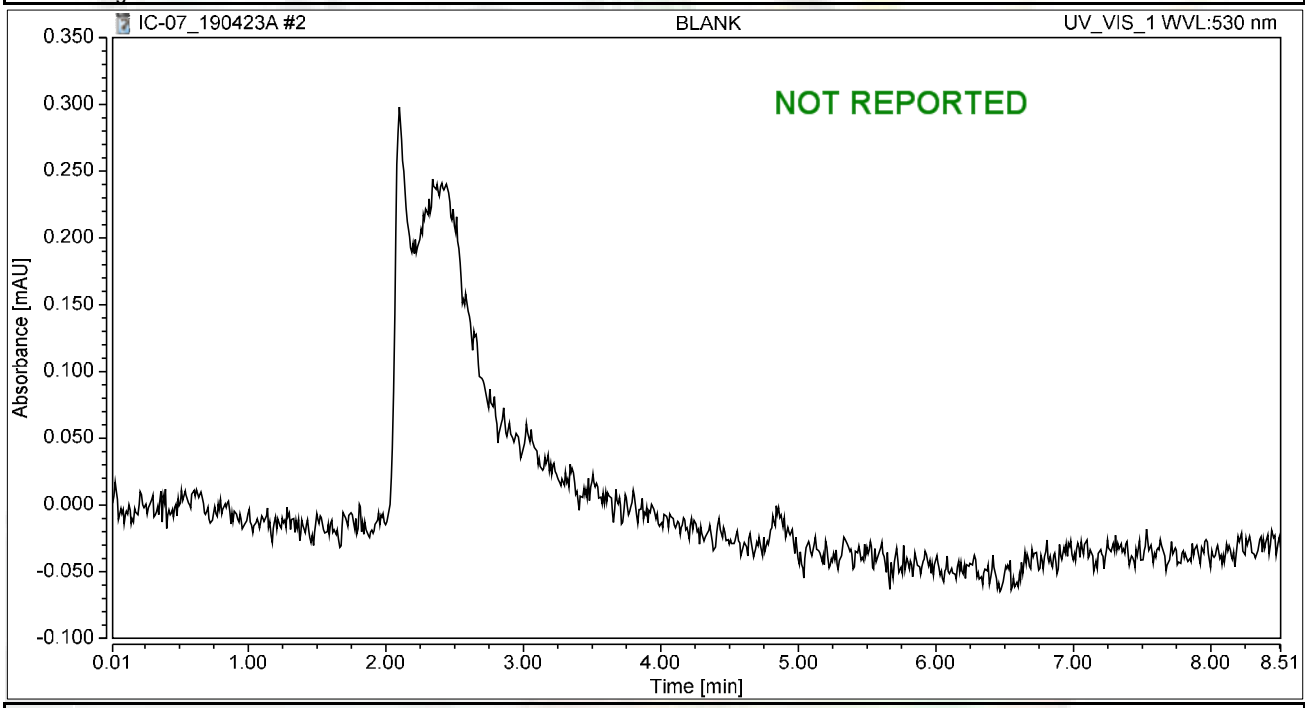
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

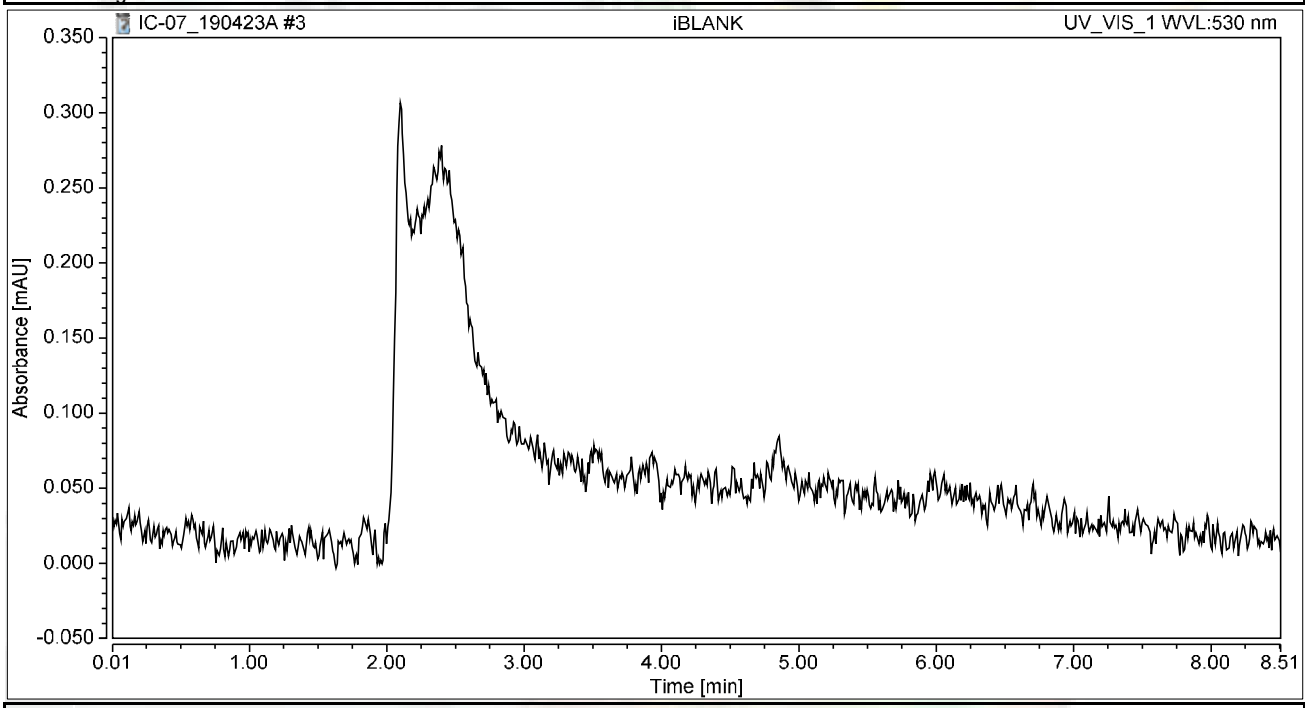
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

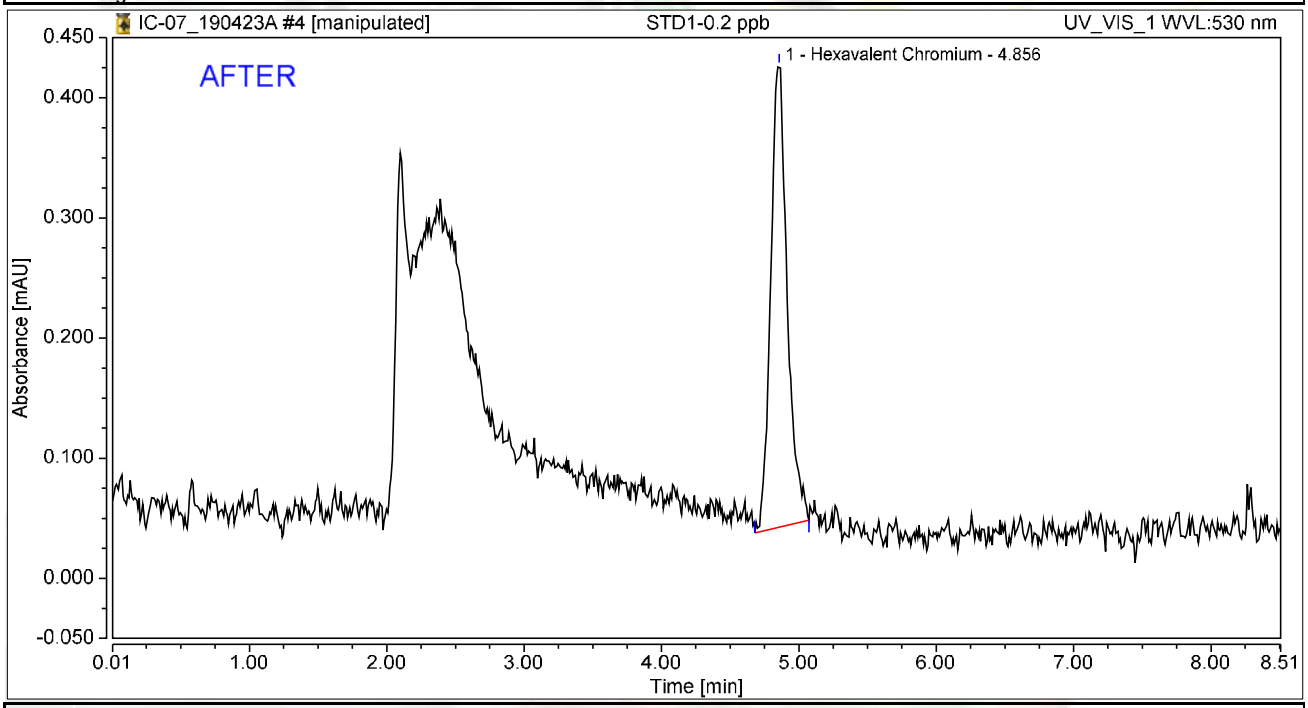
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.054	0.384	100.00	100.00	0.2161
Total:			**0.054**	**0.384**	**100.00**	**100.00**	

rba 4/28/2019

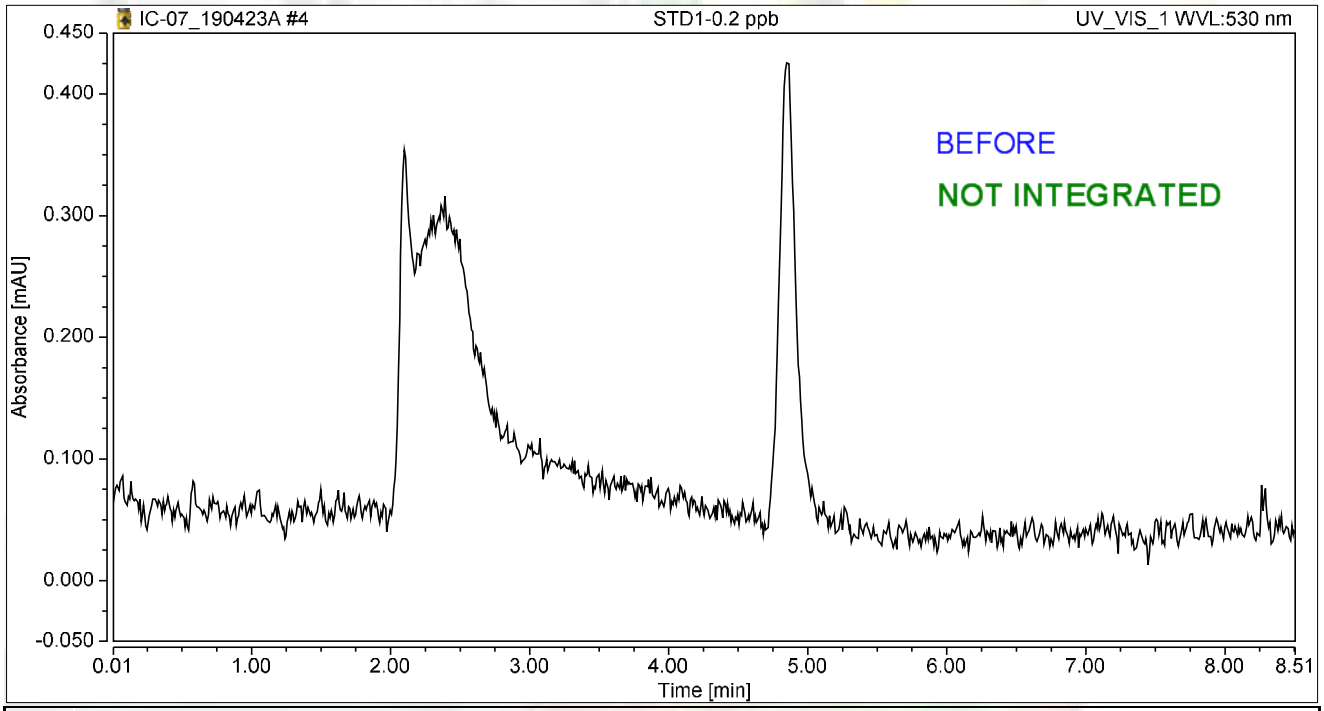
5/7/2019

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

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

rba 4/28/2019

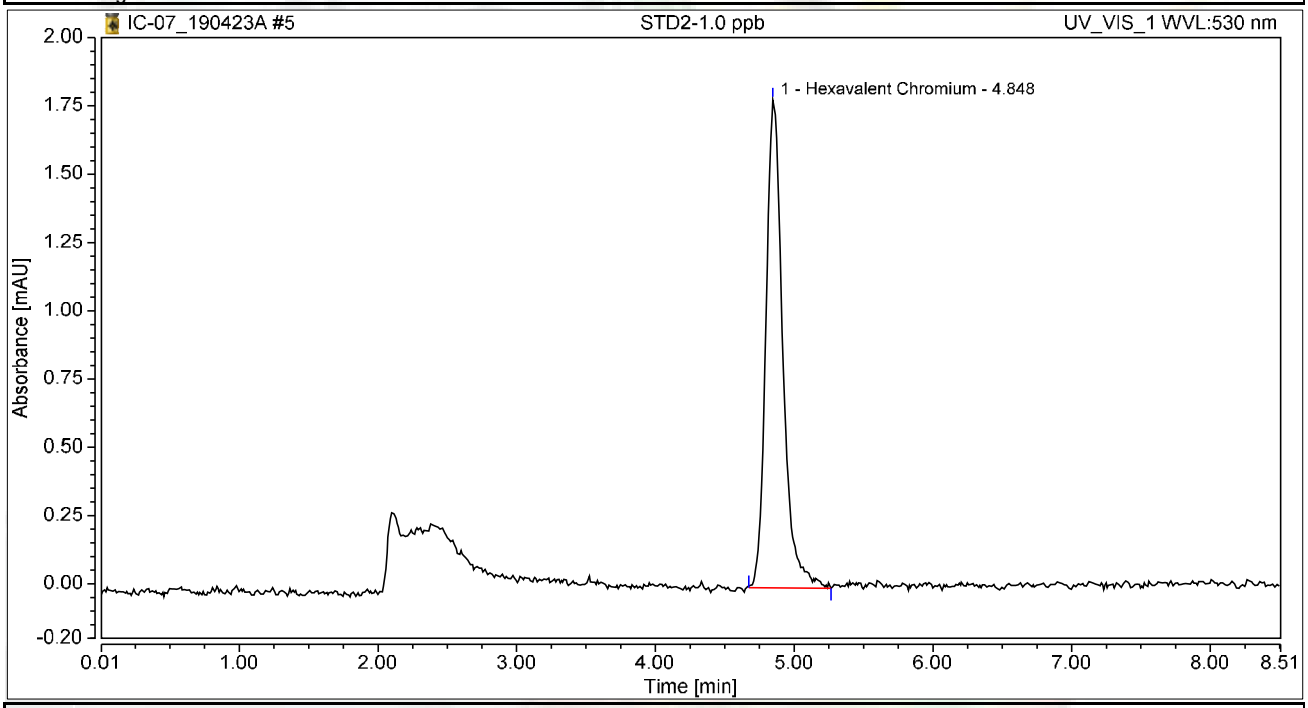
5/7/2019

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

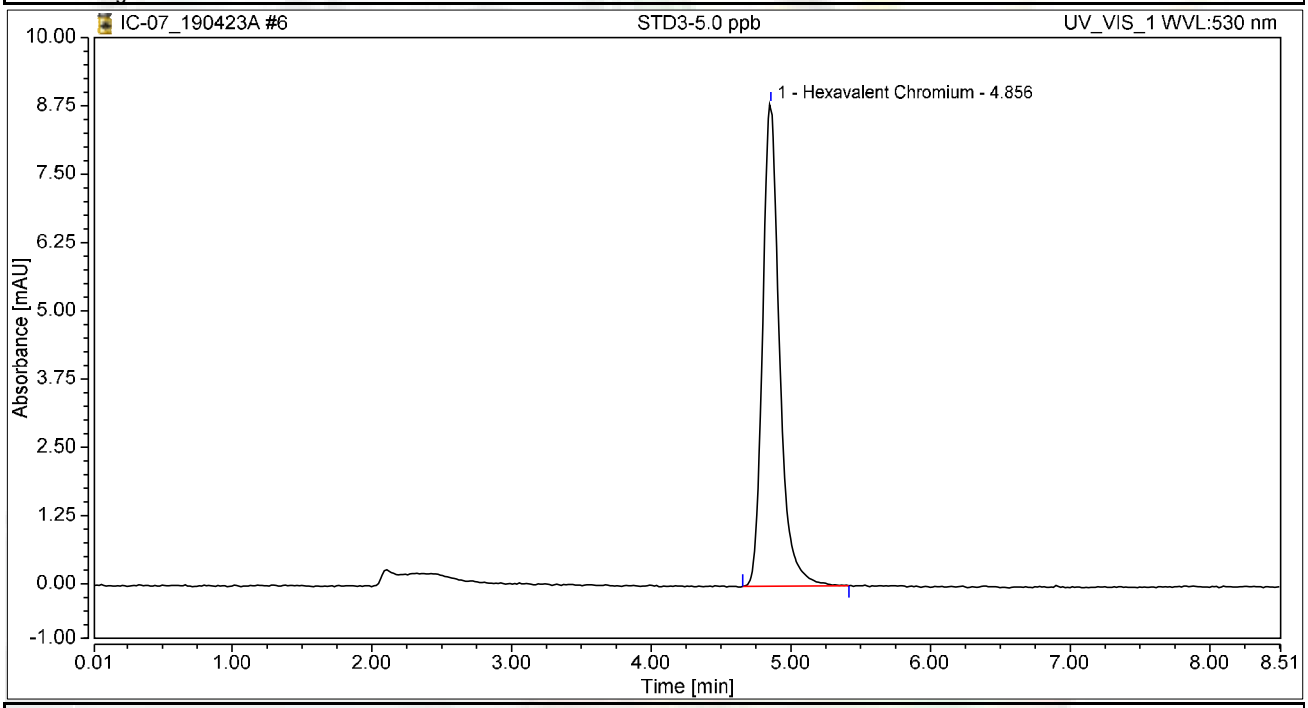
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.253	1.786	100.00	100.00	1.0148
Total:			**0.253**	**1.786**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

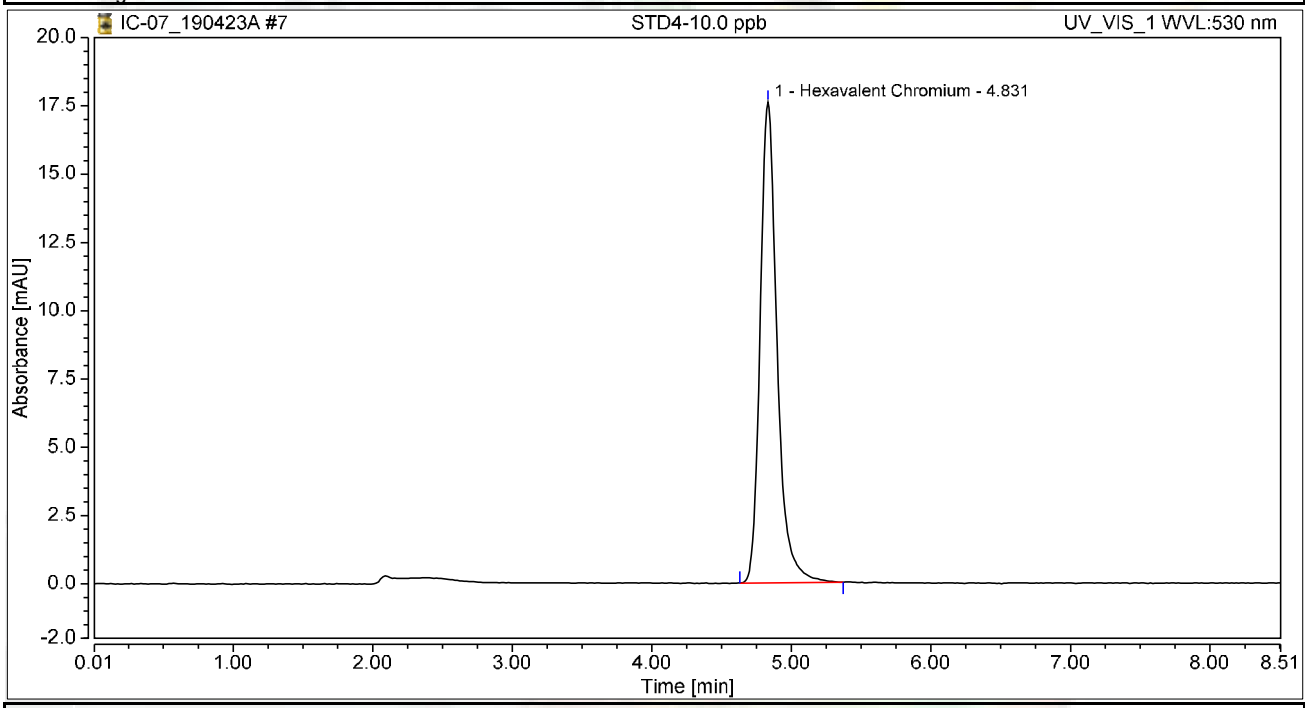
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.246	8.834	100.00	100.00	5.0054
Total:			**1.246**	**8.834**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

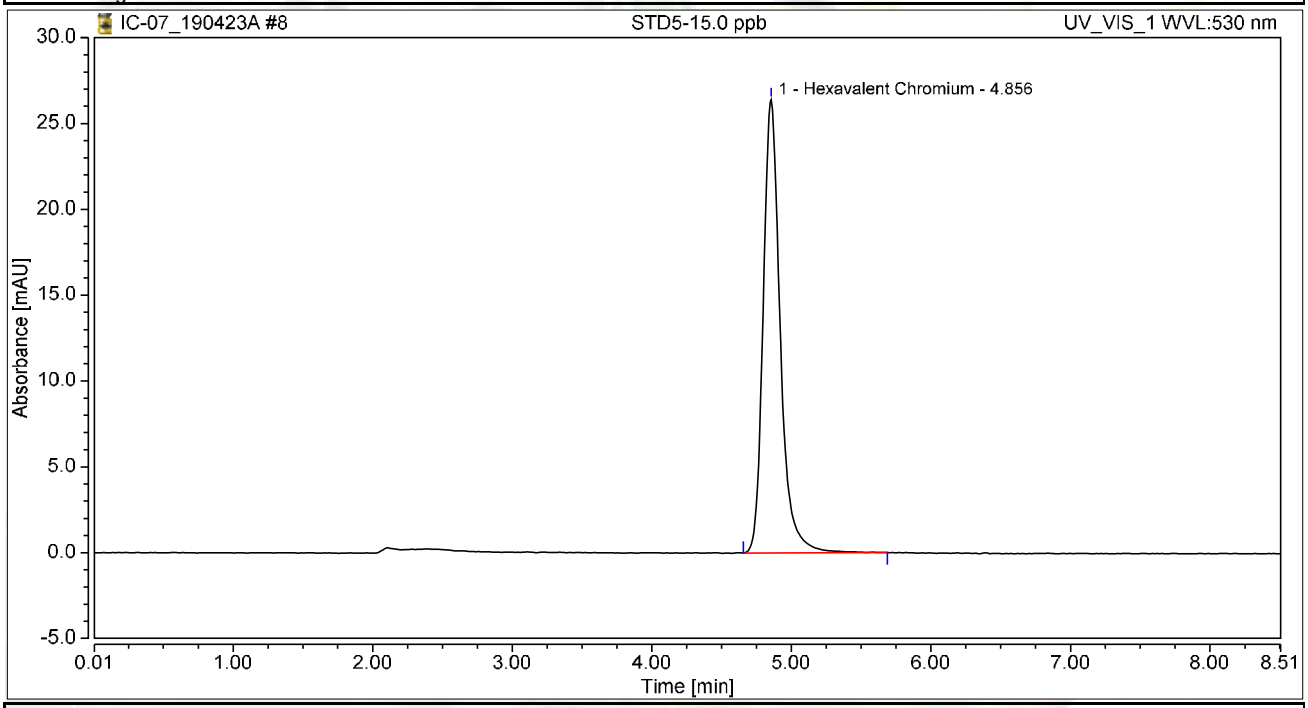
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	2.479	17.604	100.00	100.00	9.9587
Total:			**2.479**	**17.604**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

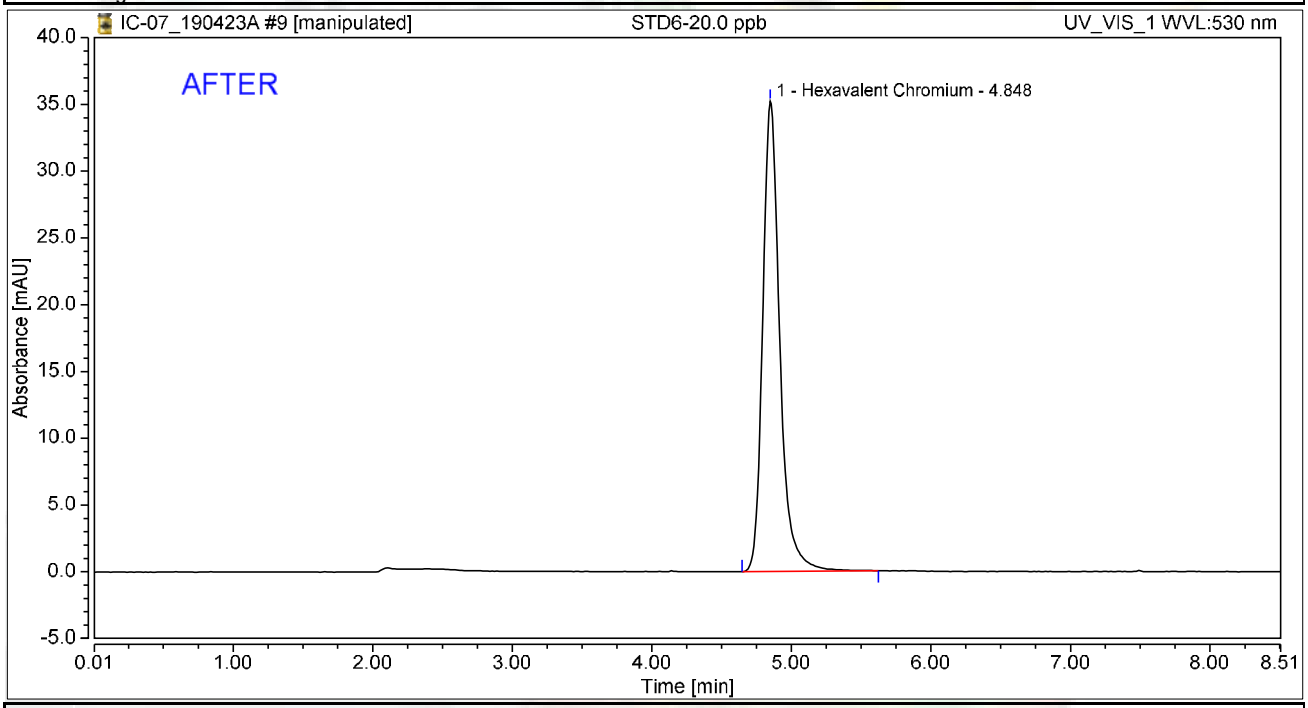
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	3.739	26.398	100.00	100.00	15.0197
Total:			**3.739**	**26.398**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	4.980	35.209	100.00	100.00	20.0036
Total:			**4.980**	**35.209**	**100.00**	**100.00**	

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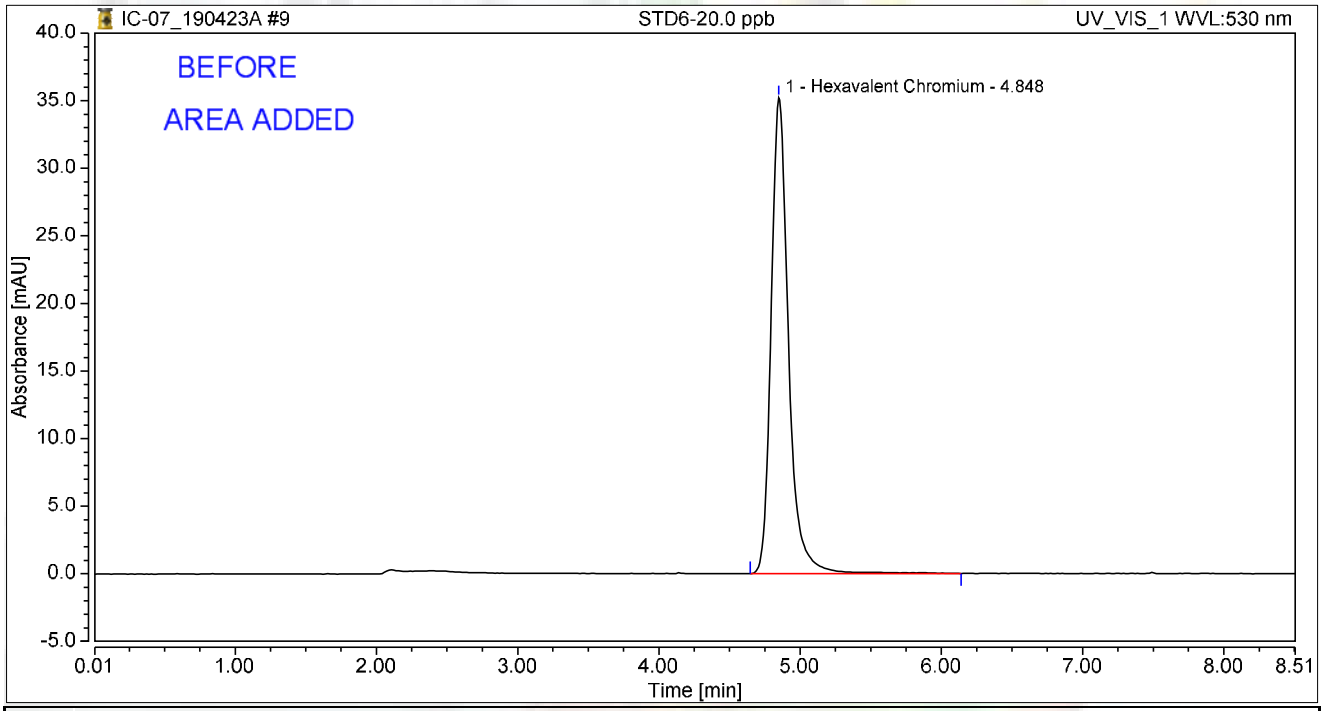
Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	5.038	35.224	100.00	100.00	20.1112
Total:			**5.038**	**35.224**	**100.00**	**100.00**	

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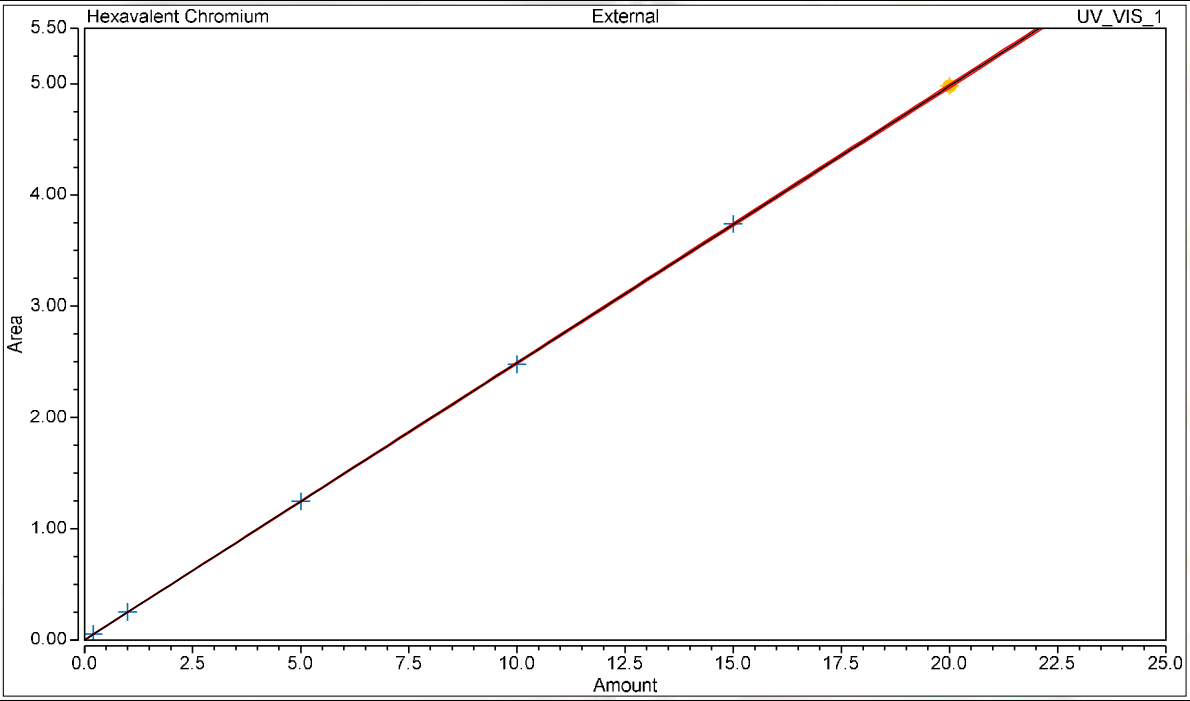
Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2490
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99999

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

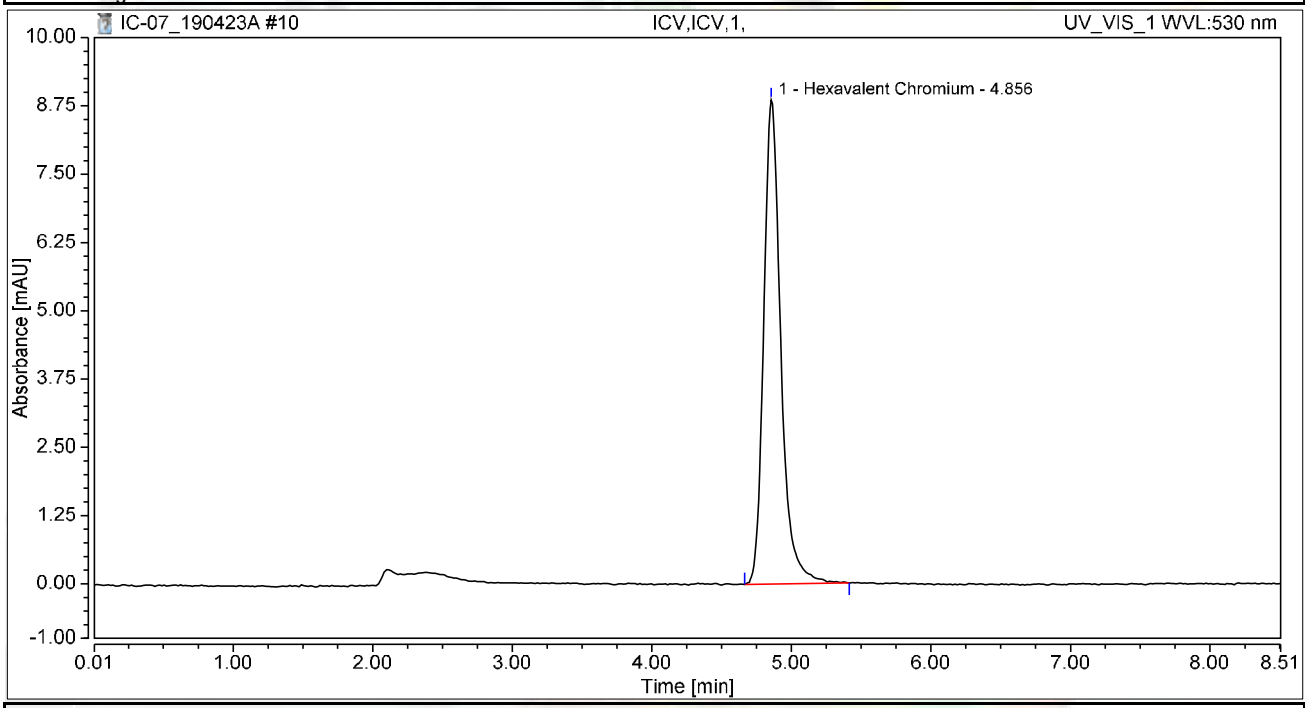
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0538	0.054	0.384
5	STD2-1.0 ppb	02	1.0000	0.2527	0.253	1.786
6	STD3-5.0 ppb	03	5.0000	1.2462	1.246	8.834
7	STD4-10.0 ppb	04	10.0000	2.4794	2.479	17.604
8	STD5-15.0 ppb	05	15.0000	3.7395	3.739	26.398
9	STD6-20.0 ppb	06	20.0000	4.9803	4.980	35.209

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

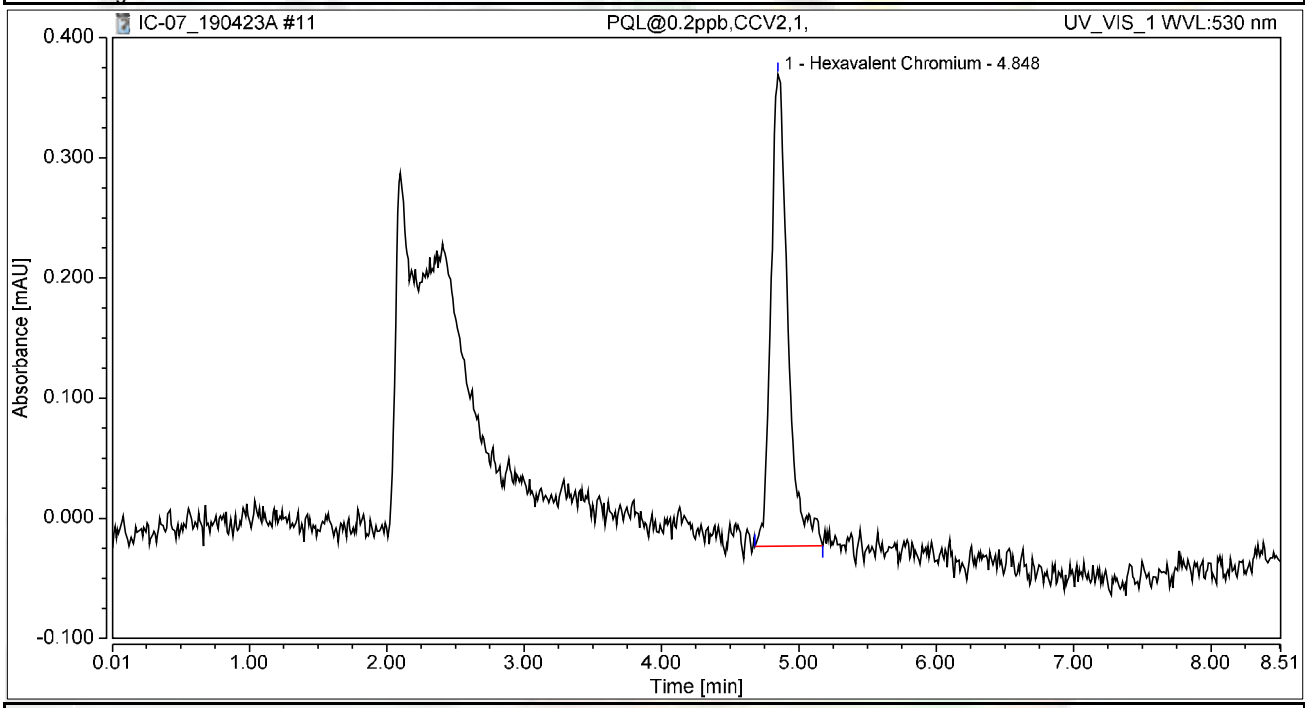
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.258	8.864	100.00	100.00	5.0544
Total:			**1.258**	**8.864**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

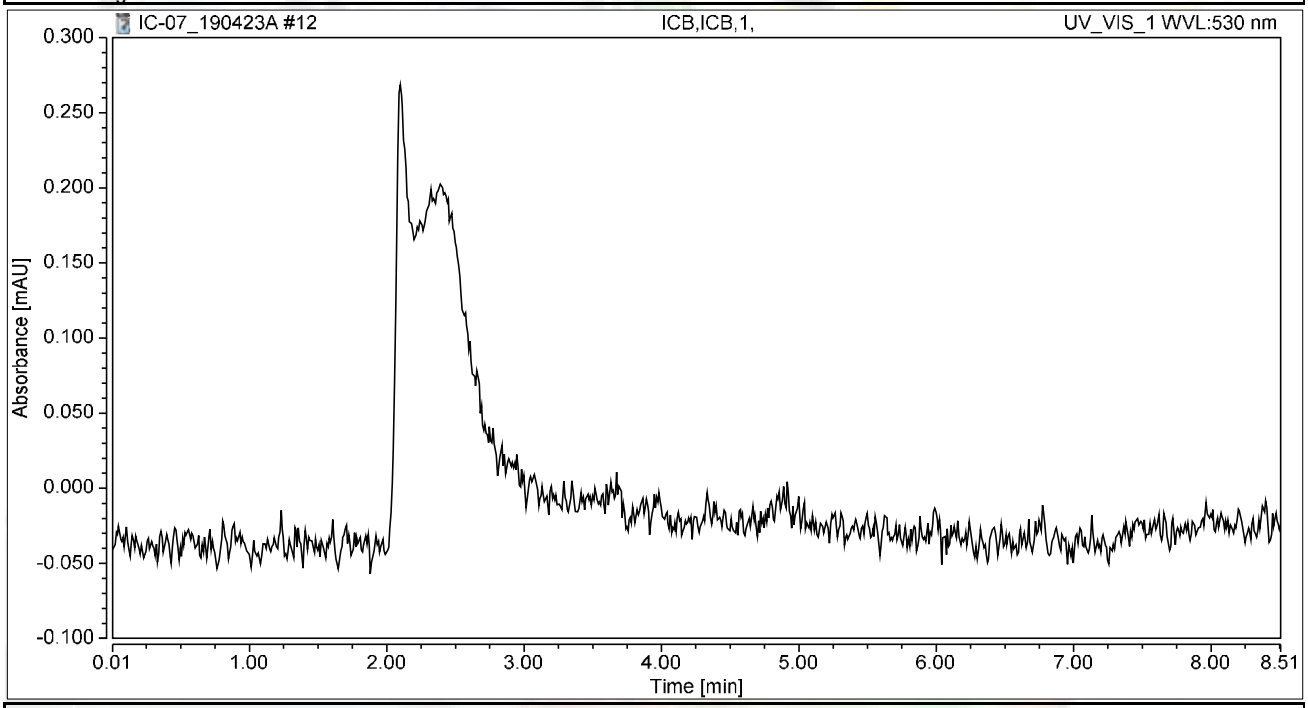
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.056	0.392	100.00	100.00	0.2256
Total:			**0.056**	**0.392**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

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

RAW DATA

INJECTION LOG: 190424A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	04/24/19 9:13 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	04/24/19 9:24 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/24/19 9:34 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	04/24/19 9:43 AM	Reported
14	MB-R133474	MBLK	1	Hexavalent Chromium	04/24/19 9:53 AM	Reported
15	LCS-R133474	LCS	1	Hexavalent Chromium	04/24/19 10:02 AM	Reported
16	N035250-001A	SAMP	5	Hexavalent Chromium	04/24/19 10:27 AM	Reported
17	N035250-001AMS	MS	5	Hexavalent Chromium	04/24/19 10:38 AM	Reported
18	N035250-002A	SAMP	5	Hexavalent Chromium	04/24/19 10:48 AM	Not Reported
19	N035250-002AMS	MS	5	Hexavalent Chromium	04/24/19 10:57 AM	Not Reported
20	N035250-003A	SAMP	5	Hexavalent Chromium	04/24/19 11:07 AM	Reported
21	N035250-003AMS	MS	5	Hexavalent Chromium	04/24/19 11:16 AM	Reported
22	N035250-006A	SAMP	1	Hexavalent Chromium	04/24/19 11:25 AM	Reported
23	N035250-006AMS	MS	1	Hexavalent Chromium	04/24/19 11:35 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	04/24/19 11:44 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	04/24/19 11:54 AM	Reported
26	N035250-004A	SAMP	5	Hexavalent Chromium	04/24/19 12:03 PM	Reported
27	N035250-004AMS	MS	5	Hexavalent Chromium	04/24/19 12:13 PM	Reported
28	N035250-005A	SAMP	5	Hexavalent Chromium	04/24/19 12:22 PM	Not Reported
29	N035250-005AMS	MS	5	Hexavalent Chromium	04/24/19 12:32 PM	Not Reported
30	N035250-007A	SAMP	5	Hexavalent Chromium	04/24/19 12:41 PM	Not Reported
31	N035250-007AMS	MS	5	Hexavalent Chromium	04/24/19 12:51 PM	Not Reported
32	N035250-012A	SAMP	5	Hexavalent Chromium	04/24/19 1:00 PM	Reported
33	N035250-012AMS	MS	5	Hexavalent Chromium	04/24/19 1:10 PM	Reported
34	N035250-016A	SAMP	5	Hexavalent Chromium	04/24/19 1:19 PM	Reported
35	N035250-016AMS	MS	5	Hexavalent Chromium	04/24/19 1:28 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	04/24/19 1:38 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	04/24/19 1:47 PM	Reported
38	N035250-017A	SAMP	5	Hexavalent Chromium	04/24/19 1:57 PM	Reported
39	N035250-017AMS	MS	5	Hexavalent Chromium	04/24/19 2:06 PM	Reported
40	N035250-009A	SAMP	1	Hexavalent Chromium	04/24/19 2:16 PM	Reported
41	N035250-011A	SAMP	1	Hexavalent Chromium	04/24/19 2:25 PM	Reported
42	N035250-009AMS	MS	1	Hexavalent Chromium	04/24/19 2:35 PM	Reported

INJECTION LOG: 190424A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035250-011AMS	MS	1	Hexavalent Chromium	04/24/19 2:44 PM	Reported
44	N035250-014A	SAMP	20	Hexavalent Chromium	04/24/19 2:54 PM	Reported
45	N035250-014AMS	MS	20	Hexavalent Chromium	04/24/19 3:03 PM	Reported
46	N035251-001A	SAMP	1	Hexavalent Chromium	04/24/19 3:13 PM	Reported
47	N035251-001AMS	MS	1	Hexavalent Chromium	04/24/19 3:22 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	04/24/19 3:31 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	04/24/19 3:41 PM	Reported
50	N035251-002A	SAMP	100	Hexavalent Chromium	04/24/19 3:50 PM	Reported
51	N035251-002AMS	MS	100	Hexavalent Chromium	04/24/19 4:00 PM	Reported
52	N035250-014AMSD	MSD	20	Hexavalent Chromium	04/24/19 4:09 PM	Reported
53	N035251-002ADUP	DUP	100	Hexavalent Chromium	04/24/19 4:19 PM	Reported
54	N035250-001A	SAMP	1	Hexavalent Chromium	04/24/19 4:31 PM	Not Reported
55	N035250-001AMS	MS	1	Hexavalent Chromium	04/24/19 4:42 PM	Not Reported
56	N035250-002A	SAMP	1	Hexavalent Chromium	04/24/19 4:51 PM	Reported
57	N035250-002AMS	MS	1	Hexavalent Chromium	04/24/19 5:02 PM	Reported
58	N035250-003A	SAMP	1	Hexavalent Chromium	04/24/19 5:12 PM	Not Reported
59	N035250-003AMS	MS	1	Hexavalent Chromium	04/24/19 5:21 PM	Not Reported
60	CCV-5	CCV	1	Hexavalent Chromium	04/24/19 5:30 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	04/24/19 5:40 PM	Reported
62	N035250-004A	SAMP	1	Hexavalent Chromium	04/24/19 5:49 PM	Not Reported
63	N035250-004AMS	MS	1	Hexavalent Chromium	04/24/19 5:59 PM	Not Reported
64	N035250-005A	SAMP	1	Hexavalent Chromium	04/24/19 6:08 PM	Reported
65	N035250-005AMS	MS	1	Hexavalent Chromium	04/24/19 6:18 PM	Reported
66	N035250-007A	SAMP	1	Hexavalent Chromium	04/24/19 6:27 PM	Reported
67	N035250-007AMS	MS	1	Hexavalent Chromium	04/24/19 6:37 PM	Reported
68	N035250-012A	SAMP	1	Hexavalent Chromium	04/24/19 6:46 PM	Not Reported
69	N035250-012AMS	MS	1	Hexavalent Chromium	04/24/19 6:56 PM	Not Reported
70	N035250-016A	SAMP	1	Hexavalent Chromium	04/24/19 7:05 PM	Not Reported
71	N035250-016AMS	MS	1	Hexavalent Chromium	04/24/19 7:15 PM	Not Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	04/24/19 7:24 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	04/24/19 7:33 PM	Reported
74	N035250-017A	SAMP	1	Hexavalent Chromium	04/24/19 7:43 PM	Not Reported
75	N035250-017AMS	MS	1	Hexavalent Chromium	04/24/19 7:52 PM	Not Reported
76	N035250-008A	SAMP	1	Hexavalent Chromium	04/24/19 8:02 PM	Reported
77	N035250-008AMS	MS	1	Hexavalent Chromium	04/24/19 8:11 PM	Reported
78	N035250-010A	SAMP	1	Hexavalent Chromium	04/24/19 8:21 PM	Reported
79	N035250-010AMS	MS	1	Hexavalent Chromium	04/24/19 8:30 PM	Reported
80	N035250-013A	SAMP	1	Hexavalent Chromium	04/24/19 8:40 PM	Reported
81	N035250-013AMS	MS	1	Hexavalent Chromium	04/24/19 8:49 PM	Reported
82	N035250-015A	SAMP	1	Hexavalent Chromium	04/24/19 8:59 PM	Reported
83	N035250-015AMS	MS	1	Hexavalent Chromium	04/24/19 9:08 PM	Reported
84	CCV-7	CCV	1	Hexavalent Chromium	04/24/19 9:18 PM	Reported

INJECTION LOG: 190424A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	CCB-7	CCB	1	Hexavalent Chromium	04/24/19 9:27 PM	Reported
86	N035250-018A	SAMP	1	Hexavalent Chromium	04/24/19 9:36 PM	Reported
87	N035250-018AMS	MS	1	Hexavalent Chromium	04/24/19 9:46 PM	Reported
88	CCV-8	CCV1	1	Hexavalent Chromium	04/24/19 9:55 PM	Reported
89	CCB-8	CCB	1	Hexavalent Chromium	04/24/19 10:05 PM	Reported
90	BLANK	BLANK	1	Hexavalent Chromium	04/24/19 10:14 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190424A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 22:45:10**
No. of Injections:	**93**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		04/24/2019 09:13	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		04/24/2019 09:24	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		04/24/2019 09:34	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		04/24/2019 09:43	Finished	CCB R190411C
14	MB-H2O,MBLK,1,	5	1000	Unknown		04/24/2019 09:53	Finished	MB R190411C
15	LCS-H2O,LCS,1,	6	1000	Unknown		04/24/2019 10:02	Finished	LCS @5ppb, IWST-190423B
16	N035250-001A,SAMF	1	1000	Unknown		04/24/2019 10:27	Finished	SAMP,2>10mL
17	N035250-001AMS,MS	2	1000	Unknown		04/24/2019 10:38	Finished	MS (1ppb), IWST-190423B,2>1
18	N035250-002A,SAMF	3	1000	Unknown		04/24/2019 10:48	Finished	SAMP,2>10mL
19	N035250-002AMS,MS	4	1000	Unknown		04/24/2019 10:57	Finished	MS (1ppb), IWST-190423B,2>1
20	N035250-003A,SAMF	5	1000	Unknown		04/24/2019 11:07	Finished	SAMP,2>10mL
21	N035250-003AMS,MS	6	1000	Unknown		04/24/2019 11:16	Finished	MS (1ppb), IWST-190423B,2>1
22	N035250-006A,SAMF	7	1000	Unknown		04/24/2019 11:25	Finished	SAMP,10mL
23	N035250-006AMS,MS	8	1000	Unknown		04/24/2019 11:35	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	9	1000	Unknown		04/24/2019 11:44	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	10	1000	Unknown		04/24/2019 11:54	Finished	CCB R190411C
26	N035250-004A,SAMF	11	1000	Unknown		04/24/2019 12:03	Finished	SAMP,2>10mL
27	N035250-004AMS,MS	12	1000	Unknown		04/24/2019 12:13	Finished	MS (1ppb), IWST-190423B,2>1
28	N035250-005A,SAMF	13	1000	Unknown		04/24/2019 12:22	Finished	SAMP,2>10mL
29	N035250-005AMS,MS	14	1000	Unknown		04/24/2019 12:32	Finished	MS (1ppb), IWST-190423B,2>1
30	N035250-007A,SAMF	15	1000	Unknown		04/24/2019 12:41	Finished	SAMP,2>10mL
31	N035250-007AMS,MS	16	1000	Unknown		04/24/2019 12:51	Finished	MS (1ppb), IWST-190423B,2>1
32	N035250-012A,SAMF	17	1000	Unknown		04/24/2019 13:00	Finished	SAMP,2>10mL
33	N035250-012AMS,MS	18	1000	Unknown		04/24/2019 13:10	Finished	MS (1ppb), IWST-190423B,2>1
34	N035250-016A,SAMF	19	1000	Unknown		04/24/2019 13:19	Finished	SAMP,2>10mL
35	N035250-016AMS,MS	20	1000	Unknown		04/24/2019 13:28	Finished	MS (1ppb), IWST-190423B,2>1
36	CCV-3,CCV,1,	21	1000	Unknown		04/24/2019 13:38	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	22	1000	Unknown		04/24/2019 13:47	Finished	CCB R190411C
38	N035250-017A,SAMF	23	1000	Unknown		04/24/2019 13:57	Finished	SAMP,2>10mL
39	N035250-017AMS,MS	24	1000	Unknown		04/24/2019 14:06	Finished	MS (1ppb), IWST-190423B,2>1
40	N035250-009A,SAMF	25	1000	Unknown		04/24/2019 14:16	Finished	SAMP,10mL
41	N035250-011A,SAMF	26	1000	Unknown		04/24/2019 14:25	Finished	SAMP,10mL
42	N035250-009AMS,MS	27	1000	Unknown		04/24/2019 14:35	Finished	MS (1ppb), IWST-190423B,10
43	N035250-011AMS,MS	28	1000	Unknown		04/24/2019 14:44	Finished	MS (1ppb), IWST-190423B,10
44	N035250-014A,SAMF	29	1000	Unknown		04/24/2019 14:54	Finished	SAMP,0.5>10mL
45	N035250-014AMS,MS	30	1000	Unknown		04/24/2019 15:03	Finished	MS (5ppb), IWST-190423B,0.5
46	N035251-001A,SAMF	31	1000	Unknown		04/24/2019 15:13	Finished	SAMP,10mL
47	N035251-001AMS,MS	32	1000	Unknown		04/24/2019 15:22	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	33	1000	Unknown		04/24/2019 15:31	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	34	1000	Unknown		04/24/2019 15:41	Finished	CCB R190411C
50	N035251-002A,SAMF	35	1000	Unknown		04/24/2019 15:50	Finished	SAMP,0.1>10mL
51	N035251-002AMS,MS	36	1000	Unknown		04/24/2019 16:00	Finished	MS (5ppb), IWST-190423B,0.1
52	N035250-014AMSD,M	37	1000	Unknown		04/24/2019 16:09	Finished	MSD (5ppb), IWST-190423B,0.
53	N035251-002ADUP,D	38	1000	Unknown		04/24/2019 16:19	Finished	DUP,0.1>10mL
54	N035250-001A,SAMF	1	1000	Unknown		04/24/2019 16:31	Finished	SAMP,10mL
55	N035250-001AMS,MS	2	1000	Unknown		04/24/2019 16:42	Finished	MS (1ppb), IWST-190423B,10
56	N035250-002A,SAMF	3	1000	Unknown		04/24/2019 16:51	Finished	SAMP,10mL
57	N035250-002AMS,MS	4	1000	Unknown		04/24/2019 17:02	Finished	MS (1ppb), IWST-190423B,10
58	N035250-003A,SAMF	5	1000	Unknown		04/24/2019 17:12	Finished	SAMP,10mL
59	N035250-003AMS,MS	6	1000	Unknown		04/24/2019 17:21	Finished	MS (1ppb), IWST-190423B,10
60	CCV-5,CCV,1,	7	1000	Unknown		04/24/2019 17:30	Finished	CCV @5ppb, IWST-190423A

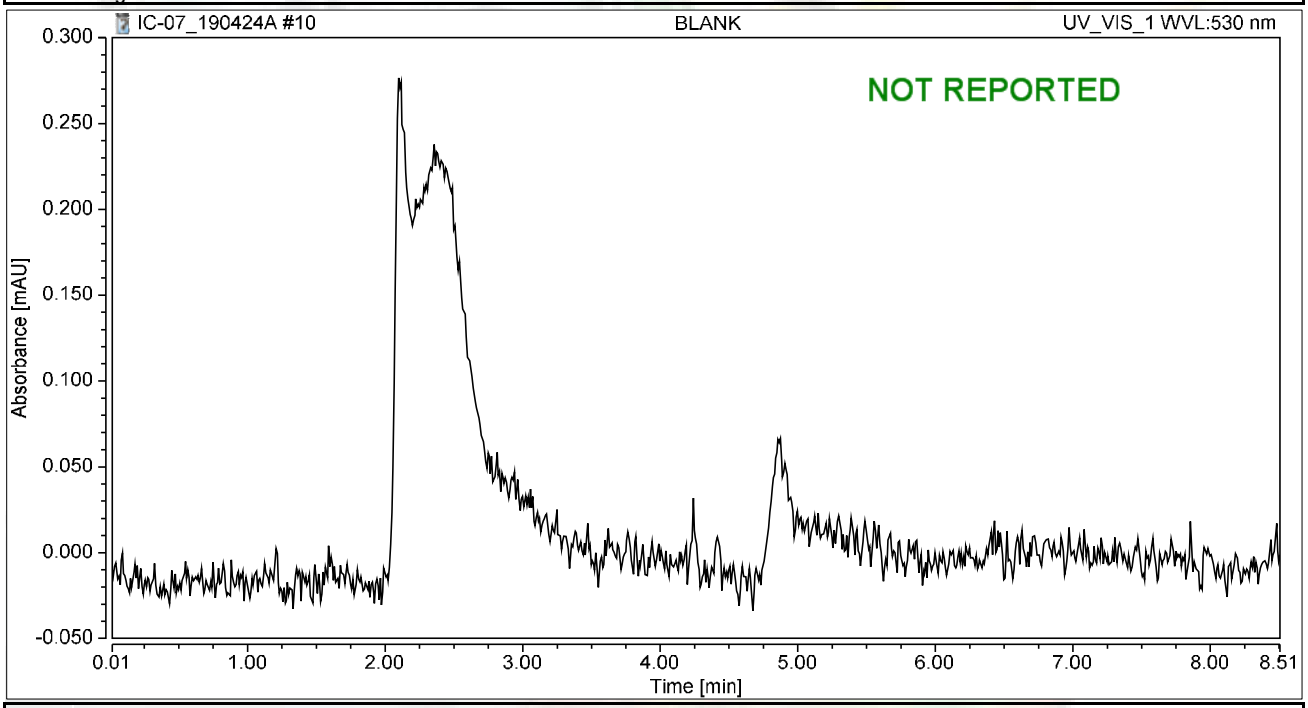
61	CCB-5,CCB,1,	8	1000	Unknown		04/24/2019 17:40	Finished	CCB R190411C
62	N035250-004A,SAMF	9	1000	Unknown		04/24/2019 17:49	Finished	SAMP,10mL
63	N035250-004AMS,MS	10	1000	Unknown		04/24/2019 17:59	Finished	MS (1ppb), IWST-190423B,10
64	N035250-005A,SAMF	11	1000	Unknown		04/24/2019 18:08	Finished	SAMP,10mL
65	N035250-005AMS,MS	12	1000	Unknown		04/24/2019 18:18	Finished	MS (1ppb), IWST-190423B,10
66	N035250-007A,SAMF	13	1000	Unknown		04/24/2019 18:27	Finished	SAMP,10mL
67	N035250-007AMS,MS	14	1000	Unknown		04/24/2019 18:37	Finished	MS (1ppb), IWST-190423B,10
68	N035250-012A,SAMF	15	1000	Unknown		04/24/2019 18:46	Finished	SAMP,10mL
69	N035250-012AMS,MS	16	1000	Unknown		04/24/2019 18:56	Finished	MS (1ppb), IWST-190423B,10
70	N035250-016A,SAMF	17	1000	Unknown		04/24/2019 19:05	Finished	SAMP,10mL
71	N035250-016AMS,MS	18	1000	Unknown		04/24/2019 19:15	Finished	MS (1ppb), IWST-190423B,10
72	CCV-6,CCV1,1,	19	1000	Unknown		04/24/2019 19:24	Finished	CCV @10ppb, IWST-190423A
73	CCB-6,CCB,1,	20	1000	Unknown		04/24/2019 19:33	Finished	CCB R190411C
74	N035250-017A,SAMF	21	1000	Unknown		04/24/2019 19:43	Finished	SAMP,10mL
75	N035250-017AMS,MS	22	1000	Unknown		04/24/2019 19:52	Finished	MS (1ppb), IWST-190423B,10
76	N035250-008A,SAMF	23	1000	Unknown		04/24/2019 20:02	Finished	SAMP,10mL
77	N035250-008AMS,MS	24	1000	Unknown		04/24/2019 20:11	Finished	MS (1ppb), IWST-190423B,10
78	N035250-010A,SAMF	25	1000	Unknown		04/24/2019 20:21	Finished	SAMP,10mL
79	N035250-010AMS,MS	26	1000	Unknown		04/24/2019 20:30	Finished	MS (1ppb), IWST-190423B,10
80	N035250-013A,SAMF	27	1000	Unknown		04/24/2019 20:40	Finished	SAMP,10mL
81	N035250-013AMS,MS	28	1000	Unknown		04/24/2019 20:49	Finished	MS (1ppb), IWST-190423B,10
82	N035250-015A,SAMF	29	1000	Unknown		04/24/2019 20:59	Finished	SAMP,10mL
83	N035250-015AMS,MS	30	1000	Unknown		04/24/2019 21:08	Finished	MS (1ppb), IWST-190423B,10
84	CCV-7,CCV,1,	31	1000	Unknown		04/24/2019 21:18	Finished	CCV @5ppb, IWST-190423A
85	CCB-7,CCB,1,	32	1000	Unknown		04/24/2019 21:27	Finished	CCB R190411C
86	N035250-018A,SAMF	33	1000	Unknown		04/24/2019 21:36	Finished	SAMP,10mL
87	N035250-018AMS,MS	34	1000	Unknown		04/24/2019 21:46	Finished	MS (1ppb), IWST-190423B,10
88	CCV-8,CCV1,1,	35	1000	Unknown		04/24/2019 21:55	Finished	CCV @10ppb, IWST-190423A
89	CCB-8,CCB,1,	36	1000	Unknown		04/24/2019 22:05	Finished	CCB R190411C
90	BLANK	37	1000	Unknown		04/24/2019 22:14	Finished	BLANK
91	SHUTDOWN	38	1000	Unknown		04/24/2019 22:24	Finished	
92	Eluent: R190424A	39	1000	Unknown		n.a.	Finished	Eluent
93	PCR: R190424B	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

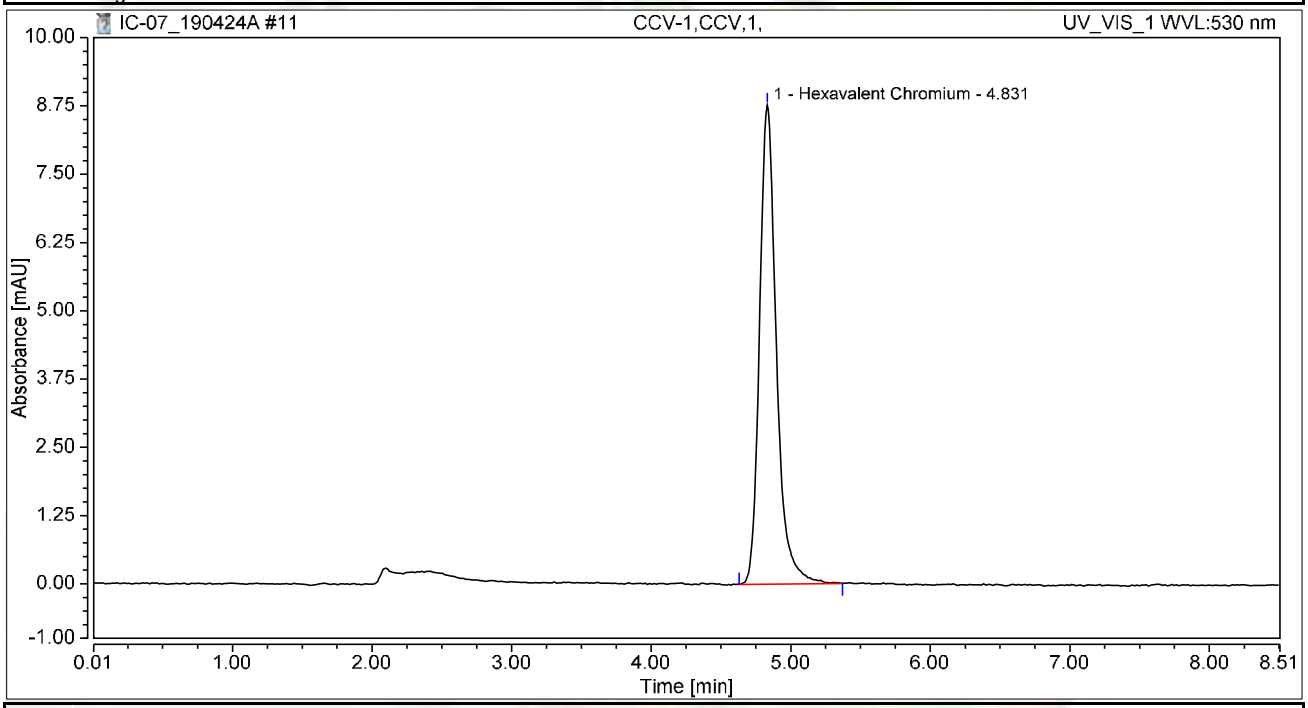
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

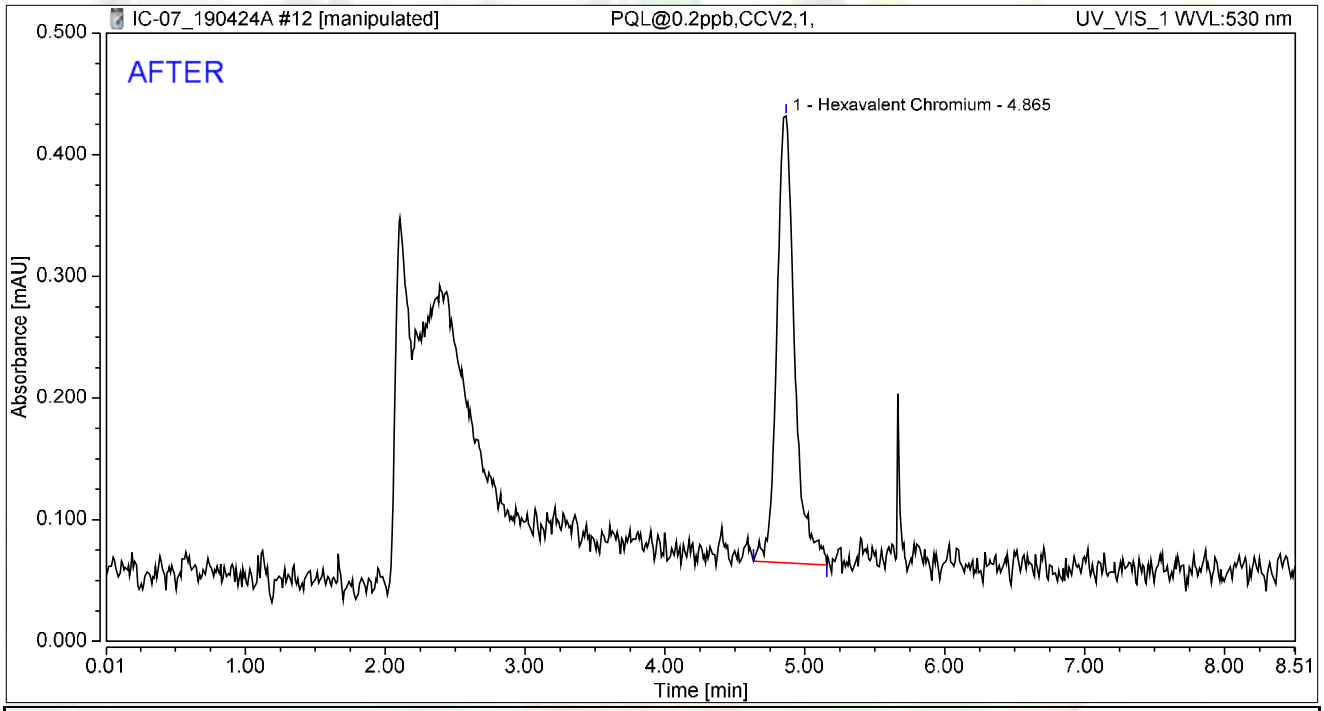
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	1.229	8.773	100.00	100.00	4.9358
Total:			**1.229**	**8.773**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	0.054	0.367	100.00	100.00	0.2174
Total:			**0.054**	**0.367**	**100.00**	**100.00**	

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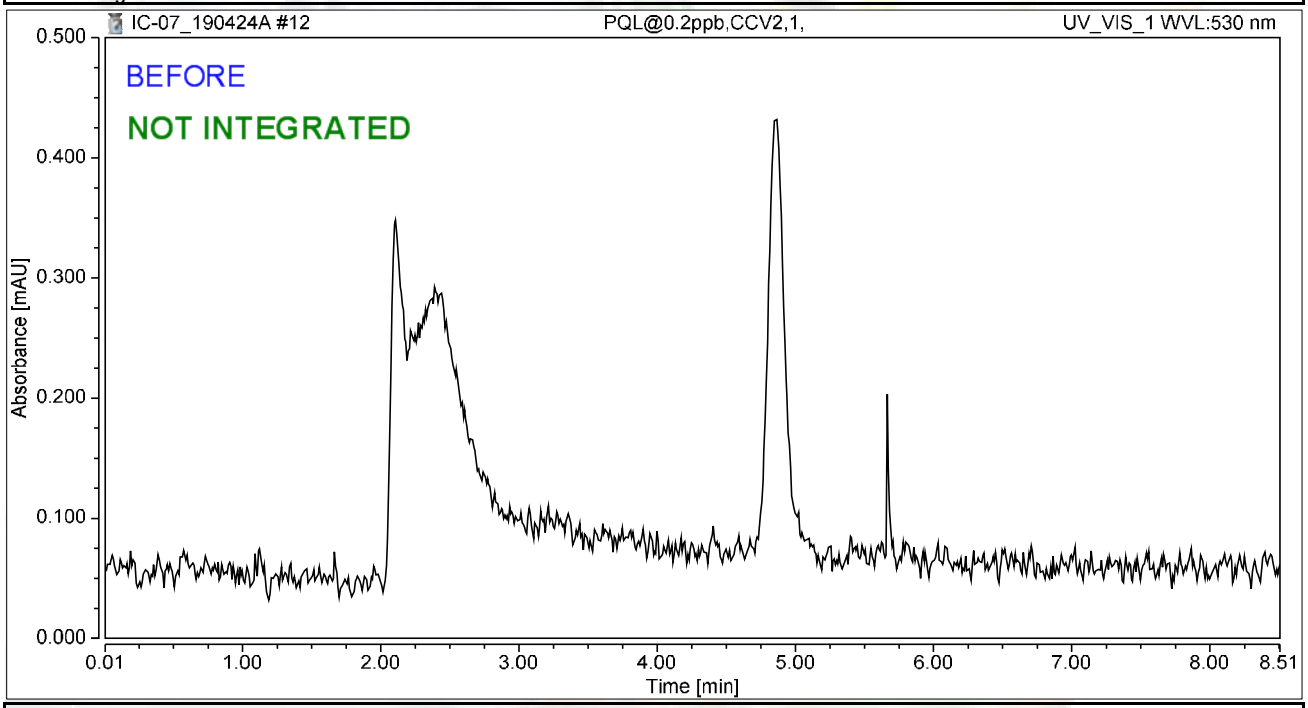
Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

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

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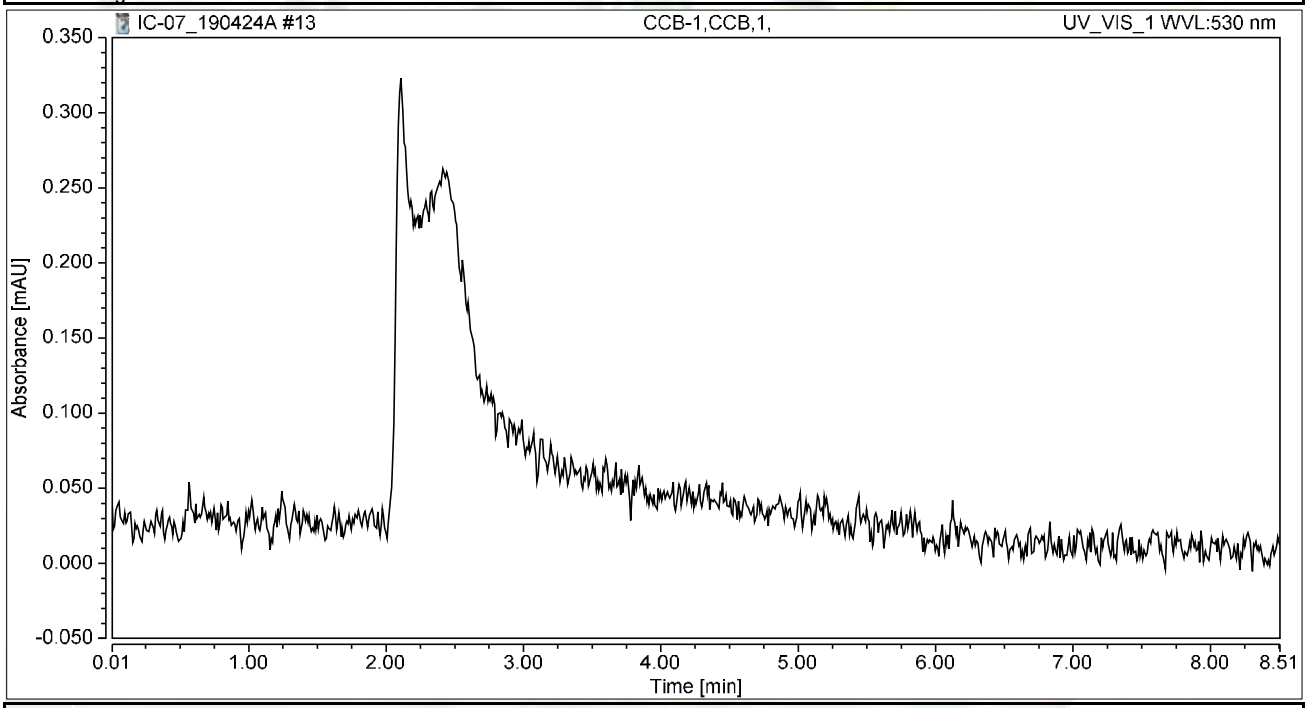
5/7/2019

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

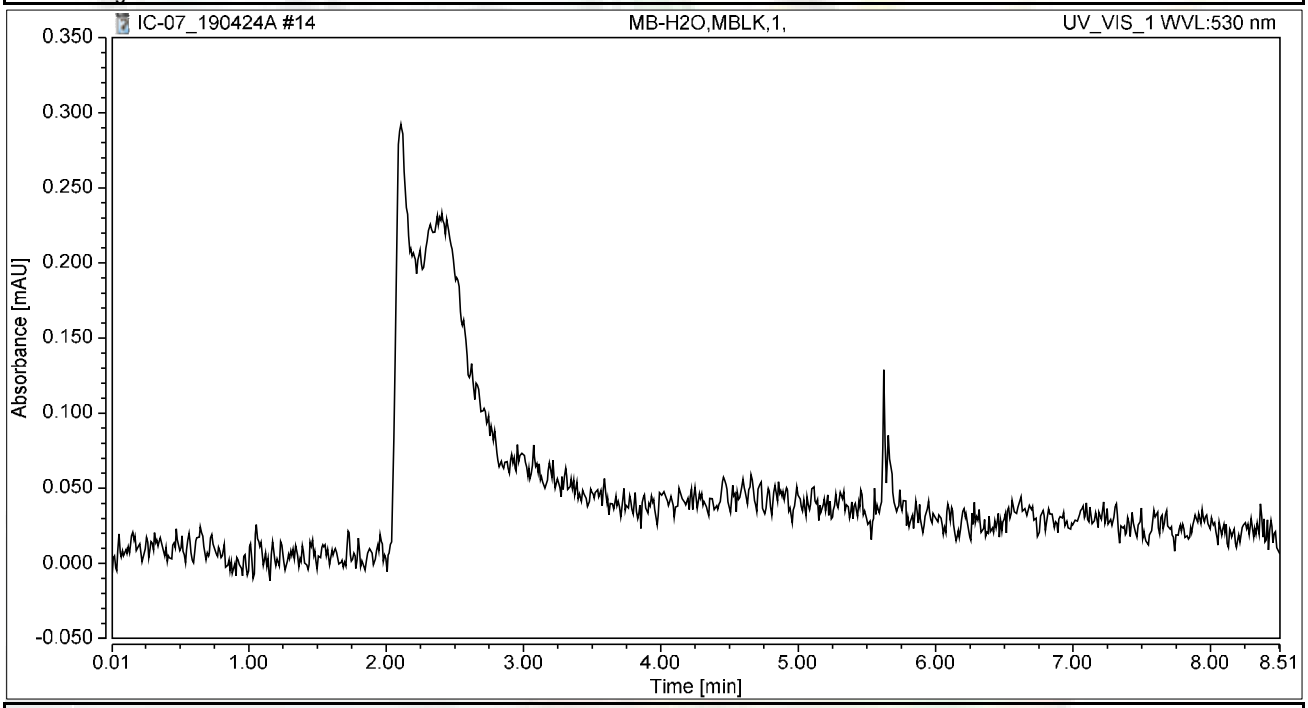
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

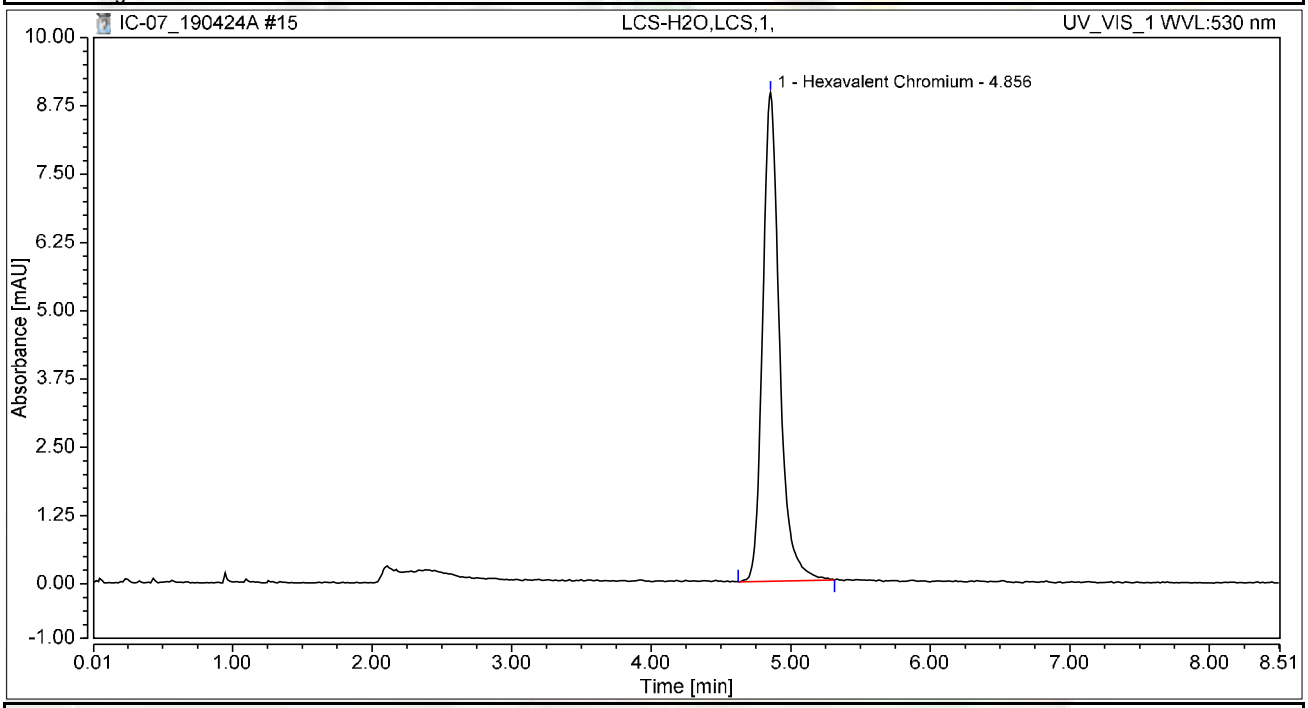
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 10:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

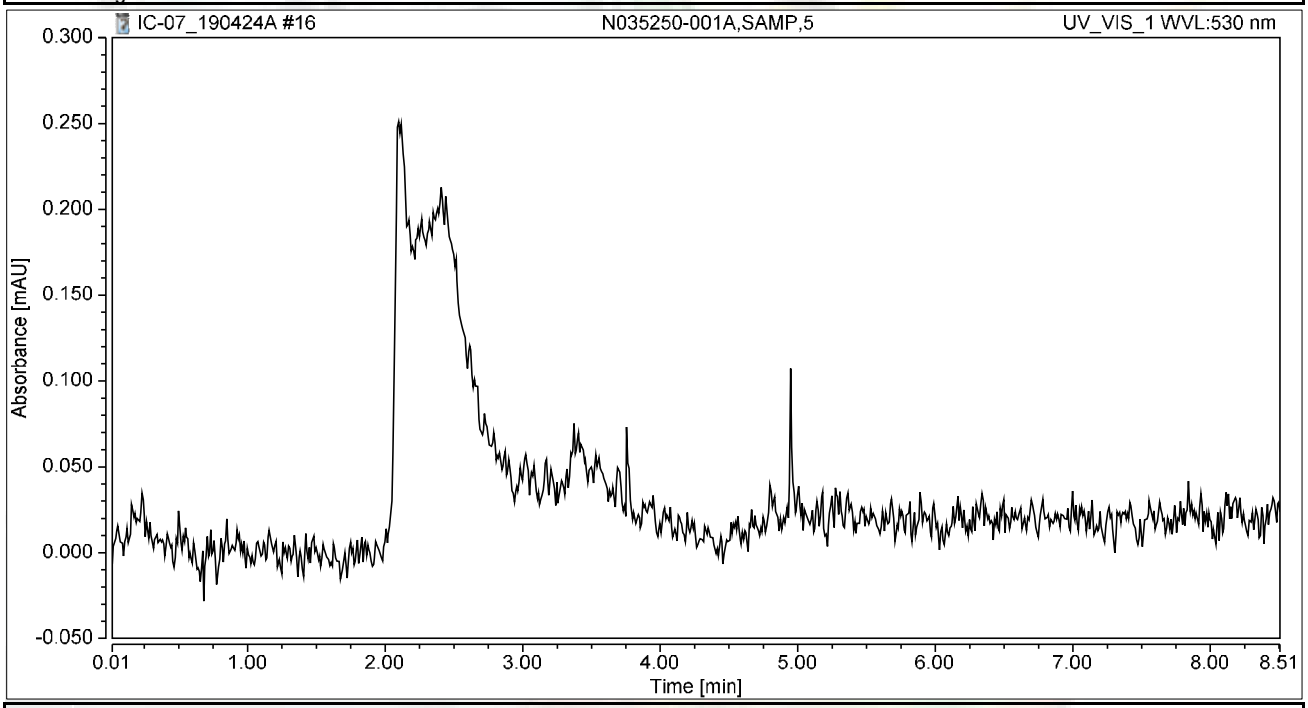
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.255	8.939	100.00	100.00	5.0400
Total:			**1.255**	**8.939**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-001A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 10:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

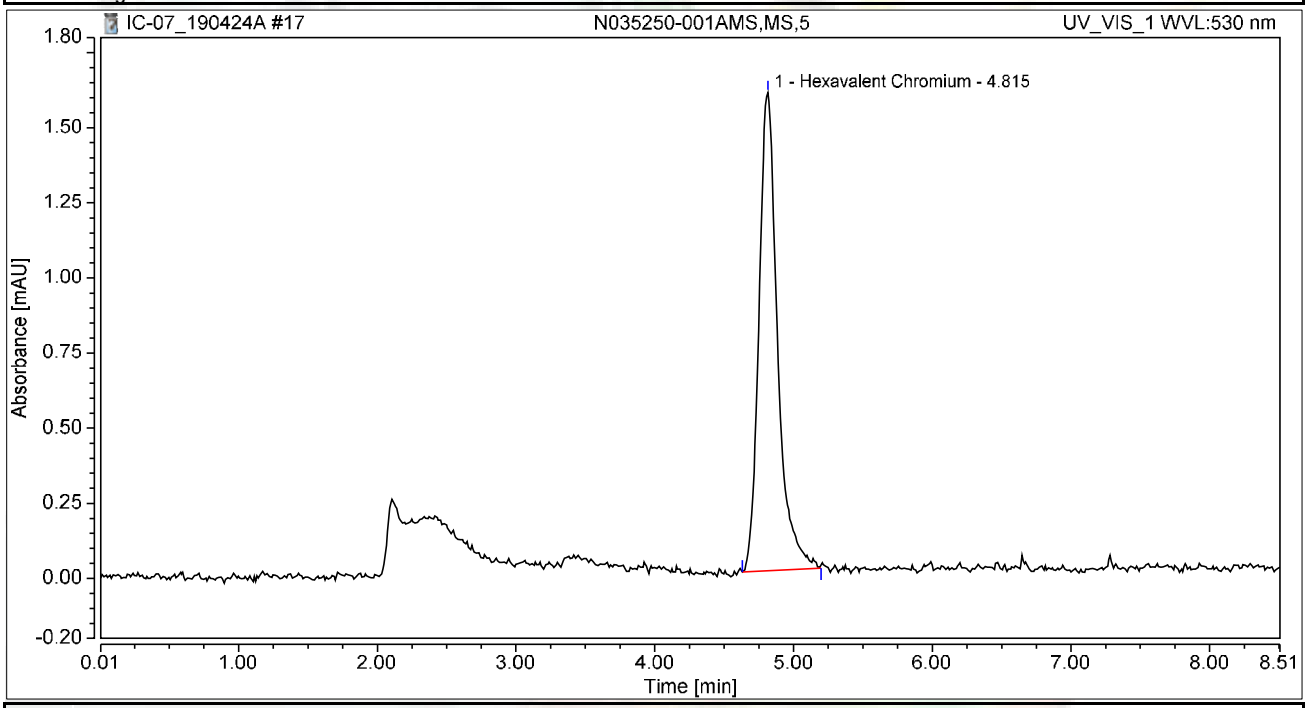
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 10:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

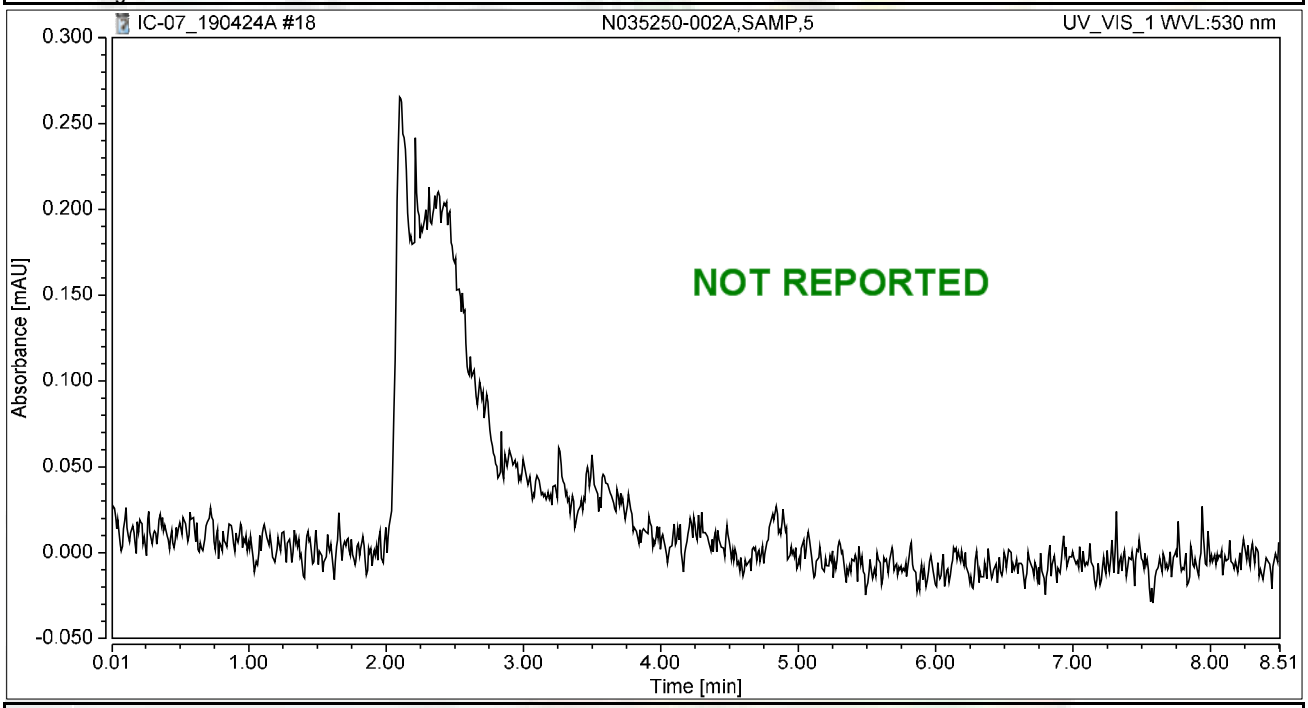
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.815	0.247	1.591	100.00	100.00	0.9921
Total:			**0.247**	**1.591**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 10:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

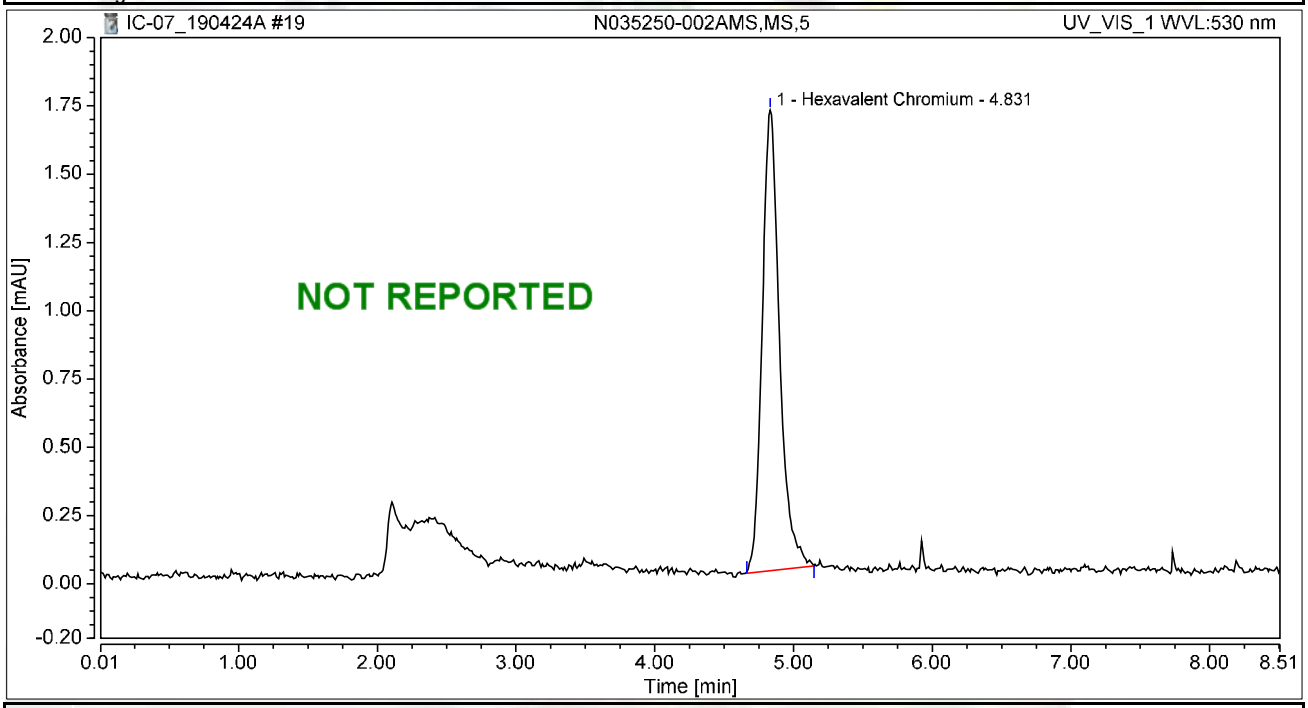
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

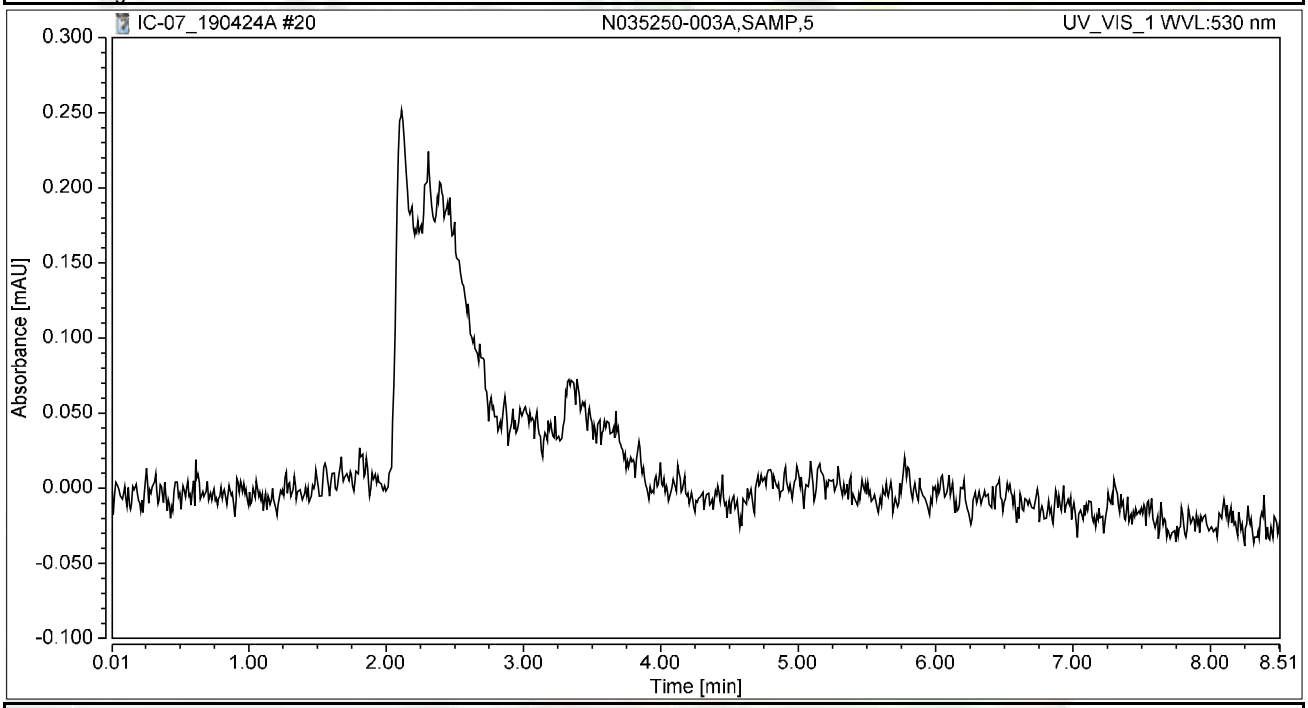
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.245	1.686	100.00	100.00	0.9822
Total:			**0.245**	**1.686**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

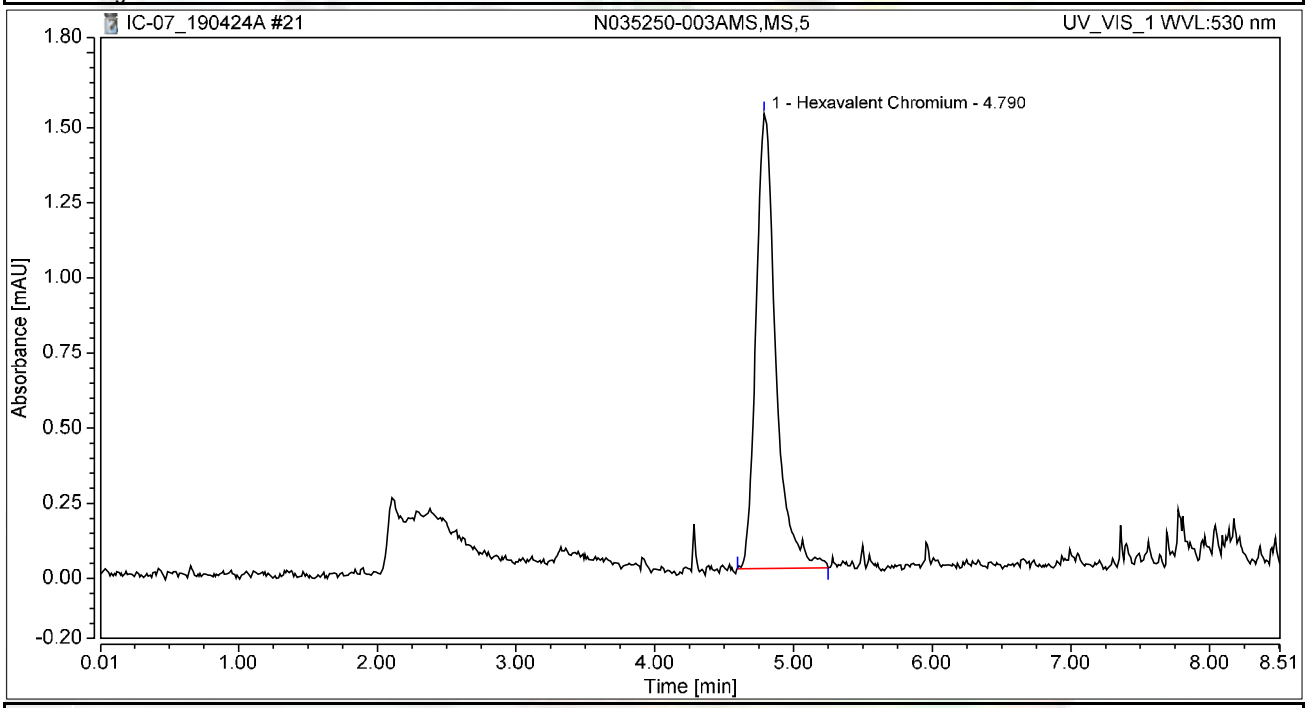
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-003AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

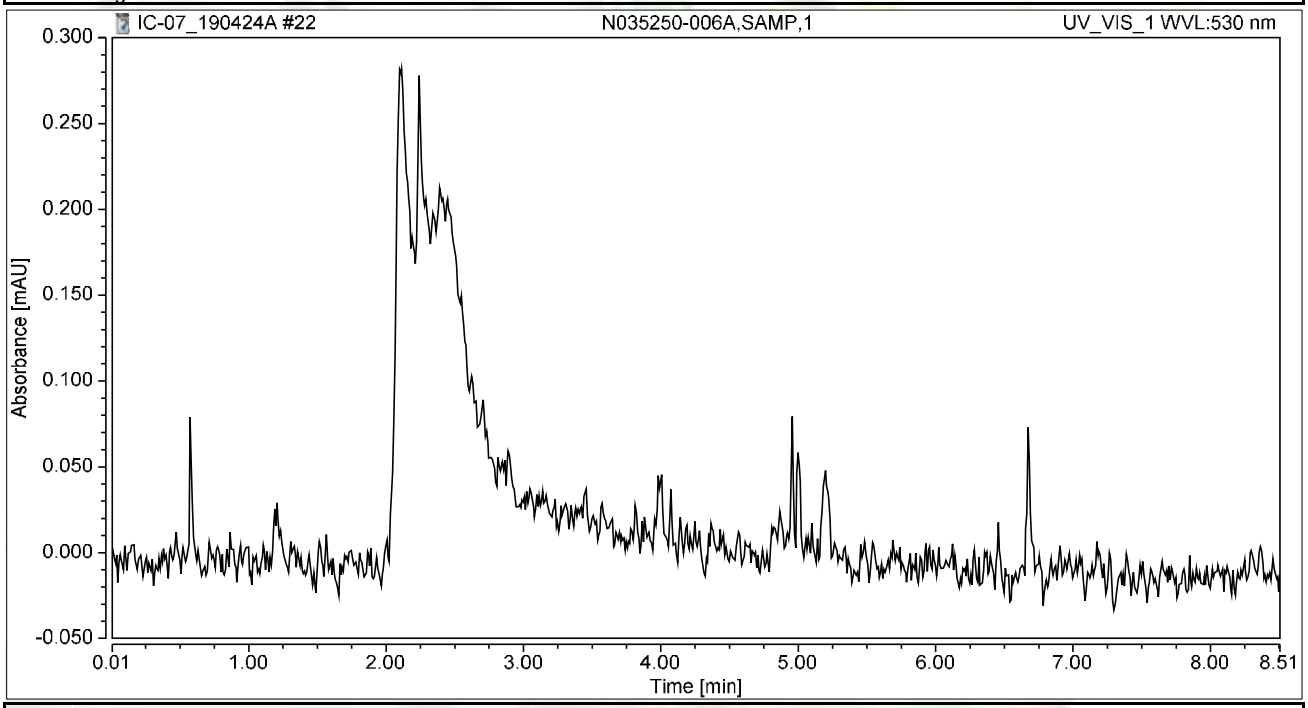
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.790	0.250	1.513	100.00	100.00	1.0050
Total:			**0.250**	**1.513**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

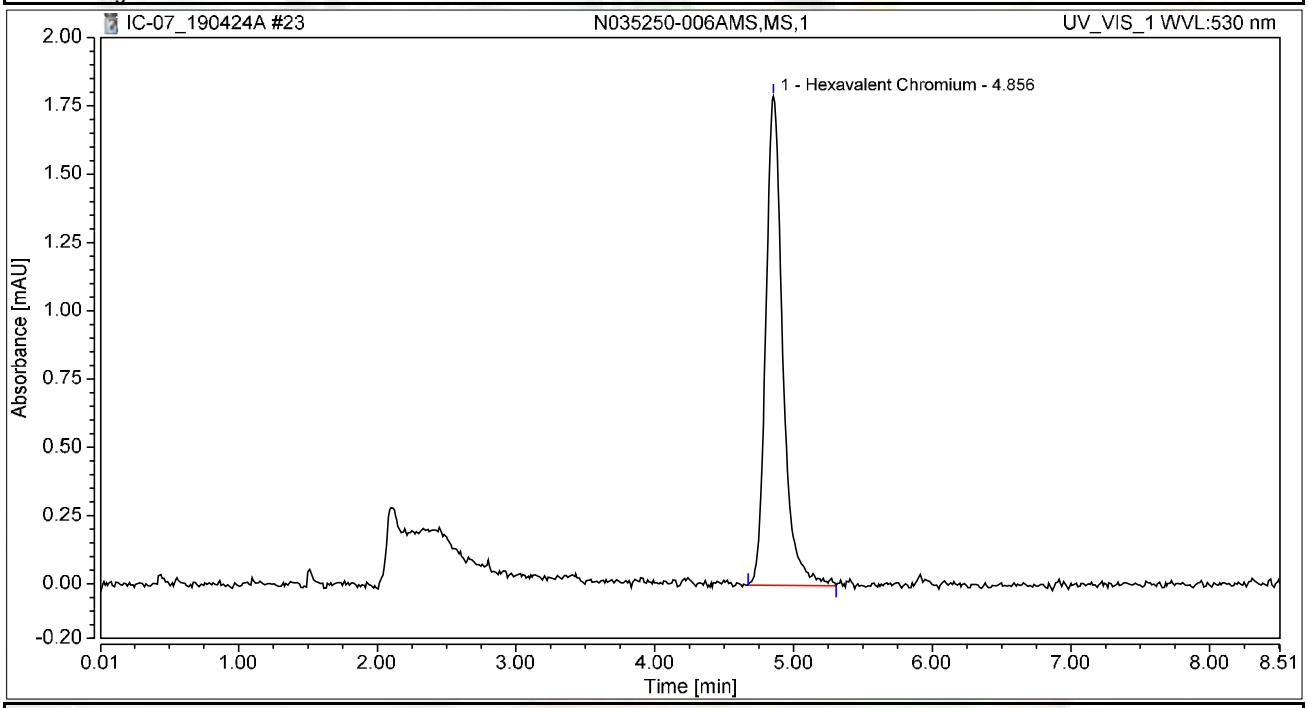
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

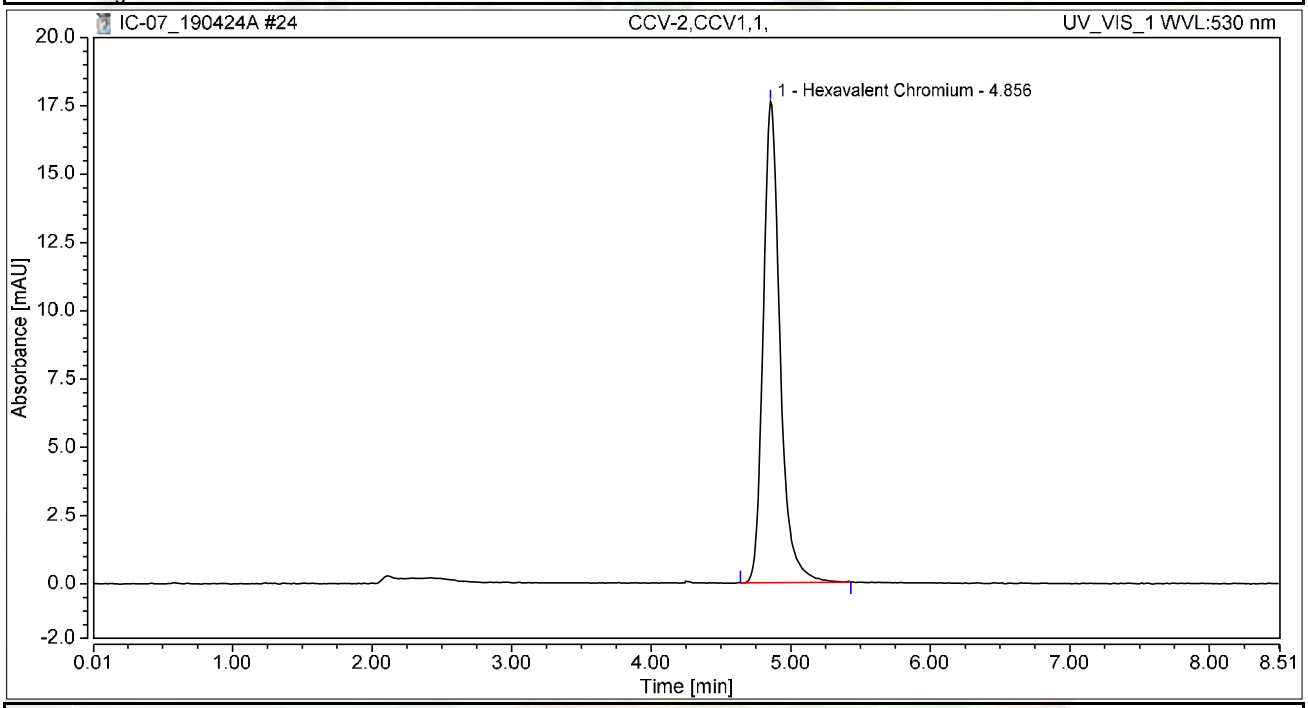
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.253	1.791	100.00	100.00	1.0181
Total:			**0.253**	**1.791**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

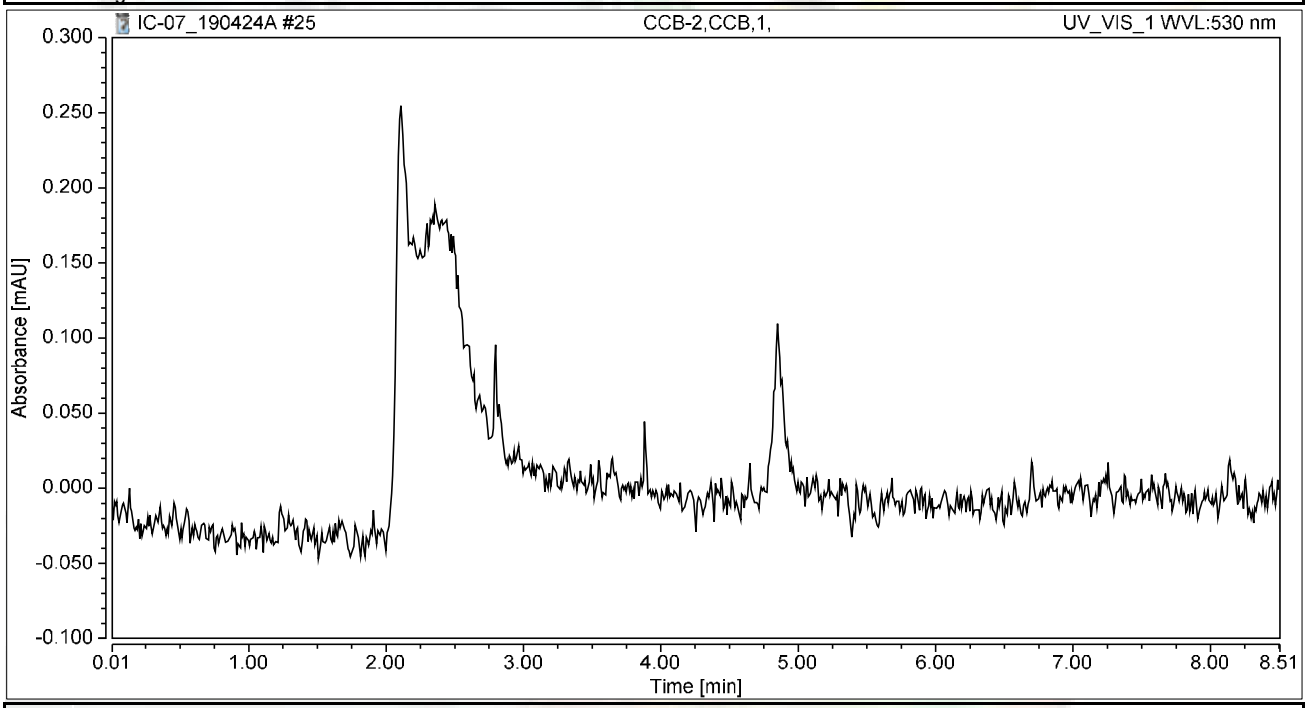
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.468	17.615	100.00	100.00	9.9131
Total:			**2.468**	**17.615**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

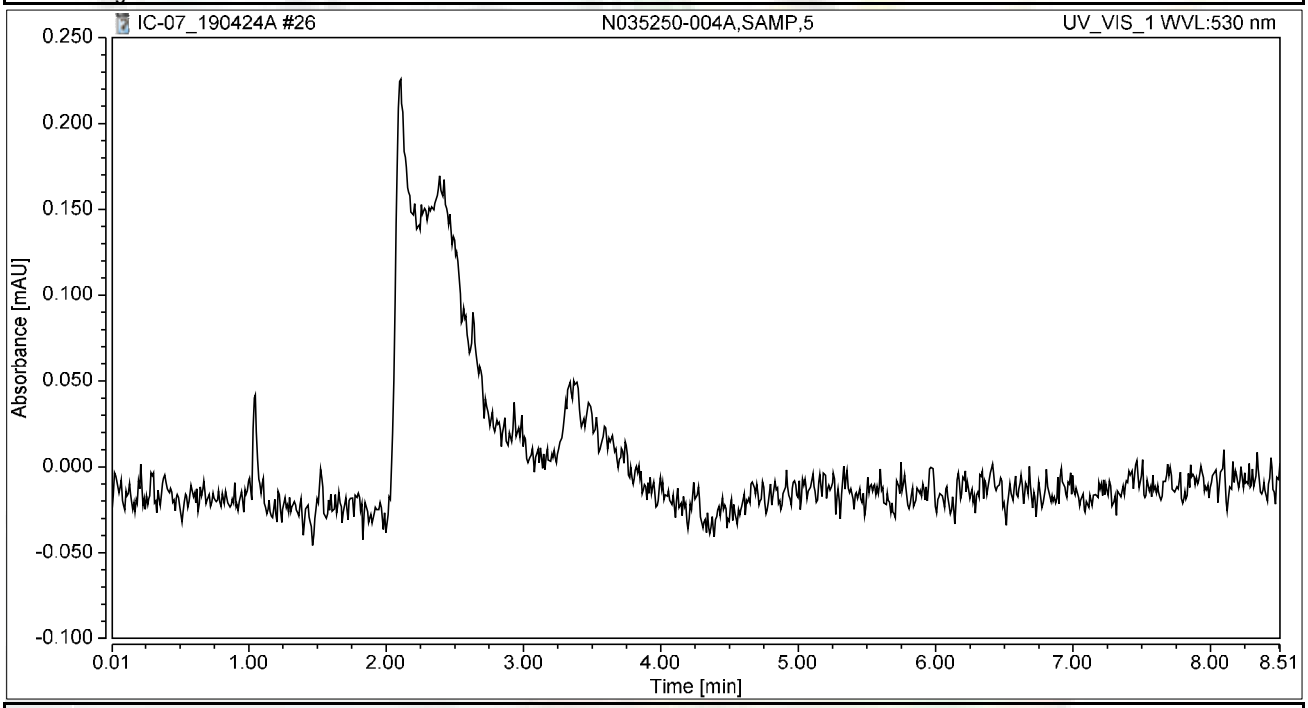
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-004A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

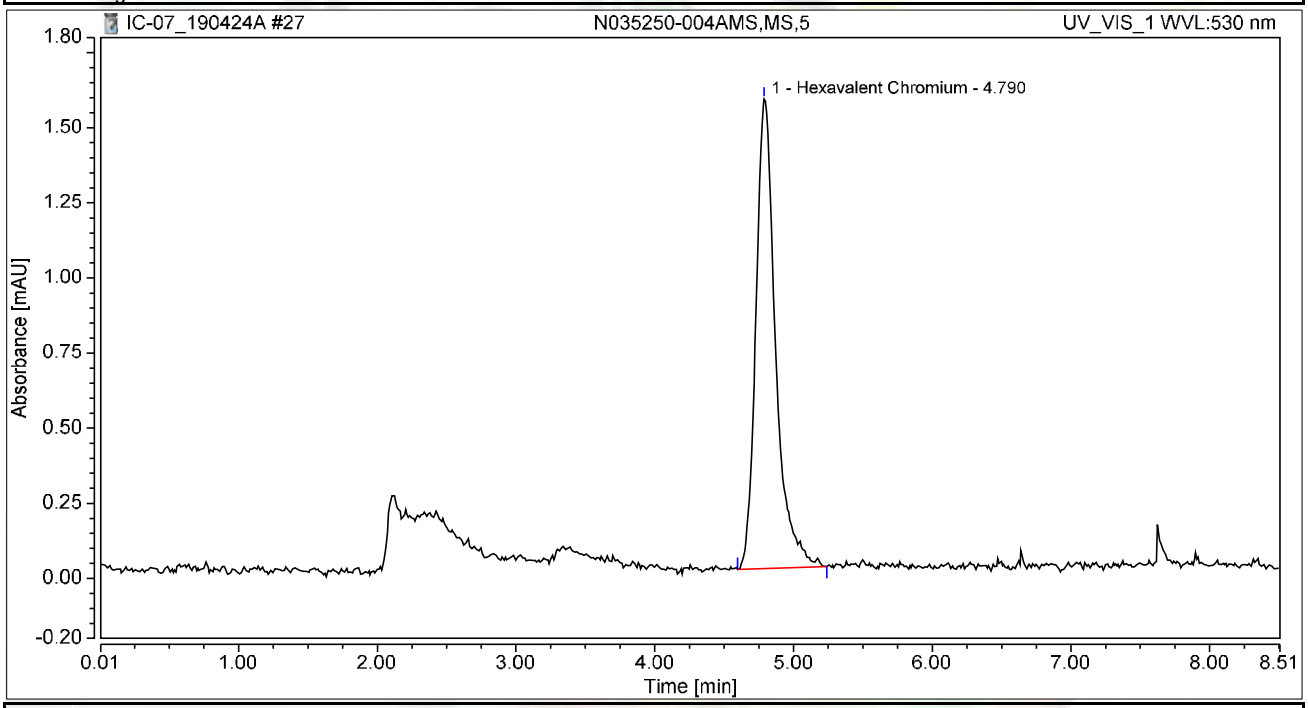
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-004AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

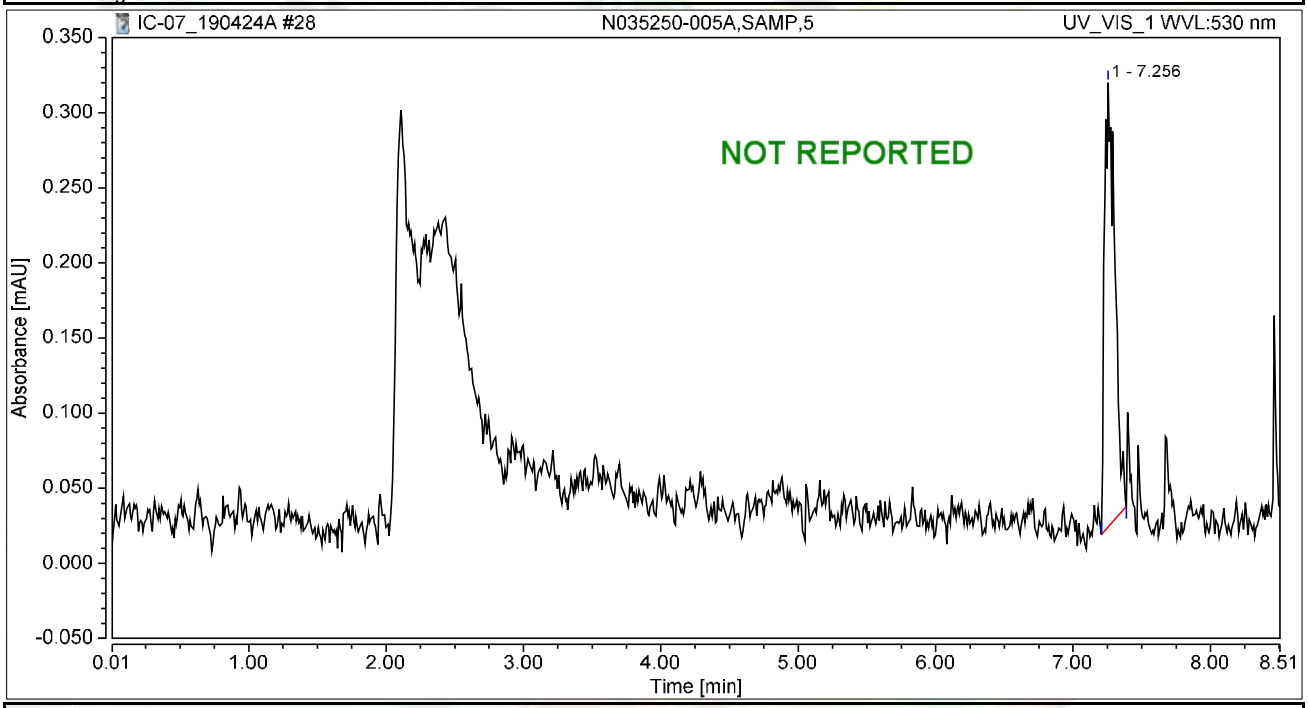
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.790	0.257	1.563	100.00	100.00	1.0309
Total:			**0.257**	**1.563**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-005A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

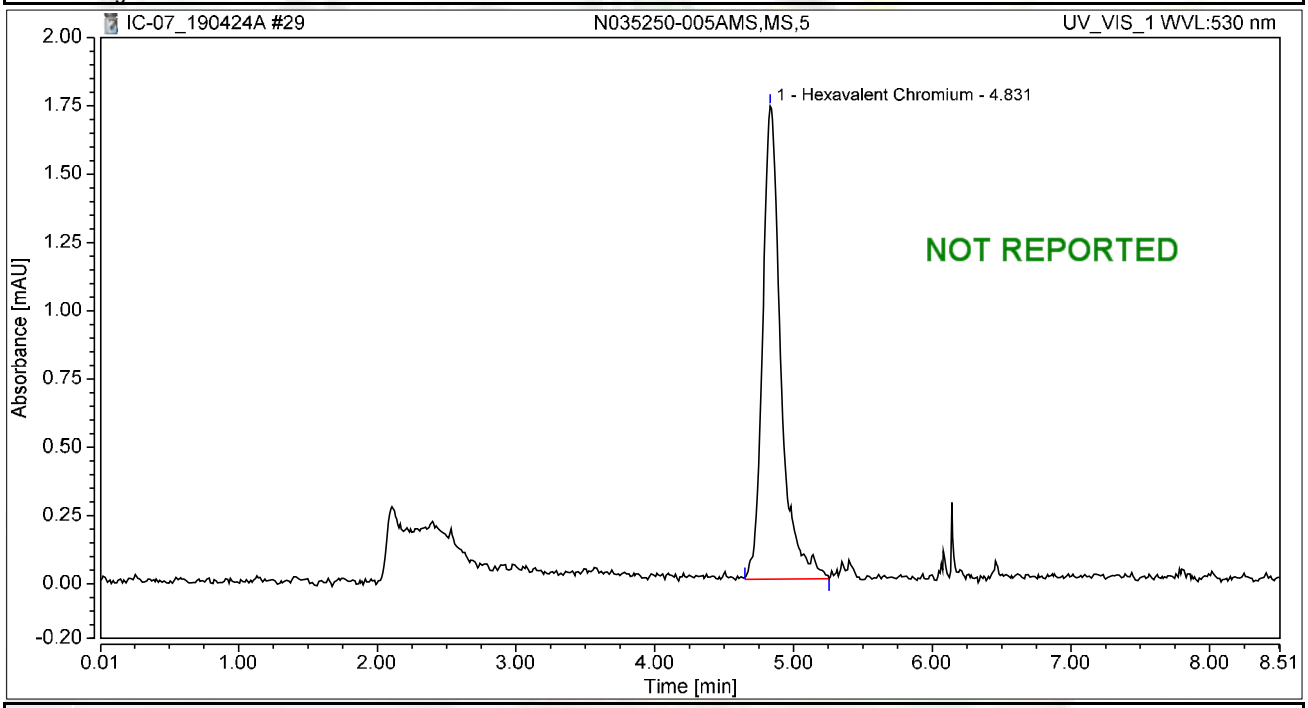
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.256	0.026	0.296	100.00	100.00	n.a.
Total:			**0.026**	**0.296**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-005AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

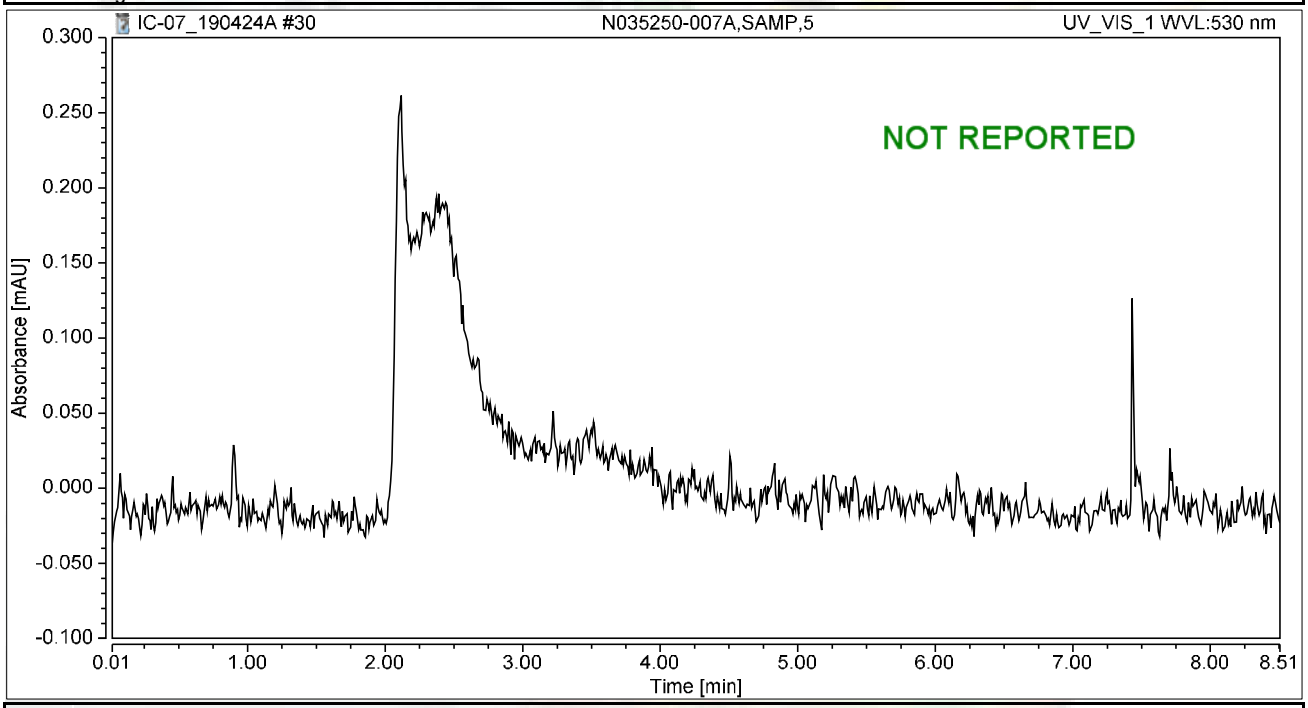
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.265	1.732	100.00	100.00	1.0639
Total:			**0.265**	**1.732**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-007A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

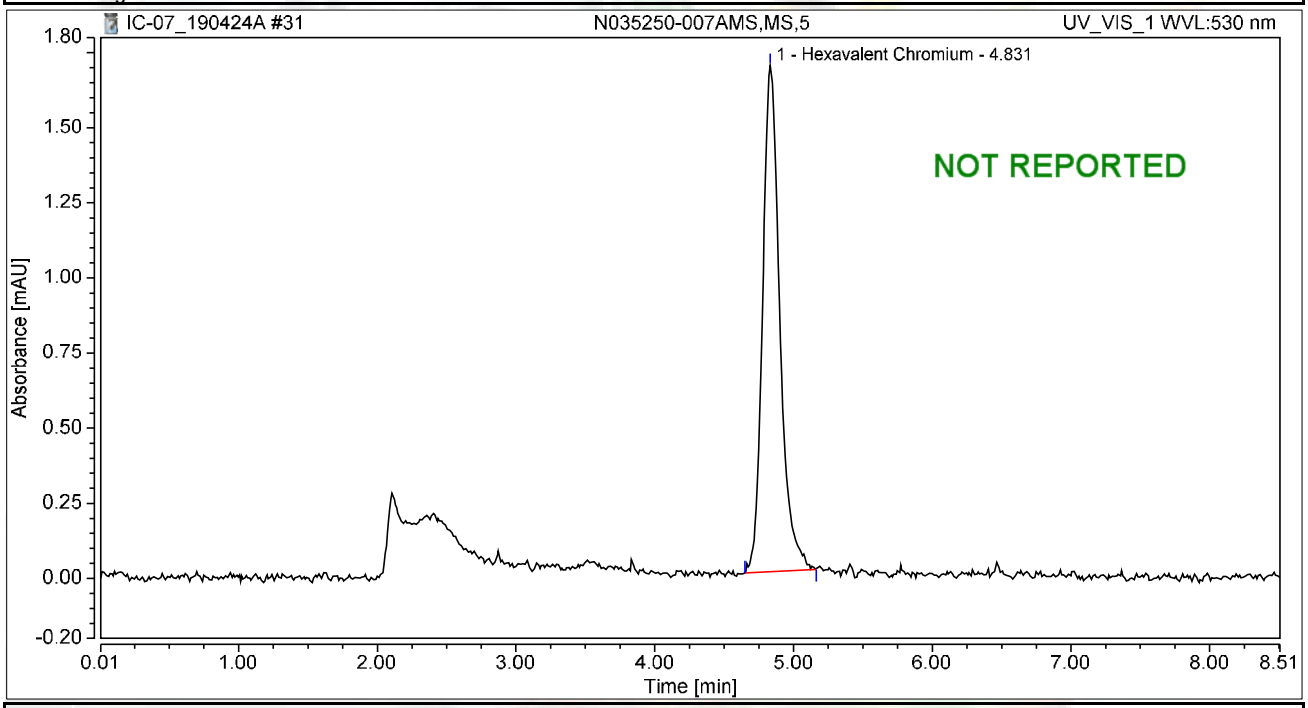
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-007AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

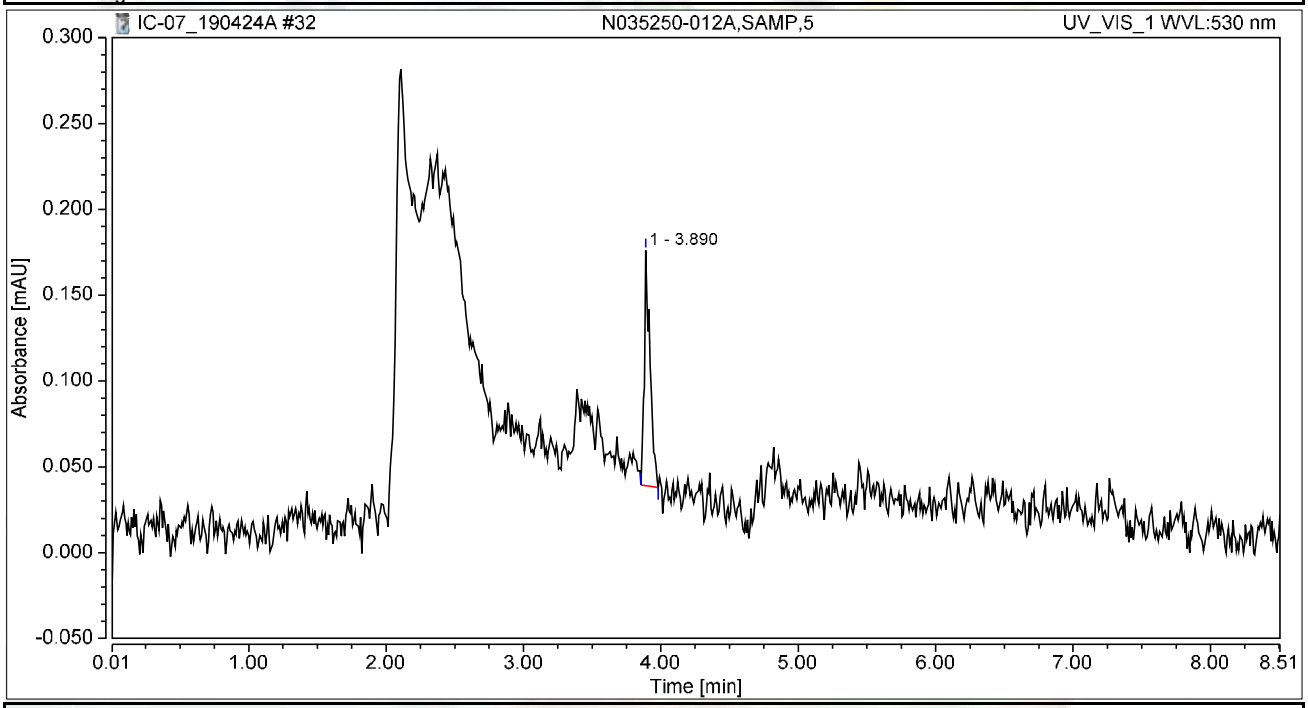
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.243	1.685	100.00	100.00	0.9765
Total:			**0.243**	**1.685**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-012A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

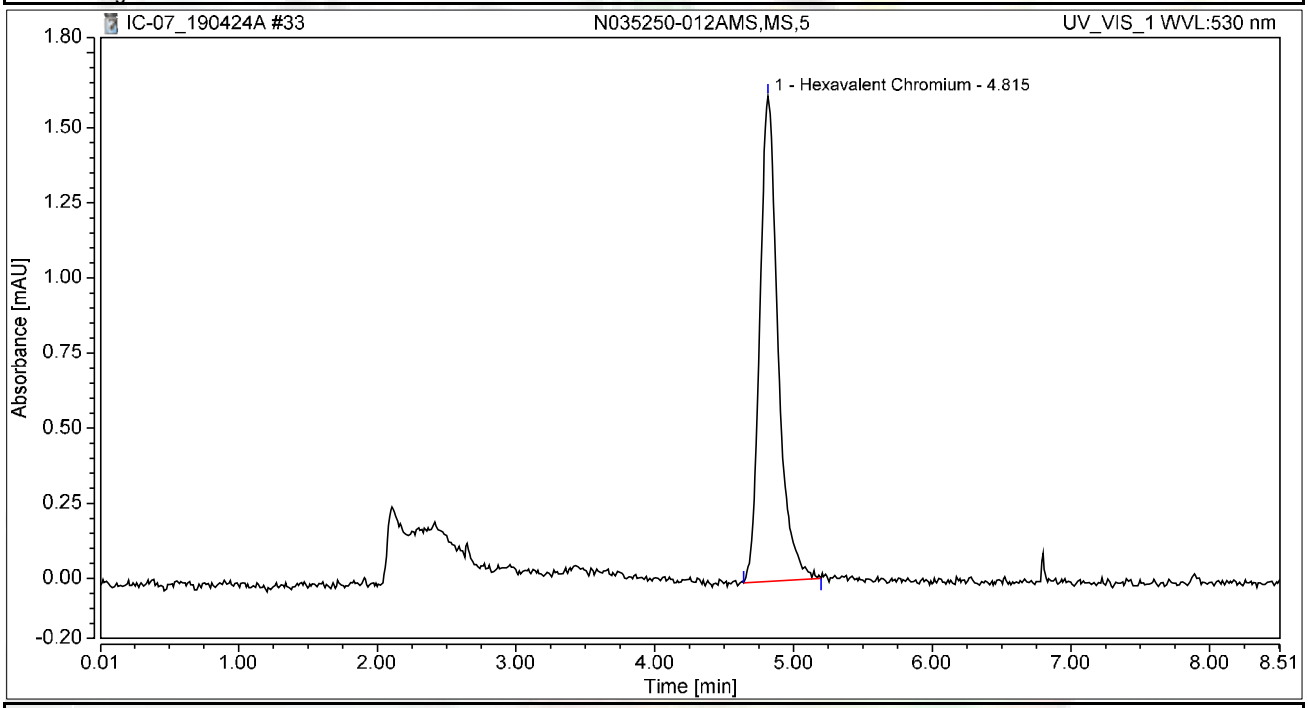
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.890	0.006	0.137	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.006**	**0.137**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-012AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

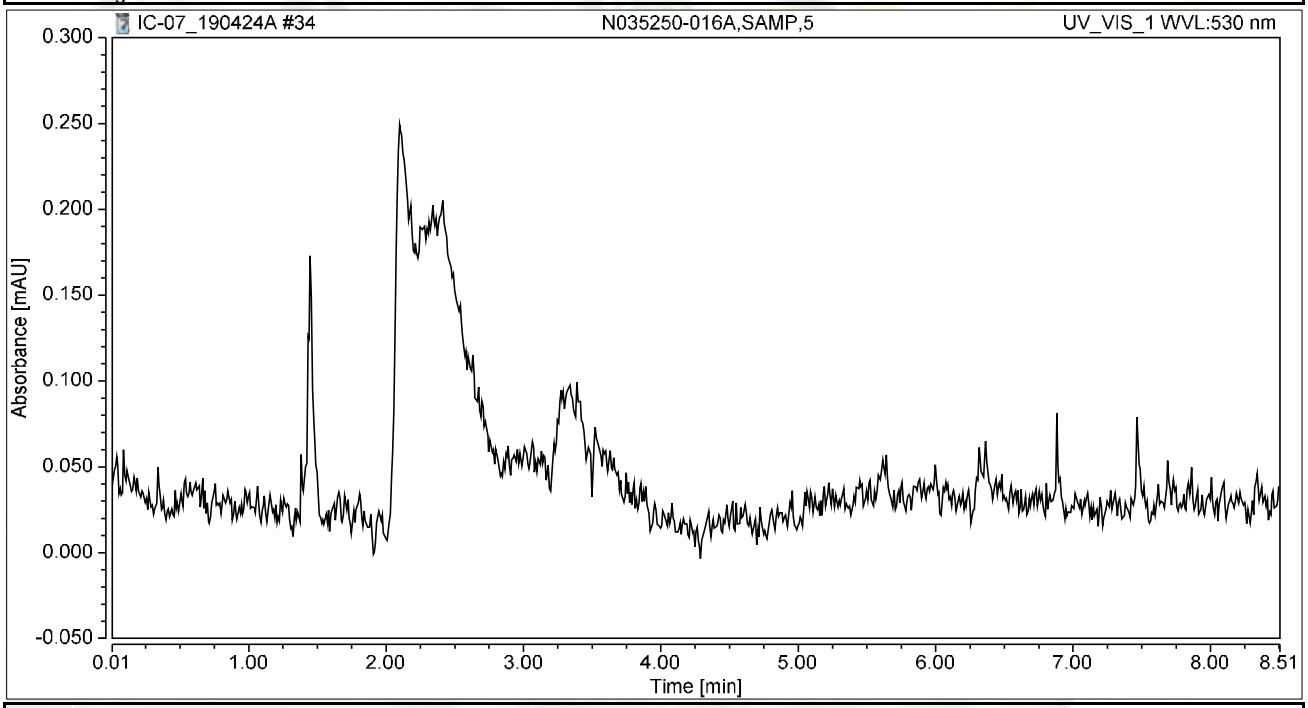
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.815	0.247	1.616	100.00	100.00	0.9918
Total:			**0.247**	**1.616**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-016A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

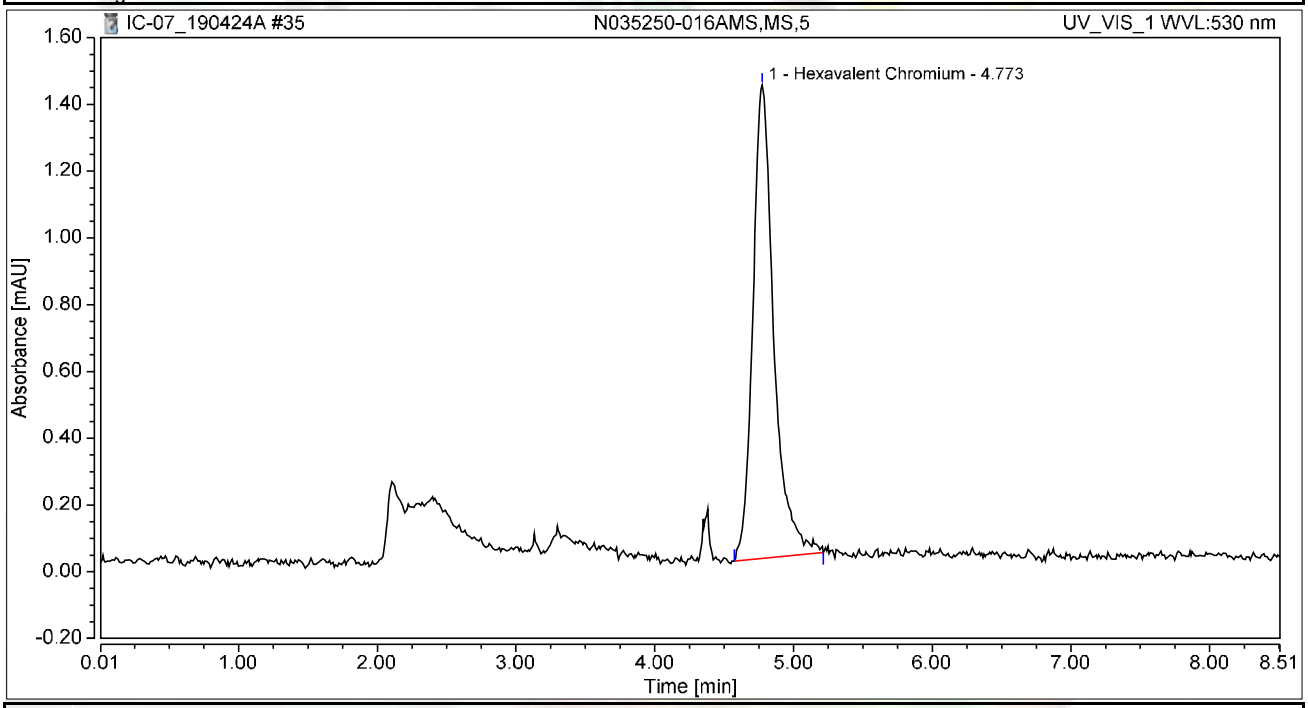
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-016AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

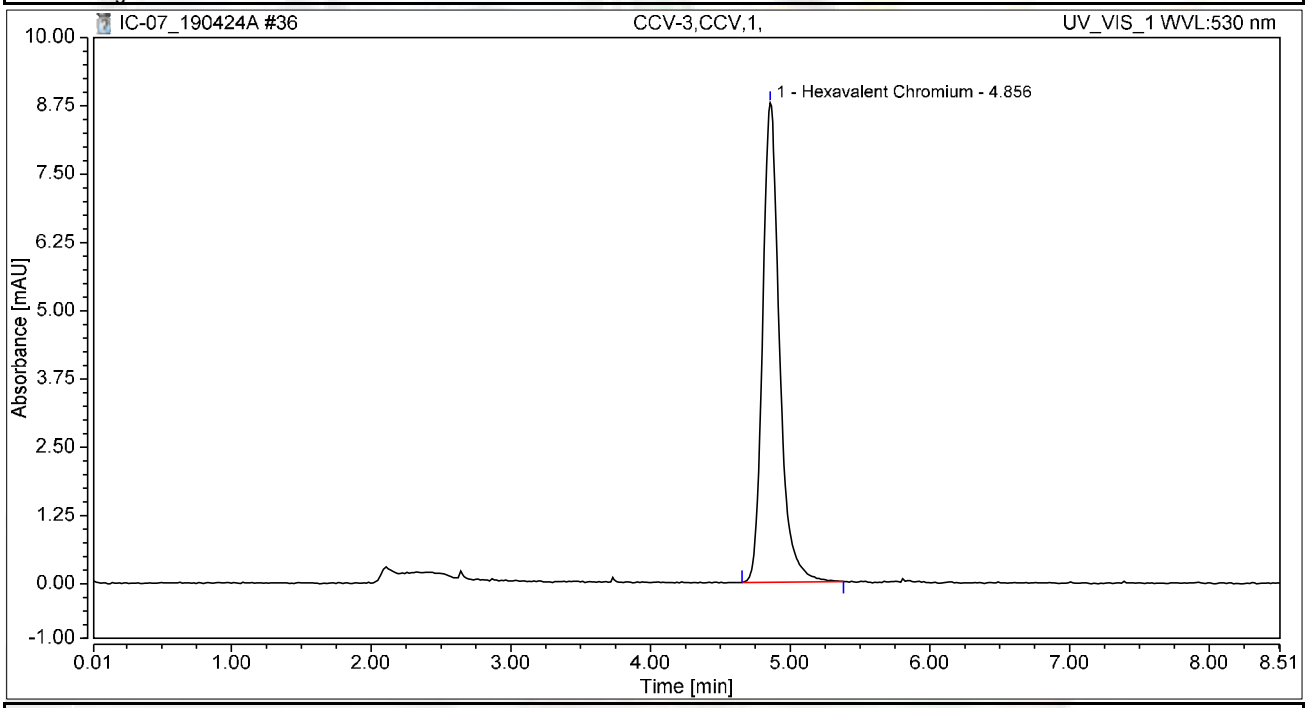
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	0.248	1.419	100.00	100.00	0.9972
Total:			**0.248**	**1.419**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

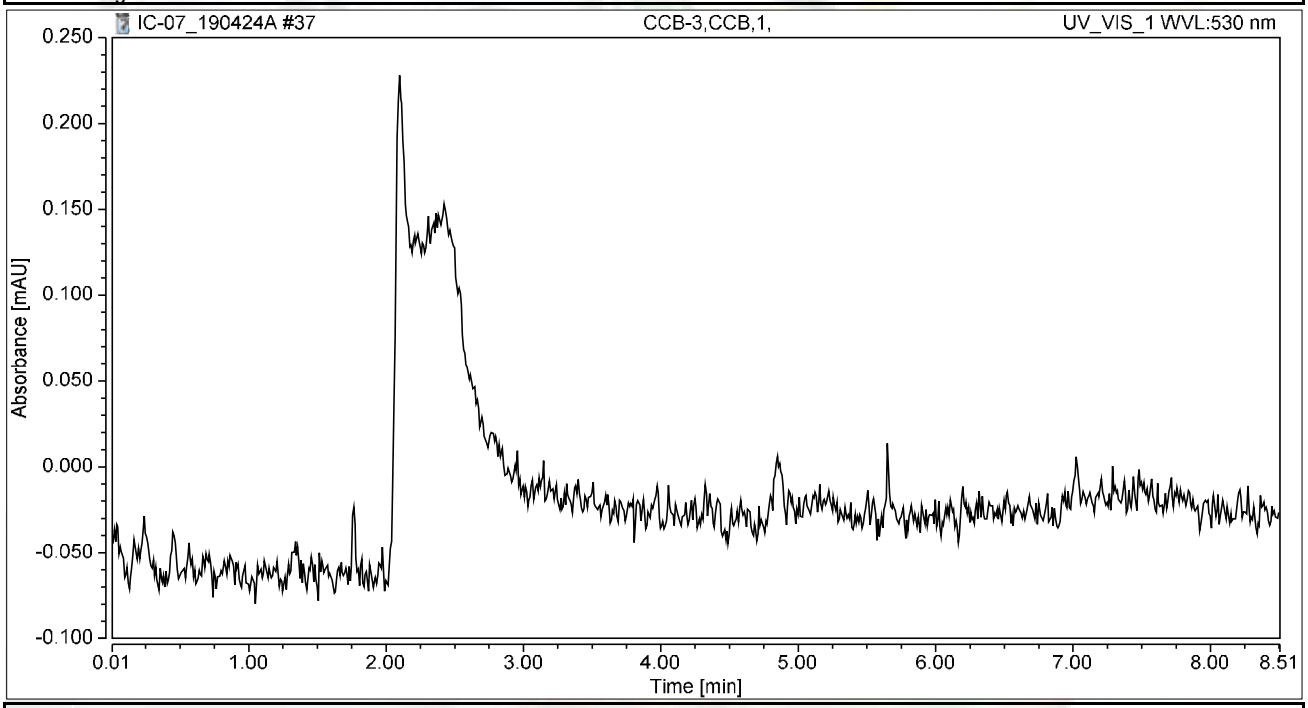
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.232	8.772	100.00	100.00	4.9490
Total:			**1.232**	**8.772**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

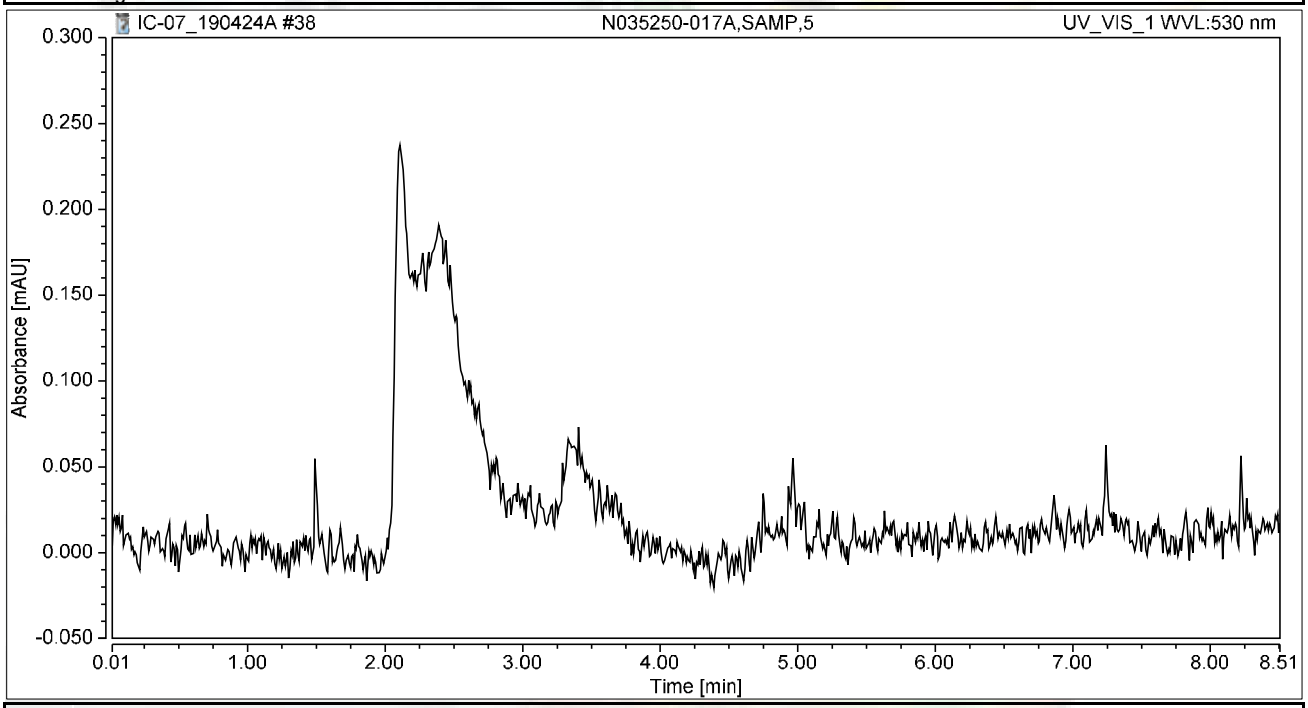
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-017A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

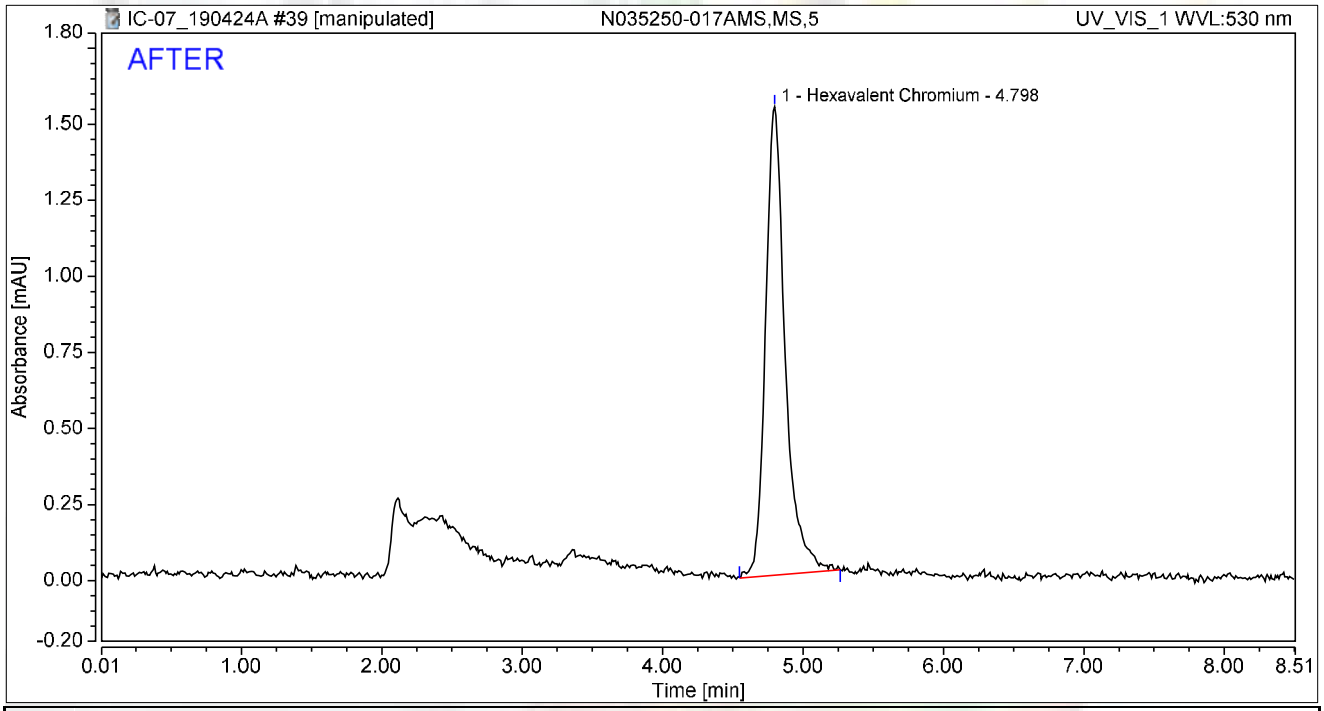
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-017AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.798	0.251	1.540	100.00	100.00	1.0073
Total:			**0.251**	**1.540**	**100.00**	**100.00**	

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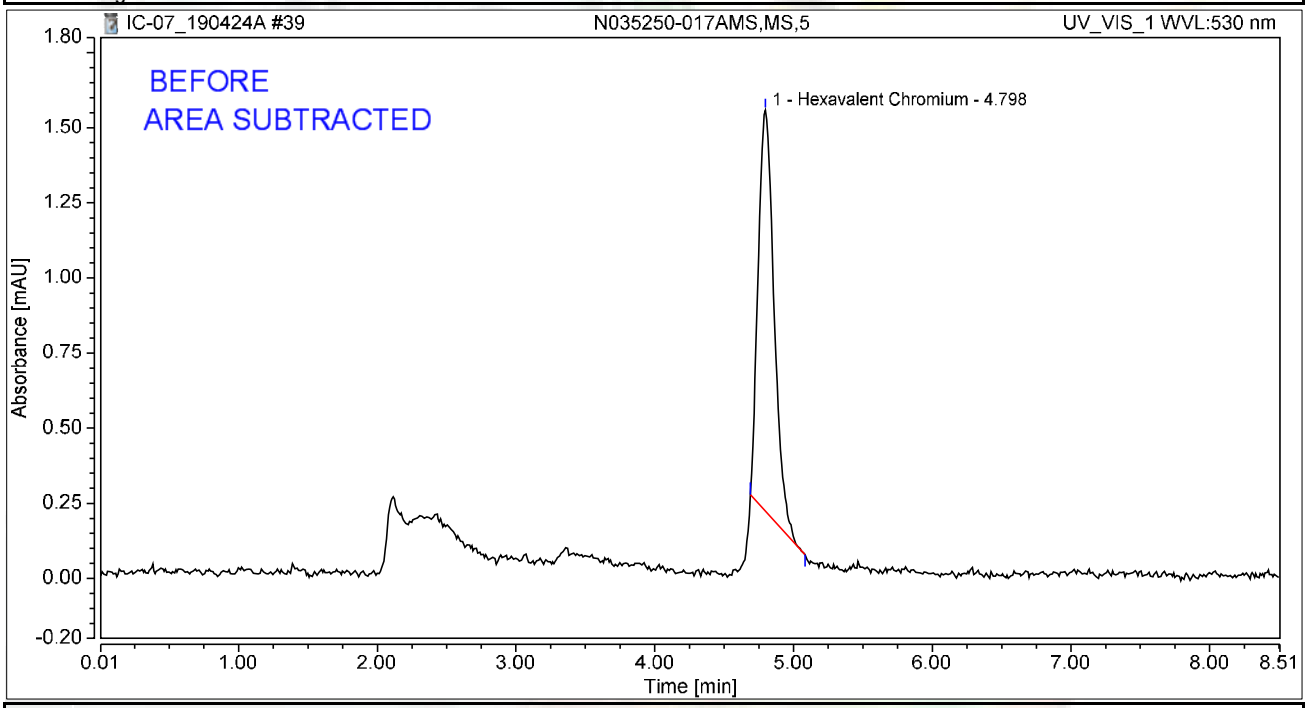
Chromatogram and Results

Injection Details

Injection Name:	**N035250-017AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.798	0.178	1.333	100.00	100.00	0.7132
Total:			**0.178**	**1.333**	**100.00**	**100.00**	

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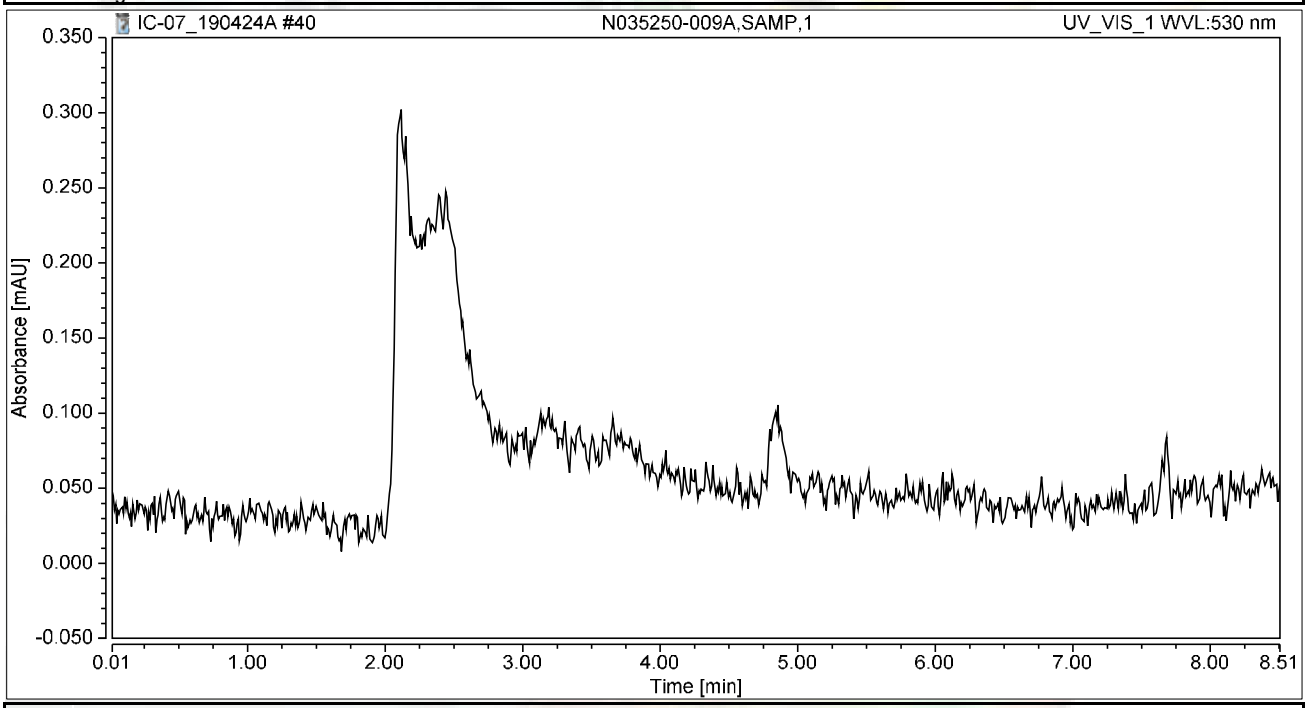
Chromatogram and Results

Injection Details

Injection Name:	**N035250-009A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

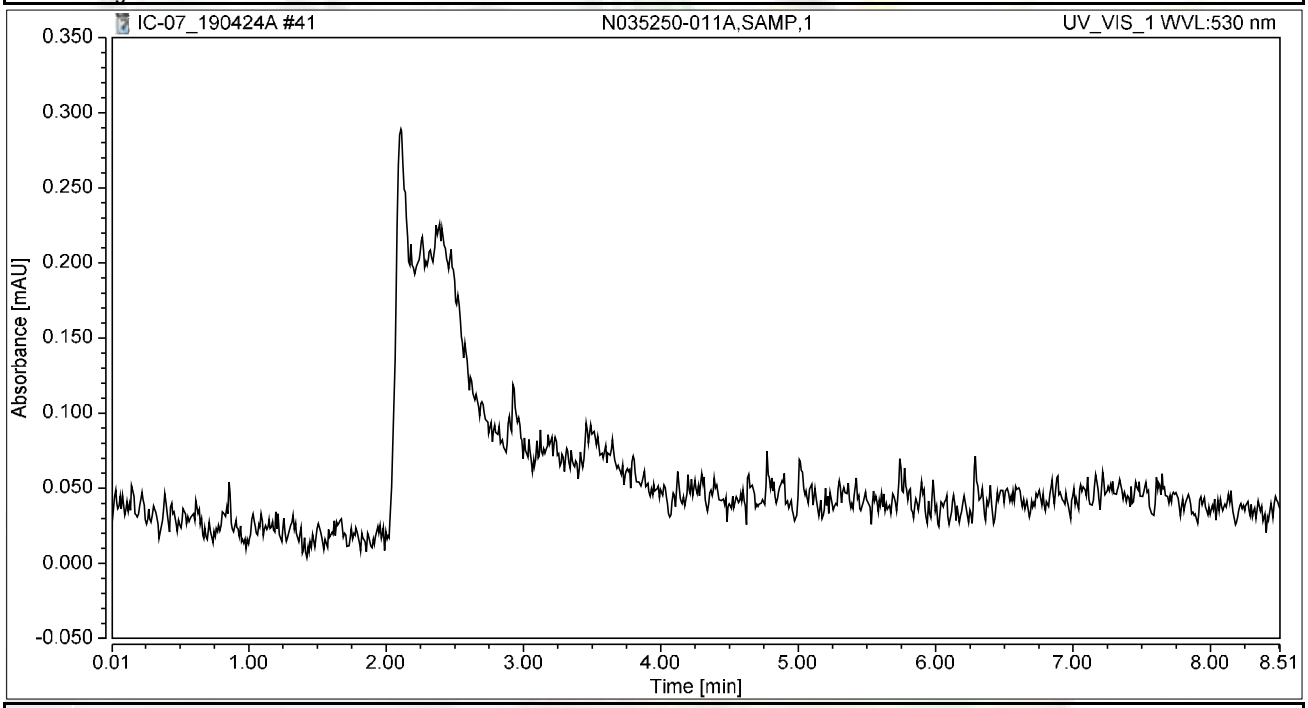
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-011A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

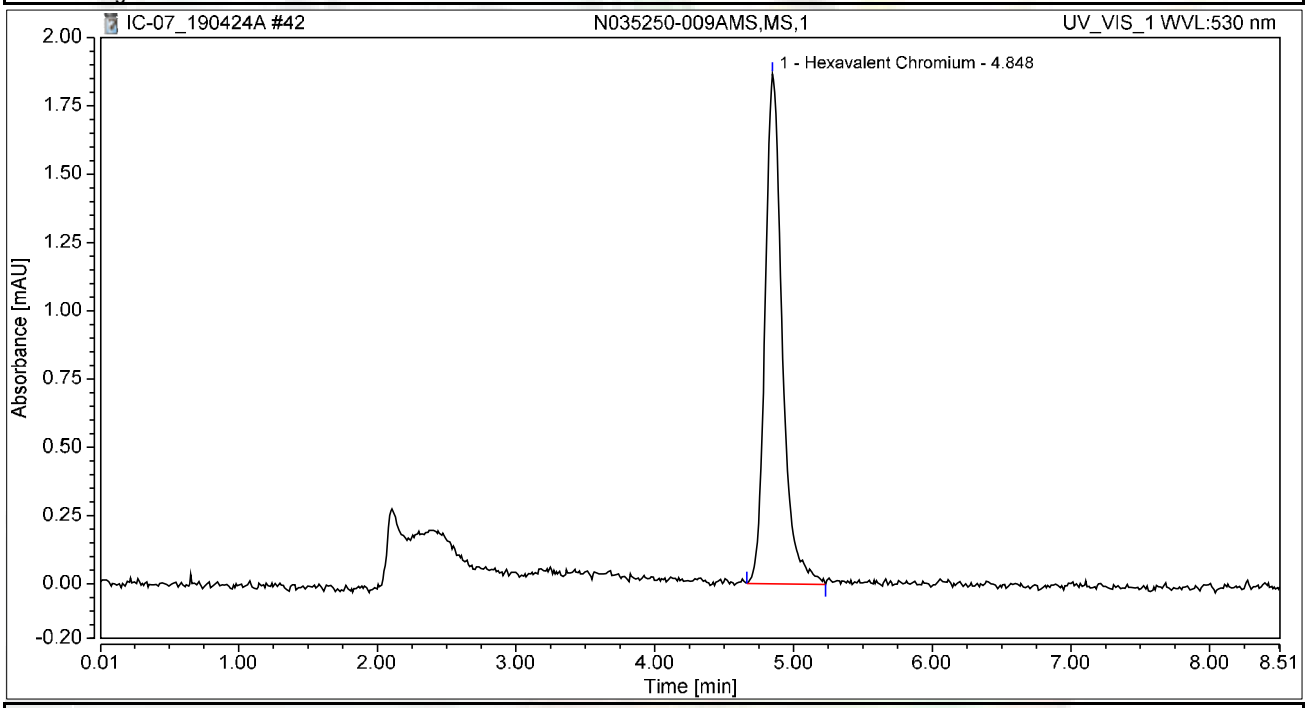
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-009AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

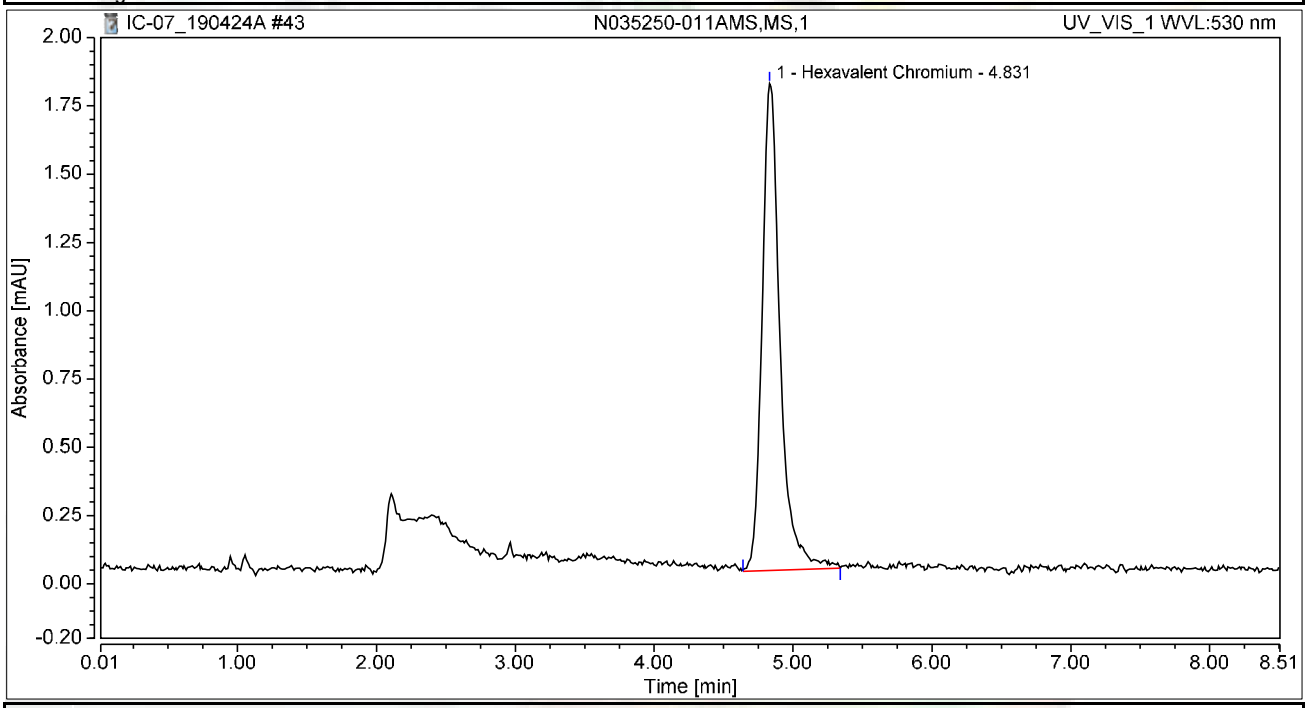
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.267	1.866	100.00	100.00	1.0742
Total:			**0.267**	**1.866**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-011AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

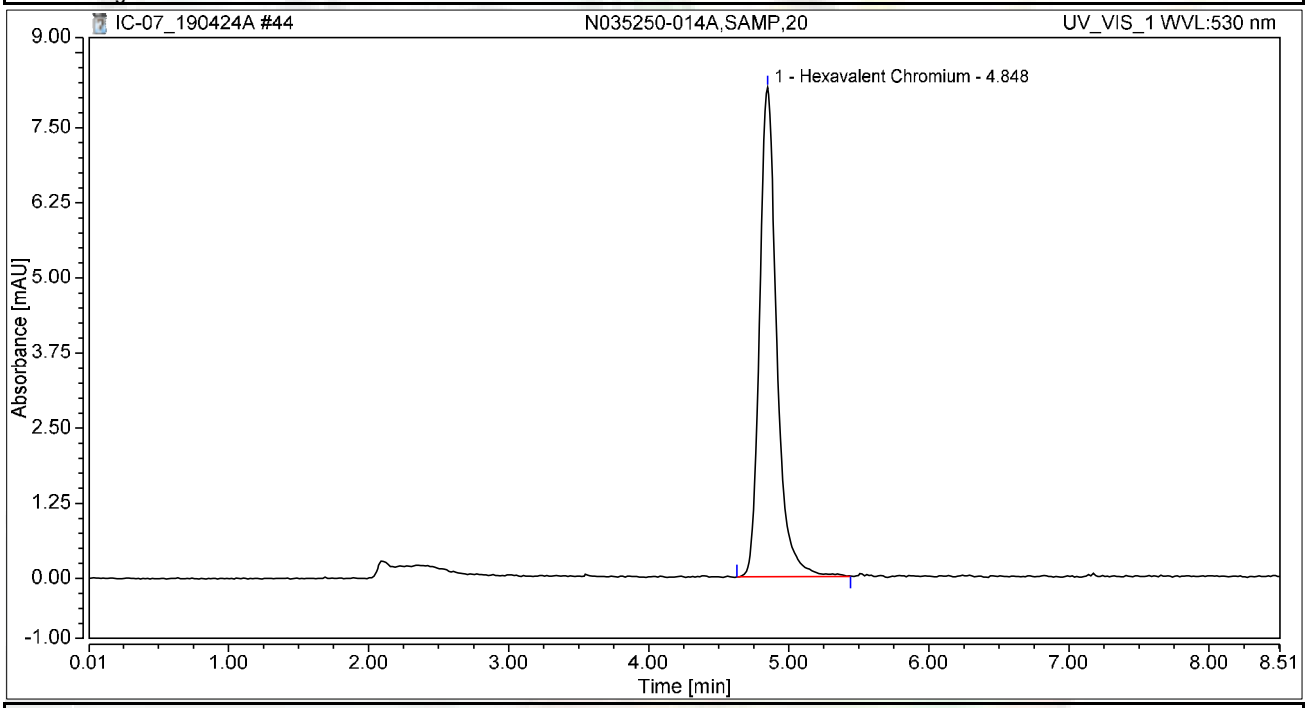
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.268	1.783	100.00	100.00	1.0772
Total:			**0.268**	**1.783**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-014A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

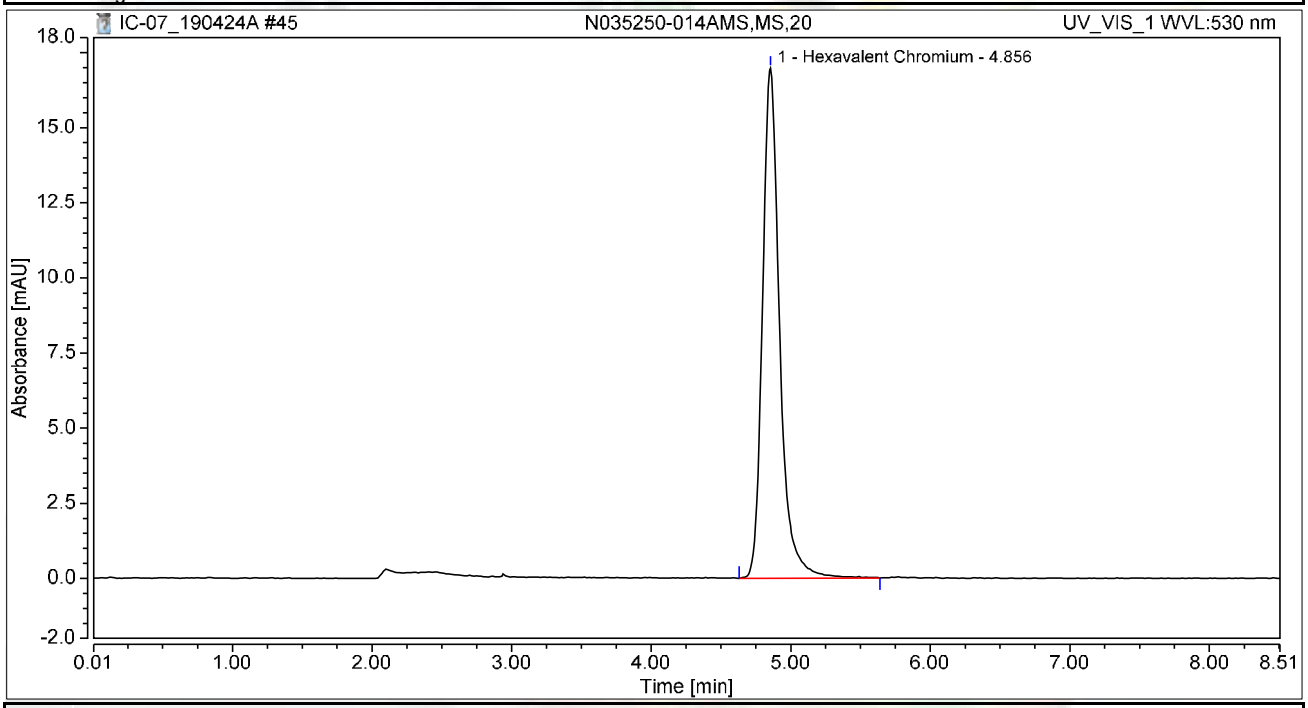
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	1.156	8.138	100.00	100.00	4.6430
Total:			**1.156**	**8.138**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-014AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

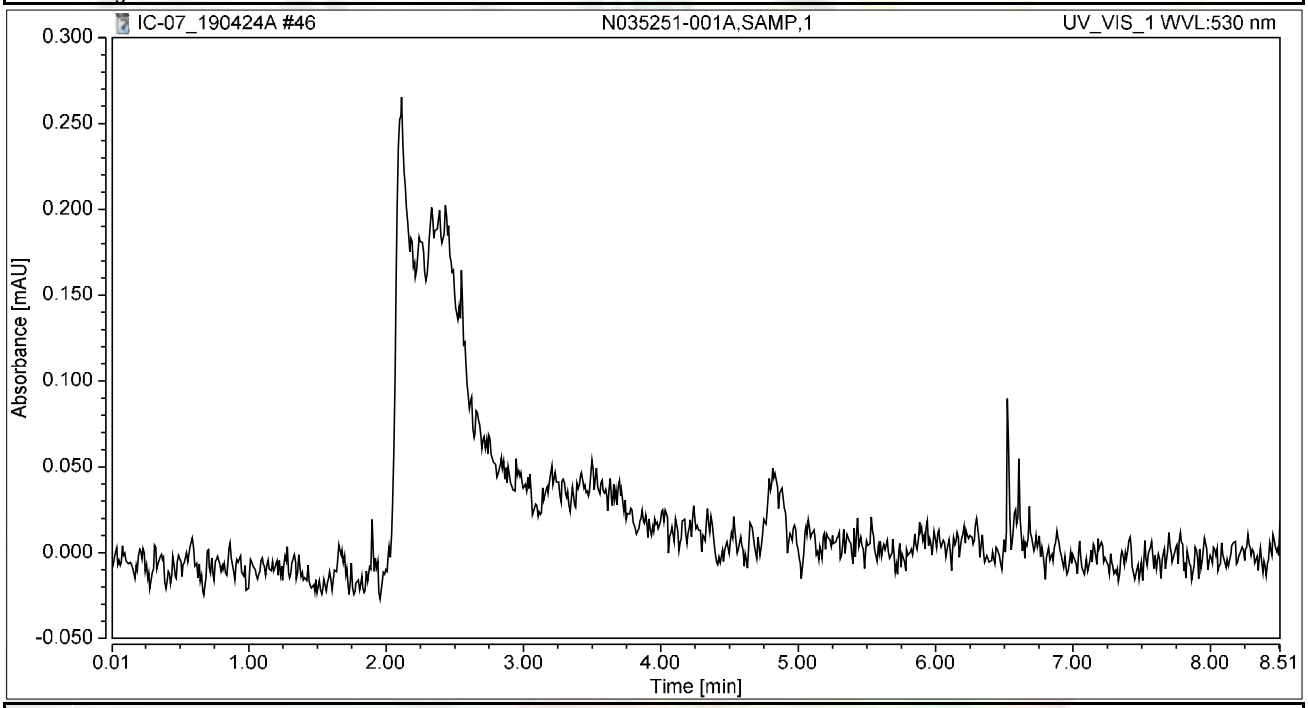
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.425	16.979	100.00	100.00	9.7382
Total:			**2.425**	**16.979**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035251-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

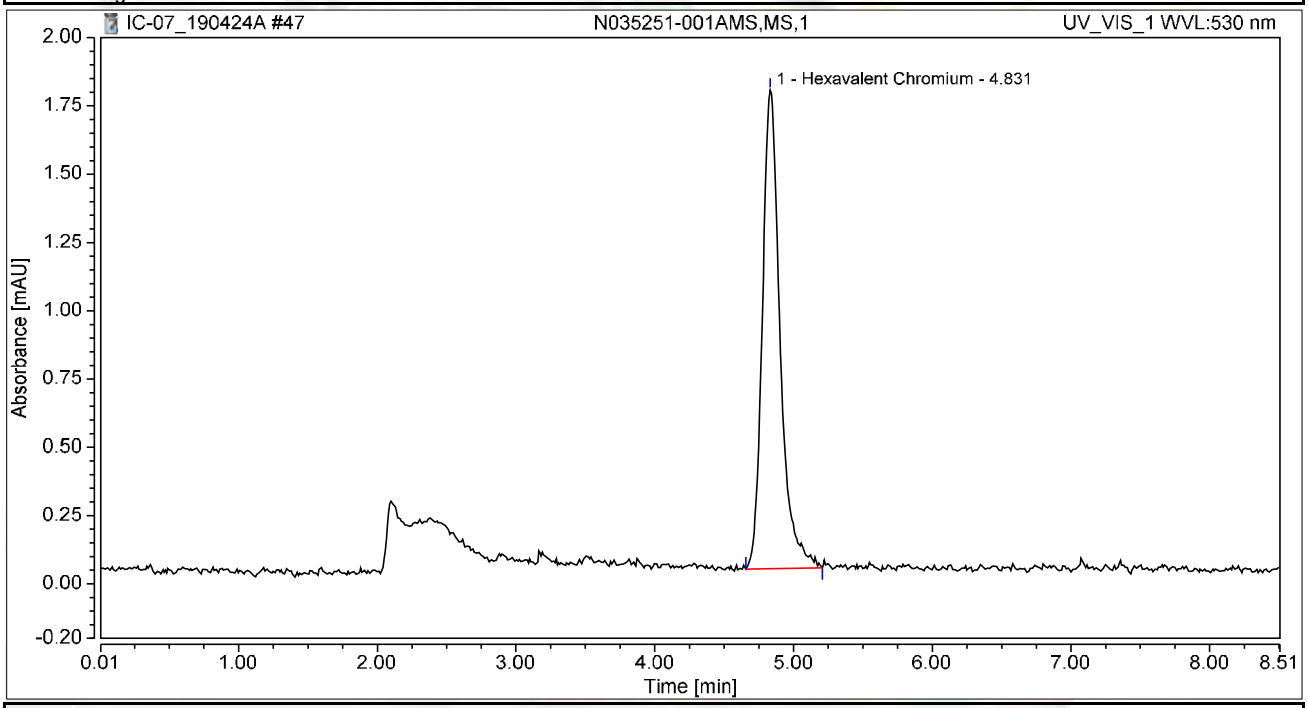
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035251-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

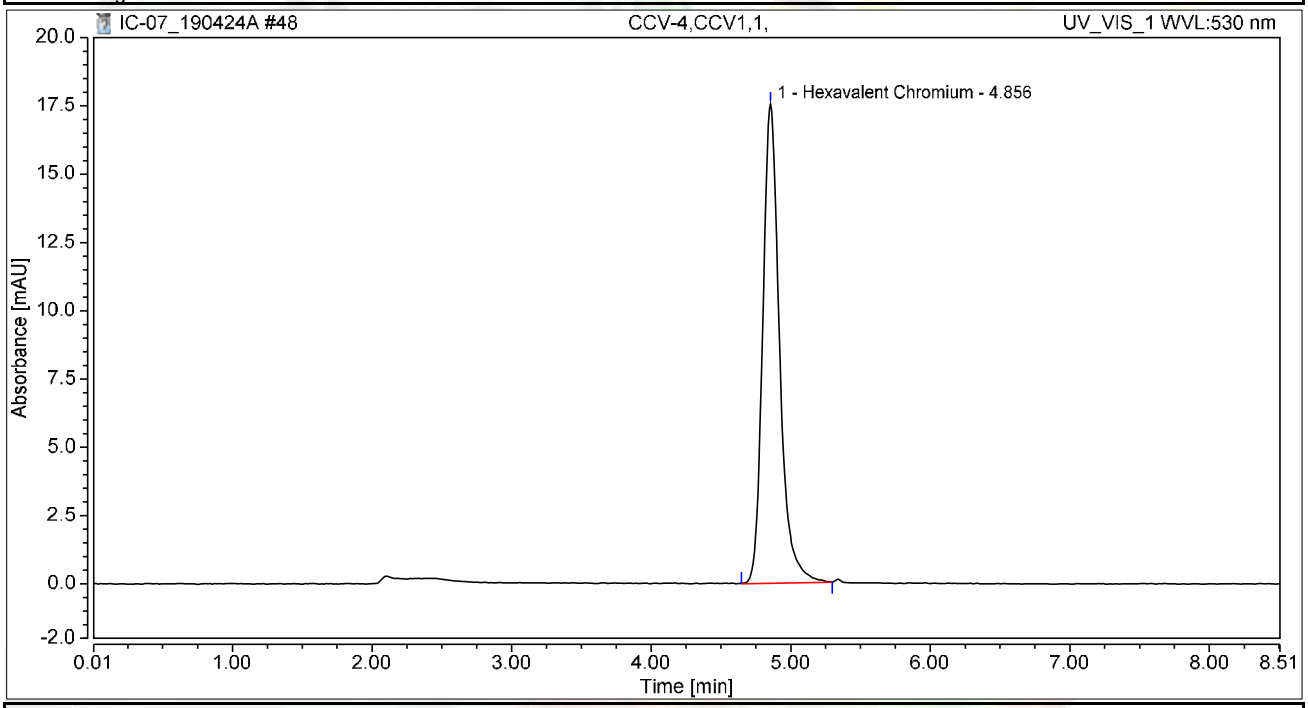
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.259	1.751	100.00	100.00	1.0418
Total:			**0.259**	**1.751**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

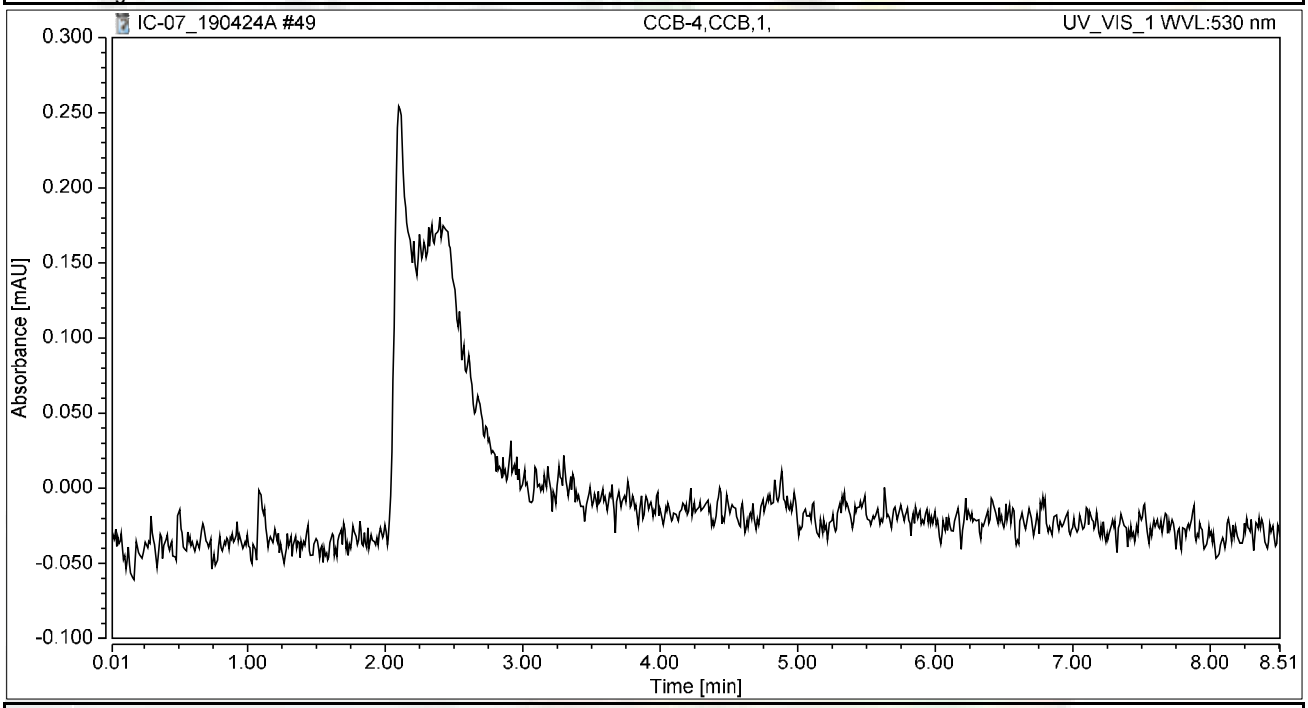
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.452	17.556	100.00	100.00	9.8492
Total:			**2.452**	**17.556**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

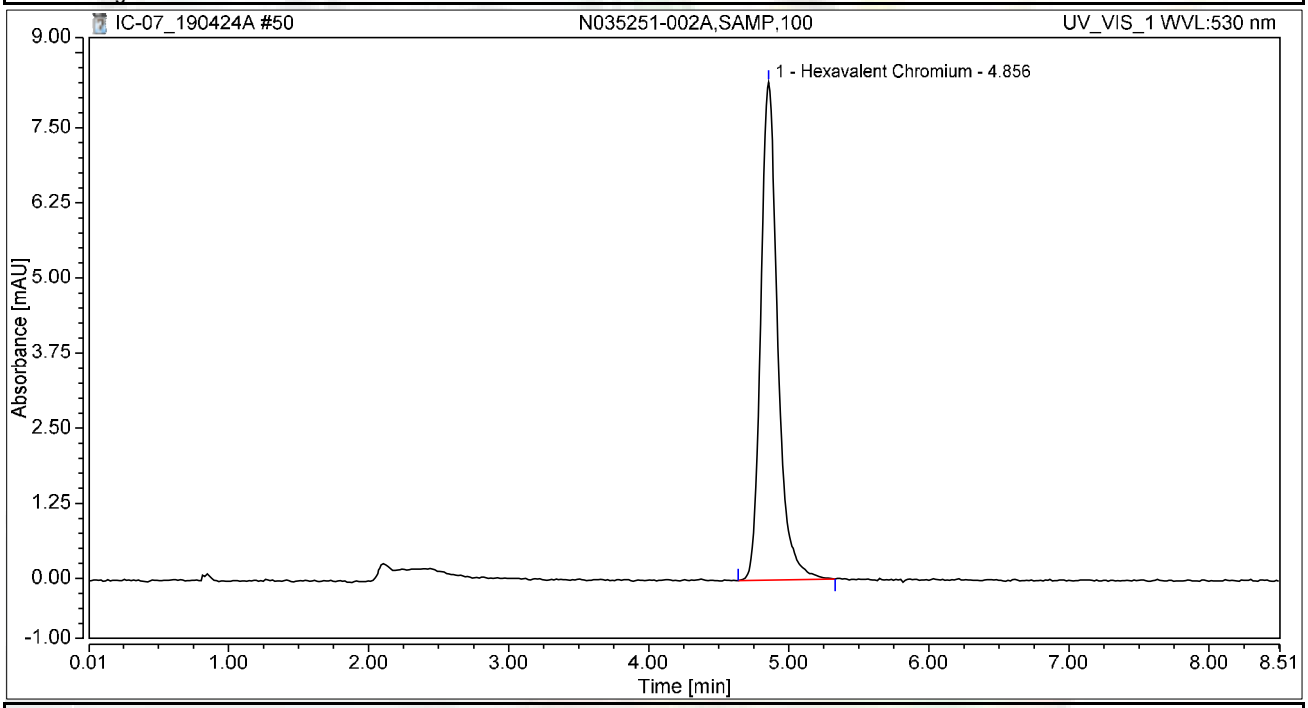
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035251-002A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

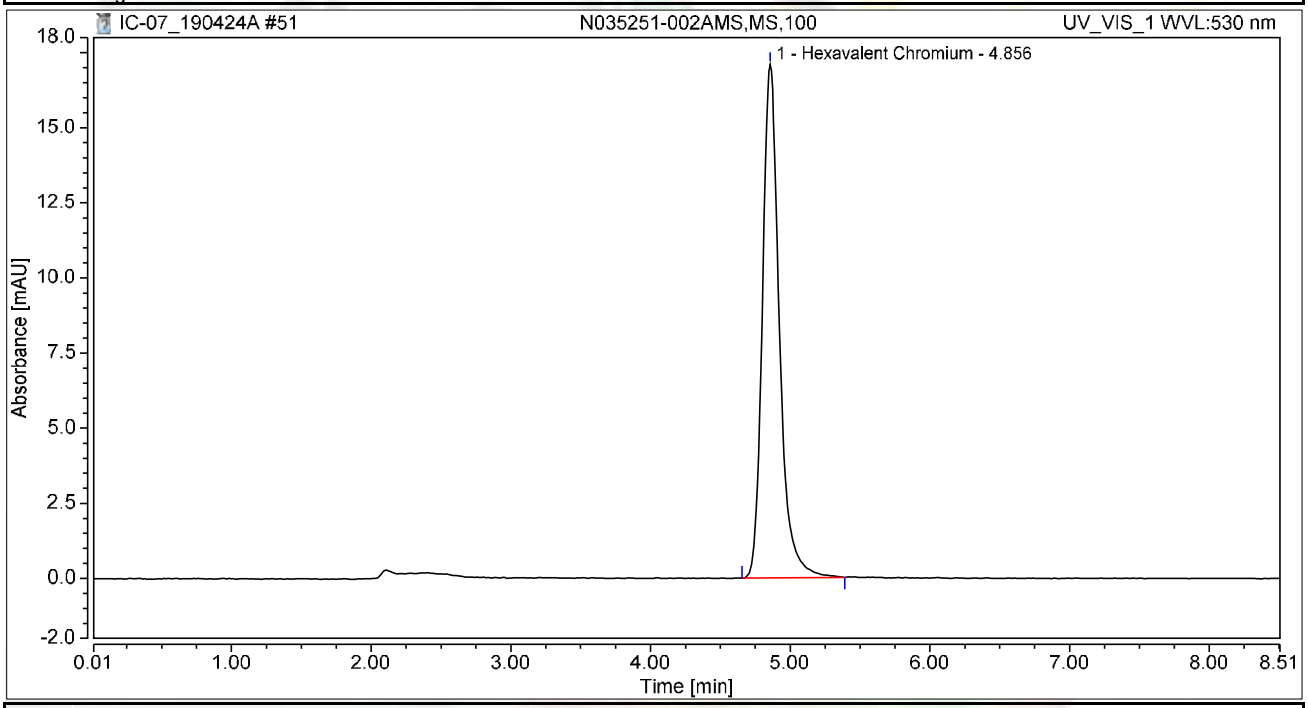
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.162	8.284	100.00	100.00	4.6669
Total:			**1.162**	**8.284**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035251-002AMS,MS,100**	*Run Time (min):*	**8.49**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

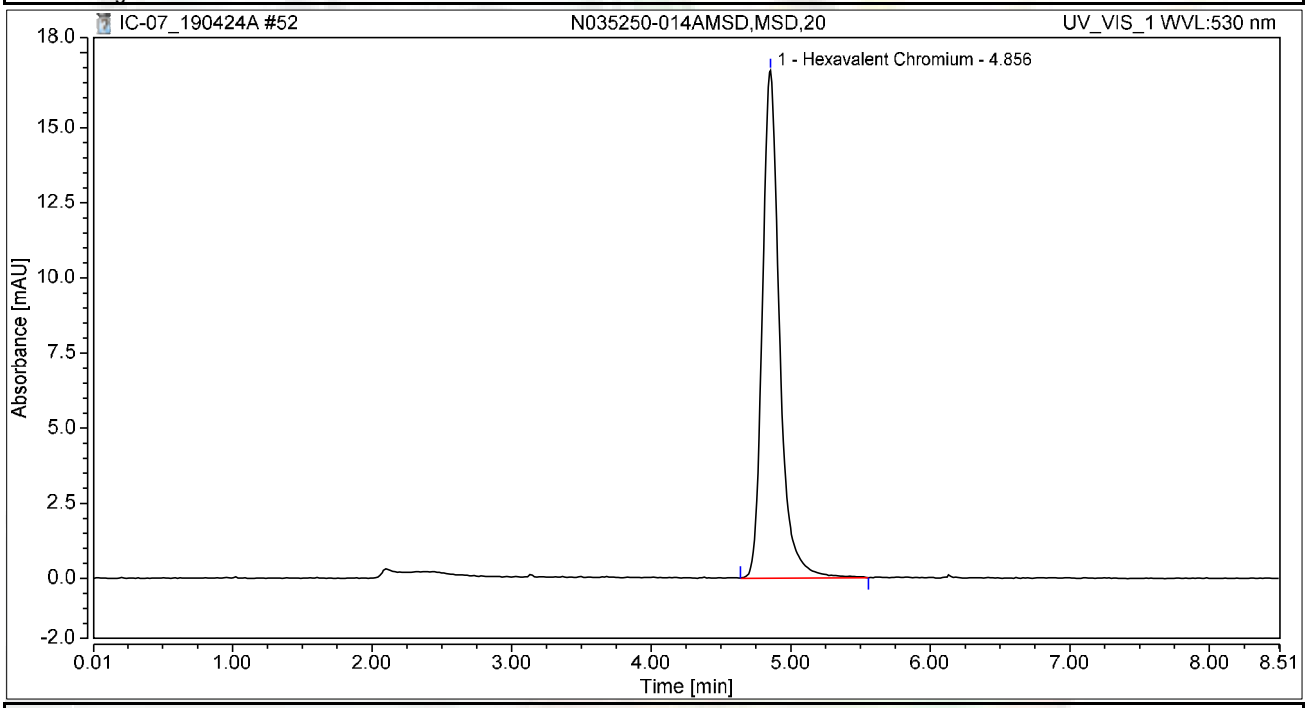
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.402	17.093	100.00	100.00	9.6470
Total:			**2.402**	**17.093**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-014AMSD,MSD,20**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

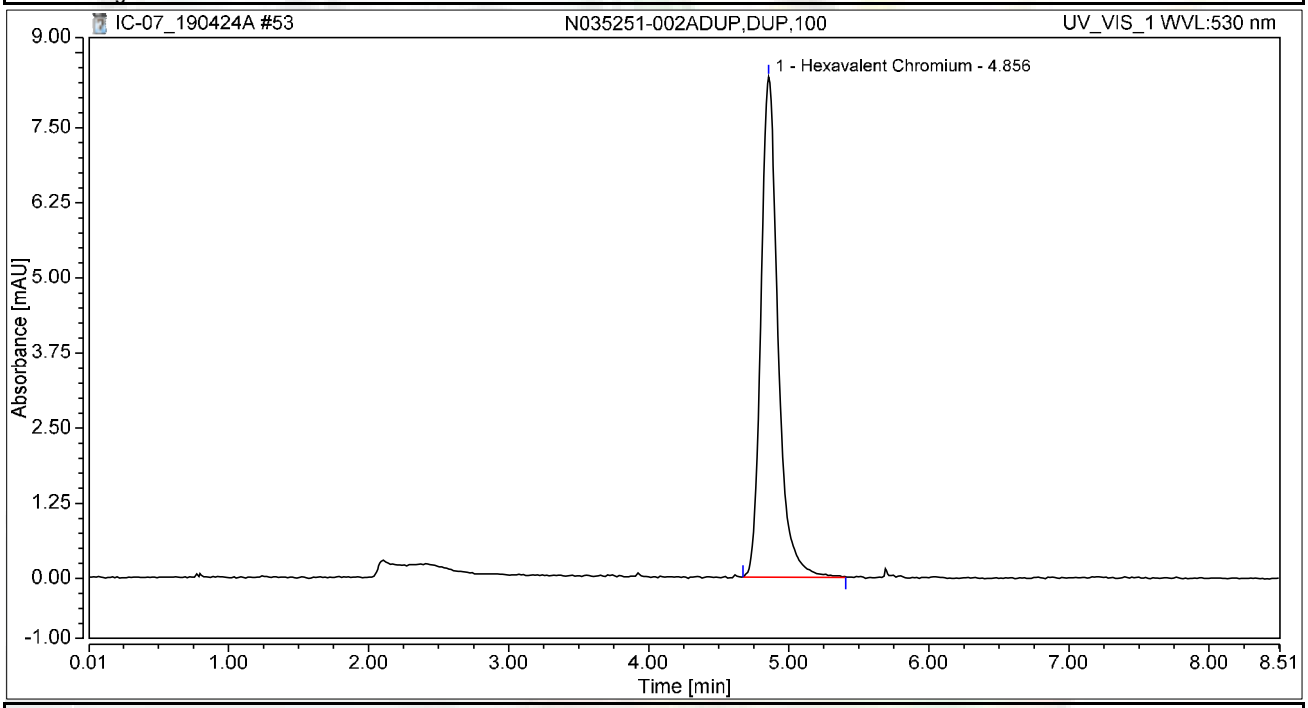
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.411	16.890	100.00	100.00	9.6827
Total:			**2.411**	**16.890**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035251-002ADUP,DUP,100**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

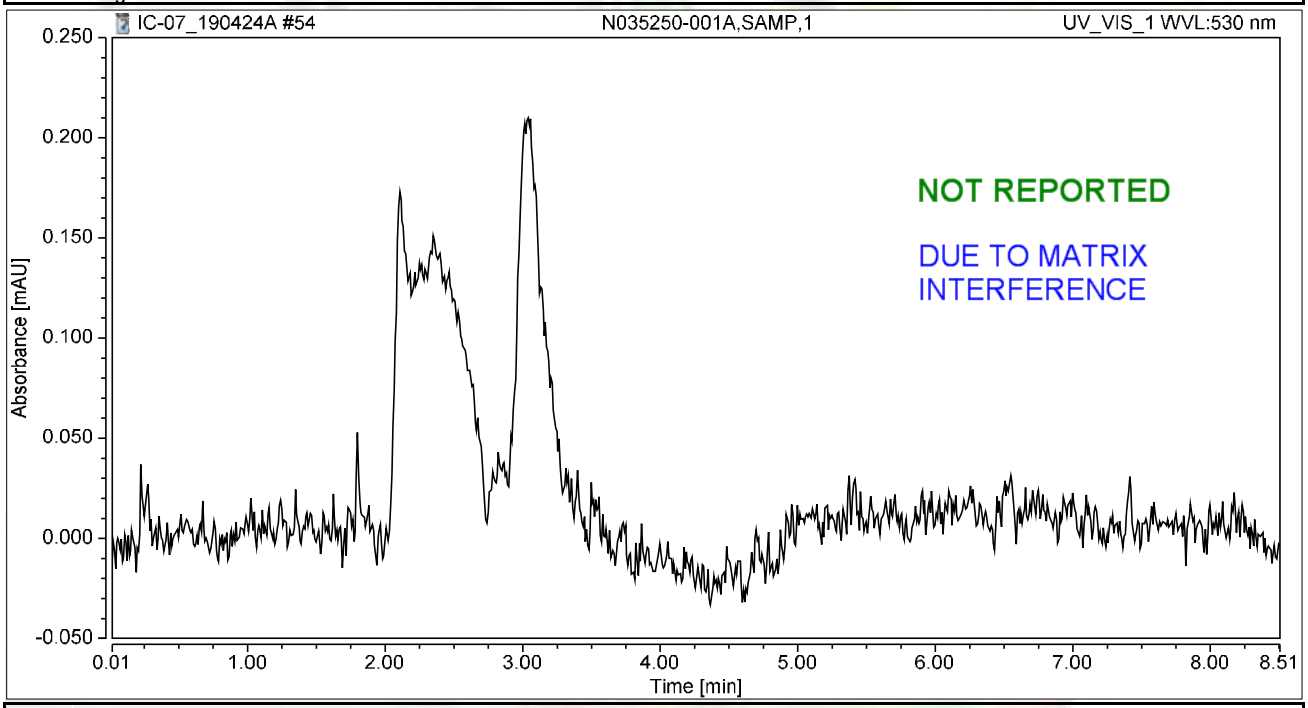
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.176	8.330	100.00	100.00	4.7235
Total:			**1.176**	**8.330**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

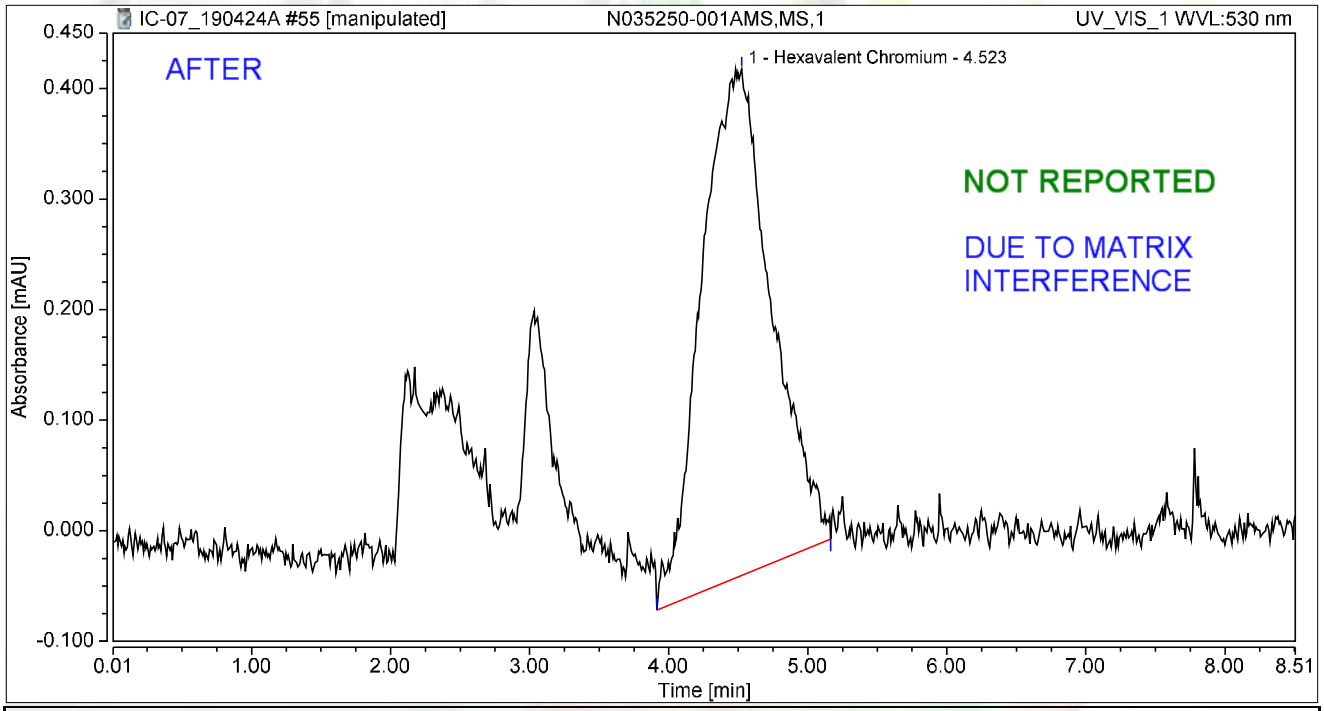
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.523	0.268	0.458	100.00	100.00	1.0770
Total:			**0.268**	**0.458**	**100.00**	**100.00**	

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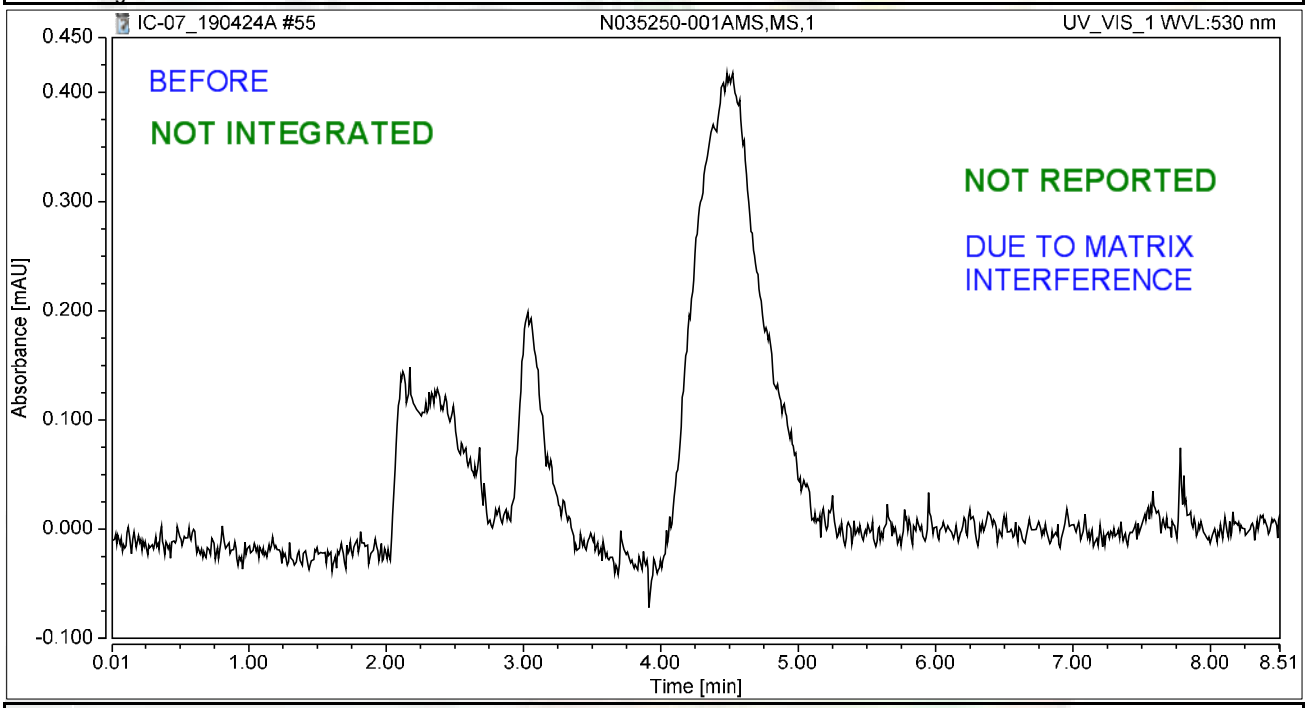
Chromatogram and Results

Injection Details

Injection Name:	**N035250-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

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

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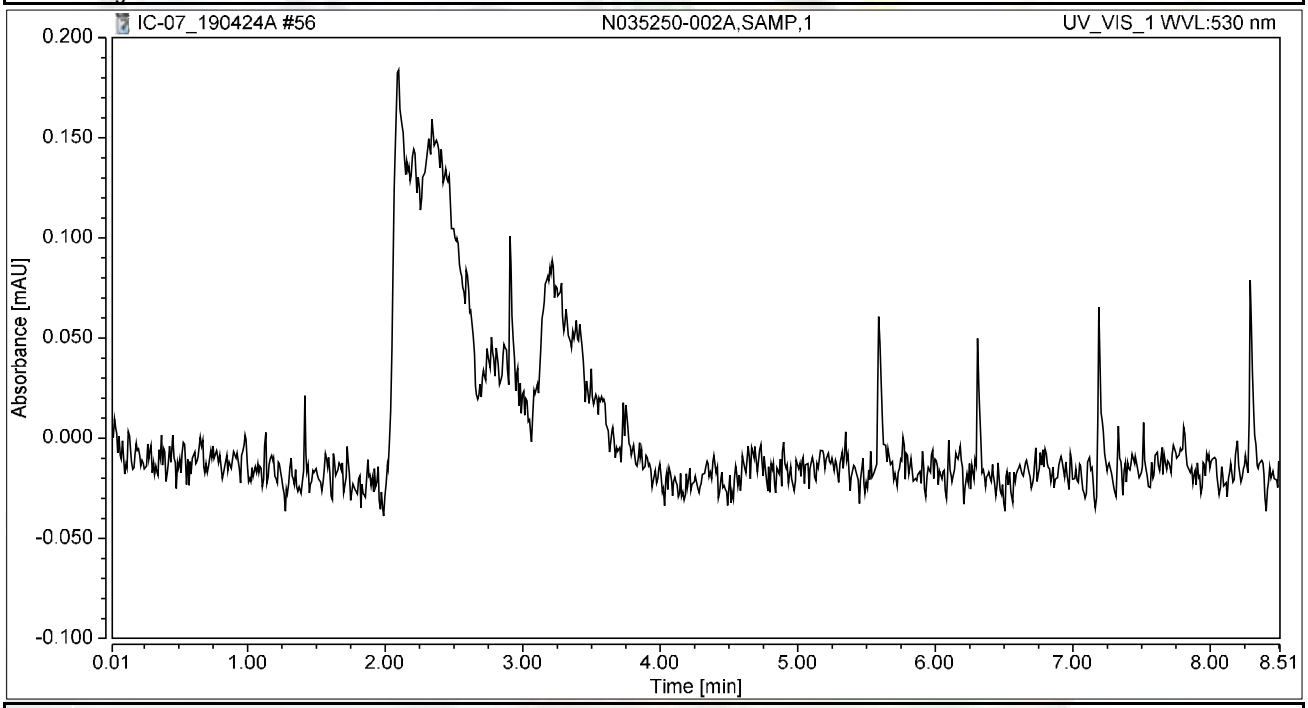
Chromatogram and Results

Injection Details

Injection Name:	**N035250-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

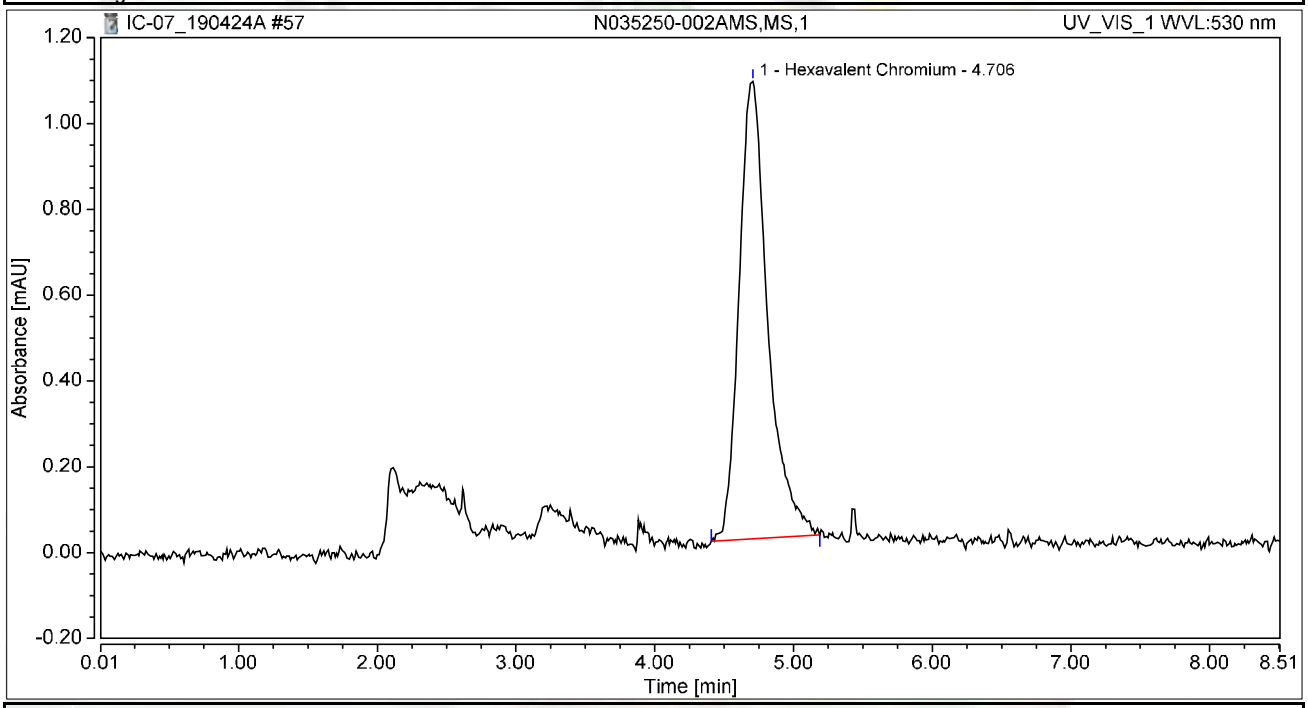
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

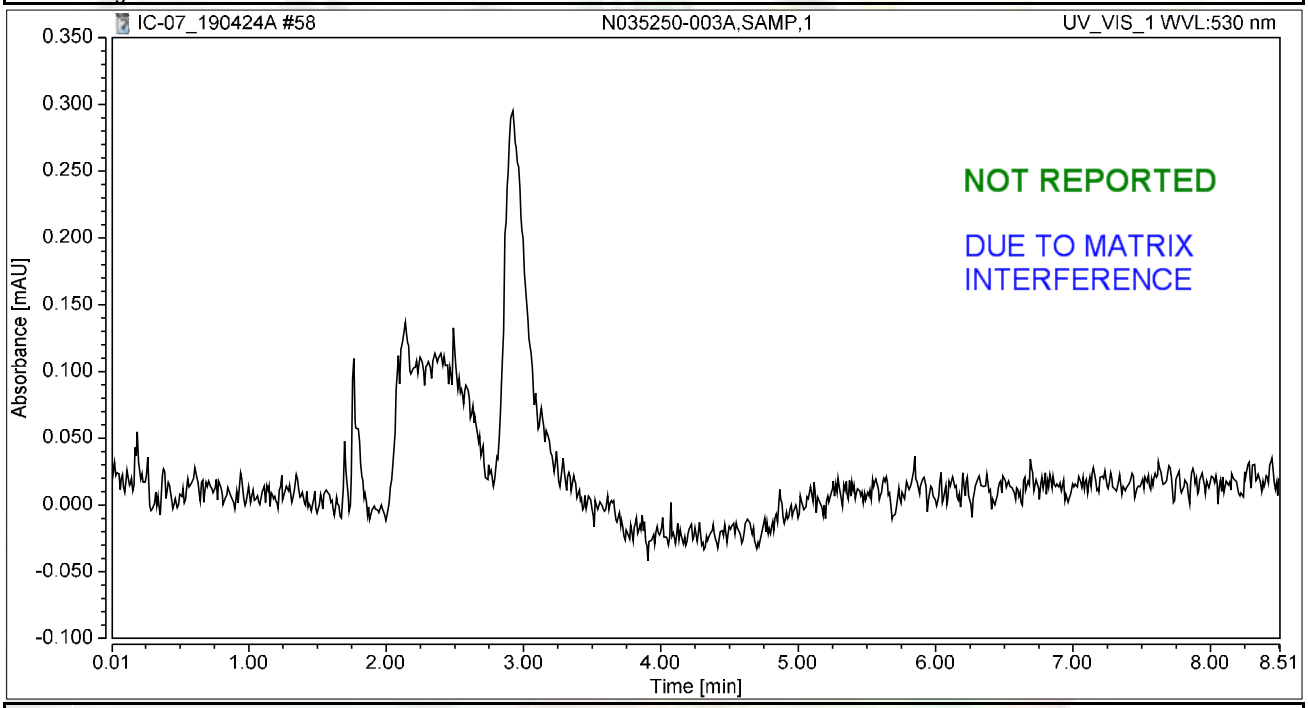
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.255	1.066	100.00	100.00	1.0260
Total:			**0.255**	**1.066**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

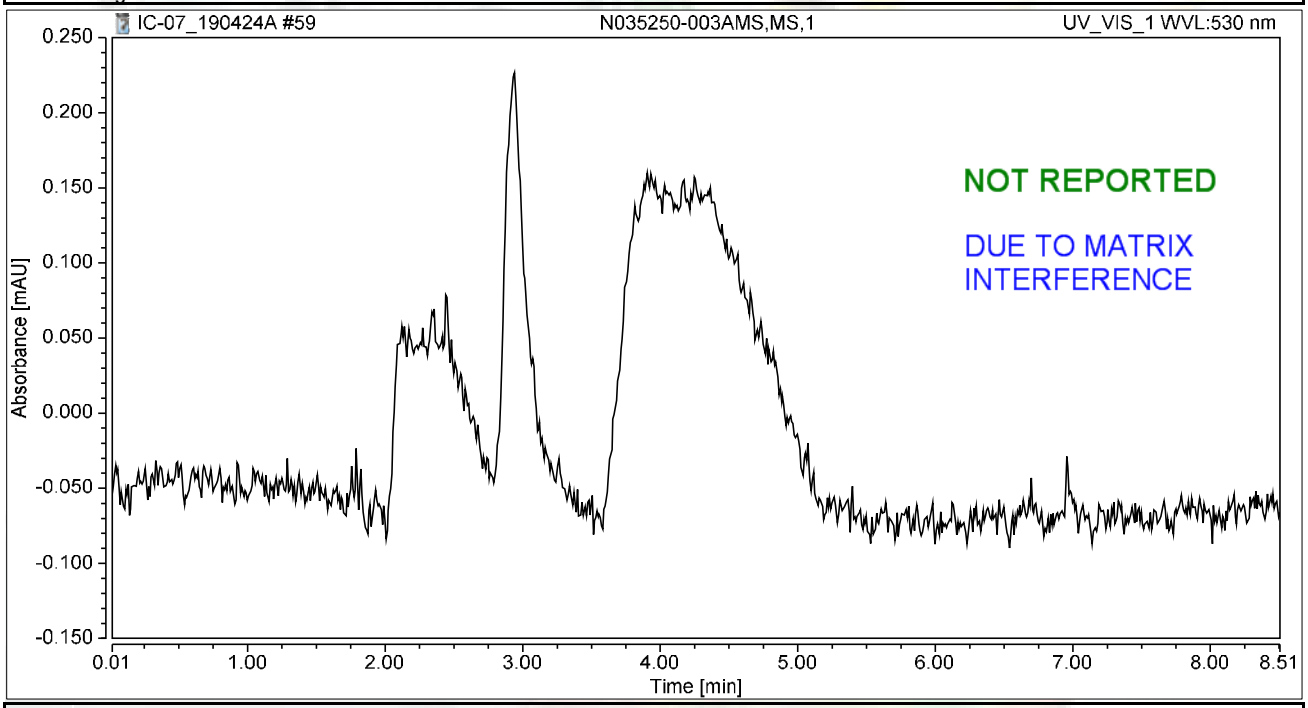
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-003AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

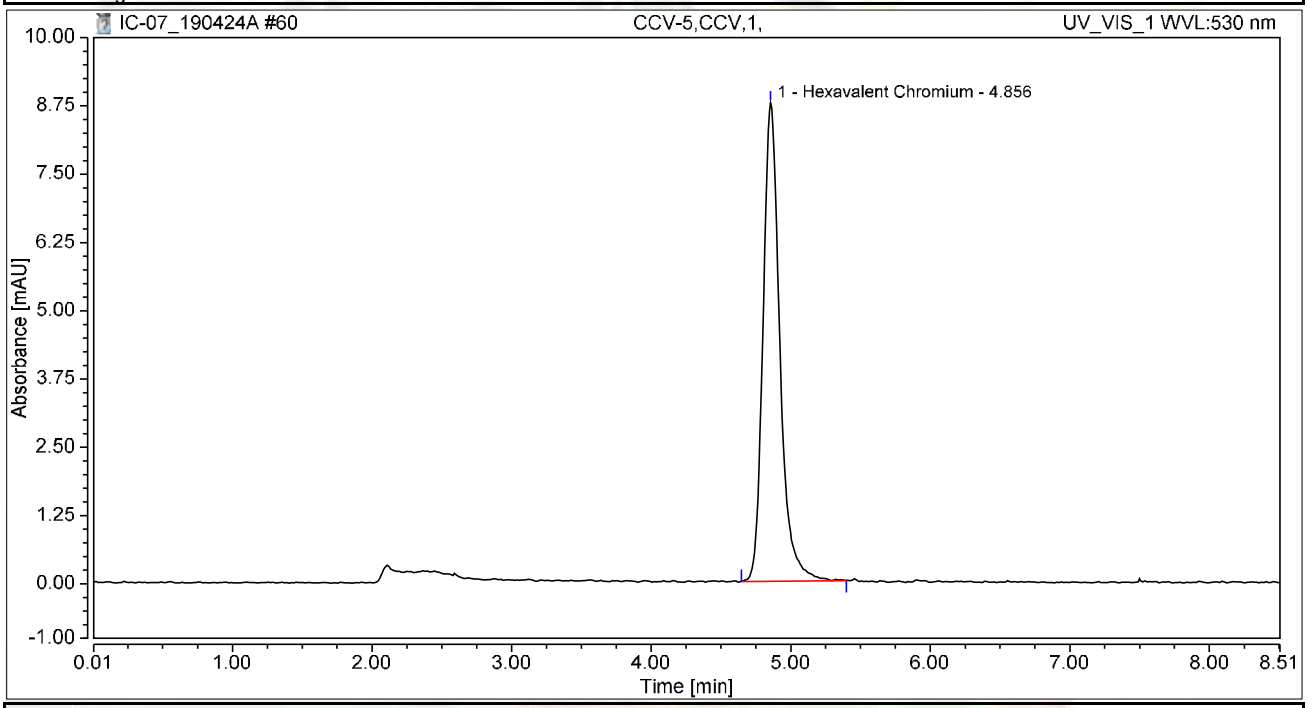
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

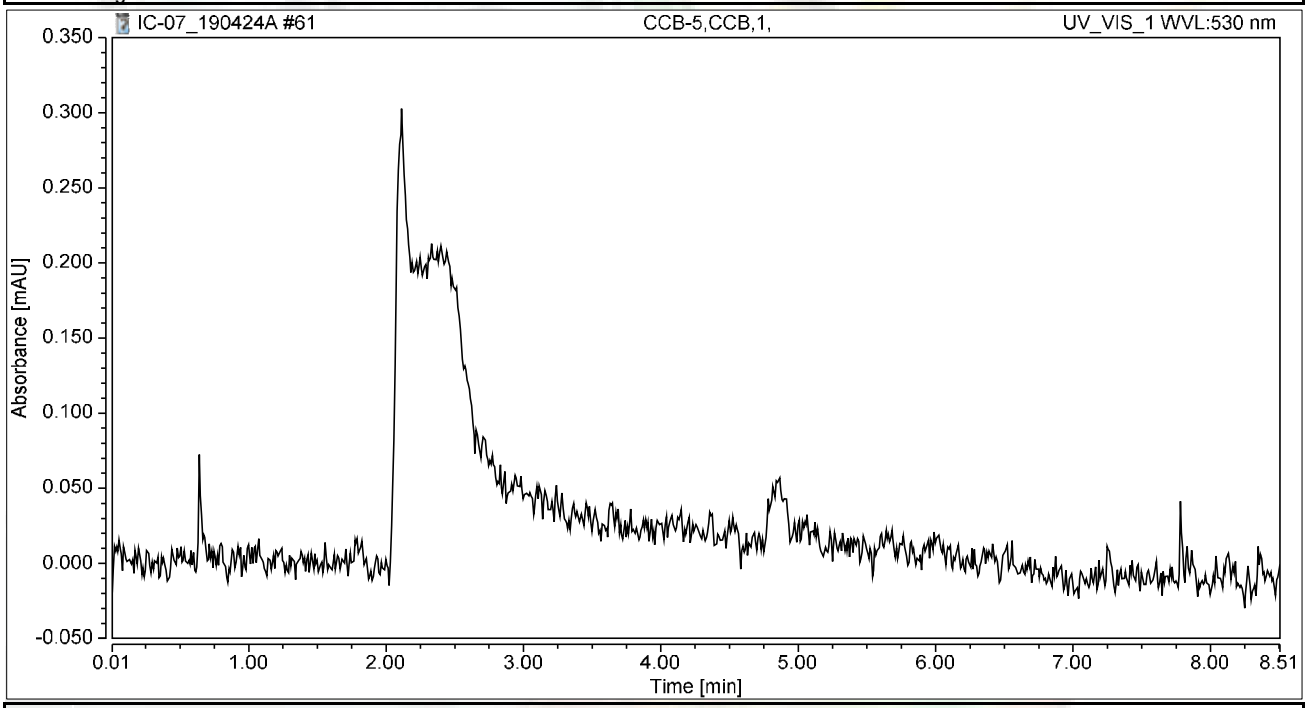
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.226	8.757	100.00	100.00	4.9247
Total:			**1.226**	**8.757**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

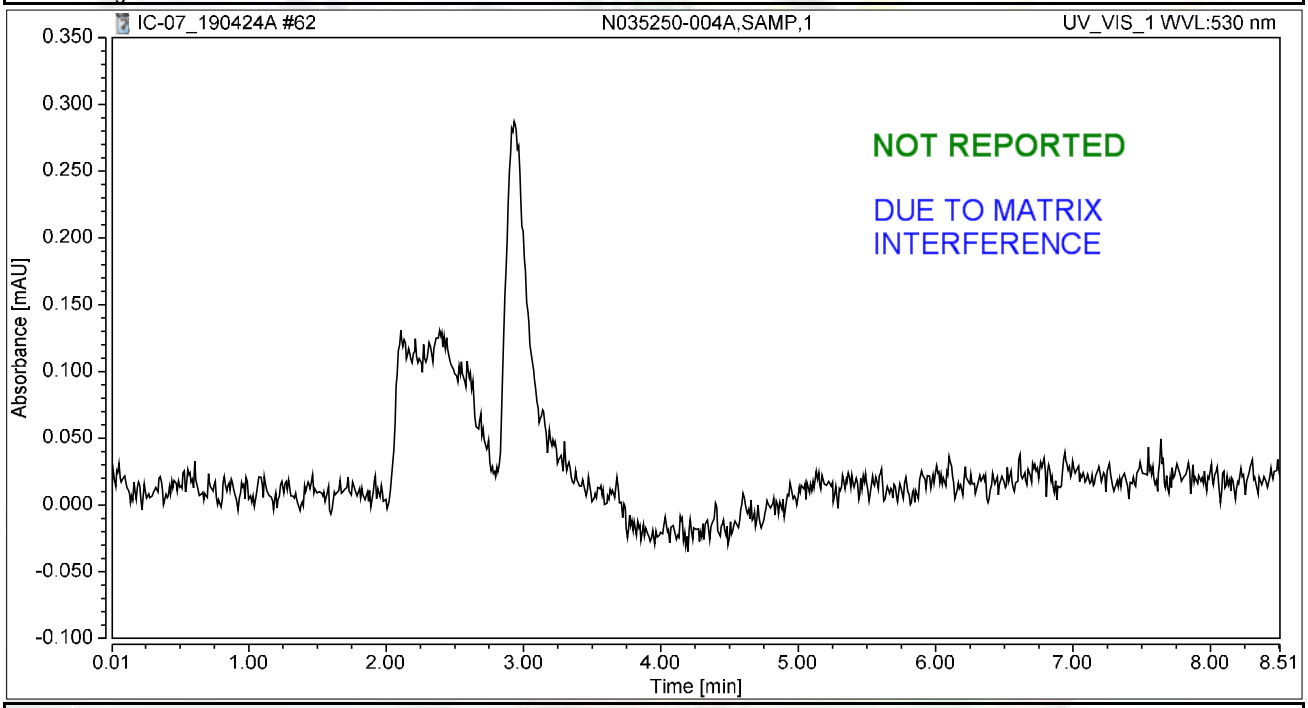
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

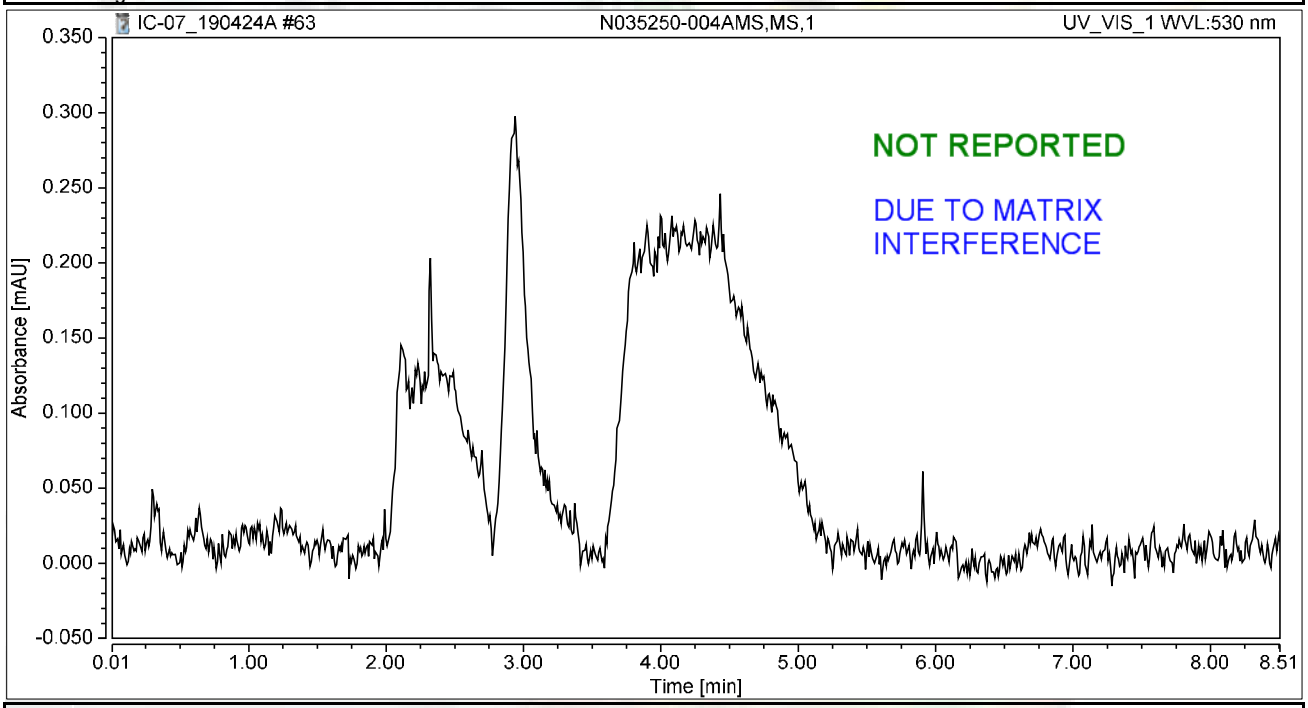
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

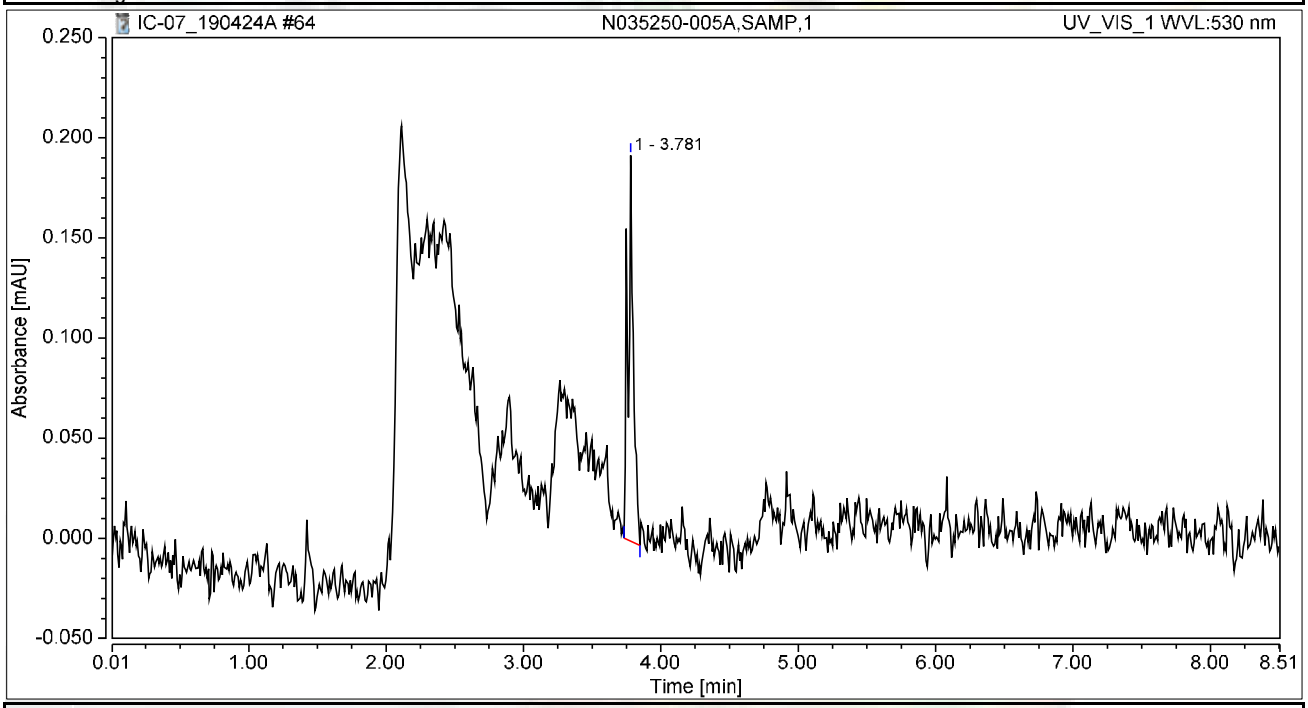
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

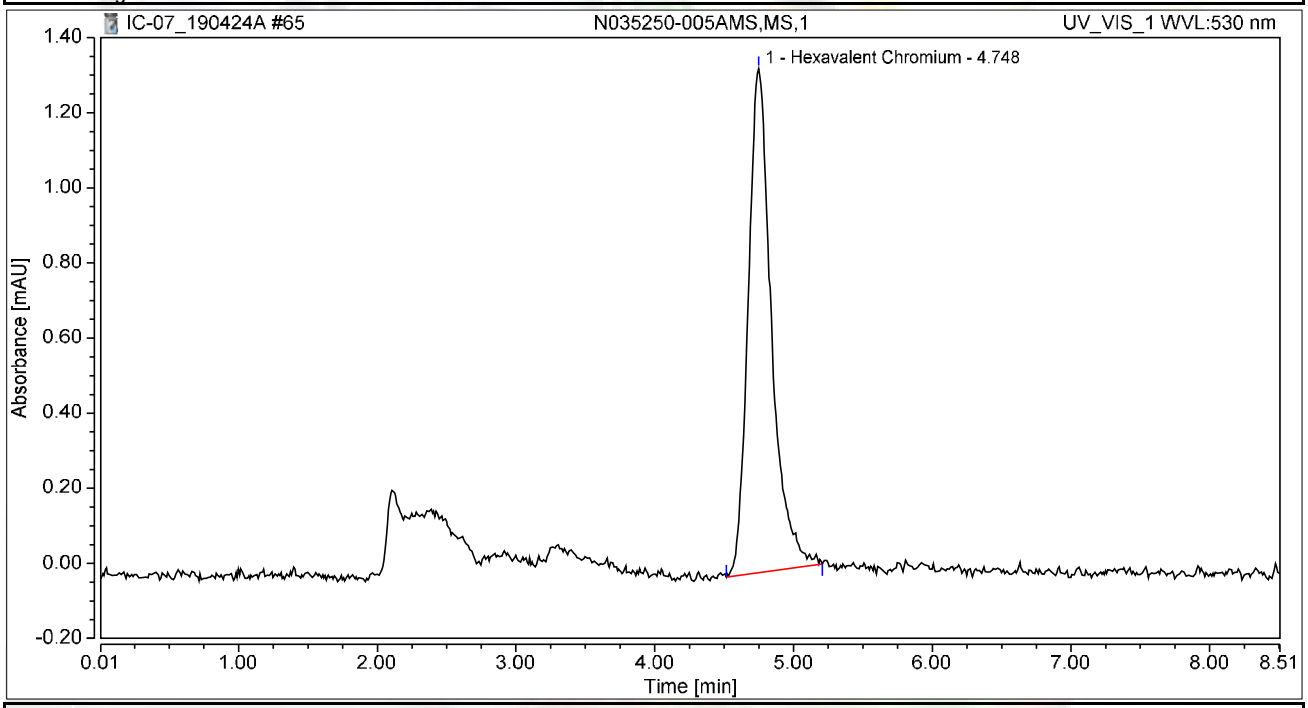
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.781	0.009	0.193	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.009**	**0.193**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-005AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

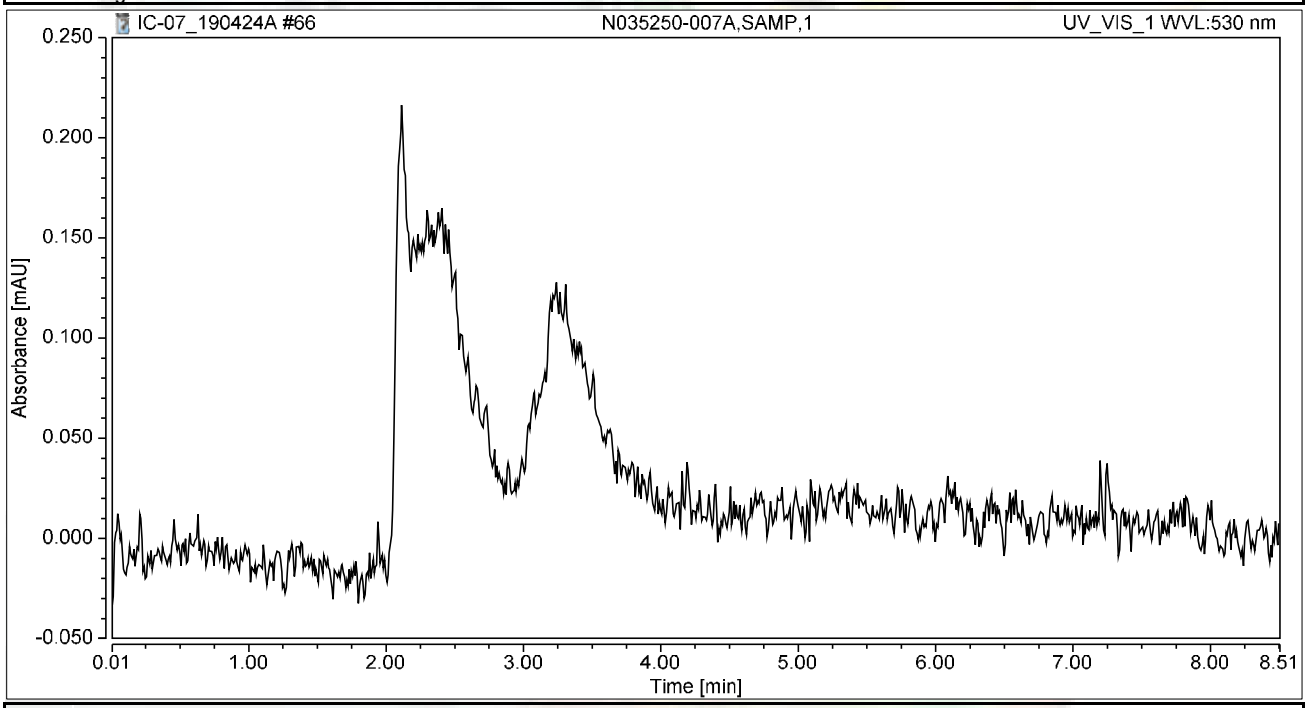
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.261	1.342	100.00	100.00	1.0481
Total:			**0.261**	**1.342**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

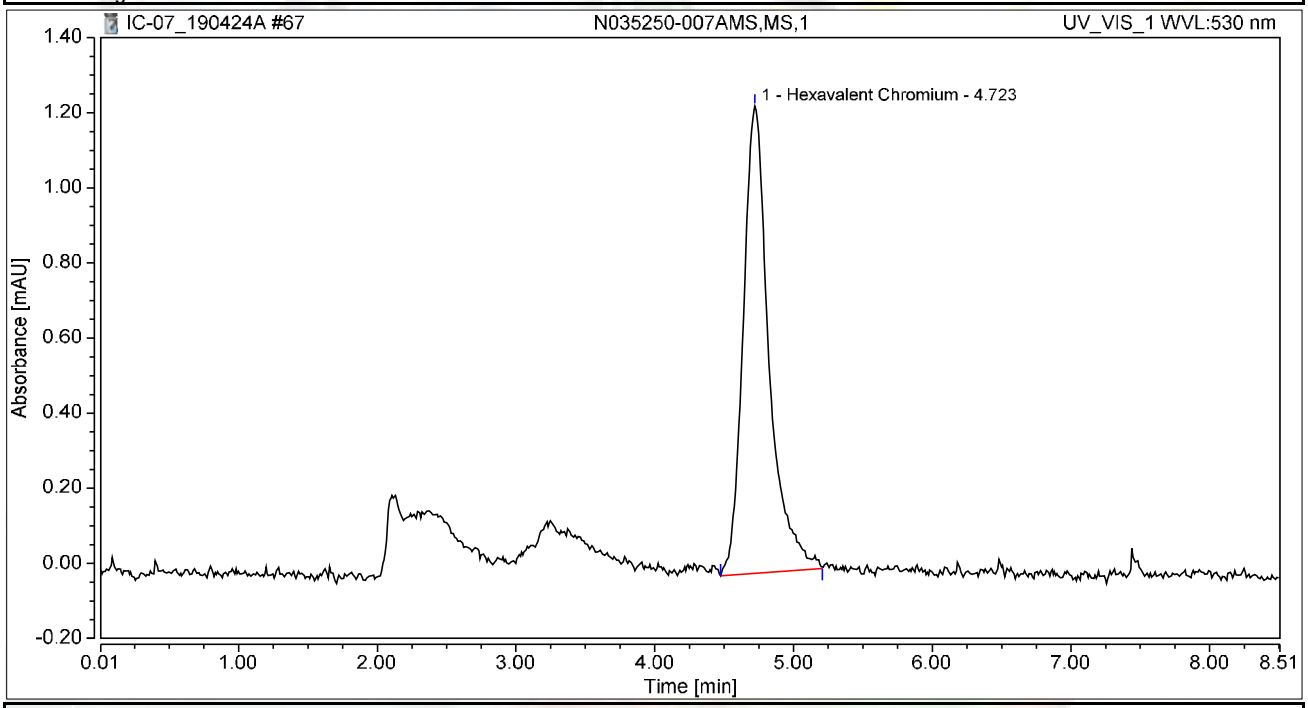
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

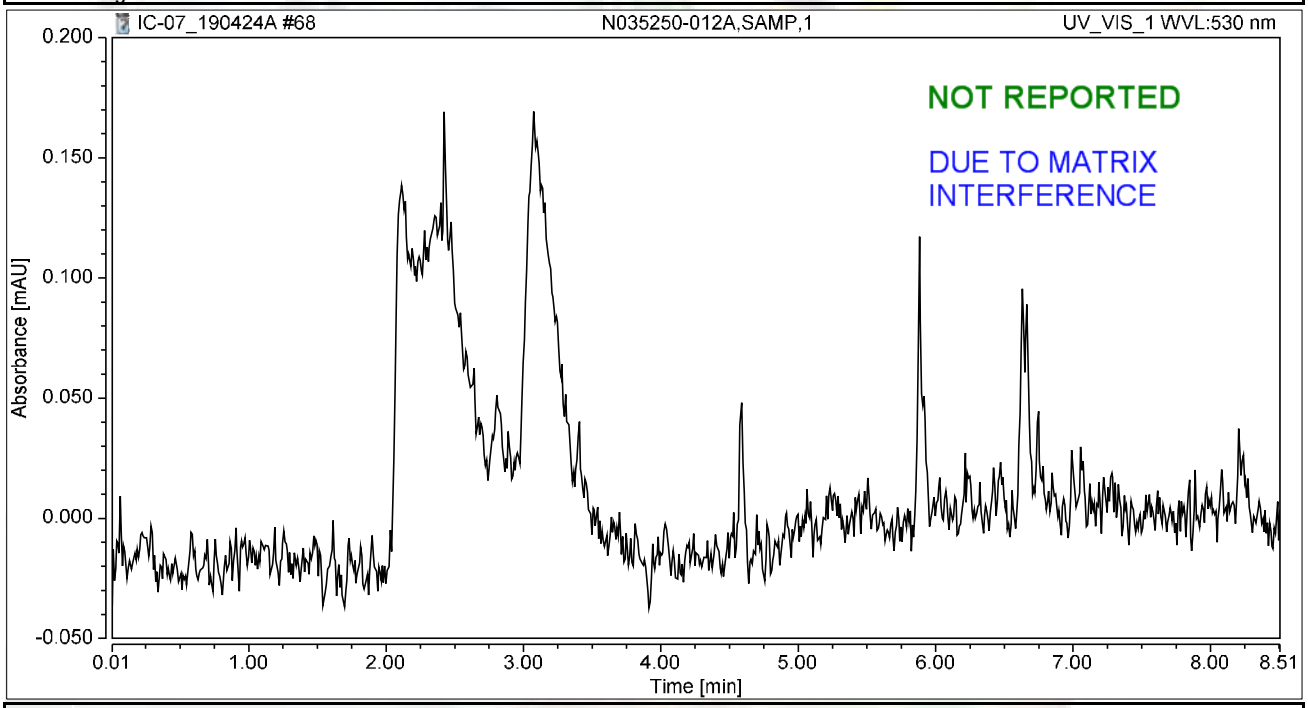
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.268	1.244	100.00	100.00	1.0772
Total:			**0.268**	**1.244**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

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

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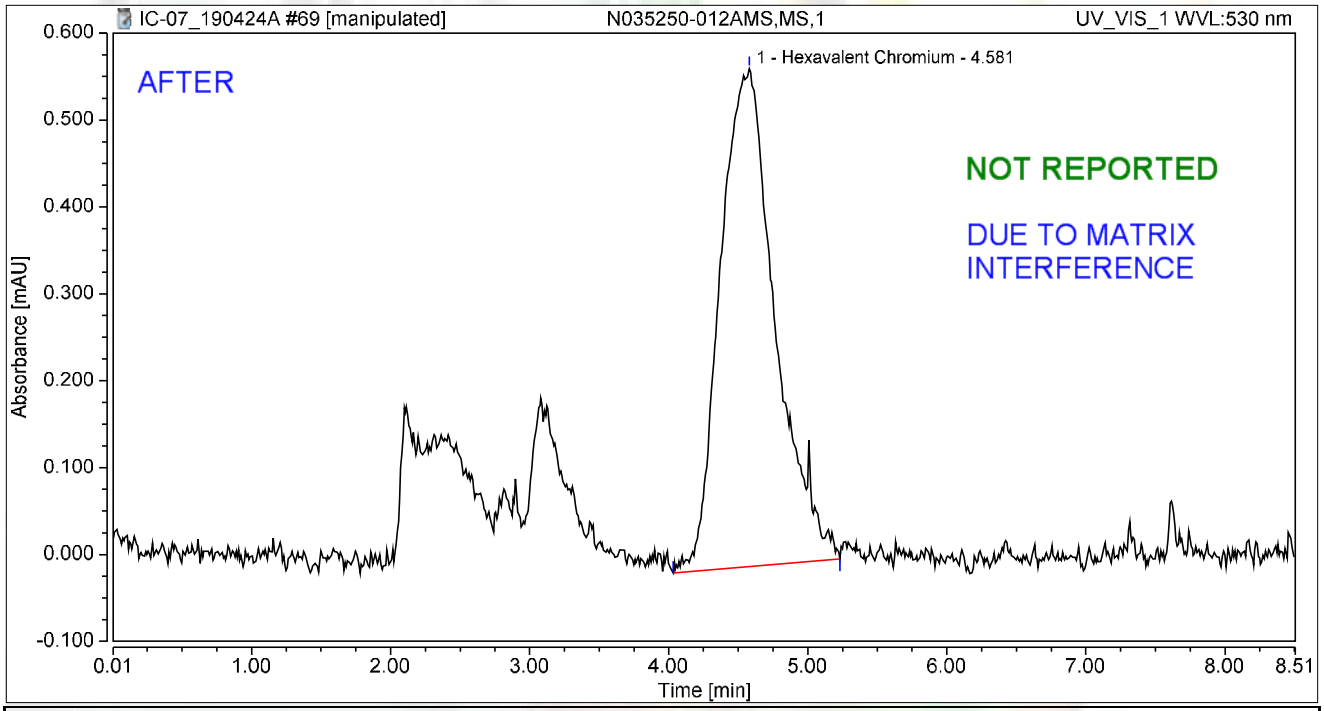
Chromatogram and Results

Injection Details

Injection Name:	**N035250-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.581	0.262	0.573	100.00	100.00	1.0531
Total:			**0.262**	**0.573**	**100.00**	**100.00**	

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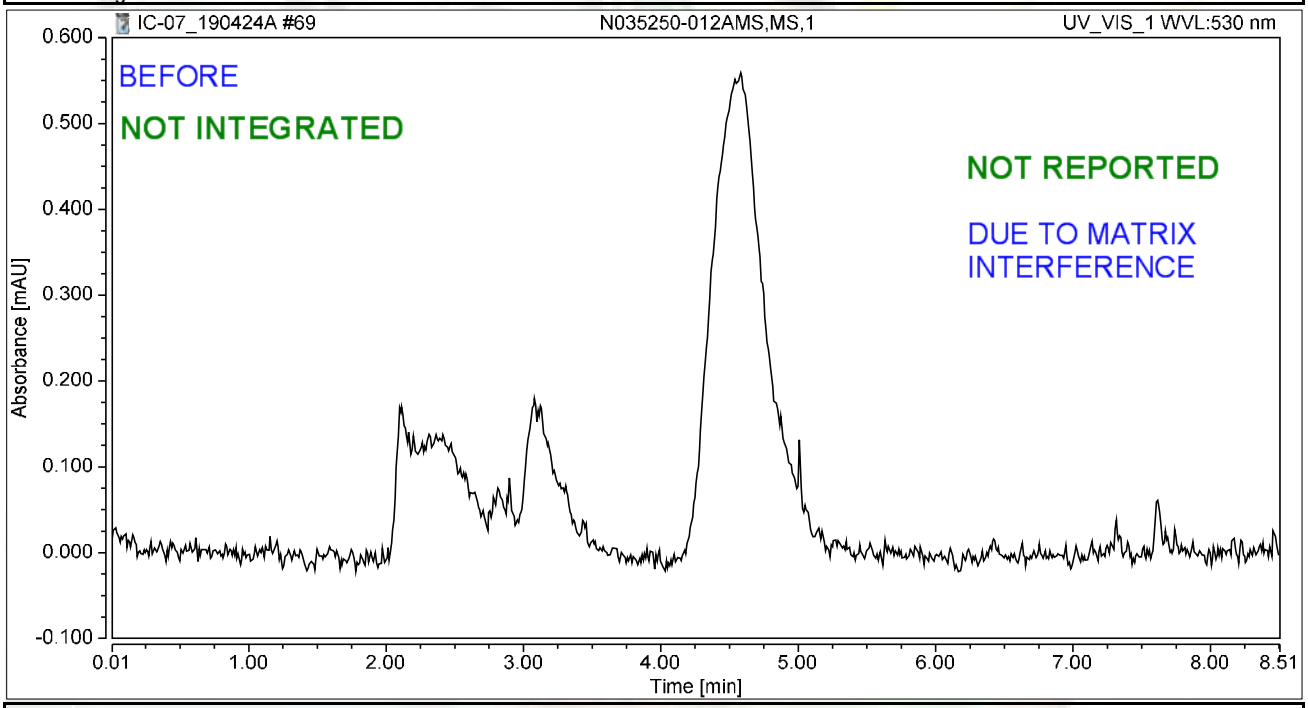
Chromatogram and Results

Injection Details

Injection Name:	**N035250-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

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

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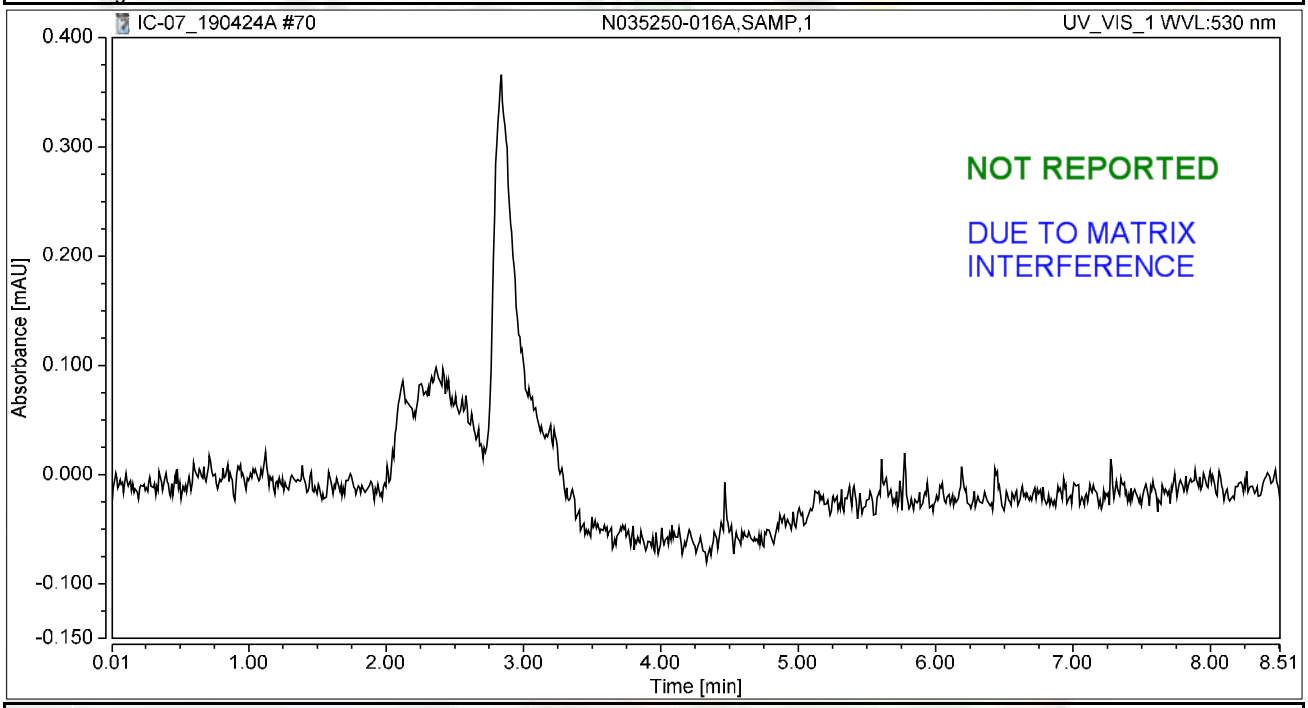
Chromatogram and Results

Injection Details

Injection Name:	**N035250-016A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

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

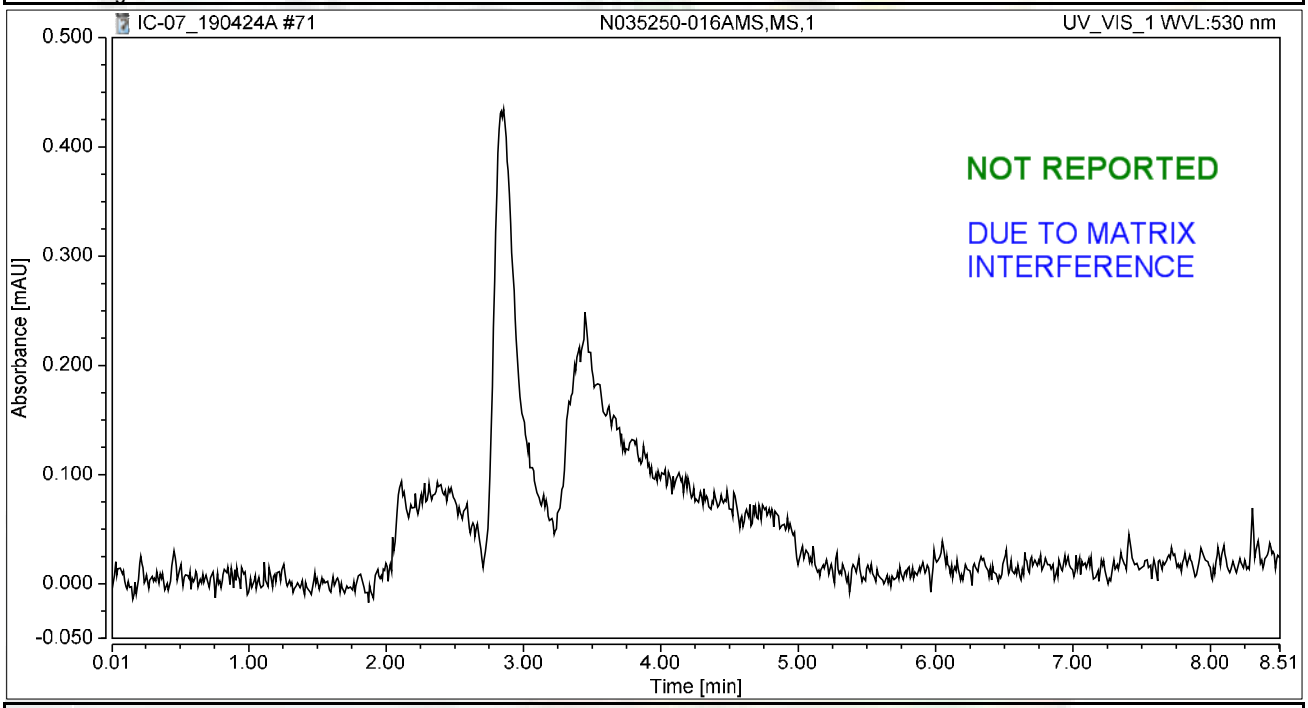
rba 4/28/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035250-016AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

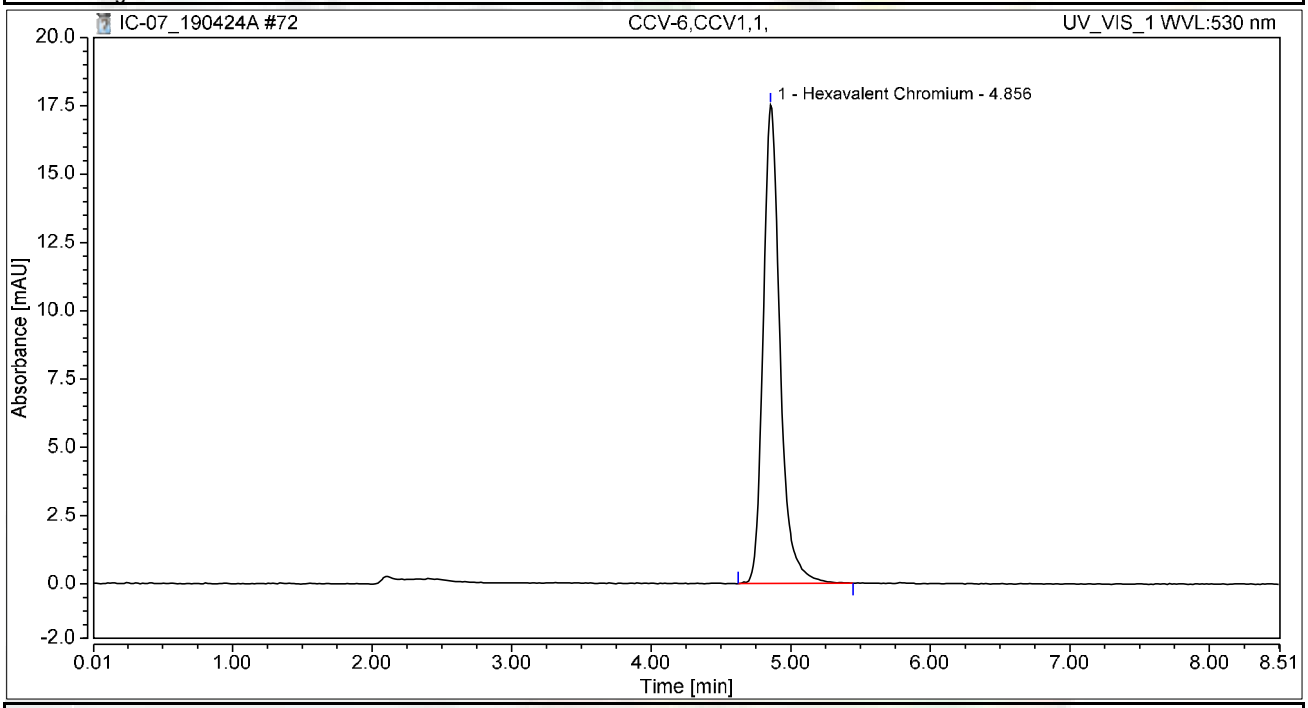
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

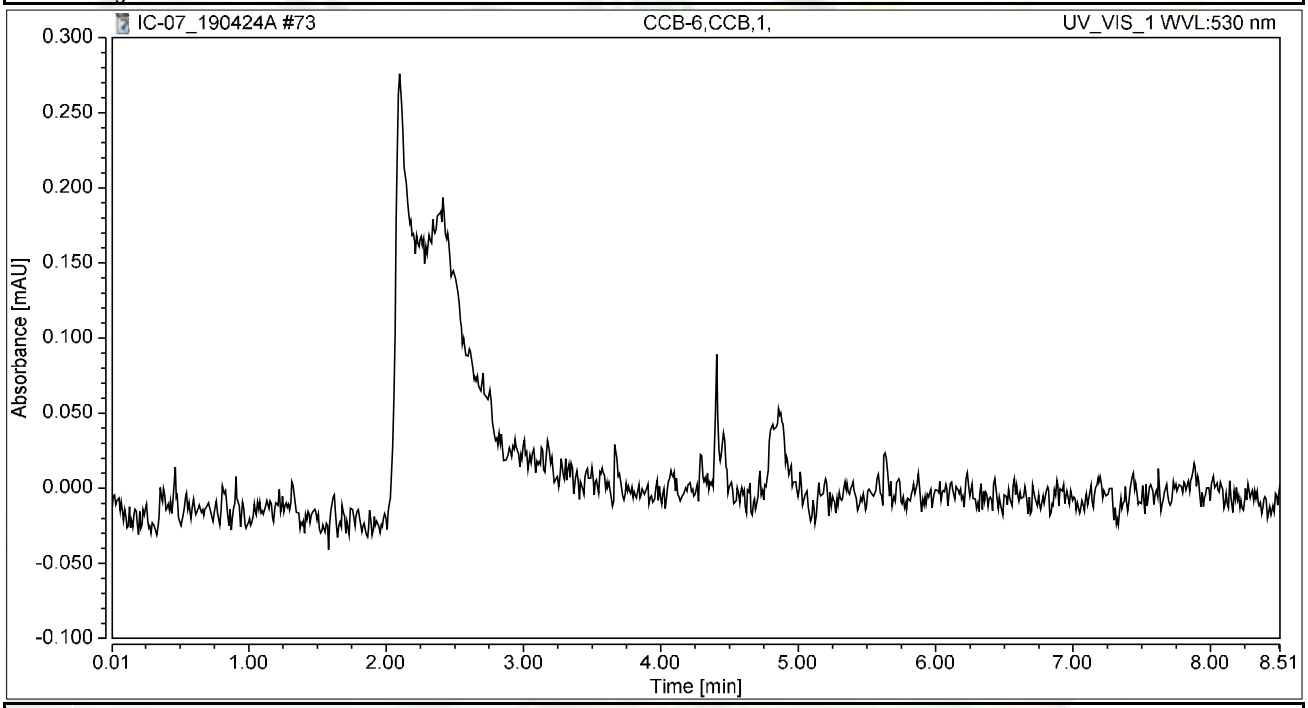
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.463	17.517	100.00	100.00	9.8917
Total:			**2.463**	**17.517**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

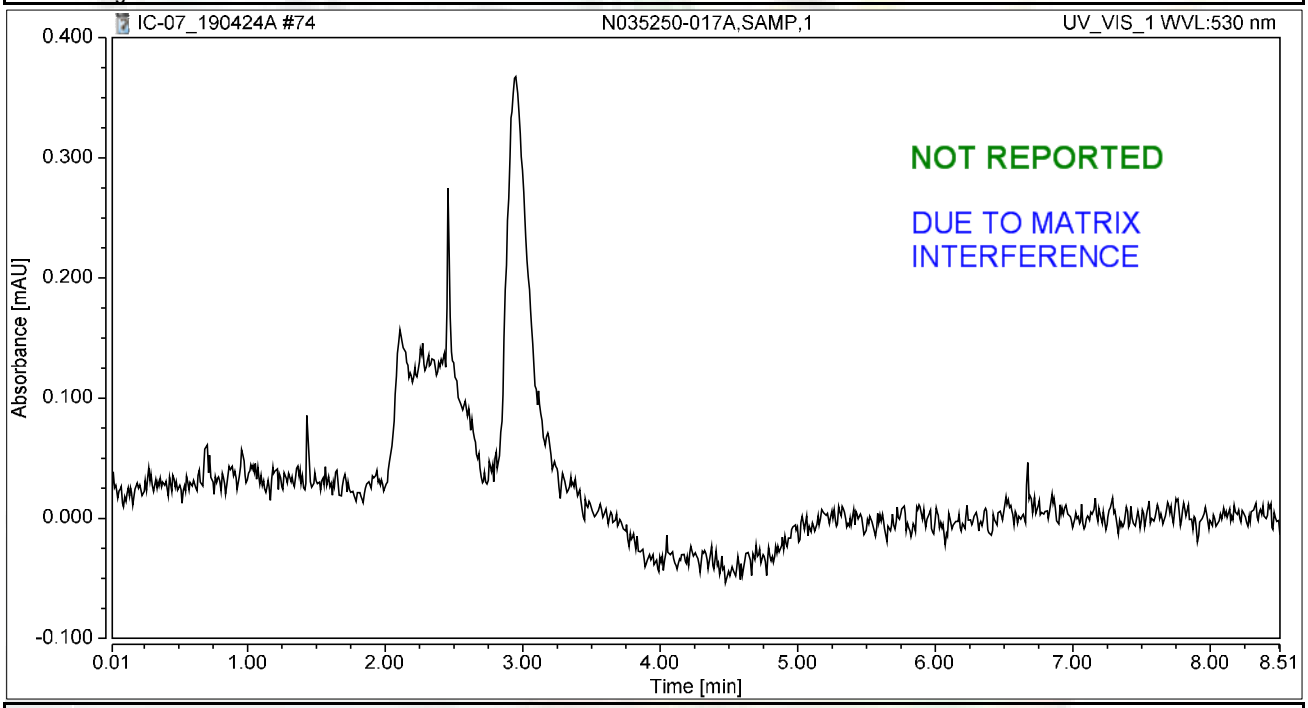
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-017A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

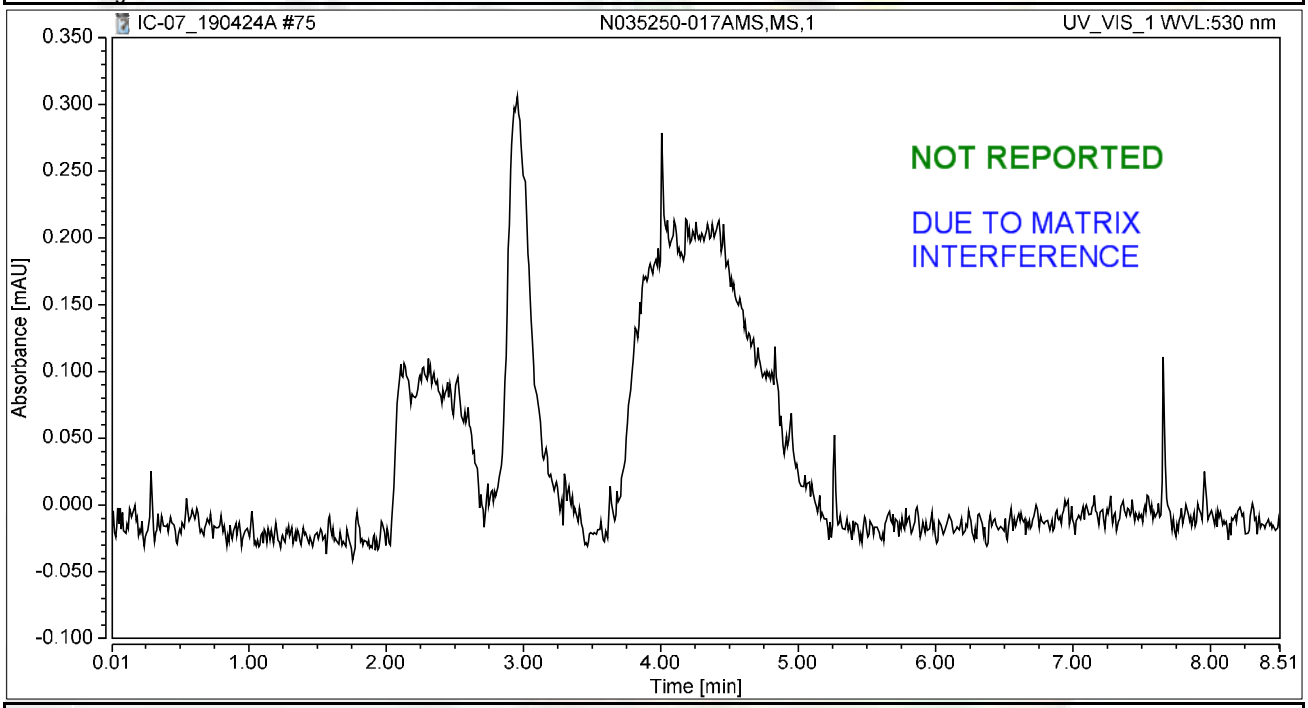
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-017AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

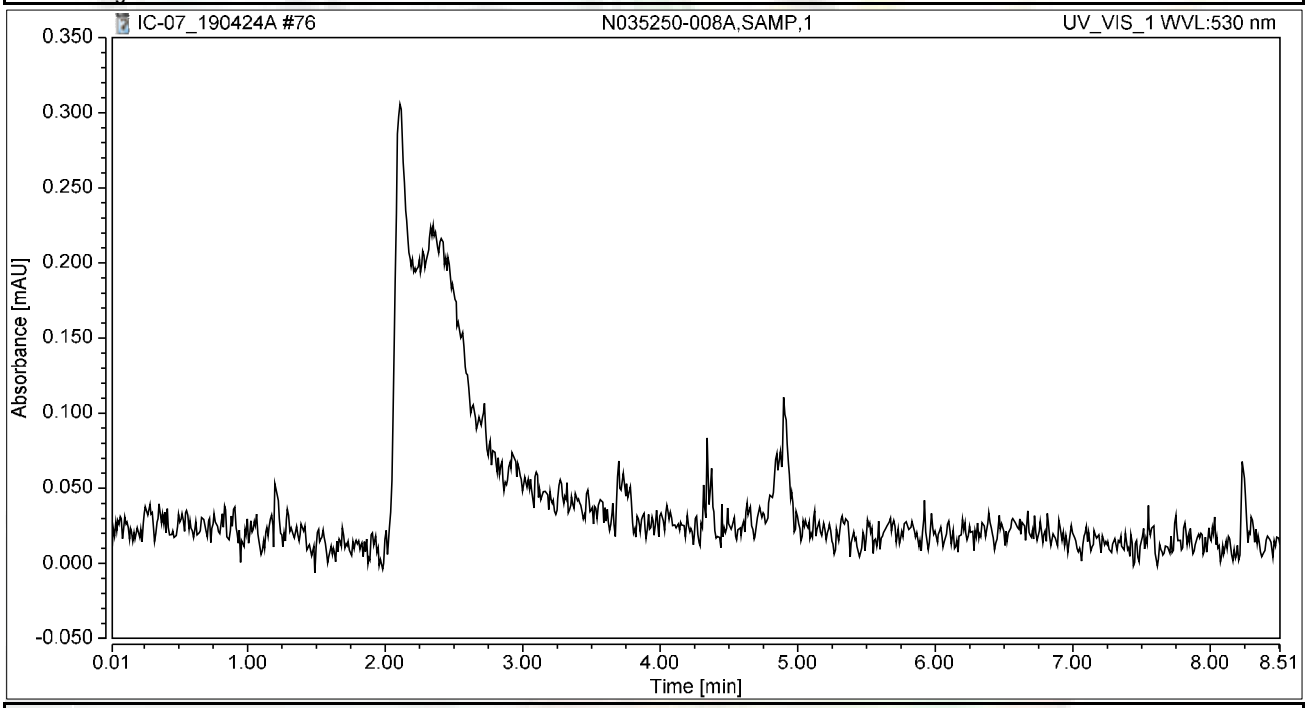
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-008A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

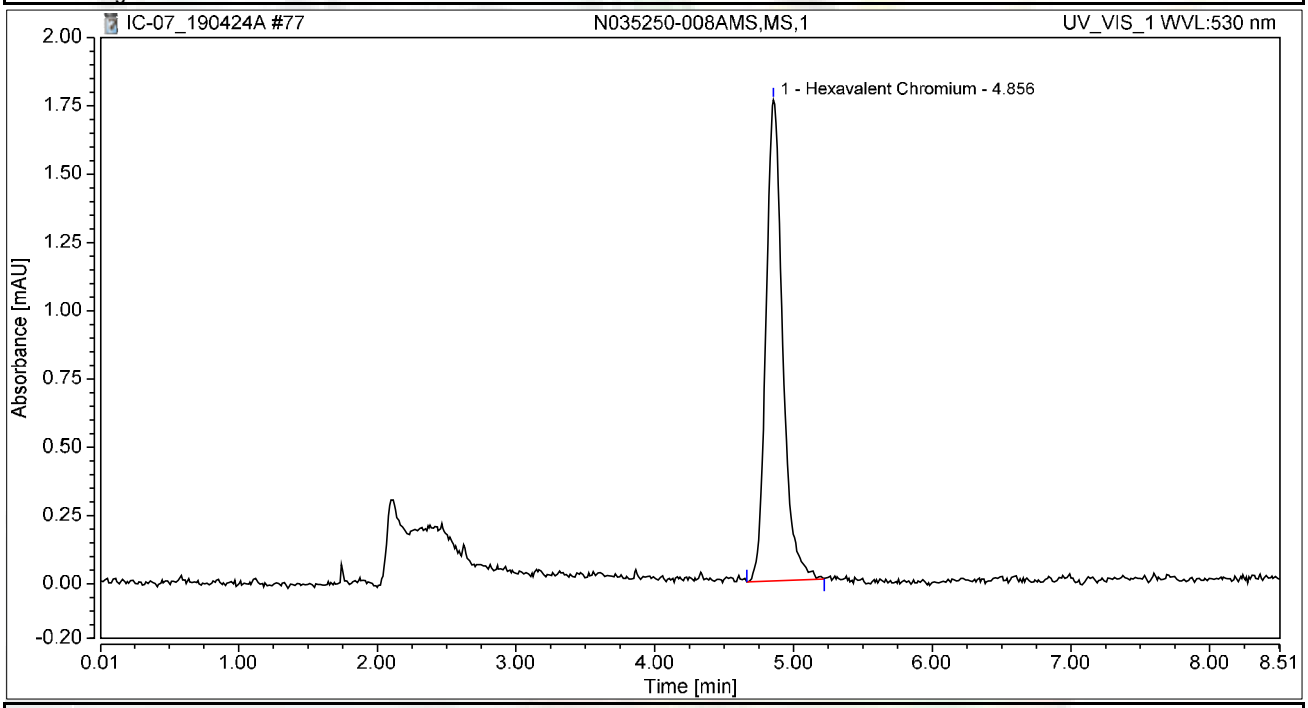
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-008AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

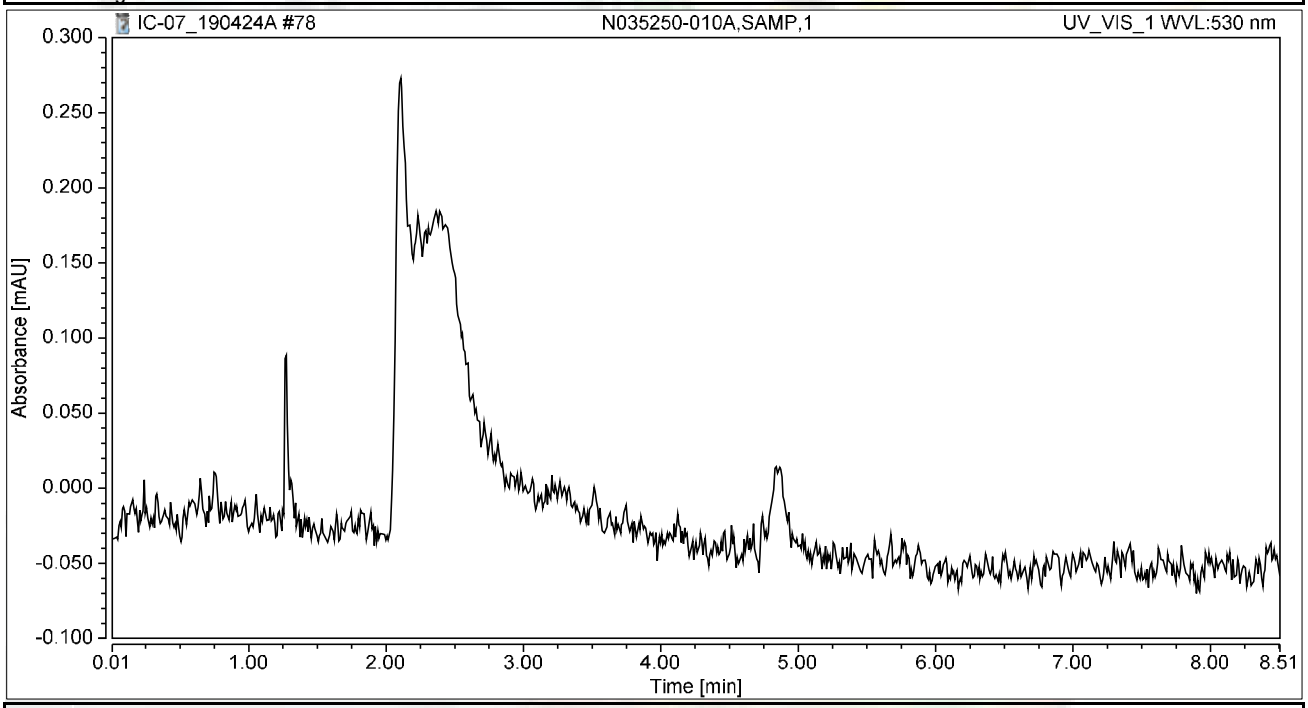
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.246	1.762	100.00	100.00	0.9874
Total:			**0.246**	**1.762**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

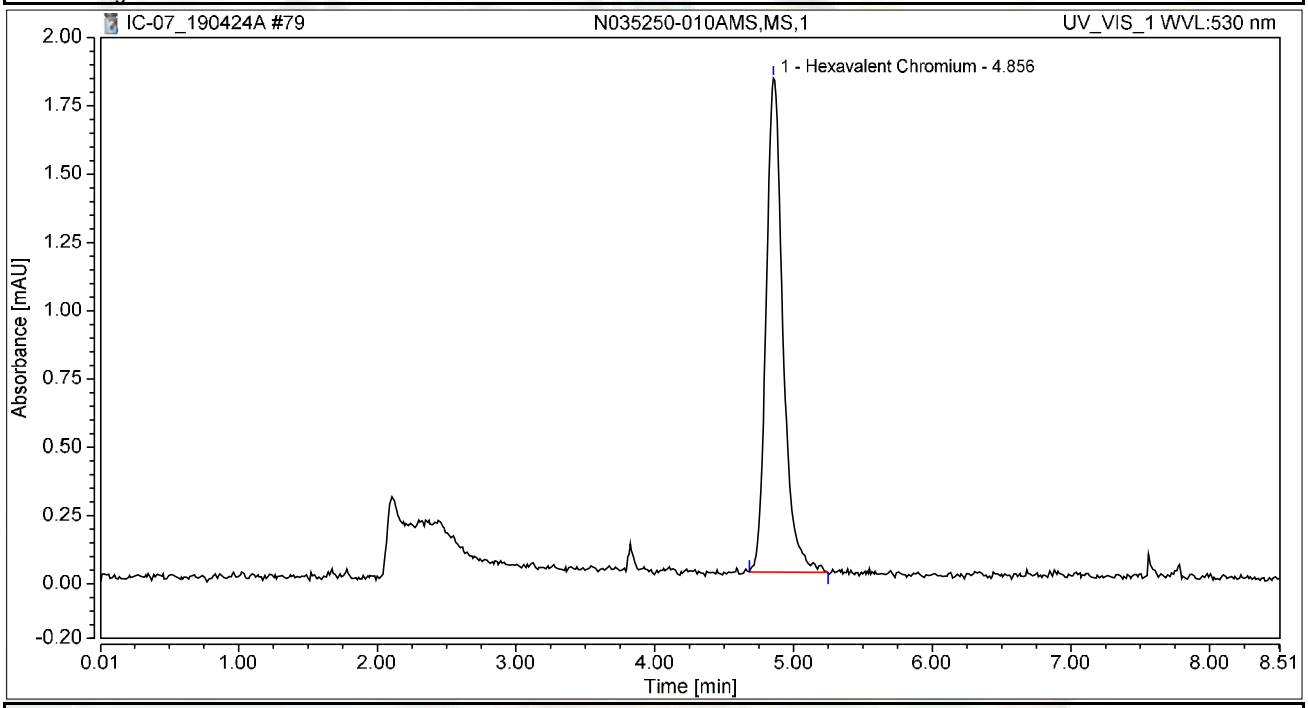
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

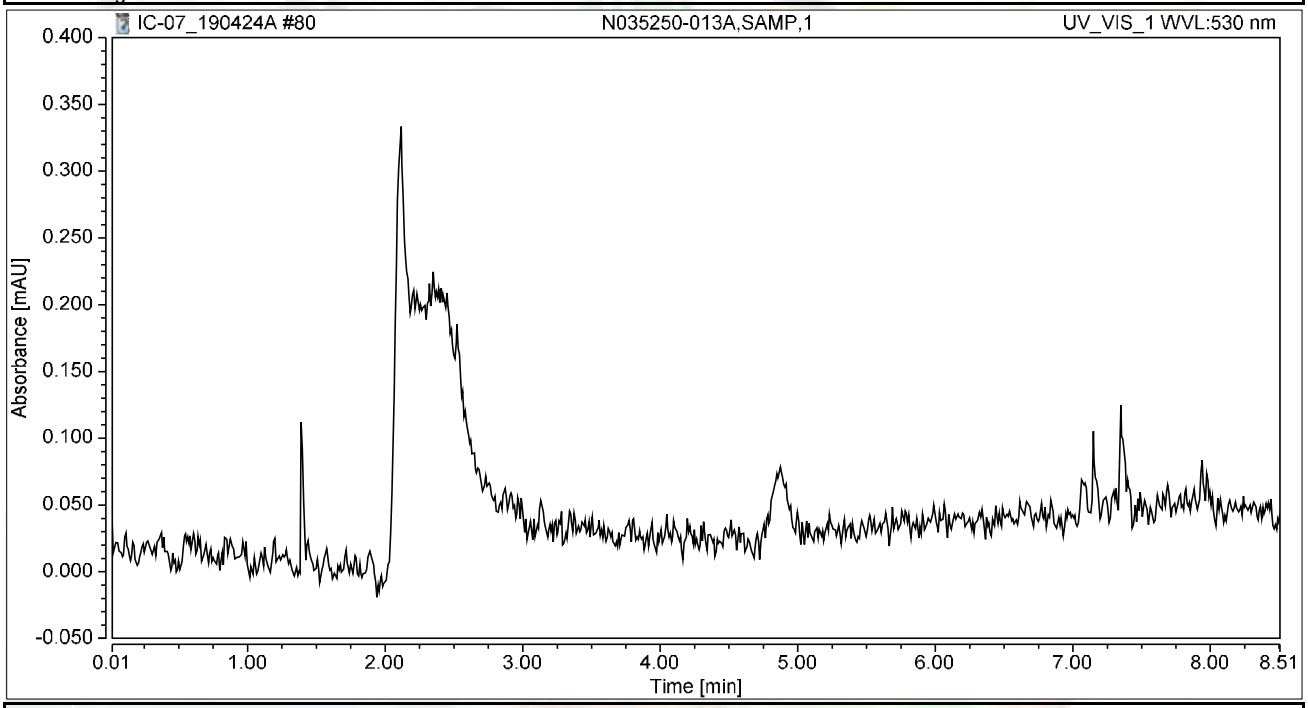
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.255	1.809	100.00	100.00	1.0223
Total:			**0.255**	**1.809**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-013A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

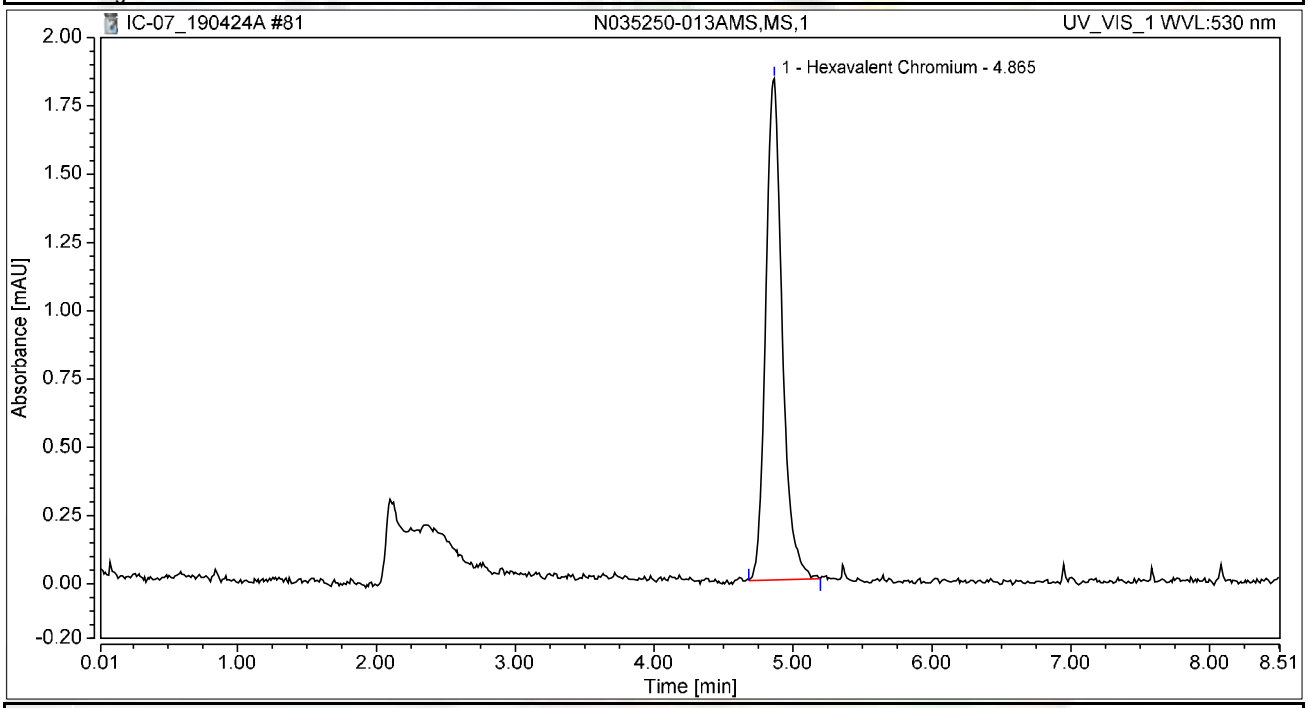
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-013AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

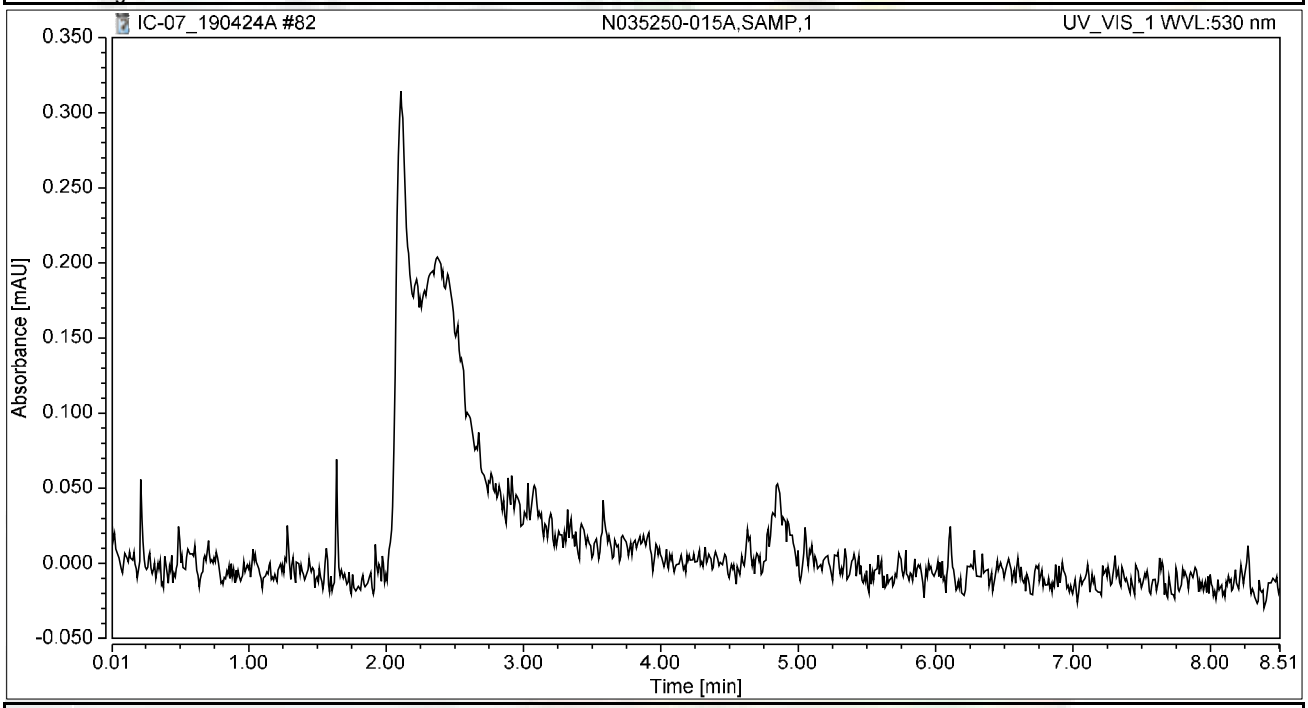
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	0.253	1.835	100.00	100.00	1.0170
Total:			**0.253**	**1.835**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-015A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

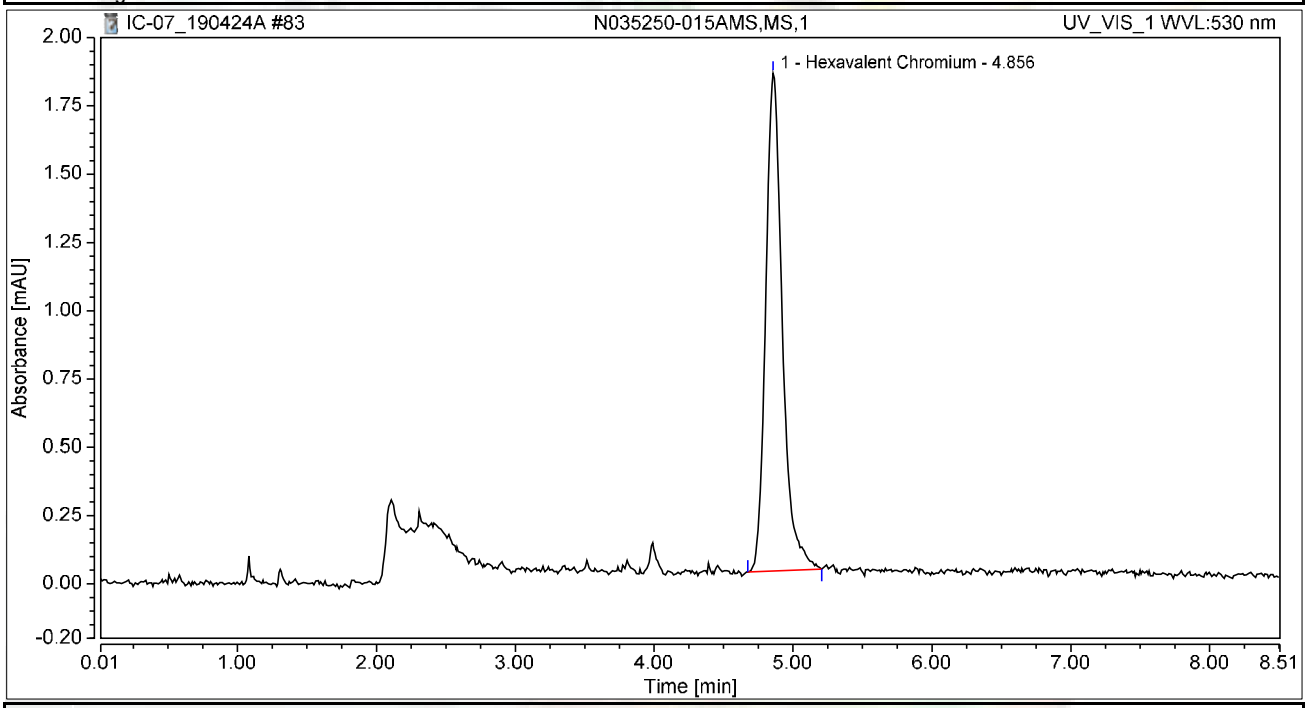
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-015AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

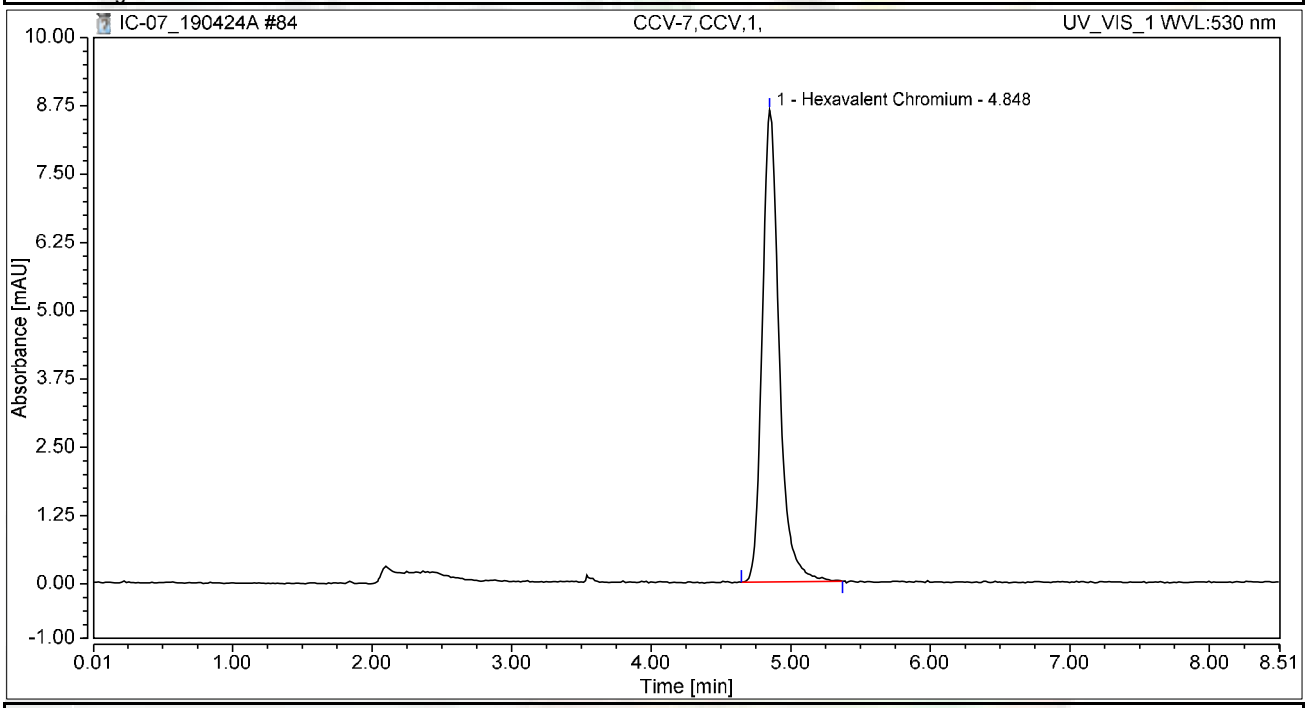
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.253	1.822	100.00	100.00	1.0172
Total:			**0.253**	**1.822**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-7,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

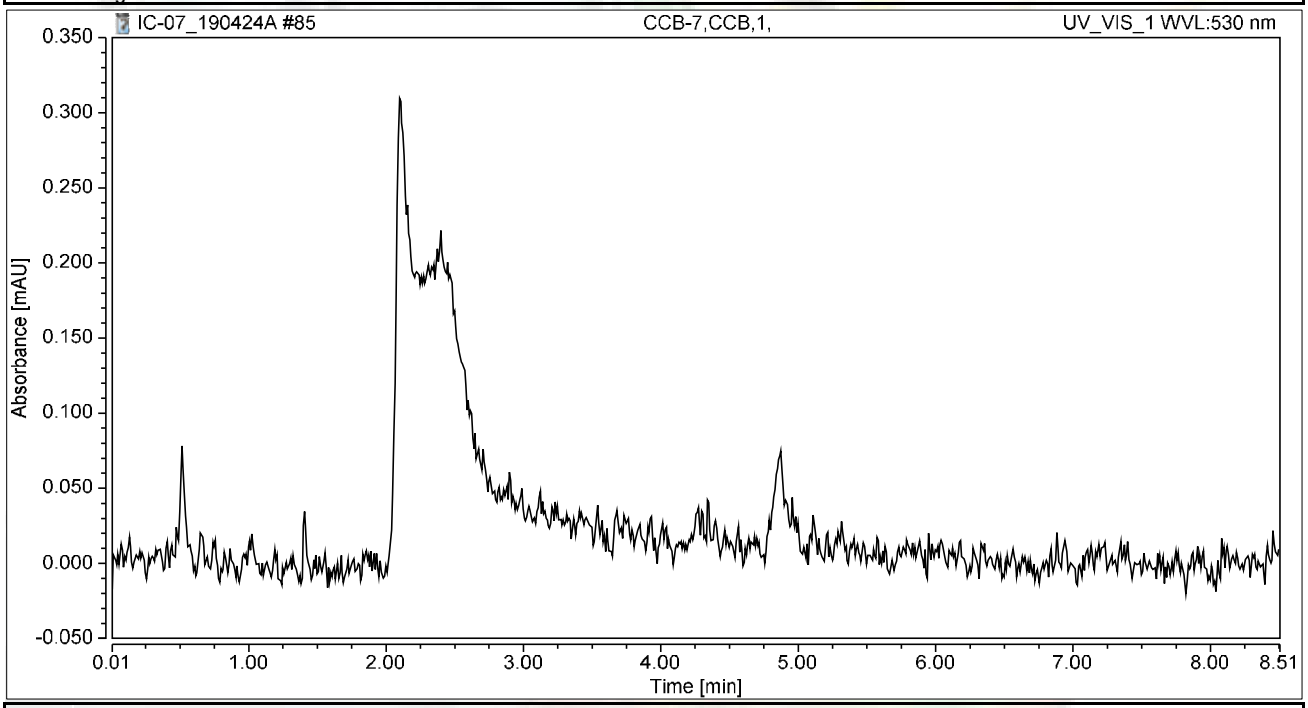
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	1.219	8.637	100.00	100.00	4.8964
Total:			**1.219**	**8.637**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-7,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

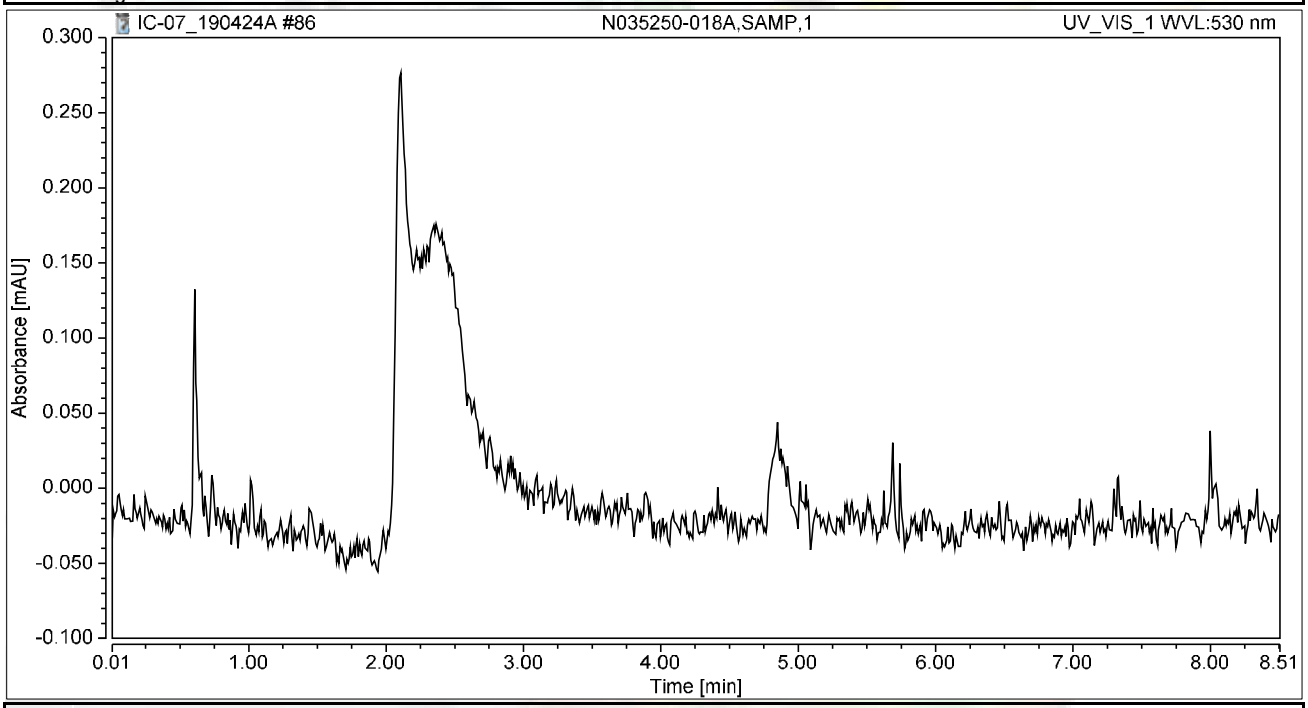
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-018A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

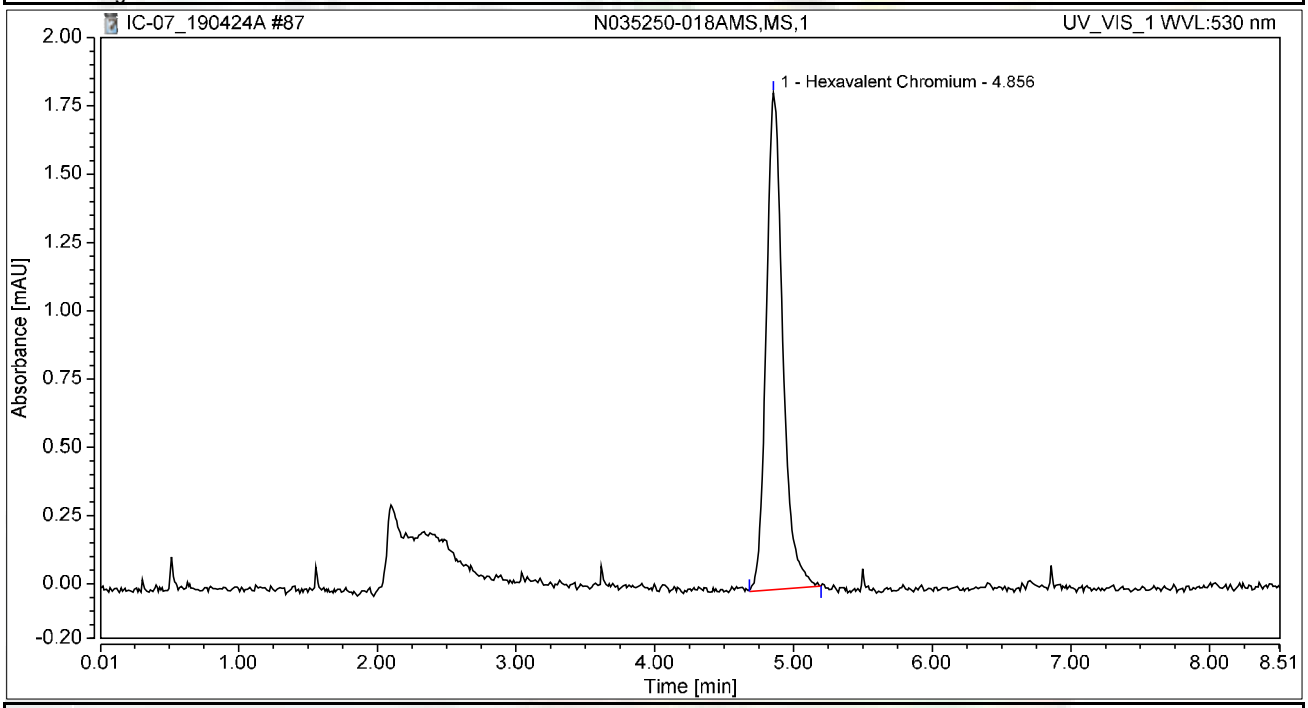
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-018AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

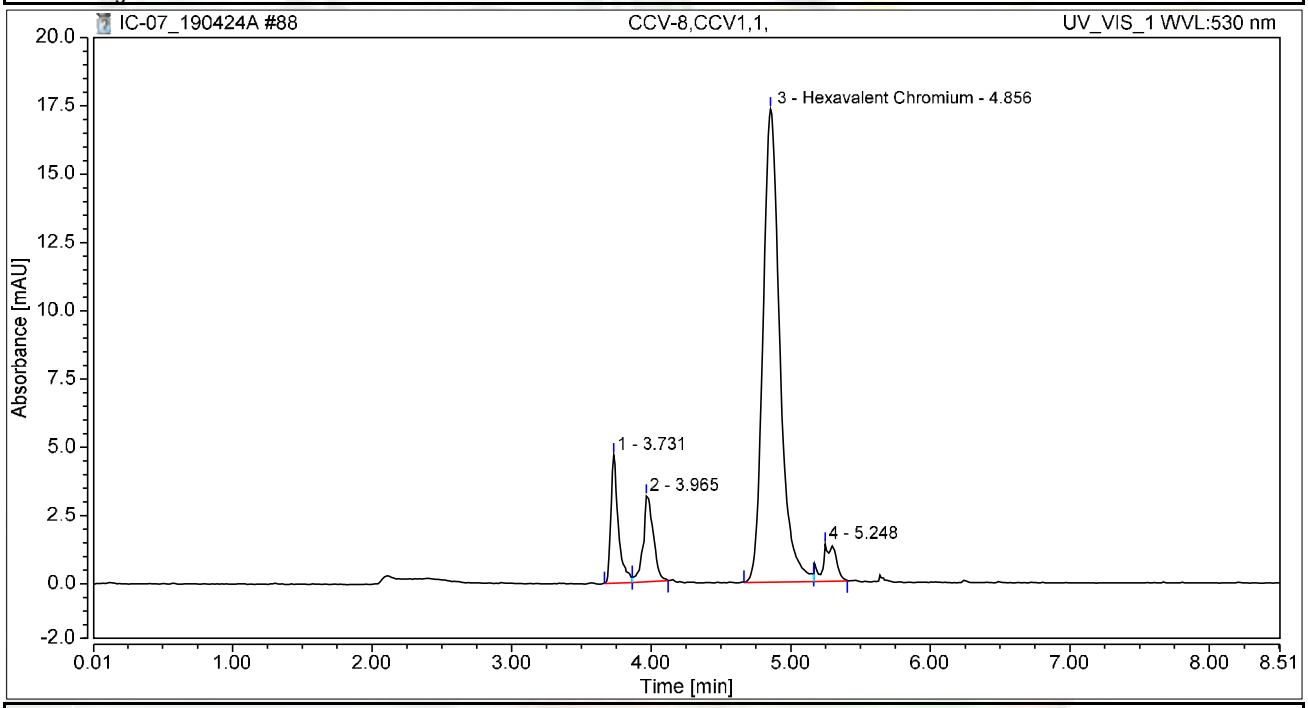
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.252	1.818	100.00	100.00	1.0140
Total:			**0.252**	**1.818**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-8,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

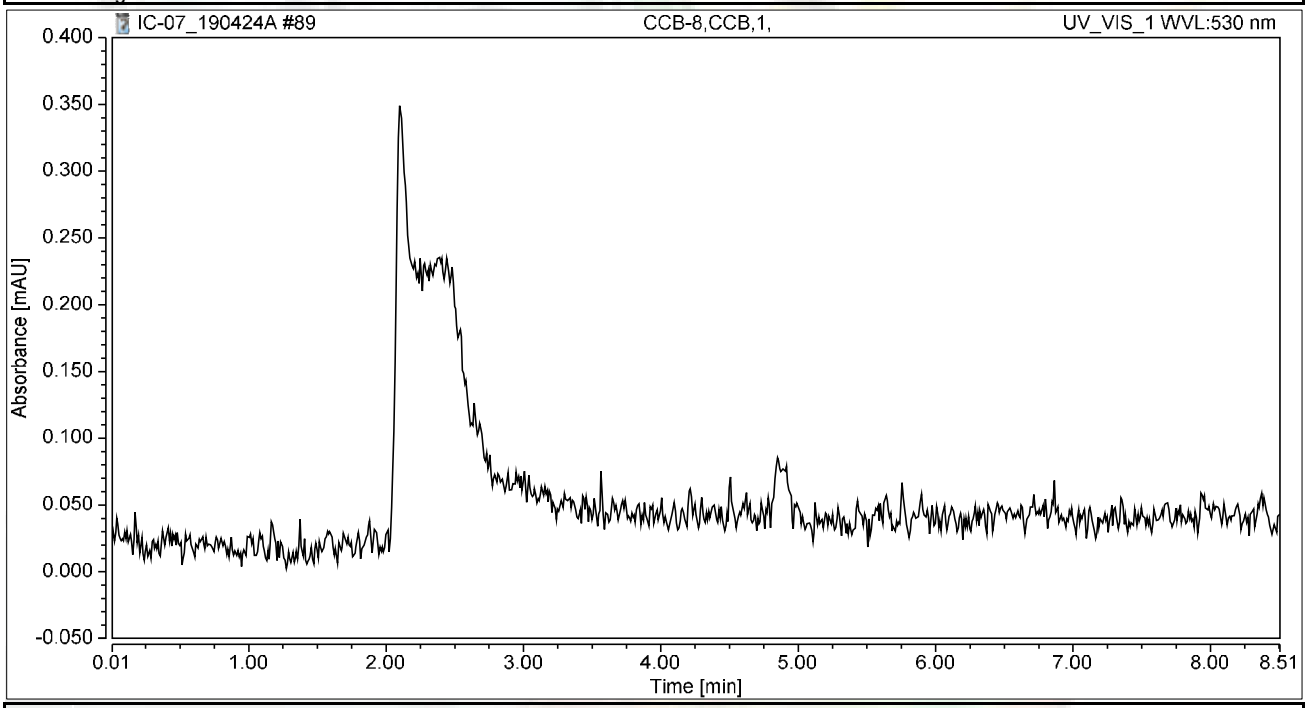
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.731	0.292	4.699	9.34	17.73	n.a.
2		3.965	0.264	3.127	8.45	11.80	n.a.
3	Hexavalent Chromium	4.856	2.424	17.316	77.52	65.33	9.7349
4		5.248	0.146	1.365	4.68	5.15	n.a.
Total:			**3.127**	**26.507**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-8,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 22:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

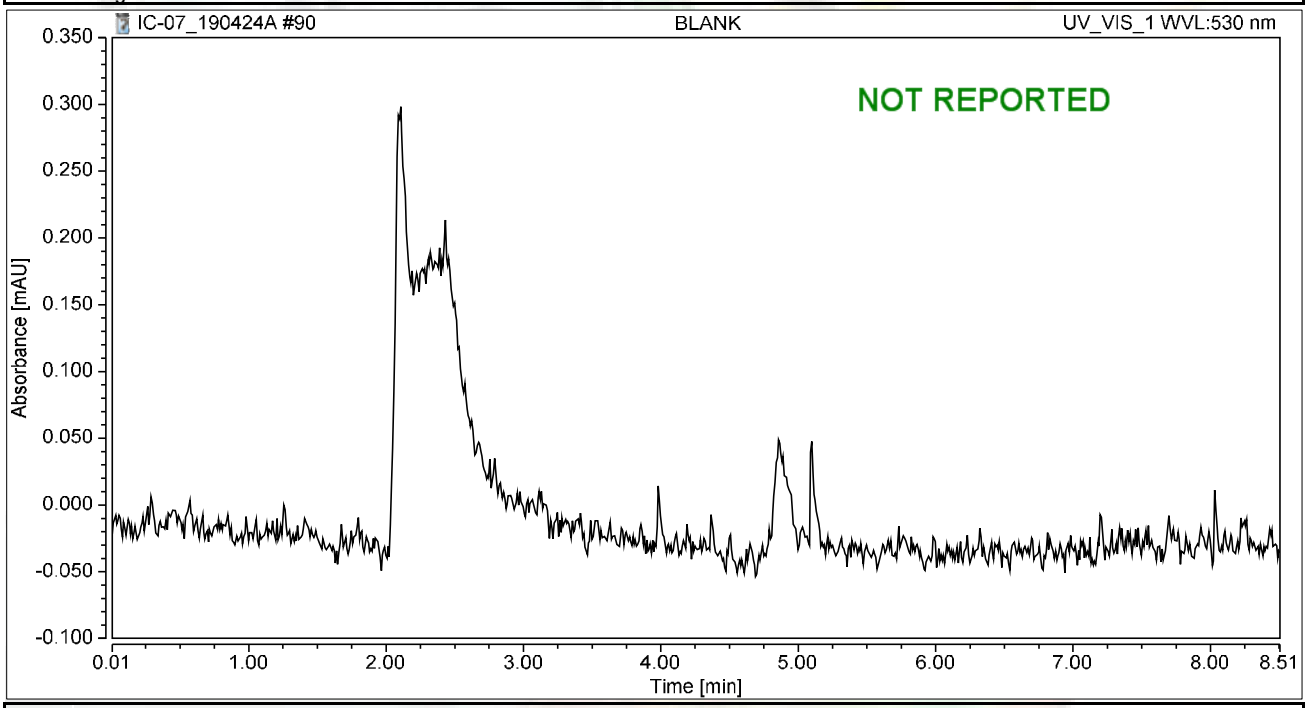
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 22:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

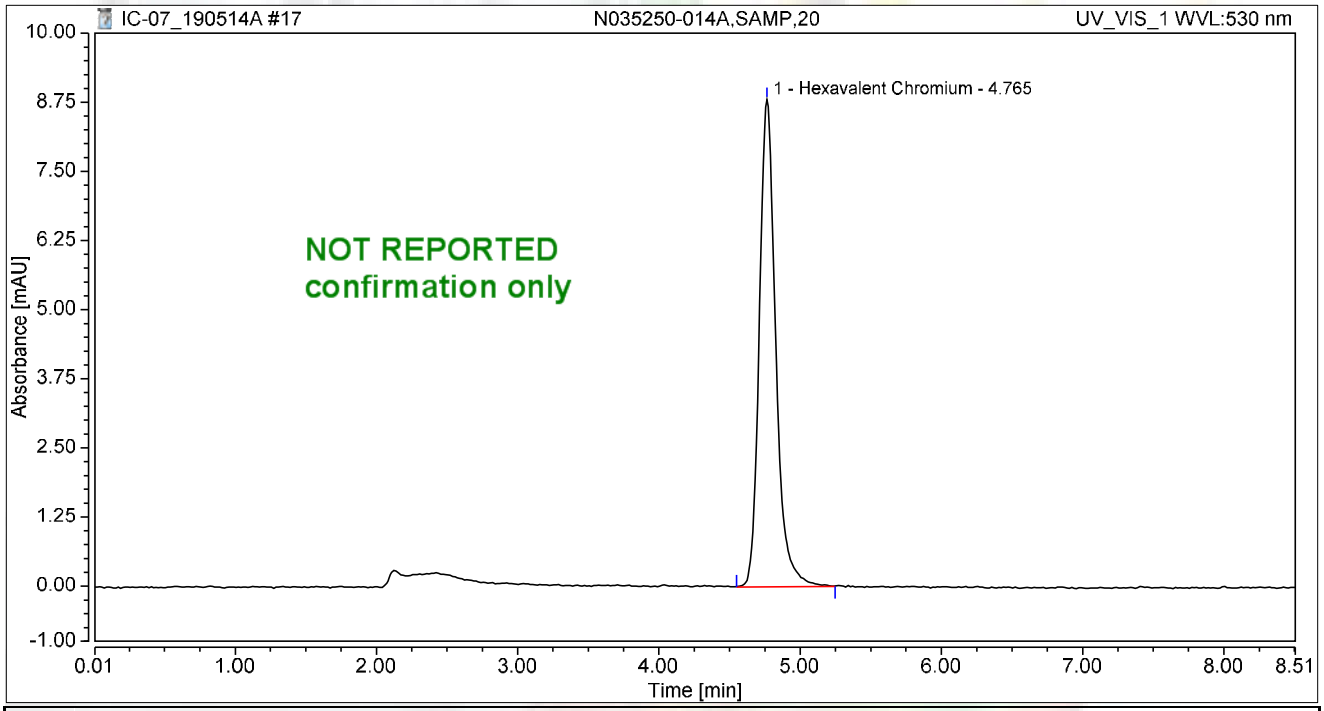
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-014A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**14/May/19 09:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	1.185	8.808	100.00	100.00	4.6988
Total:			**1.185**	**8.808**	**100.00**	**100.00**	

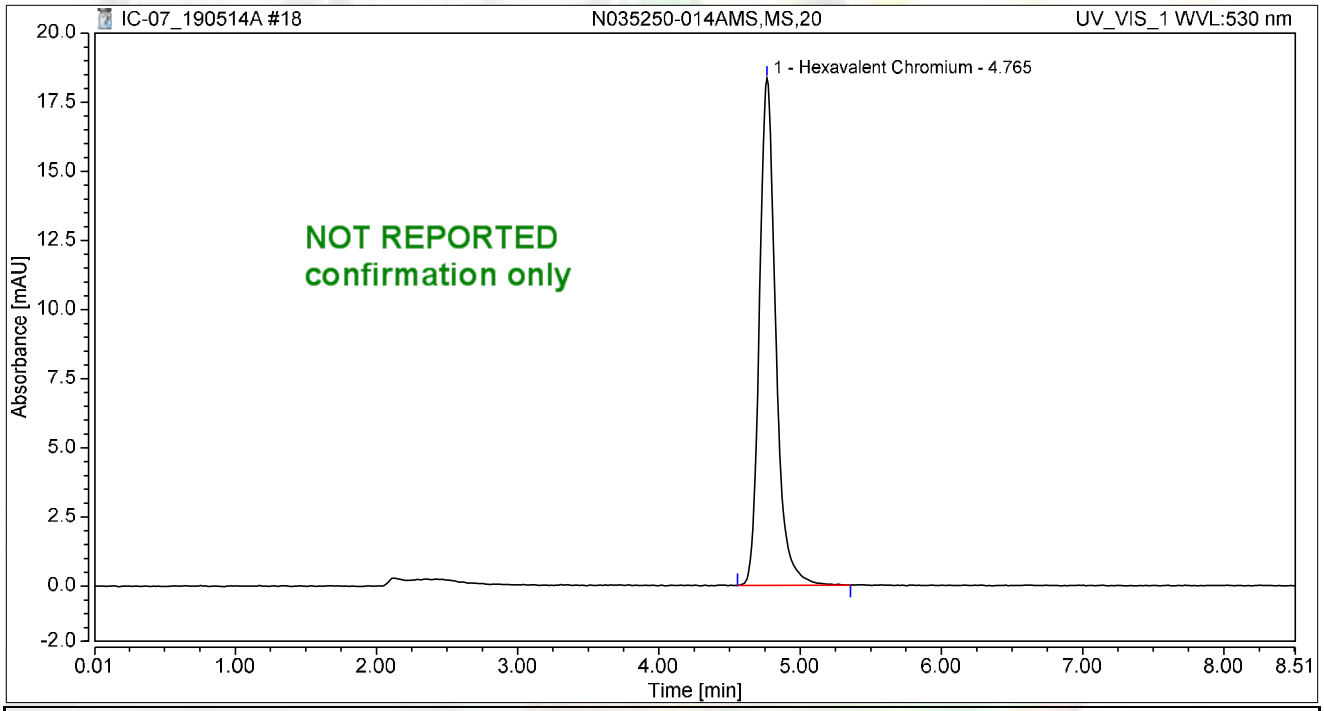
rba 5/14/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035250-014AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**14/May/19 09:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	2.468	18.344	100.00	100.00	9.7895
Total:			**2.468**	**18.344**	**100.00**	**100.00**	

rba 5/14/2019

SM 2320B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133470 **Analyst:** LSR

ASSET #: N035250 **Date Analyzed:** 25-Apr

Method: EPA 2320

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer Silvia Ramit Date: 4/29/2019

2nd Level Reviewer 5/7/2019 Date:

SAMPLE CALCULATION

Sample ID: **N035250-014B @ pH 7.85**

A. Standardization of Sulfuric Acid (titrant):

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

Where:

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

Spike Standards

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

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

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.50 mL)

= **0.02174 N**

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

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

Where:

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

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (8.20) (0.02174 N) (1) * 1000

= 178.2680 mg**/L**

Reporting results in two significant figures,

= 180 as CaCO3

Julia Ramit 4/29/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

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

= (0.00) (0.02174 N) (1) * 1000

= **0**

Total Alkalinity

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

= (8.20 mL) (0.02174) (1) * 1000

= 178.2680 **mg/L** as CaCO3

Where:

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

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

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

Therefore,

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

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

HCO_3 Alkalinity as $CaCO_3$ = 178.2680 **mg/L**

Reporting results in two significant figures,

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

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

HCO_3 Alkalinity as $CaCO_3$ = **180 mg/L**

Julia Ramit 4/29/2019

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.48	50	0.00	0.050	MBLK
LCS-1	8.65	50	0.05	4.80	LCS
N035250-014B	7.85	50	0.00	8.20	SAMP
N035251-001C	7.93	50	0.00	9.55	SAMP
N035251-002C	7.88	50	0.00	7.65	SAMP
N035251-002CDUP	7.92	50	0.00	7.80	DUP
N035251-002CMS	7.82	50	0.00	12.30	MS
N035251-002CMSD	7.81	50	0.00	12.20	MSD

Standardization:		
Spike amt:	**5**	ml
Titrant used:	**11.500**	ml
N H2SO4	**0.02174**	Normal
Date Analyzed:	**4/25/19**	
Time:	**9:20 AM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-180510A**	
Sulfuric Acid:	**R190419B**	

Silvia Ramit 4/29/2019

Date Analyzed:	4/25/19		Reagents:					Standardization:					P = 0
Time Started:	9:20 AM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.5	mL		P = 1/2 T
				Sulfuric Acid:		R190419B							P > 1/2 T
									N H2SO4	0.02174	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.48				0.02174	0.00	0.05	0.05	1	0.00	1.09	
LCS-1	50	8.65				0.02174	0.05	4.75	4.80	1	1.09	104.35	
N035250-014B	50	7.85				0.02174	0.00	8.20	8.20	1	0.00	178.26	
N035251-001C	50	7.93				0.02174	0.00	9.55	9.55	1	0.00	207.61	
N035251-002C	50	7.88				0.02174	0.00	7.65	7.65	1	0.00	166.30	
N035251-002CDU	50	7.92				0.02174	0.00	7.80	7.80	1	0.00	169.57	
N035251-002CMS	50	7.82				0.02174	0.00	12.30	12.30	1	0.00	267.39	
N035251-002CMS	50	7.81				0.02174	0.00	12.20	12.20	1	0.00	265.22	

Julia Ramit 4/29/2019

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	4/25/19
Time:	9:20 AM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.09	1.09	1.09		P = 0
LCS-1	0.00	2.17	102.17	104.35	104.35		P < 1/2 T
N035250-014B	0.00	0.00	178.26	178.26	178.26		P = 0
N035251-001C	0.00	0.00	207.61	207.61	207.61		P = 0
N035251-002C	0.00	0.00	166.30	166.30	166.30		P = 0
N035251-002CDUP	0.00	0.00	169.57	169.57	169.57		P = 0
N035251-002CMS	0.00	0.00	267.39	267.39	267.39		P = 0
N035251-002CMSD	0.00	0.00	265.22	265.22	265.22		P = 0

Julia Ramit 4/29/2019

Alkalinity Preparation and Runlog

Matrix: H2O

Date Extracted: 4/25/19
Time Extracted: 1400
Extracted By: LSR

Date Analyzed: 4/25/19
Time Analyzed: 920
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV-161205A
Hydrochloric Acid: -
Sulfuric Acid: R190419B
Sodium Bicarbonate: CINV-180510A

pH Meter Calibration:
SLOPE: 96.2%
pH 7 - 7.00 - CINV190107A
4 - 4.02 - 1 B
10 - 10.00 - CINV190111G

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARDIZATION											
	#1	50 mL	10.85	IWSTA0419A	5 mL	0.05N	-	-	11.55	50/50	$N_{H_2SO_4} = \frac{(2.5g/L)(5mL)}{(53)(V\ titrant)}$	= 0.021645021
	#2	1	10.80	1	1	1	-	-	11.45	1		= 0.021834061
1)	MBLC	50mL	5.48	-	-	-	0.02174	0	0.05	50/50		Ave: 0.021739541
2)	LCS		8.65	IWSTA0419B	1mL	0.05N		0.05	4.80			
3)	NBS250-1LB		7.85					0	8.20			
4)	NBS25I-1C		7.99					0	9.55			
5)	2C		7.88					0	7.65			
6)	2CDUP		7.92					0	7.80			
7)	2CMS		7.82	IWSTA0419B	1mL	0.05N		0	12.30			
8)	2CMSD		7.81	1	1	1		0	12.20	1		
9)												
10)												
11)												
12)												
13)												
14)												
15)				$P = (V_{pH\ 8.3})(N_{H_2SO_4})(50{,}000)$ / V_{SX}								
16)												
17)												
18)												
19)				$F = (V_{pH\ 4.5})(N_{H_2SO_4})(50{,}000)$ / V_{SX}								
20)												
	MS											
	MSD											
	LCS											

Julia Ramit 4/29/2019

ASSET LABORATORIES
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133486
ASSET #: N035250 / N035251

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 4/25/2019

Method:

[X] EPA 300.0
[ ] EPA 7199

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

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

Comments:

~~Detection of Sulfate in CCB-3 was >1/2 PQL criteria. However, N035250 and N025251 samples affected are >10X the CCB detection. Thus, samples are reported.~~

SECOND LEVEL REVIEW:

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

1st Level Reviewer rba Date: 5/7/2019

2nd Level Reviewer 5/7/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

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

FORMULA:

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

Sulfate, mg/L = A * DF

where:

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

For **N035250-014B** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 6.6507 * 50

= 332.535

Reporting result in two significant values,

Sulfate, mg/L = 330

rba 5/7/2019

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 40
Created: 4/1/2019 10:47:46 AM by IC-05
Last Update: 4/1/2019 11:05:52 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
2	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
3	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
4	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
5	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
6	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
7	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
8	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
9	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
10	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
11	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
12	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
13	N034871-001A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
14	N034871-002A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
15	N034871-003A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
16	N034871-004A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
17	N034871-005A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
18	N034871-006A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
19	N034871-006ADUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
20	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
21	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
22	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
23	N034871-001AMS,MS,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
24	N034871-001AMSD,MSD,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
25	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
26	N034880-001B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
27	N034880-001BMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
28	N034880-001BMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
29	N034880-002B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
30	N034880-002BDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
31	N034880-003A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
32	N034880-001B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
33	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
34	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
35	N034880-001BMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
36	N034880-001BMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
37	N034880-002B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
38	N034880-002BDUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
39	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
40	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished

jrba 4/7/2019

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 40
Created: 4/1/2019 10:47:46 AM by IC-05
Last Update: 4/1/2019 11:05:52 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK	4/1/2019 10:52:34 AM	BLANK
2	BLANK,BLANK	4/1/2019 11:07:22 AM	BLANK
3	Std - 0	4/1/2019 11:38:53 AM	IBLANK
4	Std - 1	4/1/2019 11:58:48 AM	STD-LOW
5	Std - 2	4/1/2019 12:19:52 PM	STD
6	Std - 3	4/1/2019 12:34:40 PM	STD
7	Std - 4	4/1/2019 12:49:28 PM	STD
8	Std - 5	4/1/2019 1:04:16 PM	STD-HIGH
9	ICV,ICV,1	4/1/2019 1:34:22 PM	ICV
10	ICB,ICB,1	4/1/2019 1:49:10 PM	CCB
11	MB-H2O,MBLK,1	4/1/2019 2:03:58 PM	METHOD BLANK
12	LCS-H2O,LCS,1	4/1/2019 2:18:46 PM	LCS
13	N034871-001A,SAMP,5	4/1/2019 2:56:40 PM	SAMP,2>10mL
14	N034871-002A,SAMP,5	4/1/2019 3:18:59 PM	SAMP,2>10mL
15	N034871-003A,SAMP,5	4/1/2019 3:41:17 PM	SAMP,2>10mL
16	N034871-004A,SAMP,5	4/1/2019 4:03:35 PM	SAMP,2>10mL
17	N034871-005A,SAMP,5	4/1/2019 4:25:53 PM	SAMP,2>10mL
18	N034871-006A,SAMP,5	4/1/2019 4:48:10 PM	SAMP,2>10mL
19	N034871-006ADUP,DUP,5	4/1/2019 5:10:28 PM	DUP,2>10mL
20	BLANK	4/1/2019 5:25:16 PM	BLANK
21	CCV-1,CCV,1	4/1/2019 5:40:04 PM	CCV
22	CCB-1,CCB,1	4/1/2019 5:54:52 PM	CCB
23	N034871-001AMS,MS,5	4/1/2019 6:09:40 PM	MS,2>10mL
24	N034871-001AMSD,MSD,5	4/1/2019 6:31:57 PM	MSD,2>10mL
25	BLANK	4/1/2019 6:54:15 PM	BLANK
26	N034880-001B,SAMP,5	4/1/2019 7:09:03 PM	SAMP,2>10mL
27	N034880-001BMS,MS,5	4/1/2019 7:23:51 PM	MS,2>10mL
28	N034880-001BMSD,MSD,5	4/1/2019 7:38:39 PM	MSD,2>10mL
29	N034880-002B,SAMP,5	4/1/2019 7:53:26 PM	SAMP,2>10mL
30	N034880-002BDUP,DUP,5	4/1/2019 8:08:14 PM	DUP,2>10mL
31	N034880-003A,SAMP,20	4/1/2019 8:23:02 PM	SAMP,0.5>10mL
32	N034880-001B,SAMP,50	4/1/2019 8:37:50 PM	SAMP,0.2>10mL
33	CCV-2,CCV,1	4/1/2019 8:52:38 PM	CCV
34	CCB-2,CCB,1	4/1/2019 9:07:25 PM	CCB
35	N034880-001BMS,MS,50	4/1/2019 9:22:14 PM	MS,0.2>10mL
36	N034880-001BMSD,MSD,50	4/1/2019 9:37:02 PM	MSD,0.2>10mL
37	N034880-002B,SAMP,50	4/1/2019 9:51:50 PM	SAMP,0.2>10mL
38	N034880-002BDUP,DUP,50	4/1/2019 10:06:38 PM	DUP,0.2>10mL
39	CCV-3,CCV,1	4/1/2019 10:21:26 PM	CCV
40	CCB-3,CCB,1	4/1/2019 10:36:14 PM	CCB

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 45
Created: 4/25/2019 8:07:44 AM by IC-05
Last Update: 4/25/2019 3:54:22 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
2	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
3	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
4	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
5	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
6	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
7	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
8	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
9	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
10	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
11	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
12	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
13	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
14	N035189-008B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
15	N035189-010B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
16	N035189-011B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
17	N035189-015B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
18	N035189-016B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
19	N035189-018B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
20	N035189-017B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
21	N035189-008B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
22	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
23	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
24	N035251-001C,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
25	N035251-001C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
26	N035251-002C,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
27	N035251-002C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
28	N035250-014B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
29	N035250-014B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
30	N035230-004B,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
31	N035251-001CDUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
32	N035251-002CMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
33	N035251-002CMSD,MSD,500	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
34	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
35	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
36	N035251-002CMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
37	N035251-002CMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
38	N035250-014BMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
39	N035250-014BMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
40	N035250-014B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
41	N035250-014BDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 45
Created: 4/25/2019 8:07:44 AM by IC-05
Last Update: 4/25/2019 3:54:22 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK	4/1/2019 10:52:34 AM	BLANK
2	BLANK,BLANK	4/1/2019 11:07:22 AM	BLANK
3	Std - 0	4/1/2019 11:38:53 AM	IBLANK
4	Std - 1	4/1/2019 11:58:48 AM	STD-LOW
5	Std - 2	4/1/2019 12:19:52 PM	STD
6	Std - 3	4/1/2019 12:34:40 PM	STD
7	Std - 4	4/1/2019 12:49:28 PM	STD
8	Std - 5	4/1/2019 1:04:16 PM	STD-HIGH
9	BLANK,BLANK	4/25/2019 8:08:06 AM	BLANK
10	CCV-1,CCV,1	4/25/2019 8:22:54 AM	CCV
11	CCB-1,CCB,1	4/25/2019 8:37:42 AM	CCB
12	MB-H2O,MBLK,1	4/25/2019 8:52:30 AM	METHOD BLANK
13	LCS-H2O,LCS,1	4/25/2019 9:07:18 AM	LCS
14	N035189-008B,SAMP,100	4/25/2019 9:49:59 AM	SAMP,0.1>10mL
15	N035189-010B,SAMP,50	4/25/2019 10:06:31 AM	SAMP,0.2>10mL
16	N035189-011B,SAMP,50	4/25/2019 10:21:19 AM	SAMP,0.2>10mL
17	N035189-015B,SAMP,50	4/25/2019 10:36:07 AM	SAMP,0.2>10mL
18	N035189-016B,SAMP,50	4/25/2019 10:50:54 AM	SAMP,0.2>10mL
19	N035189-018B,SAMP,100	4/25/2019 11:05:42 AM	SAMP,0.1>10mL
20	N035189-017B,SAMP,5	4/25/2019 11:20:30 AM	SAMP,0.2>10mL
21	N035189-008B,SAMP,20	4/25/2019 11:35:19 AM	SAMP,0.5>10mL
22	CCV-2,CCV,1	4/25/2019 11:50:07 AM	CCV
23	CCB-2,CCB,1	4/25/2019 12:04:54 PM	CCB
24	N035251-001C,SAMP,200	4/25/2019 12:19:42 PM	SAMP,0.05>10mL
25	N035251-001C,SAMP,50	4/25/2019 12:34:30 PM	SAMP,0.2>10mL
26	N035251-002C,SAMP,500	4/25/2019 12:49:18 PM	SAMP,0.02>10mL
27	N035251-002C,SAMP,50	4/25/2019 1:04:05 PM	SAMP,0.2>10mL
28	N035250-014B,SAMP,500	4/25/2019 1:18:53 PM	SAMP,0.02>10mL
29	N035250-014B,SAMP,50	4/25/2019 1:33:41 PM	SAMP,0.2>10mL
30	N035230-004B,SAMP,200	4/25/2019 1:48:29 PM	SAMP,0.05>10mL
31	N035251-001CDUP,DUP,50	4/25/2019 2:03:17 PM	DUP,0.2>10mL
32	N035251-002CMS,MS,500	4/25/2019 2:18:05 PM	MS,0.02>10mL
33	N035251-002CMSD,MSD,500	4/25/2019 2:32:53 PM	MSD,0.02>10mL
34	CCV-3,CCV,1	4/25/2019 2:47:40 PM	CCV
35	CCB-3,CCB,1	4/25/2019 3:02:28 PM	CCB
36	N035251-002CMS,MS,50	4/25/2019 3:17:16 PM	MS,0.2>10mL
37	N035251-002CMSD,MSD,50	4/25/2019 3:32:04 PM	MSD,0.2>10mL
38	N035250-014BMS,MS,500	4/25/2019 3:46:52 PM	MS,0.02>10mL
39	N035250-014BMS,MS,50	4/25/2019 4:01:40 PM	MS,0.2>10mL
40	N035250-014B,SAMP,5	4/25/2019 4:16:28 PM	SAMP,2>10mL
41	N035250-014BDUP,DUP,5	4/25/2019 4:31:16 PM	DUP,2>10mL

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 45
Created: 4/25/2019 8:07:44 AM by IC-05
Last Update: 4/25/2019 3:54:22 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N035250-014BMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
43	N035250-014BMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
44	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
45	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 45
Created: 4/25/2019 8:07:44 AM by IC-05
Last Update: 4/25/2019 3:54:22 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N035250-014BMS,MS,5	4/25/2019 4:46:03 PM	MS,2>10mL
43	N035250-014BMSD,MSD,5	4/25/2019 5:00:51 PM	MSD,2>10mL
44	CCV-4,CCV,1	4/25/2019 5:15:39 PM	CCV
45	CCB-4,CCB,1	4/25/2019 5:30:27 PM	CCB

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INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 4/1/2019

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0786	0.1524	0.3053	0.7863	1.6656	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914B

Calibration Acceptance Criteria: > 0.995 Correlation

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

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 4/1/2019

Initial Calibration:

Bromide	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.05	0.25	0.5	1.25	2.5	R^2
Area,mAU*min	0.0000	0.0035	0.0152	0.0319	0.0805	0.1616	1.000

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST~~160817D~~

180914D

Calibration Acceptance Criteria: > 0.995 Correlation

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

rba 5/7/2019

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 4/1/2019

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0563	0.2257	0.4523	1.1738	2.4649	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914G

Calibration Acceptance Criteria: > 0.995 Correlation

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ICV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/1/2019**	SeqNo: **3364596**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.242	0.50	1.250	0	99.4	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.264	0.50	1.250	0	101	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.267	0.50	1.250	0	101	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364604**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.240	0.50	1.250	0	99.2	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_BRP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Bromide	1.269	0.50	1.250	0	101	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ICV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/1/2019**	SeqNo: **3364542**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.008	0.50	2.000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364544**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.934	0.50	2.000	0	96.7	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.939	0.50	2.000	0	96.9	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.893	0.50	2.000	0	94.6	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.945	0.50	2.000	0	97.3	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ICV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/1/2019**	SeqNo: **3364569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.043	0.50	4.000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.929	0.50	4.000	0	98.2	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.919	0.50	4.000	0	98.0	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364589**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.925	0.50	4.000	0	98.1	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364594**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.950	0.50	4.000	0	98.7	90	110				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_BRPGE

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
ICB	**ICB**	**300_W_BRP**	**mg/L**		**133486**
Client ID: **ICB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/1/2019**	SeqNo: **3364597**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-1	**CCB**	**300_W_BRP**	**mg/L**		**133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364599**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-2	**CCB**	**300_W_BRP**	**mg/L**		**133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364603**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-3	**CCB**	**300_W_BRP**	**mg/L**		**133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364605**

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

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-4	**CCB**	**300_W_BRP**	**mg/L**		**133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364611**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ICB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/1/2019**	SeqNo: **3364543**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364545**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364556**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364565**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364568**

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

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ICB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/1/2019**	SeqNo: **3364570**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.249	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364583**

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

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364590**

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

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364595**

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

Qualifiers:

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

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 4/25/2019

Sample Name		Retention Time	Evaluation
ICV	Bromide	5.563	
CCV-1	Bromide	5.487	
CCV-2	Bromide	5.484	
CCV-3	Bromide	5.484	
CCV-4	Bromide	5.493	
	Average	5.487	
	Applied RT Window	5.287 - 5.687	
MB-R133486_BR	Bromide	N.A.	N.A.
LCS-R133486_BR	Bromide	5.484	PASS
N035250-014B	Bromide	5.490	PASS
N035250-014BDUP	Bromide	5.480	PASS
N035250-014BMS	Bromide	5.494	PASS
N035250-014BMSD	Bromide	5.497	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 4/25/2019

Sample Name		Retention Time	Evaluation
ICV	Chloride	4.09	
CCV-1	Chloride	4.097	
CCV-2	Chloride	4.097	
CCV-3	Chloride	4.097	
CCV-4	Chloride	4.103	
	Average	4.099	
	Applied RT Window	3.899 - 4.299	
MB-R133486_CL	Chloride	N.A.	N.A.
LCS-R133486_CL	Chloride	4.097	PASS
N035250-014B	Chloride	4.097	PASS
N035251-001CDUP	Chloride	4.100	PASS
N035251-002CMS	Chloride	4.097	PASS
N035251-002CMSD	Chloride	4.100	PASS
N035250-014BMS	Chloride	4.097	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 4/25/2019

Sample Name		Retention Time	Evaluation
ICV	Sulfate	9.067	
CCV-1	Sulfate	9.040	
CCV-2	Sulfate	9.037	
CCV-3	Sulfate	9.037	
CCV-4	Sulfate	9.077	
	Average	9.048	
	Applied RT Window	8.848 - 9.248	
MB-R133486_SO4	Sulfate	N.A.	N.A.
LCS-R133486_SO4	Sulfate	9.037	PASS
N035250-014B	Sulfate	9.040	PASS
N035251-001CDUP	Sulfate	9.037	PASS
N035251-002CMS	Sulfate	9.043	PASS
N035251-002CMSD	Sulfate	9.043	PASS
N035250-014BMS	Sulfate	9.040	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

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

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	170523A D36	170523A D37	170523A D38	170524A D17	170524A D18	170525A D45	170525A D46					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.020	0.022	0.021	0.020	0.023	0.026	0.024	0.020	0.0021	**0.0065**	0.020	0.10
Chloride	0.133	0.136	0.136	0.133	0.141	0.133	0.136	0.025	0.0029	**0.0091**	0.020	0.50
Nitrite	0.030	0.028	0.027	0.028	0.028	0.027	0.027	0.020	0.0010	**0.0030**	0.010	0.05
Bromide	0.037	0.042	0.043	0.038	0.040	0.032	0.025	0.040	0.0062	**0.0196**	0.040	0.20
Nitrate	0.035	0.034	0.033	0.033	0.033	0.031	0.030	0.020	0.0016	**0.0050**	0.010	0.05
Phosphate	0.047	0.051	0.049	0.046	0.052	0.047	0.059	0.040	0.0043	**0.0135**	0.030	0.10
Sulfate	0.213	0.199	0.208	0.216	0.199	0.201	0.198	0.050	0.0073	**0.0229**	0.050	0.50

MDL/LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 3/29-30/2018
Analyst: Ria B. Abes

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

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD Actual Conc., mg/L	PQL Spike Conc., mg/L	PQL Actual Conc., mg/L	%Recovery
Fluoride	**0.0065**	0.020	0.0252	0.10	0.087	**87**
Chloride	**0.0091**	0.020	0.1193	0.50	0.5757	**115**
Nitrite	**0.0030**	0.010	0.0237	0.05	0.0638	**128**
Bromide	**0.0196**	0.040	0.0405	0.20	0.1993	**100**
Nitrate	**0.0050**	0.010	0.0191	0.05	0.0561	**112**
Phosphate	**0.0135**	0.030	0.0415	0.10	0.1216	**122**
Sulfate	**0.0229**	0.050	0.3682	0.50	0.6549	**131**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133477 **Analyst:** QBM

ASSET #: N035180, 250, 251 **Date Analyzed:** 4/25/2019

Method: 4500_N03

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer QBM Date: 5/16/2019

2nd Level Reviewer NS Date: 5/16/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor ~~BGLE~~

For: **N035250-007D**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.0347	*	1
	=	0.0347	mg/L	

Since reporting limit is 0.050 mg/L,

Nitrate/Nitrite-N = ND

NS 5/16/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

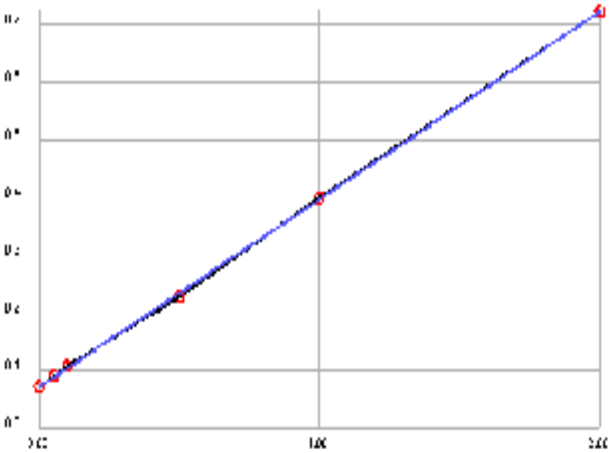
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3253x + 0.0712
Correlation	.999905

Calibrant	Energy	Set	Conc
1	0.0706	0.0000	-0.0018
2	0.0892	0.0500	0.0553
3	0.1059	0.1000	0.1067
4	0.2274	0.5000	0.4801
5	0.3999	1.0000	1.0104
6	0.7216	2.0000	1.9993

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ICV**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.508	0.050	0.5000	0	102	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **CCV**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.466	0.050	0.5000	0	93.1	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **CCV**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.483	0.050	0.5000	0	96.6	90	110				

Qualifiers:

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

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ICB**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363863**

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

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **CCB**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363874**

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

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **CCB**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363880**

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

Qualifiers:

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

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 04-25-2019 14:48
Time end: 04-25-2019 16:47

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	16:21:18	0.0037		0.0724
2	<BLANK>	16:22:13	0.0046		0.0727
3	<CAL1>	16:23:13	-0.0018	[0]	0.0706
4	<CAL2>	16:24:09	0.0553	[0.05]	0.0892
5	<CAL3>	16:25:04	0.1067	[0.1]	0.1059
6	<CAL4>	16:26:05	0.4801	[0.5]	0.2274
7	<CAL5>	16:26:59	1.0104	[1]	0.3999
8	<CAL6>	16:27:55	1.9993	[2]	0.7216
9	,BLANK,BLANK,1, NOT REPORTED	16:28:56	0.0578		0.0900
10	,ICV,ICV,1,	16:29:50	0.5081		0.2365
11	,ICB,ICB,1,	16:30:45	0.0058		0.0731
12	,MB-H2O,MBLK,1,	16:31:35	0.0009		0.0715
13	,LCS-H2O,LCS,1,	16:32:17	0.4715		0.2246
14	,N035180-001B,SAMP,10,	16:33:07	0.8656		0.3528
15	,N035180-002B,SAMP,20,	16:33:49	0.5917		0.2637
16	,N035180-003B,SAMP,10,	16:34:32	0.8542		0.3491
17	,N035180-003BDUP,DUP,10,	16:35:21	0.9148		0.3688
18	,N035180-004B,SAMP,5,	16:36:03	0.7980		0.3308
19	,N035180-004BMS,MS,5,	16:36:47	1.2806		0.4878
20	,N035180-004BMSD,MSD,5,	16:37:35	1.2619		0.4817
21	,BLANK, NOT REPORTED	16:38:18	0.0077		0.0737
22	,CCV-1,CCV,1,	16:39:00	0.4657		0.2227
23	,CCB-1,CCB,1,	16:39:43	-0.0003		0.0711
24	,N035251-001D,SAMP,1,	16:40:31	0.0243		0.0791
25	,N035250-007D,SAMP,1,	16:41:15	0.0347		0.0825
26	,N035180-005B,SAMP,1,	16:41:58	1.2188		0.4677

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035251-002D,SAMP,5,	16:42:46	0.5023		0.2346
28	,BLANK, NOT REPORTED	16:43:29	0.0031		0.0722
29	,CCV-2,CCV,1,	16:44:11	0.4829		0.2283
30	,CCB-2,CCB,1,	16:45:01	-0.0028		0.0703

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 4/25/2019
Time Analyzed: 2:48 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190424E
Color reagent: R190424F
2% Copper Sulfate: R190424D
Ammonium Hydroxide: CINV-190402B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035180-001B		8.91							
N035180-002B		7.82							
N035180-003B		7.74							
N035180-004B		8.08							
N035180-005B		8.41							
N035250-007D		7.55							
N035251-001D		7.60							
N035251-002D		7.75							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73664
ASSET #: N035250

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 5/9/2019

Method:

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

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

Comments:

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

1st Level Reviewer CEI Date: 5/16/2019

2nd Level Reviewer HSG Date: 5/16/2019

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

Chromium , ug/L = A * DF * PF

where:

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

For Sample **N035250-014C** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 46.3355 * 1

Chromium , ug/L = 46.3355

Reporting results in two significant figures,

Chromium , ug/L = 46

NS 5/16/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	12.87	15	PASS	0.13	3.16	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.48	1.28	15	PASS	0.51	2.92	15	PASS
Std3-5/50 ppb	ICAL	1	5.2	0.93	15	PASS	5.3	3	15	PASS
Std4-10/100 ppb	ICAL	1	10.27	1.5	15	PASS	10.3	1.23	15	PASS
Std5-20/200 ppb	ICAL	1	20.68	2.75	15	PASS	20.86	1.00022	15	PASS
Std6-40/400 ppb	ICAL	1	40.31	2.055	15	PASS	40.57	1.95	15	PASS
Std7-100/1000 ppb	ICAL	1	101.69	1.89	15	PASS	98.53	1.72	15	PASS
Std8-200/2000 ppb	ICAL	1	199.004	2.45	15	PASS	200.51	2.055	15	PASS
ICV	ICV	1	9.96	1.33	15	PASS	102.91	1.73	15	PASS
ICB	ICB	1	0.041	49.049	15	<PQL	0.062	21.59	15	<PQL
LLICV	CCV1	1	1.032	1.43	20	PASS	0.57	2.75	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.34	3.042	15	PASS	19.52	3.012	15	PASS
LLICV	CCV1	1	1.028	4.19	20	PASS	0.57	3.15	20	PASS
CCV1	CCV	1	20.32	1.66	15	PASS	20.19	2.5	15	PASS
CCB1	CCB	1	0.016	51.59	15	<PQL	0.046	2.58	15	PASS
CCV2	CCV	1	20.75	3.15	15	PASS	20.8	3.32	15	PASS
CCB2	CCB	1	0.0047	100.49	15	<PQL	0.076	14.67	15	PASS
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.38	2.26	15	PASS	18.81	1.84	15	PASS
MB-73664	MBLK	1	<0.000	N/A	15	<PQL	0.063	1.83	15	PASS
CCV3	CCV	1	20.001	2.11	15	PASS	20.023	2.32	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.059	17.89	15	<PQL
LCS-73664	LCS	1	9.92	2.96	15	PASS	102.77	2.69	15	PASS
N035260-001A	SAMP	1	<0.000	N/A	15	<PQL	0.037	8.74	15	PASS
N035260-001A	SAMP	5	<0.000	N/A	15	<PQL	0.0098	24.22	15	<PQL
N035260-001A-PS	PS	1	10.15	1.28	15	PASS	105.3	1.74	15	PASS
N035260-001A-MS	MS	1	10.29	1.47	15	PASS	107.39	2.08	15	PASS
N035260-001A-MSD	MSD	1	10.19	1.6	15	PASS	107.19	2.066	15	PASS
N035240-001D	SAMP	1	0.15	4.53	15	PASS	85.61	2.034	15	PASS
N035240-001D	SAMP	5	<0.000	N/A	15	<PQL	18.99	1.68	15	PASS
N035240-003D	SAMP	1	5.53	1.99	15	PASS	9.17	2.62	15	PASS
N035240-003D	SAMP	5	1.085	4.41	15	PASS	2.43	3.57	15	PASS
CCV4	CCV	1	20.47	2.77	15	PASS	20.32	2.67	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.045	23.79	15	<PQL
N035240-004D	SAMP	1	9.25	1.76	15	PASS	0.36	29.68	15	<PQL
N035240-004D	SAMP	5	1.85	2.62	15	PASS	1.25	2.2	15	PASS
N035250-001C	SAMP	1	0.65	4.83	15	PASS	149.86	5.56	15	PASS
N035250-001C	SAMP	5	<0.000	N/A	15	<PQL	31.94	1.83	15	PASS
N035250-002C	SAMP	1	<0.000	N/A	15	<PQL	1226.48	2.16	15	PASS

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035250-002C	SAMP	5	<0.000	N/A	15	<PQL	268.33	1.081	15	PASS
N035250-003C	SAMP	1	0.18	5.73	15	PASS	254.66	0.83	15	PASS
N035250-003C	SAMP	5	<0.000	N/A	15	<PQL	51.065	1.43	15	PASS
N035250-004C	SAMP	1	0.17	13.39	15	PASS	261.1	1.9	15	PASS
N035250-004C	SAMP	5	<0.000	N/A	15	<PQL	51.74	1.14	15	PASS
CCV5	CCV	1	18.52	0.69	15	PASS	19.0015	1.52	15	PASS
CCB5	CCB	1	0.014	63.8	15	<PQL	0.13	8.17	15	PASS
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.56	2.58	15	PASS	19.077	2.24	15	PASS
N035250-005C	SAMP	1	<0.000	N/A	15	<PQL	891.83	1.2	15	PASS
N035250-005C	SAMP	5	<0.000	N/A	15	<PQL	196.1	0.85	15	PASS
N035250-007C	SAMP	1	0.51	3.23	15	PASS	15.32	0.57	15	PASS
N035250-007C	SAMP	5	0.0018	361.38	15	<PQL	3.81	1.53	15	PASS
N035250-009C	SAMP	1	0.6	2.98	15	PASS	18.81	0.96	15	PASS
N035250-011C	SAMP	1	0.09	3.87	15	PASS	580.49	1.62	15	PASS
N035250-011C	SAMP	5	0.0097	72.053	15	<PQL	108.34	2.25	15	PASS
N035250-012C	SAMP	1	0.13	3.73	15	PASS	2145.075	1.65	15	PASS
N035250-012C	SAMP	5	<0.000	N/A	15	<PQL	458.45	1.46	15	PASS
N035250-014C	SAMP	1	46.34	0.63	15	PASS	27.37	1.13	15	PASS
CCV6	CCV	1	19.54	2.84	15	PASS	19.49	2.088	15	PASS
CCB6	CCB	1	0.014	70.07	15	<PQL	0.11	7.68	15	PASS
N035250-014C	SAMP	5	11.2	1.73	15	PASS	6.75	3.12	15	PASS
N035250-016C	SAMP	1	0.24	3.63	15	PASS	1265.81	2.69	15	PASS
N035250-016C	SAMP	5	<0.000	N/A	15	<PQL	275.35	1.33	15	PASS
N035250-017C	SAMP	1	0.17	2.34	15	PASS	455.49	1.042	15	PASS
N035250-017C	SAMP	5	<0.000	N/A	15	<PQL	86.35	1.91	15	PASS
N035250-002C	SAMP	10	<0.000	N/A	15	<PQL	122.86	2.017	15	PASS
N035250-003C	SAMP	5	<0.000	N/A	15	<PQL	52.77	2.012	15	PASS
N035250-004C	SAMP	5	<0.000	N/A	15	<PQL	53.42	2.29	15	PASS
N035250-005C	SAMP	10	<0.000	N/A	15	<PQL	88.6	2.43	15	PASS
N035250-012C	SAMP	25	<0.000	N/A	15	<PQL	18.82	2.73	15	PASS
CCV7	CCV	1	19.3	2.11	15	PASS	19.08	1.3	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	0.027	14.91	15	PASS
N035250-016C	SAMP	10	<0.000	N/A	15	<PQL	137.33	2.27	15	PASS
CCV8	CCV	1	20.21	4.11	15	PASS	20.66	2.64	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	0.13	14.14	15	PASS
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	20.055	2.19	15	PASS	18.34	2.31	15	PASS

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.095	22.84	15	<PQL	0.12	25.65	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.51	3.16	15	PASS	0.48	24.63	15	<PQL
Std3-5/50 ppb	ICAL	1	5.087	0.92	15	PASS	4.95	3.76	15	PASS
Std4-10/100 ppb	ICAL	1	10.2	1.17	15	PASS	10.29	4.99	15	PASS
Std5-20/200 ppb	ICAL	1	20.63	1.38	15	PASS	20.64	3.8	15	PASS
Std6-40/400 ppb	ICAL	1	40.67	0.39	15	PASS	40.73	1.5	15	PASS
Std7-100/1000 ppb	ICAL	1	100.069	0.057	15	PASS	99.85	1.32	15	PASS
Std8-200/2000 ppb	ICAL	1	199.76	1	15	PASS	199.85	0.37	15	PASS
ICV	ICV	1	10.093	1.0055	15	PASS	10.15	2.39	15	PASS
ICB	ICB	1	0.011	47.2	15	<PQL	0.038	1.6	15	PASS
LLICV	CCV1	1	0.12	9.99	20	PASS	0.51	19.98	20	PASS
ICSA1	ICSA	1	0.042	5.72	15	PASS	0.042	45.75	15	<PQL
ICSAB1	ICSAB	1	21.49	1.2	15	PASS	20.36	1.12	15	PASS
LLICV	CCV1	1	0.14	5.56	20	PASS	0.49	23.23	20	<PQL
CCV1	CCV	1	20.34	0.67	15	PASS	20.78	4.27	15	PASS
CCB1	CCB	1	0.031	37.5	15	<PQL	0.039	104.55	15	<PQL
CCV2	CCV	1	20.37	0.87	15	PASS	20.31	1.013	15	PASS
CCB2	CCB	1	0.019	68.013	15	<PQL	0.064	70.73	15	<PQL
ICSA2	ICSA	1	0.059	24.1	15	<PQL	0.032	44.35	15	<PQL
ICSAB2	ICSAB	1	21.45	1.57	15	PASS	20.46	2.28	15	PASS
MB-73664	MBLK	1	<0.000	N/A	15	<PQL	0.015	114.5	15	<PQL
CCV3	CCV	1	20.31	0.72	15	PASS	20.29	7.57	15	PASS
CCB3	CCB	1	0.0081	92.29	15	<PQL	0.037	56.51	15	<PQL
LCS-73664	LCS	1	9.93	1.37	15	PASS	10.072	4.4	15	PASS
N035260-001A	SAMP	1	<0.000	N/A	15	<PQL	0.0085	86.63	15	<PQL
N035260-001A	SAMP	5	<0.000	N/A	15	<PQL	0.022	35.29	15	<PQL
N035260-001A-PS	PS	1	10.3	1.37	15	PASS	9.96	3.97	15	PASS
N035260-001A-MS	MS	1	10.41	1.97	15	PASS	10.033	3.0026	15	PASS
N035260-001A-MSD	MSD	1	10.28	0.89	15	PASS	9.89	5.32	15	PASS
N035240-001D	SAMP	1	1.65	0.58	15	PASS	0.13	77.82	15	<PQL
N035240-001D	SAMP	5	0.33	7.79	15	PASS	0.037	67.36	15	<PQL
N035240-003D	SAMP	1	1.18	4.71	15	PASS	0.18	65.59	15	<PQL
N035240-003D	SAMP	5	0.22	18.91	15	NR!	0.073	45.33	15	<PQL
CCV4	CCV	1	20.37	1.22	15	PASS	20.82	1.81	15	PASS
CCB4	CCB	1	0.023	49.23	15	<PQL	0.05	35.45	15	<PQL
N035240-004D	SAMP	1	1.4	3.57	15	PASS	0.54	23.17	15	NR!
N035240-004D	SAMP	5	0.25	7.023	15	PASS	0.1	7.26	15	PASS
N035250-001C	SAMP	1	1.3	1.17	15	PASS	0.074	81.72	15	<PQL
N035250-001C	SAMP	5	0.26	10.34	15	PASS	0.02	34.12	15	<PQL
N035250-002C	SAMP	1	0.38	7.72	15	PASS	0.36	29.46	15	<PQL

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035250-002C	SAMP	5	0.084	1.55	15	PASS	0.1	44.39	15	<PQL
N035250-003C	SAMP	1	3.0026	2.83	15	PASS	0.04	64.84	15	<PQL
N035250-003C	SAMP	5	0.59	2.4	15	PASS	0.012	99.39	15	<PQL
N035250-004C	SAMP	1	3.023	2.74	15	PASS	0.14	13.35	15	PASS
N035250-004C	SAMP	5	0.62	2.17	15	PASS	0.036	32.72	15	<PQL
CCV5	CCV	1	20.16	0.5	15	PASS	20.92	7.36	15	PASS
CCB5	CCB	1	0.031	26.35	15	<PQL	0.021	35.059	15	<PQL
ICSA3	ICSA	1	0.04	14.36	15	PASS	0.015	173.21	15	<PQL
ICSAB3	ICSAB	1	20.98	0.74	15	PASS	20.51	3.35	15	PASS
N035250-005C	SAMP	1	4.62	3.07	15	PASS	0.44	15.22	15	<PQL
N035250-005C	SAMP	5	0.94	2.98	15	PASS	0.086	49.92	15	<PQL
N035250-007C	SAMP	1	10.34	0.62	15	PASS	0.22	31.01	15	<PQL
N035250-007C	SAMP	5	1.96	3.57	15	PASS	0.023	49.94	15	<PQL
N035250-009C	SAMP	1	25.71	0.95	15	PASS	0.068	48.33	15	<PQL
N035250-011C	SAMP	1	8.34	2.23	15	PASS	0.08	84.96	15	<PQL
N035250-011C	SAMP	5	1.64	3.39	15	PASS	0.026	107.73	15	<PQL
N035250-012C	SAMP	1	12.68	0.37	15	PASS	0.43	12.35	15	PASS
N035250-012C	SAMP	5	2.44	3.19	15	PASS	0.08	70.42	15	<PQL
N035250-014C	SAMP	1	0.86	2.34	15	PASS	2.05	5.77	15	PASS
CCV6	CCV	1	18.92	1.039	15	PASS	20.019	3.75	15	PASS
CCB6	CCB	1	0.02	49.9	15	<PQL	0.072	43.41	15	<PQL
N035250-014C	SAMP	5	0.18	9.78	15	PASS	0.44	22.73	15	<PQL
N035250-016C	SAMP	1	4.17	1.69	15	PASS	0.11	10.56	15	PASS
N035250-016C	SAMP	5	0.8	4.81	15	PASS	0.076	33.27	15	<PQL
N035250-017C	SAMP	1	0.82	1.26	15	PASS	0.086	39.48	15	<PQL
N035250-017C	SAMP	5	0.14	13.92	15	PASS	0.036	120.72	15	<PQL
N035250-002C	SAMP	10	0.029	60.028	15	<PQL	0.032	89.26	15	<PQL
N035250-003C	SAMP	5	0.57	7.055	15	PASS	0	N/A	15	<PQL
N035250-004C	SAMP	5	0.58	5.19	15	PASS	0.023	124.66	15	<PQL
N035250-005C	SAMP	10	0.43	5.59	15	PASS	0.035	114.78	15	<PQL
N035250-012C	SAMP	25	0.093	16.07	15	<PQL	0	N/A	15	<PQL
CCV7	CCV	1	19.057	1.14	15	PASS	20.68	6.63	15	PASS
CCB7	CCB	1	0.0088	106.27	15	<PQL	0.042	16.028	15	<PQL
N035250-016C	SAMP	10	0.41	2.26	15	PASS	0.031	50.77	15	<PQL
CCV8	CCV	1	19.11	0.42	15	PASS	19.9	2.66	15	PASS
CCB8	CCB	1	0.02	77.47	15	<PQL	0.024	91.7	15	<PQL
ICSA4	ICSA	1	0.032	37.45	15	<PQL	0.019	43.92	15	<PQL
ICSAB4	ICSAB	1	21.17	1.39	15	PASS	20.71	1.4	15	PASS

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.09	15.88	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.48	4.86	15	PASS
Std3-5/50 ppb	ICAL	1	4.74	1.24	15	PASS
Std4-10/100 ppb	ICAL	1	9.49	0.48	15	PASS
Std5-20/200 ppb	ICAL	1	19.18	0.88	15	PASS
Std6-40/400 ppb	ICAL	1	38.42	0.37	15	PASS
Std7-100/1000 ppb	ICAL	1	96.43	1.36	15	PASS
Std8-200/2000 ppb	ICAL	1	202.22	1.32	15	PASS
ICV	ICV	1	10.54	1	15	PASS
ICB	ICB	1	0.17	10.26	15	PASS
LLICV	CCV1	1	0.57	5.72	20	PASS
ICSA1	ICSA	1	0.12	11.047	15	PASS
ICSAB1	ICSAB	1	21.44	1.58	15	PASS
LLICV	CCV1	1	0.65	3.31	20	PASS
CCV1	CCV	1	18.71	1.33	15	PASS
CCB1	CCB	1	0.16	3.83	15	PASS
CCV2	CCV	1	18.54	0.22	15	PASS
CCB2	CCB	1	0.15	7.53	15	PASS
ICSA2	ICSA	1	0.086	17.23	15	<PQL
ICSAB2	ICSAB	1	20.85	1.79	15	PASS
MB-73664	MBLK	1	0.023	21.59	15	<PQL
CCV3	CCV	1	18.22	0.85	15	PASS
CCB3	CCB	1	0.13	6.33	15	PASS
LCS-73664	LCS	1	9.093	1.43	15	PASS
N035260-001A	SAMP	1	0.077	9.083	15	PASS
N035260-001A	SAMP	5	0.02	6.68	15	PASS
N035260-001A-PS	PS	1	9.84	1.19	15	PASS
N035260-001A-MS	MS	1	9.98	0.23	15	PASS
N035260-001A-MSD	MSD	1	10.046	0.38	15	PASS
N035240-001D	SAMP	1	17.43	1.24	15	PASS
N035240-001D	SAMP	5	3.33	1.62	15	PASS
N035240-003D	SAMP	1	8.64	1.28	15	PASS
N035240-003D	SAMP	5	1.7	1.62	15	PASS
CCV4	CCV	1	18.39	0.41	15	PASS
CCB4	CCB	1	0.12	12.38	15	PASS
N035240-004D	SAMP	1	19.48	0.63	15	PASS
N035240-004D	SAMP	5	3.71	0.9	15	PASS
N035250-001C	SAMP	1	34.96	0.54	15	PASS
N035250-001C	SAMP	5	6.89	0.63	15	PASS
N035250-002C	SAMP	1	3.79	1.36	15	PASS

PERCENT RSD SUMMARY: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035250-002C	SAMP	5	0.75	1.8	15	PASS
N035250-003C	SAMP	1	73.25	0.42	15	PASS
N035250-003C	SAMP	5	14.53	1.28	15	PASS
N035250-004C	SAMP	1	73.76	1.2	15	PASS
N035250-004C	SAMP	5	14.46	1.31	15	PASS
CCV5	CCV	1	18.27	2.051	15	PASS
CCB5	CCB	1	0.17	4.33	15	PASS
ICSA3	ICSA	1	0.089	8.9	15	PASS
ICSAB3	ICSAB	1	20.049	1.084	15	PASS
N035250-005C	SAMP	1	14.66	1.49	15	PASS
N035250-005C	SAMP	5	2.89	1.34	15	PASS
N035250-007C	SAMP	1	126.57	1.59	15	PASS
N035250-007C	SAMP	5	24.38	1.15	15	PASS
N035250-009C	SAMP	1	3.49	1.43	15	PASS
N035250-011C	SAMP	1	10.93	0.78	15	PASS
N035250-011C	SAMP	5	2.17	1.87	15	PASS
N035250-012C	SAMP	1	27.76	0.77	15	PASS
N035250-012C	SAMP	5	5.45	0.54	15	PASS
N035250-014C	SAMP	1	10.42	1.34	15	PASS
CCV6	CCV	1	18.08	1.0056	15	PASS
CCB6	CCB	1	0.16	2.37	15	PASS
N035250-014C	SAMP	5	2.035	2.61	15	PASS
N035250-016C	SAMP	1	219.81	8.93	15	PASS
N035250-016C	SAMP	5	43.24	0.9	15	PASS
N035250-017C	SAMP	1	61.83	0.93	15	PASS
N035250-017C	SAMP	5	12.19	1.45	15	PASS
N035250-002C	SAMP	10	0.56	5.57	15	PASS
N035250-003C	SAMP	5	13.6	1.96	15	PASS
N035250-004C	SAMP	5	13.76	1.78	15	PASS
N035250-005C	SAMP	10	1.42	1.84	15	PASS
N035250-012C	SAMP	25	0.24	10.86	15	PASS
CCV7	CCV	1	18.36	1.61	15	PASS
CCB7	CCB	1	0.13	8.49	15	PASS
N035250-016C	SAMP	10	19.52	0.92	15	PASS
CCV8	CCV	1	18.031	1.72	15	PASS
CCB8	CCB	1	0.15	8.33	15	PASS
ICSA4	ICSA	1	0.19	5.76	15	PASS
ICSAB4	ICSAB	1	19.66	1.36	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190509A

Instrument ID: ICPMS-02

	Data File	Sample Name	Type	DF	Acq. Date-Time
	A0509001.D	RINSE	RINSE	1	05/09/19 10:01 AM
	A0509002.D	Cal Blank	IBLK	1	05/09/19 10:06 AM
	A0509003.D	Std1-0.1/1 ppb	ICAL	1	05/09/19 10:11 AM
	A0509004.D	Std2-0.5/5 ppb	ICAL	1	05/09/19 10:17 AM
	A0509005.D	Std3-5/50 ppb	ICAL	1	05/09/19 10:21 AM
	A0509006.D	Std4-10/100 ppb	ICAL	1	05/09/19 10:26 AM
	A0509007.D	Std5-20/200 ppb	ICAL	1	05/09/19 10:31 AM
	A0509008.D	Std6-40/400 ppb	ICAL	1	05/09/19 10:36 AM
	A0509009.D	Std7-100/1000 ppb	ICAL	1	05/09/19 10:41 AM
	A0509010.D	Std8-200/2000 ppb	ICAL	1	05/09/19 10:46 AM
	A0509011.D	ICV	ICV	1	05/09/19 10:51 AM
	A0509012.D	ICB	ICB	1	05/09/19 10:55 AM
	A0509013.D	LLICV	CCV1	1	05/09/19 11:01 AM
	A0509014.D	ICSA1	ICSA	1	05/09/19 11:06 AM
	A0509015.D	ICSAB1	ICSAB	1	05/09/19 11:11 AM
NR	A0509016.D	LLICV	CCV1	1	05/09/19 11:16 AM
	A0509017.D	N035153-005E	SAMP	5	05/09/19 11:21 AM
	A0509018.D	MB-73773	MBLK	1	05/09/19 11:26 AM
	A0509019.D	LCS-73773	LCS	1	05/09/19 11:31 AM
	A0509020.D	N035459-001B	SAMP	1	05/09/19 11:37 AM
	A0509021.D	N035459-001B	SAMP	5	05/09/19 11:42 AM
	A0509022.D	N035459-001B-PS	PS	1	05/09/19 11:47 AM
	A0509023.D	N035459-001B-MS	MS	1	05/09/19 11:52 AM
	A0509024.D	N035459-001B-MSD	MSD	1	05/09/19 11:57 AM
	A0509025.D	MB-73772	MBLK	1	05/09/19 12:01 PM
	A0509026.D	LCS-73772	LCS	1	05/09/19 12:06 PM
	A0509027.D	CCV1	CCV	1	05/09/19 12:11 PM
	A0509028.D	CCB1	CCB	1	05/09/19 12:16 PM
	A0509029.D	N035463-001A	SAMP	1	05/09/19 12:21 PM
	A0509030.D	N035463-001A	SAMP	5	05/09/19 12:26 PM
	A0509031.D	N035463-001A-PS	PS	1	05/09/19 12:31 PM
	A0509032.D	N035463-001A-MS	MS	1	05/09/19 12:36 PM
	A0509033.D	N035463-001A-MSD	MSD	1	05/09/19 12:41 PM
	A0509034.D	N035463-001A	SAMP	25	05/09/19 12:51 PM
	A0509035.D	N035463-001A-PS	PS	5	05/09/19 12:56 PM
	A0509036.D	N035463-001A-MS	MS	5	05/09/19 1:01 PM
	A0509037.D	N035463-001A-MSD	MSD	5	05/09/19 1:06 PM
	A0509038.D	CCV2	CCV	1	05/09/19 1:11 PM
	A0509039.D	CCB2	CCB	1	05/09/19 1:16 PM
	A0509040.D	ICSA2	ICSA	1	05/09/19 1:21 PM
	A0509041.D	ICSAB2	ICSAB	1	05/09/19 1:26 PM
	A0509042.D	MB-73776	MBLK	1	05/09/19 2:11 PM

INJECTION LOG: 190509A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0509043.D	LCS-73776	LCS	1	05/09/19 2:17 PM
A0509044.D	N035464-001A	SAMP	5	05/09/19 2:22 PM
A0509045.D	N035464-001A	SAMP	25	05/09/19 2:27 PM
A0509046.D	N035464-001A-PS	PS	5	05/09/19 2:32 PM
A0509047.D	N035464-001A-MS	MS	5	05/09/19 2:37 PM
A0509048.D	N035464-001A-MSD	MSD	5	05/09/19 2:42 PM
A0509049.D	N035464-002A	SAMP	1	05/09/19 2:49 PM
A0509050.D	N035464-003A	SAMP	1	05/09/19 2:54 PM
A0509051.D	MB-73664	MBLK	1	05/09/19 2:59 PM
A0509052.D	CCV3	CCV	1	05/09/19 3:04 PM
A0509053.D	CCB3	CCB	1	05/09/19 3:09 PM
A0509054.D	LCS-73664	LCS	1	05/09/19 3:14 PM
A0509055.D	N035260-001A	SAMP	1	05/09/19 3:19 PM
A0509056.D	N035260-001A	SAMP	5	05/09/19 3:24 PM
A0509057.D	N035260-001A-PS	PS	1	05/09/19 3:29 PM
A0509058.D	N035260-001A-MS	MS	1	05/09/19 3:34 PM
A0509059.D	N035260-001A-MSD	MSD	1	05/09/19 3:39 PM
A0509060.D	N035240-001D	SAMP	1	05/09/19 3:44 PM
A0509061.D	N035240-001D	SAMP	5	05/09/19 3:49 PM
A0509062.D	N035240-003D	SAMP	1	05/09/19 3:54 PM
A0509063.D	N035240-003D	SAMP	5	05/09/19 3:59 PM
A0509064.D	CCV4	CCV	1	05/09/19 4:04 PM
A0509065.D	CCB4	CCB	1	05/09/19 4:09 PM
A0509066.D	N035240-004D	SAMP	1	05/09/19 4:14 PM
A0509067.D	N035240-004D	SAMP	5	05/09/19 4:19 PM
A0509068.D	N035250-001C	SAMP	1	05/09/19 4:24 PM
A0509069.D	N035250-001C	SAMP	5	05/09/19 4:29 PM
A0509070.D	N035250-002C	SAMP	1	05/09/19 4:34 PM
A0509071.D	N035250-002C	SAMP	5	05/09/19 4:39 PM
A0509072.D	N035250-003C	SAMP	1	05/09/19 4:44 PM
A0509073.D	N035250-003C	SAMP	5	05/09/19 4:48 PM
A0509074.D	N035250-004C	SAMP	1	05/09/19 4:53 PM
A0509075.D	N035250-004C	SAMP	5	05/09/19 4:58 PM
A0509076.D	CCV5	CCV	1	05/09/19 5:04 PM
A0509077.D	CCB5	CCB	1	05/09/19 5:09 PM
A0509078.D	ICSA3	ICSA	1	05/09/19 5:14 PM
A0509079.D	ICSAB3	ICSAB	1	05/09/19 5:19 PM
A0509080.D	N035250-005C	SAMP	1	05/09/19 5:24 PM
A0509081.D	N035250-005C	SAMP	5	05/09/19 5:29 PM
A0509082.D	N035250-007C	SAMP	1	05/09/19 5:34 PM
A0509083.D	N035250-007C	SAMP	5	05/09/19 5:39 PM
A0509084.D	N035250-009C	SAMP	1	05/09/19 5:45 PM

INJECTION LOG: 190509A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0509085.D	N035250-011C	SAMP	1	05/09/19 5:50 PM
A0509086.D	N035250-011C	SAMP	5	05/09/19 5:55 PM
A0509087.D	N035250-012C	SAMP	1	05/09/19 5:59 PM
A0509088.D	N035250-012C	SAMP	5	05/09/19 6:04 PM
A0509089.D	N035250-014C	SAMP	1	05/09/19 6:05 PM
A0509090.D	CCV6	CCV	1	05/09/19 6:18 PM
A0509091.D	CCB6	CCB	1	05/09/19 6:24 PM
A0509092.D	N035250-014C	SAMP	5	05/09/19 6:29 PM
A0509093.D	N035250-016C	SAMP	1	05/09/19 6:34 PM
A0509094.D	N035250-016C	SAMP	5	05/09/19 6:40 PM
A0509095.D	N035250-017C	SAMP	1	05/09/19 6:45 PM
A0509096.D	N035250-017C	SAMP	5	05/09/19 6:50 PM
A0509097.D	N035250-002C	SAMP	10	05/09/19 6:55 PM
A0509098.D	N035250-003C	SAMP	5	05/09/19 7:00 PM
A0509099.D	N035250-004C	SAMP	5	05/09/19 7:05 PM
A0509100.D	N035250-005C	SAMP	10	05/09/19 7:10 PM
A0509101.D	N035250-012C	SAMP	25	05/09/19 7:15 PM
A0509102.D	CCV7	CCV	1	05/09/19 7:20 PM
A0509103.D	CCB7	CCB	1	05/09/19 7:24 PM
A0509104.D	N035250-016C	SAMP	10	05/09/19 7:29 PM
A0509105.D	N035418-001B	SAMP	25	05/09/19 7:34 PM
A0509106.D	N035418-001B	SAMP	125	05/09/19 7:39 PM
A0509107.D	N035418-001B-PS	PS	25	05/09/19 7:44 PM
A0509108.D	N035418-001B-MS	MS	25	05/09/19 7:49 PM
A0509109.D	N035418-001B-MSD	MSD	25	05/09/19 7:54 PM
A0509110.D	N035442-001B	SAMP	10	05/09/19 7:59 PM
A0509111.D	CCV8	CCV	1	05/09/19 8:04 PM
A0509112.D	CCB8	CCB	1	05/09/19 8:09 PM
A0509113.D	ICSA4	ICSA	1	05/09/19 8:13 PM
A0509114.D	ICSAB4	ICSAB	1	05/09/19 8:19 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/2/2019 7:33:02 A**
Prep End Date: **5/2/2019 12:00:00**
Reviewed/ Date: NS 5/16/2019
Initials/ Date: for

Prep Batch **73664** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-10**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73664	Aqueous		25	☐	0	0	25	1.000		
MB-73664	Aqueous		25	☐	0	0	25	1.000		
N035240-001D	Groundwater	<2	25	☐	0	0	25	1.000		
N035240-003D	Groundwater	<2	25	☐	0	0	25	1.000		
N035240-004D	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-001C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-002C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-003C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-004C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-005C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-007C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-009C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-011C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-012C	Groundwater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/2/2019 7:33:02 A**
Prep End Date: **5/2/2019 12:00:00**
Reviewed/ Date: NS 5/16/2019
Initials/ Date: for
Prep Batch **73664** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-10**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035250-014C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-016C	Groundwater	<2	25	☐	0	0	25	1.000		
N035250-017C	Groundwater	<2	25	☐	0	0	25	1.000		
N035260-001A	Water	<2	25	☐	0	0	25	1.000		
N035260-001A-MS	Water	<2	25	☐	0	0	25	1.000		
N035260-001A-MS	Water	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 9 May 2019 09:36:31 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	200697.00	0.00	
24 Mg	573260.00	0.00	
25 Mg	119898.00	0.00	
26 Mg	87509.90	0.00	
59 Co	735434.00	0.00	
115 In	1276420.00	0.00	
206 Pb	392479.00	0.00	
207 Pb	344188.00	0.00	
208 Pb	838787.00	0.00	

RSD (%)

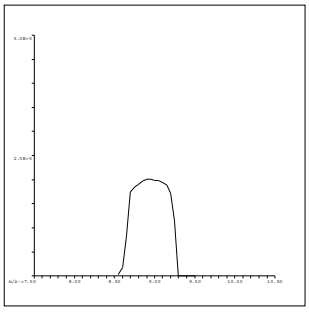
Element	Actual	Required	Flag
9 Be	0.94	5.00	
24 Mg	0.62	5.00	
25 Mg	1.88	5.00	
26 Mg	4.69	5.00	
59 Co	0.83	5.00	
115 In	0.82	5.00	
206 Pb	0.80	5.00	
207 Pb	1.80	5.00	
208 Pb	0.80	5.00	

Ion Ratio

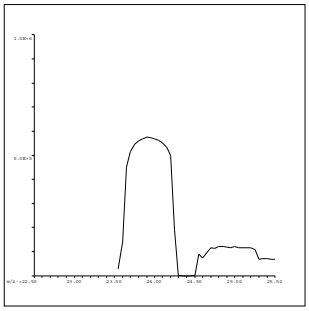
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

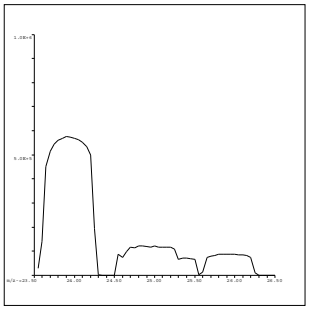
Element	Actual	Required	Flag



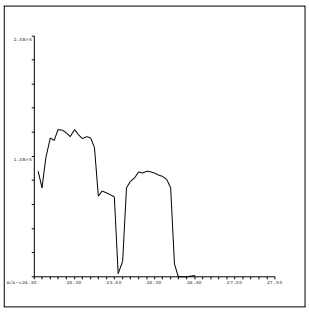
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



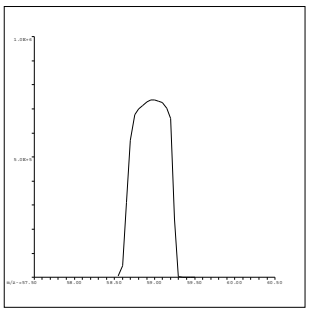
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



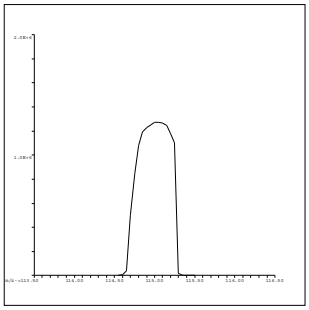
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



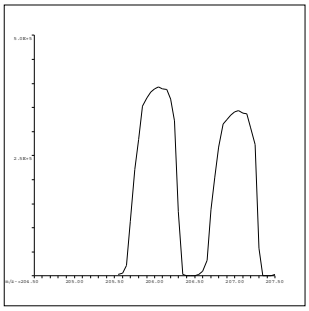
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



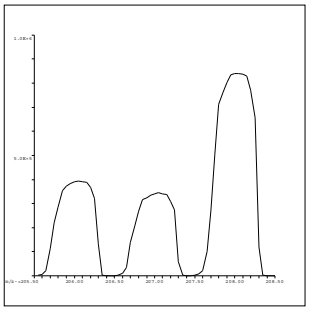
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



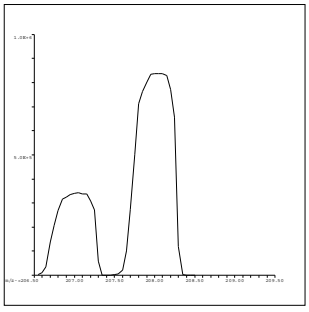
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190509A

Instrument ID: ICPMS-02

Analyte	Data File	A0509002.D	A0509003.D	A0509004.D	A0509005.D	A0509006.D	A0509007.D	A0509008.D	A0509009.D	A0509010.D	
	Acq. Date-Time	05/09/2019 10:06 AM	05/09/2019 10:11 AM	05/09/2019 10:17 AM	05/09/2019 10:21 AM	05/09/2019 10:26 AM	05/09/2019 10:31 AM	05/09/2019 10:36 AM	05/09/2019 10:41 AM	05/09/2019 10:46 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	164620.6		179960.3	165484.8	166978.2	166645.4	168801.4	171502.5	170975.6	
55 Mn [2]	CPS	167.6		3747.2	34219.5	66986.2	135218.8	266238.5	656697.9	1332097.8	1.0000
52 Cr [2]	CPS	1201.1		7606.4	63653.2	125618.5	251145.5	494707.9	1266215.9	2468810.5	0.9999
72 Ge (ISTD) [1]	CPS	76388.4		76679.6	74822	74707	75032.2	74708.7	73884.9	72926	
78 Se [1]	CPS	0		133.3	1343.5	2788.1	5616.8	11039.8	26766.4	52878.4	1.0000
72 Ge (ISTD) [2]	CPS	120990.7	120409.1	122932.6	120252.7	121223.4	120646.4	120714.3	120526.9	117125.8	
75 As [2]	CPS	97.8	242.2	894.3	7854.4	15779.7	31656.5	62346.5	153031.2	296764	1.0000
103 Rh (ISTD) [2]	CPS	3174634.2		3207372.1	3136361.4	3148443.4	3123909.1	3122653.8	3094172.6	3033255.5	
95 Mo [2]	CPS	133.3		3781.7	35298.9	70845.1	141924.3	284077.3	706358	1451941.1	0.9998

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.093	0.10	10.00	0	101	90	110				
Manganese	102.911	0.50	100.0	0	103	90	110				
Molybdenum	10.540	0.50	10.00	0	105	90	110				
Selenium	10.152	0.50	10.00	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ZZZZZZ**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380589**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.119	0.10	0.1000	0	119	80	120				
Manganese	0.570	0.50	0.5000	0	114	80	120				
Molybdenum	0.572	0.50	0.5000	0	114	80	120				
Selenium	0.505	0.50	0.5000	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.344	0.10	20.00	0	102	90	110				
Manganese	20.189	0.50	20.00	0	101	90	110				
Molybdenum	18.710	0.50	20.00	0	93.5	90	110				
Selenium	20.775	0.50	20.00	0	104	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.367	0.10	20.00	0	102	90	110				
Manganese	20.804	0.50	20.00	0	104	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	18.538	0.50	20.00	0	92.7	90	110				
Selenium	20.306	0.50	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.311	0.10	20.00	0	102	90	110				
Manganese	20.023	0.50	20.00	0	100	90	110				
Molybdenum	18.222	0.50	20.00	0	91.1	90	110				
Selenium	20.287	0.50	20.00	0	101	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.366	0.10	20.00	0	102	90	110				
Manganese	20.323	0.50	20.00	0	102	90	110				
Molybdenum	18.394	0.50	20.00	0	92.0	90	110				
Selenium	20.819	0.50	20.00	0	104	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCV**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.165	0.10	20.00	0	101	90	110				
Manganese	19.001	0.50	20.00	0	95.0	90	110				
Molybdenum	18.275	0.50	20.00	0	91.4	90	110				
Selenium	20.923	0.50	20.00	0	105	90	110				

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV6** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133800**
Client ID: **CCV** Batch ID: **R133800** TestNo: **EPA 6020** Analysis Date: **5/9/2019** SeqNo: **3380666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.920	0.10	20.00	0	94.6	90	110				
Manganese	19.487	0.50	20.00	0	97.4	90	110				
Molybdenum	18.080	0.50	20.00	0	90.4	90	110				
Selenium	20.019	0.50	20.00	0	100	90	110				

Sample ID **CCV7** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133800**
Client ID: **CCV** Batch ID: **R133800** TestNo: **EPA 6020** Analysis Date: **5/9/2019** SeqNo: **3380678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.057	0.10	20.00	0	95.3	90	110				
Manganese	19.080	0.50	20.00	0	95.4	90	110				
Molybdenum	18.364	0.50	20.00	0	91.8	90	110				
Selenium	20.679	0.50	20.00	0	103	90	110				

Sample ID **CCV8** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133800**
Client ID: **CCV** Batch ID: **R133800** TestNo: **EPA 6020** Analysis Date: **5/9/2019** SeqNo: **3380687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.108	0.10	20.00	0	95.5	90	110				
Manganese	20.657	0.50	20.00	0	103	90	110				
Molybdenum	18.031	0.50	20.00	0	90.2	90	110				
Selenium	19.896	0.50	20.00	0	99.5	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ICV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.960	1.0	10.00	0	99.6	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ZZZZZZ**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.032	1.0	1.000	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.324	1.0	20.00	0	102	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.747	1.0	20.00	0	104	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.001	1.0	20.00	0	100	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.467	1.0	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.522	1.0	20.00	0	92.6	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.539	1.0	20.00	0	97.7	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.305	1.0	20.00	0	96.5	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCV**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.214	1.0	20.00	0	101	90	110				

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380604**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380615**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380629**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380653**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380667**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **CCB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ICB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379633**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379649**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379660**

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

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379674**

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

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3379686**

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

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380549**

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

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380563**

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

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380575**

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

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **CCB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380584**

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

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSA**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSAB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.491	0.10	20.00	0	107	80	120				
Manganese	19.525	0.50	20.00	0	97.6	80	120				
Molybdenum	21.436	0.50	20.00	0	107	80	120				
Selenium	20.363	0.50	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSA**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380616**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSAB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.447	0.10	20.00	0	107	80	120				
Manganese	18.815	0.50	20.00	0	94.1	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSAB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	20.854	0.50	20.00	0	104	80	120				
Selenium	20.459	0.50	20.00	0	102	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSA**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSAB**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380655**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.981	0.10	20.00	0	105	80	120				
Manganese	19.077	0.50	20.00	0	95.4	80	120				
Molybdenum	20.049	0.50	20.00	0	100	80	120				
Selenium	20.511	0.50	20.00	0	103	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133800**
Client ID: **ICSA**	Batch ID: **R133800**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB4** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133800**
Client ID: **ICSAB** Batch ID: **R133800** TestNo: **EPA 6020** Analysis Date: **5/9/2019** SeqNo: **3380690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.169	0.10	20.00	0	106	80	120				
Manganese	18.344	0.50	20.00	0	91.7	80	120				
Molybdenum	19.661	0.50	20.00	0	98.3	80	120				
Selenium	20.712	0.50	20.00	0	104	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**ICSA1**	SampType:	**ICSA**	TestCode:	**6020DIS_CrP**	Units:	**µg/L**	Prep Date:		RunNo:	**133781**
Client ID:	**ICSA**	Batch ID:	**R133781**	TestNo:	**EPA 6020**			Analysis Date:	**5/9/2019**	SeqNo:	**3379635**

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

Sample ID	**ICSAB1**	SampType:	**ICSAB**	TestCode:	**6020DIS_CrP**	Units:	**µg/L**	Prep Date:		RunNo:	**133781**
Client ID:	**ICSAB**	Batch ID:	**R133781**	TestNo:	**EPA 6020**			Analysis Date:	**5/9/2019**	SeqNo:	**3379636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.339	1.0	20.00	0	102	80	120				

Sample ID	**ICSA2**	SampType:	**ICSA**	TestCode:	**6020DIS_CrP**	Units:	**µg/L**	Prep Date:		RunNo:	**133781**
Client ID:	**ICSA**	Batch ID:	**R133781**	TestNo:	**EPA 6020**			Analysis Date:	**5/9/2019**	SeqNo:	**3379661**

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

Sample ID	**ICSAB2**	SampType:	**ICSAB**	TestCode:	**6020DIS_CrP**	Units:	**µg/L**	Prep Date:		RunNo:	**133781**
Client ID:	**ICSAB**	Batch ID:	**R133781**	TestNo:	**EPA 6020**			Analysis Date:	**5/9/2019**	SeqNo:	**3379662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.375	1.0	20.00	0	102	80	120				

Sample ID	**ICSA3**	SampType:	**ICSA**	TestCode:	**6020DIS_CrP**	Units:	**µg/L**	Prep Date:		RunNo:	**133781**
Client ID:	**ICSA**	Batch ID:	**R133781**	TestNo:	**EPA 6020**			Analysis Date:	**5/9/2019**	SeqNo:	**3380550**

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

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ICSAB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380551**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.556	1.0	20.00	0	103	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ICSA**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380585**

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

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133781**
Client ID: **ICSAB**	Batch ID: **R133781**	TestNo: **EPA 6020**		Analysis Date: **5/9/2019**	SeqNo: **3380586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.055	1.0	20.00	0	100	80	120				

Qualifiers:

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	164620.6	164620.6	100	PASS	70-125	120990.7	120990.7	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	165036.6	164620.6	100.25	PASS	70-125	120409.1	120990.7	99.52	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	179960.3	164620.6	109.32	PASS	70-125	122932.6	120990.7	101.6	PASS	70-125
Std3-5/50 ppb	ICAL	1	165484.8	164620.6	100.52	PASS	70-125	120252.7	120990.7	99.39	PASS	70-125
Std4-10/100 ppb	ICAL	1	166978.2	164620.6	101.43	PASS	70-125	121223.4	120990.7	100.19	PASS	70-125
Std5-20/200 ppb	ICAL	1	166645.4	164620.6	101.23	PASS	70-125	120646.4	120990.7	99.72	PASS	70-125
Std6-40/400 ppb	ICAL	1	168801.4	164620.6	102.54	PASS	70-125	120714.3	120990.7	99.77	PASS	70-125
Std7-100/1000 ppb	ICAL	1	171502.5	164620.6	104.18	PASS	70-125	120526.9	120990.7	99.62	PASS	70-125
Std8-200/2000 ppb	ICAL	1	170975.6	164620.6	103.86	PASS	70-125	117125.8	120990.7	96.81	PASS	70-125
ICV	ICV	1	165120.1	164620.6	100.3	PASS	70-125	118242.9	120990.7	97.73	PASS	70-125
ICB	ICB	1	182202.9	164620.6	110.68	PASS	70-125	125226.2	120990.7	103.5	PASS	70-125
LLICV	CCV1	1	156421.3	164620.6	95.019	PASS	70-125	115090.5	120990.7	95.12	PASS	70-125
ICSA1	ICSA	1	174051.1	164620.6	105.73	PASS	70-125	121198.9	120990.7	100.17	PASS	70-125
ICSAB1	ICSAB	1	183909	164620.6	111.72	PASS	70-125	125603.6	120990.7	103.81	PASS	70-125
LLICV	CCV1	1	184975	164620.6	112.36	PASS	70-125	132829.1	120990.7	109.78	PASS	70-125
CCV1	CCV	1	191575.3	164620.6	116.37	PASS	70-125	133600.5	120990.7	110.42	PASS	70-125
CCB1	CCB	1	182050.4	164620.6	110.59	PASS	70-125	131362.6	120990.7	108.57	PASS	70-125
CCV2	CCV	1	194572	164620.6	118.19	PASS	70-125	138872	120990.7	114.78	PASS	70-125
CCB2	CCB	1	186371.8	164620.6	113.21	PASS	70-125	136361	120990.7	112.7	PASS	70-125
ICSA2	ICSA	1	191230.7	164620.6	116.16	PASS	70-125	131504.1	120990.7	108.69	PASS	70-125
ICSAB2	ICSAB	1	196261.9	164620.6	119.22	PASS	70-125	133404.3	120990.7	110.26	PASS	70-125
MB-73664	MBLK	1	183113.9	164620.6	111.23	PASS	70-125	127015.6	120990.7	104.98	PASS	70-125
CCV3	CCV	1	174177.9	164620.6	105.81	PASS	70-125	122131.3	120990.7	100.94	PASS	70-125
CCB3	CCB	1	165671.6	164620.6	100.64	PASS	70-125	119652.3	120990.7	98.89	PASS	70-125
LCS-73664	LCS	1	168519.9	164620.6	102.37	PASS	70-125	120887.1	120990.7	99.91	PASS	70-125
N035260-001A	SAMP	1	164069.9	164620.6	99.67	PASS	70-125	118135.1	120990.7	97.64	PASS	70-125
N035260-001A	SAMP	5	160377.7	164620.6	97.42	PASS	70-125	117622	120990.7	97.22	PASS	70-125
N035260-001A-PS	PS	1	177622.8	164620.6	107.9	PASS	70-125	123788.9	120990.7	102.31	PASS	70-125
N035260-001A-MS	MS	1	174925.5	164620.6	106.26	PASS	70-125	123910.6	120990.7	102.41	PASS	70-125
N035260-001A-MSD	MSD	1	176796.9	164620.6	107.4	PASS	70-125	125364.7	120990.7	103.62	PASS	70-125
N035240-001D	SAMP	1	163304	164620.6	99.2	PASS	70-125	102895	120990.7	85.044	PASS	70-125
N035240-001D	SAMP	5	187981.6	164620.6	114.19	PASS	70-125	126965	120990.7	104.94	PASS	70-125
N035240-003D	SAMP	1	173854.8	164620.6	105.61	PASS	70-125	111037.3	120990.7	91.77	PASS	70-125
N035240-003D	SAMP	5	193478.4	164620.6	117.53	PASS	70-125	131326.6	120990.7	108.54	PASS	70-125
CCV4	CCV	1	197321.8	164620.6	119.86	PASS	70-125	137608.1	120990.7	113.73	PASS	70-125
CCB4	CCB	1	185811.3	164620.6	112.87	PASS	70-125	131592.5	120990.7	108.76	PASS	70-125
N035240-004D	SAMP	1	167785.3	164620.6	101.92	PASS	70-125	100532.2	120990.7	83.091	PASS	70-125
N035240-004D	SAMP	5	202237.2	164620.6	122.85	PASS	70-125	132705.7	120990.7	109.68	PASS	70-125
N035250-001C	SAMP	1	193703	164620.6	117.67	PASS	70-125	112188.5	120990.7	92.72	PASS	70-125
N035250-001C	SAMP	5	209892.6	164620.6	127.5	NR!	70-125	136777.2	120990.7	113.05	PASS	70-125
N035250-002C	SAMP	1	202045.8	164620.6	122.73	PASS	70-125	121670.8	120990.7	100.56	PASS	70-125

INTERNAL STANDARD: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035250-002C	SAMP	5	222055.9	164620.6	134.89	NR!	70-125	142458.2	120990.7	117.74	PASS	70-125
N035250-003C	SAMP	1	182507.2	164620.6	110.87	PASS	70-125	107017.6	120990.7	88.45	PASS	70-125
N035250-003C	SAMP	5	211424.4	164620.6	128.43	NR!	70-125	137446.2	120990.7	113.6	PASS	70-125
N035250-004C	SAMP	1	179176.6	164620.6	108.84	PASS	70-125	106833.1	120990.7	88.3	PASS	70-125
N035250-004C	SAMP	5	208738.2	164620.6	126.8	NR!	70-125	136795.6	120990.7	113.06	PASS	70-125
CCV5	CCV	1	187782.2	164620.6	114.07	PASS	70-125	119262	120990.7	98.57	PASS	70-125
CCB5	CCB	1	163527	164620.6	99.34	PASS	70-125	121222.5	120990.7	100.19	PASS	70-125
ICSA3	ICSA	1	195225.7	164620.6	118.59	PASS	70-125	137155.3	120990.7	113.36	PASS	70-125
ICSAB3	ICSAB	1	188320.7	164620.6	114.4	PASS	70-125	132589.3	120990.7	109.59	PASS	70-125
N035250-005C	SAMP	1	182279.5	164620.6	110.73	PASS	70-125	117455.4	120990.7	97.078	PASS	70-125
N035250-005C	SAMP	5	203774.1	164620.6	123.78	PASS	70-125	140401.8	120990.7	116.04	PASS	70-125
N035250-007C	SAMP	1	188154.9	164620.6	114.3	PASS	70-125	120847.5	120990.7	99.88	PASS	70-125
N035250-007C	SAMP	5	205234.6	164620.6	124.67	PASS	70-125	141305.5	120990.7	116.79	PASS	70-125
N035250-009C	SAMP	1	203802.9	164620.6	123.8	PASS	70-125	127345.5	120990.7	105.25	PASS	70-125
N035250-011C	SAMP	1	191976.7	164620.6	116.62	PASS	70-125	130138.5	120990.7	107.56	PASS	70-125
N035250-011C	SAMP	5	193529	164620.6	117.56	PASS	70-125	138969.2	120990.7	114.86	PASS	70-125
N035250-012C	SAMP	1	168440.6	164620.6	102.32	PASS	70-125	103947.8	120990.7	85.91	PASS	70-125
N035250-012C	SAMP	5	205269.6	164620.6	124.69	PASS	70-125	134223.6	120990.7	110.94	PASS	70-125
N035250-014C	SAMP	1	172592.7	164620.6	104.84	PASS	70-125	100752.8	120990.7	83.27	PASS	70-125
CCV6	CCV	1	168776	164620.6	102.52	PASS	70-125	118699.8	120990.7	98.11	PASS	70-125
CCB6	CCB	1	149318.8	164620.6	90.7	PASS	70-125	113840	120990.7	94.09	PASS	70-125
N035250-014C	SAMP	5	176233.1	164620.6	107.05	PASS	70-125	126706.8	120990.7	104.72	PASS	70-125
N035250-016C	SAMP	1	152596.2	164620.6	92.7	PASS	70-125	91954.4	120990.7	76.001	PASS	70-125
N035250-016C	SAMP	5	210501.7	164620.6	127.87	NR!	70-125	130808.4	120990.7	108.11	PASS	70-125
N035250-017C	SAMP	1	168472.4	164620.6	102.34	PASS	70-125	104156.8	120990.7	86.087	PASS	70-125
N035250-017C	SAMP	5	202299.1	164620.6	122.89	PASS	70-125	137114.7	120990.7	113.33	PASS	70-125
N035250-002C	SAMP	10	165771.5	164620.6	100.7	PASS	70-125	118265.4	120990.7	97.75	PASS	70-125
N035250-003C	SAMP	5	173478.1	164620.6	105.38	PASS	70-125	118380.4	120990.7	97.84	PASS	70-125
N035250-004C	SAMP	5	170248.4	164620.6	103.42	PASS	70-125	117419.3	120990.7	97.048	PASS	70-125
N035250-005C	SAMP	10	169366.7	164620.6	102.88	PASS	70-125	123870.7	120990.7	102.38	PASS	70-125
N035250-012C	SAMP	25	168603.2	164620.6	102.42	PASS	70-125	124834.8	120990.7	103.18	PASS	70-125
CCV7	CCV	1	165756.4	164620.6	100.69	PASS	70-125	115346.4	120990.7	95.33	PASS	70-125
CCB7	CCB	1	186055.4	164620.6	113.02	PASS	70-125	137232.8	120990.7	113.42	PASS	70-125
N035250-016C	SAMP	10	142501.5	164620.6	86.56	PASS	70-125	104858.7	120990.7	86.67	PASS	70-125
CCV8	CCV	1	156089.4	164620.6	94.82	PASS	70-125	116946	120990.7	96.66	PASS	70-125
CCB8	CCB	1	140571.4	164620.6	85.39	PASS	70-125	108043.3	120990.7	89.3	PASS	70-125
ICSA4	ICSA	1	180268.5	164620.6	109.51	PASS	70-125	118861.3	120990.7	98.24	PASS	70-125
ICSAB4	ICSAB	1	180025.4	164620.6	109.36	PASS	70-125	122147.6	120990.7	100.96	PASS	70-125

INTERNAL STANDARD: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	76388.4	76388.4	100	PASS	70-125	3174634.2	3174634.2	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	75661.8	76388.4	99.049	PASS	70-125	3190798.6	3174634.2	100.51	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	76679.6	76388.4	100.38	PASS	70-125	3207372.1	3174634.2	101.03	PASS	70-125
Std3-5/50 ppb	ICAL	1	74822	76388.4	97.95	PASS	70-125	3136361.4	3174634.2	98.79	PASS	70-125
Std4-10/100 ppb	ICAL	1	74707	76388.4	97.8	PASS	70-125	3148443.4	3174634.2	99.17	PASS	70-125
Std5-20/200 ppb	ICAL	1	75032.2	76388.4	98.22	PASS	70-125	3123909.1	3174634.2	98.4	PASS	70-125
Std6-40/400 ppb	ICAL	1	74708.7	76388.4	97.8	PASS	70-125	3122653.8	3174634.2	98.36	PASS	70-125
Std7-100/1000 ppb	ICAL	1	73884.9	76388.4	96.72	PASS	70-125	3094172.6	3174634.2	97.47	PASS	70-125
Std8-200/2000 ppb	ICAL	1	72926	76388.4	95.47	PASS	70-125	3033255.5	3174634.2	95.55	PASS	70-125
ICV	ICV	1	72024.3	76388.4	94.29	PASS	70-125	3125027.6	3174634.2	98.44	PASS	70-125
ICB	ICB	1	73485.3	76388.4	96.2	PASS	70-125	3329207.5	3174634.2	104.87	PASS	70-125
LLICV	CCV1	1	70988.5	76388.4	92.93	PASS	70-125	3037553	3174634.2	95.68	PASS	70-125
ICSA1	ICSA	1	72362.2	76388.4	94.73	PASS	70-125	2942680.5	3174634.2	92.69	PASS	70-125
ICSAB1	ICSAB	1	77688.6	76388.4	101.7	PASS	70-125	3004536.8	3174634.2	94.64	PASS	70-125
LLICV	CCV1	1	85672.9	76388.4	112.15	PASS	70-125	3379955.9	3174634.2	106.47	PASS	70-125
CCV1	CCV	1	79911.7	76388.4	104.61	PASS	70-125	3518444.8	3174634.2	110.83	PASS	70-125
CCB1	CCB	1	79004.8	76388.4	103.43	PASS	70-125	3464216.4	3174634.2	109.12	PASS	70-125
CCV2	CCV	1	82007.7	76388.4	107.36	PASS	70-125	3664035.7	3174634.2	115.42	PASS	70-125
CCB2	CCB	1	80686.8	76388.4	105.63	PASS	70-125	3600043.5	3174634.2	113.4	PASS	70-125
ICSA2	ICSA	1	77042.5	76388.4	100.86	PASS	70-125	3293528.4	3174634.2	103.75	PASS	70-125
ICSAB2	ICSAB	1	77892.1	76388.4	101.97	PASS	70-125	3283883.4	3174634.2	103.44	PASS	70-125
MB-73664	MBLK	1	80276.8	76388.4	105.09	PASS	70-125	3500553	3174634.2	110.27	PASS	70-125
CCV3	CCV	1	75439.4	76388.4	98.76	PASS	70-125	3388624.3	3174634.2	106.74	PASS	70-125
CCB3	CCB	1	73500.9	76388.4	96.22	PASS	70-125	3328449	3174634.2	104.85	PASS	70-125
LCS-73664	LCS	1	73984.1	76388.4	96.85	PASS	70-125	3373964.8	3174634.2	106.28	PASS	70-125
N035260-001A	SAMP	1	71997.6	76388.4	94.25	PASS	70-125	3307100.3	3174634.2	104.17	PASS	70-125
N035260-001A	SAMP	5	71360.5	76388.4	93.42	PASS	70-125	3269568	3174634.2	102.99	PASS	70-125
N035260-001A-PS	PS	1	77342.6	76388.4	101.25	PASS	70-125	3373473.1	3174634.2	106.26	PASS	70-125
N035260-001A-MS	MS	1	77935.4	76388.4	102.03	PASS	70-125	3343284.1	3174634.2	105.31	PASS	70-125
N035260-001A-MSD	MSD	1	78989.6	76388.4	103.41	PASS	70-125	3373846.4	3174634.2	106.28	PASS	70-125
N035240-001D	SAMP	1	57463.3	76388.4	75.23	PASS	70-125	2481517.7	3174634.2	78.17	PASS	70-125
N035240-001D	SAMP	5	75191.8	76388.4	98.43	PASS	70-125	3183392	3174634.2	100.28	PASS	70-125
N035240-003D	SAMP	1	60674.8	76388.4	79.43	PASS	70-125	2643863.6	3174634.2	83.28	PASS	70-125
N035240-003D	SAMP	5	76127.3	76388.4	99.66	PASS	70-125	3256762.7	3174634.2	102.59	PASS	70-125
CCV4	CCV	1	81764.4	76388.4	107.04	PASS	70-125	3661824.1	3174634.2	115.35	PASS	70-125
CCB4	CCB	1	79728.8	76388.4	104.37	PASS	70-125	3585646.3	3174634.2	112.95	PASS	70-125
N035240-004D	SAMP	1	51698.5	76388.4	67.68	NR!	70-125	2289746	3174634.2	72.13	PASS	70-125
N035240-004D	SAMP	5	74221.6	76388.4	97.16	PASS	70-125	3230172.5	3174634.2	101.75	PASS	70-125
N035250-001C	SAMP	1	58250.5	76388.4	76.26	PASS	70-125	2585092.3	3174634.2	81.43	PASS	70-125
N035250-001C	SAMP	5	76873.2	76388.4	100.63	PASS	70-125	3367520.4	3174634.2	106.08	PASS	70-125
N035250-002C	SAMP	1	63858.1	76388.4	83.6	PASS	70-125	2819458.1	3174634.2	88.81	PASS	70-125

INTERNAL STANDARD: 190509A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035250-002C	SAMP	5	80025.5	76388.4	104.76	PASS	70-125	3490437.4	3174634.2	109.95	PASS	70-125
N035250-003C	SAMP	1	53032.8	76388.4	69.43	NR!	70-125	2436786.9	3174634.2	76.76	PASS	70-125
N035250-003C	SAMP	5	76763.4	76388.4	100.49	PASS	70-125	3363377.5	3174634.2	105.95	PASS	70-125
N035250-004C	SAMP	1	53745.1	76388.4	70.36	PASS	70-125	2451222.5	3174634.2	77.21	PASS	70-125
N035250-004C	SAMP	5	76410.5	76388.4	100.03	PASS	70-125	3376109	3174634.2	106.35	PASS	70-125
CCV5	CCV	1	68705.4	76388.4	89.94	PASS	70-125	3285398.1	3174634.2	103.49	PASS	70-125
CCB5	CCB	1	72959.7	76388.4	95.51	PASS	70-125	3312316.8	3174634.2	104.34	PASS	70-125
ICSA3	ICSA	1	79537.4	76388.4	104.12	PASS	70-125	3470920.9	3174634.2	109.33	PASS	70-125
ICSAB3	ICSAB	1	78728.5	76388.4	103.06	PASS	70-125	3341796.1	3174634.2	105.27	PASS	70-125
N035250-005C	SAMP	1	65686.5	76388.4	85.99	PASS	70-125	2864957.2	3174634.2	90.25	PASS	70-125
N035250-005C	SAMP	5	82203.1	76388.4	107.61	PASS	70-125	3550644.6	3174634.2	111.84	PASS	70-125
N035250-007C	SAMP	1	66943.5	76388.4	87.64	PASS	70-125	2903169.3	3174634.2	91.45	PASS	70-125
N035250-007C	SAMP	5	81441.4	76388.4	106.61	PASS	70-125	3546495.6	3174634.2	111.71	PASS	70-125
N035250-009C	SAMP	1	72353.2	76388.4	94.72	PASS	70-125	3330472.6	3174634.2	104.91	PASS	70-125
N035250-011C	SAMP	1	76052.3	76388.4	99.56	PASS	70-125	3279467.5	3174634.2	103.3	PASS	70-125
N035250-011C	SAMP	5	84218.8	76388.4	110.25	PASS	70-125	3599690.1	3174634.2	113.39	PASS	70-125
N035250-012C	SAMP	1	55911.1	76388.4	73.19	PASS	70-125	2470842.3	3174634.2	77.83	PASS	70-125
N035250-012C	SAMP	5	76665	76388.4	100.36	PASS	70-125	3351175.4	3174634.2	105.56	PASS	70-125
N035250-014C	SAMP	1	56782	76388.4	74.33	PASS	70-125	2640672.6	3174634.2	83.18	PASS	70-125
CCV6	CCV	1	68233.2	76388.4	89.32	PASS	70-125	3498631.4	3174634.2	110.21	PASS	70-125
CCB6	CCB	1	68301.6	76388.4	89.41	PASS	70-125	3193743.3	3174634.2	100.6	PASS	70-125
N035250-014C	SAMP	5	75241.8	76388.4	98.5	PASS	70-125	3320266.3	3174634.2	104.59	PASS	70-125
N035250-016C	SAMP	1	46163	76388.4	60.43	NR!	70-125	2135543.9	3174634.2	67.27	NR!	70-125
N035250-016C	SAMP	5	72682.2	76388.4	95.15	PASS	70-125	3213387.9	3174634.2	101.22	PASS	70-125
N035250-017C	SAMP	1	53158.8	76388.4	69.59	NR!	70-125	2436353.4	3174634.2	76.74	PASS	70-125
N035250-017C	SAMP	5	76679.6	76388.4	100.38	PASS	70-125	3389714.7	3174634.2	106.77	PASS	70-125
N035250-002C	SAMP	10	65966.7	76388.4	86.36	PASS	70-125	3182943.1	3174634.2	100.26	PASS	70-125
N035250-003C	SAMP	5	66307.7	76388.4	86.8	PASS	70-125	2973334.8	3174634.2	93.66	PASS	70-125
N035250-004C	SAMP	5	65974.2	76388.4	86.37	PASS	70-125	2969542	3174634.2	93.54	PASS	70-125
N035250-005C	SAMP	10	71152.7	76388.4	93.15	PASS	70-125	3218946.8	3174634.2	101.4	PASS	70-125
N035250-012C	SAMP	25	72588.3	76388.4	95.025	PASS	70-125	3334722	3174634.2	105.04	PASS	70-125
CCV7	CCV	1	66757.4	76388.4	87.39	PASS	70-125	3416109	3174634.2	107.61	PASS	70-125
CCB7	CCB	1	79990	76388.4	104.71	PASS	70-125	3804822.7	3174634.2	119.85	PASS	70-125
N035250-016C	SAMP	10	60070.5	76388.4	78.64	PASS	70-125	2717180.7	3174634.2	85.59	PASS	70-125
CCV8	CCV	1	69199.8	76388.4	90.59	PASS	70-125	3331247.1	3174634.2	104.93	PASS	70-125
CCB8	CCB	1	63328.4	76388.4	82.9	PASS	70-125	3076813.9	3174634.2	96.92	PASS	70-125
ICSA4	ICSA	1	66029	76388.4	86.44	PASS	70-125	3299608.5	3174634.2	103.94	PASS	70-125
ICSAB4	ICSAB	1	70795.8	76388.4	92.68	PASS	70-125	3226840.4	3174634.2	101.64	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035250
Test Method: EPA 6020
Analysis Date: 5/9/2019

Matrix: Groundwater
Batch No.: 73664

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035260-001A DT 5x	Arsenic	As	µg/L	0	NA	0		10
N035260-001A DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N035260-001A DT 5x	Molybdenum	Mo	µg/L	0	NA	0		10
N035260-001A DT 5x	Selenium	Se	µg/L	0	NA	0		10
N035260-001A DT 5x	Chromium	Cr	µg/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035260-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133800**
Client ID: **ZZZZZZ** Batch ID: **73664** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **5/9/2019** SeqNo: **3380633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.302	0.10	10.00	0	103	80	120				
Manganese	105.295	0.50	100.0	0	105	80	120				
Molybdenum	9.841	0.50	10.00	0	98.4	80	120				
Selenium	9.956	0.50	10.00	0	99.6	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035250
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N035260-001A-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	133781
Client ID:	ZZZZZZ	Batch ID:	73664	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	5/9/2019	SeqNo:	3379678

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.149	1.0	10.00	0	101	80	120				

Qualifiers:

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

MDL STUDY

Method Detection Limit

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

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

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

Method Detection Limit

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

Matrix: Water
Units: ug/L

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

May 09, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N035251

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

Attention: Dan Bush

Enclosed are the results for sample(s) received on April 23, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Lucas for

Quennie Manimtim
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035251

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

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

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N035251-002B-MS2 and N035251-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *09-May-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035251
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035251-001A	PE-01-0419	Groundwater	4/23/2019 8:50:00 AM	4/23/2019	5/9/2019
N035251-001B	PE-01-0419	Groundwater	4/23/2019 8:50:00 AM	4/23/2019	5/9/2019
N035251-001C	PE-01-0419	Groundwater	4/23/2019 8:50:00 AM	4/23/2019	5/9/2019
N035251-001D	PE-01-0419	Groundwater	4/23/2019 8:50:00 AM	4/23/2019	5/9/2019
N035251-002A	TW-03D-0419	Groundwater	4/23/2019 8:40:00 AM	4/23/2019	5/9/2019
N035251-002B	TW-03D-0419	Groundwater	4/23/2019 8:40:00 AM	4/23/2019	5/9/2019
N035251-002C	TW-03D-0419	Groundwater	4/23/2019 8:40:00 AM	4/23/2019	5/9/2019
N035251-002D	TW-03D-0419	Groundwater	4/23/2019 8:40:00 AM	4/23/2019	5/9/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	1900	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	7400	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035250-004BDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **133439**
Client ID: **ZZZZZZ**	Batch ID: **R133439**	TestNo: **EPA 120.1**		Analysis Date: **4/24/2019**	SeqNo: **3362209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19460.000	0.10						19440	0.103	2	

Sample ID: **N035250-016BDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **133439**
Client ID: **ZZZZZZ**	Batch ID: **R133439**	TestNo: **EPA 120.1**		Analysis Date: **4/24/2019**	SeqNo: **3362217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	24500.000	0.10						24400	0.409	2	

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190424E**	QC Batch: **R133463**			PrepDate:			Analyst: **LR**
pH	7.4	0.10	0.10	H	pH Units	1	4/24/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	4/24/2019 11:25 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190424E**	QC Batch: **R133463**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	4/24/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	4/24/2019 11:25 AM

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: **N035251-001CDUP** SampType: **DUP** TestCode: **150.1_4500H+** Units: **pH Units** Prep Date: RunNo: **133463**
Client ID: **ZZZZZZ** Batch ID: **R133463** TestNo: **SM4500-H+B** Analysis Date: **4/24/2019** SeqNo: **3363490**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.360	0.10						7.350	0.136	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-001

Client Sample ID: PE-01-0419
Collection Date: 4/23/2019 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190425I**	QC Batch: **73568**			PrepDate:		**4/25/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1200	13	13		mg/L	1	4/25/2019 01:17 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190425I**	QC Batch: **73568**			PrepDate:	**4/25/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4300	50	50		mg/L	1	4/25/2019 01:17 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **LCS-73568**	SampType: **LCS**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/25/2019**	RunNo: **133554**
Client ID: **LCSW**	Batch ID: **73568**	TestNo: **SM2540C**		Analysis Date: **4/25/2019**	SeqNo: **3368273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	986.000	10	1000	0	98.6	80	120				

Sample ID: **MB-73568**	SampType: **MBLK**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/25/2019**	RunNo: **133554**
Client ID: **PBW**	Batch ID: **73568**	TestNo: **SM2540C**		Analysis Date: **4/25/2019**	SeqNo: **3368274**

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

Sample ID: **N035249-011BDUP**	SampType: **DUP**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/25/2019**	RunNo: **133554**
Client ID: **ZZZZZZ**	Batch ID: **73568**	TestNo: **SM2540C**		Analysis Date: **4/25/2019**	SeqNo: **3368279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	193000.000	1000						184900	4.29	5	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-001

Client Sample ID: PE-01-0419
Collection Date: 4/23/2019 8:50:00 AM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP

EPA 200.7

RunID: **NV00922-ICP2_190508C** QC Batch: **73714** PrepDate: **5/6/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Calcium	140000	85	500		µg/L	1	5/8/2019 09:12 PM
Iron	ND	18	20		µg/L	1	5/8/2019 09:12 PM
Magnesium	33000	48	100		µg/L	1	5/8/2019 09:12 PM
Sodium	310000	2400	12000		µg/L	25	5/9/2019 10:50 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-002

Client Sample ID: TW-03D-0419
Collection Date: 4/23/2019 8:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190508C**	QC Batch: **73714**				PrepDate:	**5/6/2019**	Analyst: **CEI**
Calcium	230000	85	500		µg/L	1	5/8/2019 09:49 PM
Iron	ND	18	20		µg/L	1	5/8/2019 09:49 PM
Magnesium	28000	48	100		µg/L	1	5/8/2019 09:49 PM
Sodium	1600000	4800	25000		µg/L	50	5/9/2019 10:54 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **MB-73714**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133765**
Client ID: **PBW**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/8/2019**	SeqNo: **3379301**

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

Sample ID: **LCS1-73714**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133765**
Client ID: **LCSW**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/8/2019**	SeqNo: **3379302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	5049.800	500	5000	0	101	85	115				
Iron	106.275	20	100.0	0	106	85	115				
Magnesium	5283.967	100	5000	0	106	85	115				

Sample ID: **N035251-001B-MS1**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133765**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/8/2019**	SeqNo: **3379306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	140993.030	500	5000	136000	100	75	125				
Iron	93.197	20	100.0	0	93.2	75	125				
Magnesium	37541.661	100	5000	33460	81.7	75	125				

Sample ID: **N035251-001B-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133765**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/8/2019**	SeqNo: **3379307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	141880.037	500	5000	136000	118	75	125	141000	0.627	20	
Iron	91.966	20	100.0	0	92.0	75	125	93.20	1.33	20	
Magnesium	37547.963	100	5000	33460	81.8	75	125	37540	0.0168	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **MB-73714**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133768**
Client ID: **PBW**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379327**

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

Sample ID: **LCS2-73714**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133768**
Client ID: **LCSW**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	18804.998	500	20000	0	94.0	85	115				

Sample ID: **N035251-002B-MS2**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133768**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1512566.355	25000	20000	1625000	-560	75	125				S

Sample ID: **N035251-002B-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133768**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1517240.185	25000	20000	1625000	-537	75	125	1513000	0.309	20	S

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **N035251-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133765**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/8/2019**	SeqNo: **3379305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	145258.233	500	5000	136000	186	80	120				S
Iron	101.839	20	100.0	0	102	80	120				
Magnesium	39408.147	100	5000	33460	119	80	120				

Sample ID: **N035251-002B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1509999.230	25000	20000	1625000	-573	80	120				S

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190506B**	QC Batch: **73722**			PrepDate:		**5/6/2019**	Analyst: **CEI**
Manganese	510	1.3	2.5		µg/L	5	5/6/2019 11:20 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_190506B** QC Batch: **73722** PrepDate: **5/6/2019** Analyst: **CEI**							
Manganese	18	0.26	0.50		µg/L	1	5/6/2019 11:25 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: **MB-73722**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **PBW**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376885**

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

Sample ID: **LCS-73722**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **LCSW**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376886**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.023	0.50	100.0	0	107	85	115				

Sample ID: **N035374-001D-DUP**	SampType: **DUP**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50						0	0	20	

Sample ID: **N035374-001D-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	113.403	0.50	100.0	0	113	75	125				

Sample ID: **N035374-001D-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	113.248	0.50	100.0	0	113	75	125	113.4	0.137	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-001

Client Sample ID: PE-01-0419
Collection Date: 4/23/2019 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 03:13 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190506B** QC Batch: **73722**				PrepDate:	**5/6/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/6/2019 11:15 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A**	QC Batch: **R133474**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	470	3.3	20		µg/L	100	4/24/2019 03:50 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190506B**	QC Batch: **73722**			PrepDate:	**5/6/2019**		Analyst: **CEI**
Chromium	480	0.65	5.0		µg/L	5	5/6/2019 11:30 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID: **MB-73722**	SampType: **MBLK**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **PBW**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376924**

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

Sample ID: **LCS-73722**	SampType: **LCS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **LCSW**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.361	1.0	10.00	0	104	85	115				

Sample ID: **N035374-001D-DUP**	SampType: **DUP**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0						0	0	20	

Sample ID: **N035374-001D-MS**	SampType: **MS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376935**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.356	1.0	10.00	0	114	75	125				

Sample ID: **N035374-001D-MSD**	SampType: **MSD**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376937**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.241	1.0	10.00	0	112	75	125	11.36	1.02	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133474**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **PBW**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363781**

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

Sample ID: **LCS-R133474**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **LCSW**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363782**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.040	0.20	5.000	0	101	90	110				

Sample ID: **N035250-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.961	1.0	5.000	0	99.2	90	110				

Sample ID: **N035250-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.025	1.0	5.000	0	101	90	110				

Sample ID: **N035250-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363788**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.018	0.20	1.000	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.155	1.0	5.000	0	103	90	110				

Sample ID: **N035250-012AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.959	1.0	5.000	0	99.2	90	110				

Sample ID: **N035250-016AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.986	1.0	5.000	0	99.7	90	110				

Sample ID: **N035250-017AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363800**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.037	1.0	5.000	0	101	90	110				

Sample ID: **N035250-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.074	0.20	1.000	0	107	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.077	0.20	1.000	0	108	90	110				

Sample ID: **N035250-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	194.764	4.0	100.0	92.86	102	90	110				

Sample ID: **N035251-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0	104	90	110				

Sample ID: **N035251-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363812**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	964.700	20	500.0	466.7	99.6	90	110				

Sample ID: **N035250-014AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	193.654	4.0	100.0	92.86	101	90	110	194.8	0.572	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035251-002ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	472.350	20						466.7	1.21	20	

Sample ID: **N035250-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363816**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.026	0.20	1.000	0	103	90	110				

Sample ID: **N035250-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.048	0.20	1.000	0	105	90	110				

Sample ID: **N035250-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.077	0.20	1.000	0	108	90	110				

Sample ID: **N035250-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.987	0.20	1.000	0	98.7	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.022	0.20	1.000	0	102	90	110				

Sample ID: **N035250-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID: **N035250-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID: **N035250-018AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.014	0.20	1.000	0	101	90	110				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190425D**	QC Batch: **R133470**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	210	1.2	5.0		mg/L	1	4/25/2019 09:20 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190425D**	QC Batch: **R133470**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	170	1.2	5.0		mg/L	1	4/25/2019 09:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R133470**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **LCSW**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	104.348	5.0	100.0	0	104	85	115				

Sample ID: **MB-R133470**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **PBW**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363653**

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

Sample ID: **N035251-002CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363657**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	169.565	5.0						166.3	1.94	30	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	267.391	5.0	100.0	166.3	101	75	125				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133470**
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**	SeqNo: **3363659**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	265.217	5.0	100.0	166.3	98.9	75	125	267.4	0.816	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-001

Client Sample ID: PE-01-0419
Collection Date: 4/23/2019 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Chloride	350	0.46	25		mg/L	50	4/25/2019 12:34 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Sulfate	240	1.1	25		mg/L	50	4/25/2019 12:34 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Chloride	2200	4.6	250		mg/L	500	4/25/2019 12:49 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Sulfate	510	1.1	25		mg/L	50	4/25/2019 01:04 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R133486_CL**	SampType: **MBLK**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133486**			
Client ID: **PBW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**			SeqNo: **3364546**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R133486_CL**	SampType: **LCS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133486**			
Client ID: **LCSW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**			SeqNo: **3364547**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.043	0.50	2.000	0	102	90	110				

Sample ID: **N035251-001CDUP**	SampType: **DUP**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133486**			
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**			SeqNo: **3364561**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	346.220	25						350.9	1.35	20	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133486**			
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**			SeqNo: **3364562**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3154.650	250	1000	2198	95.7	80	120				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133486**			
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**			SeqNo: **3364563**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3196.000	250	1000	2198	99.8	80	120	3155	1.30	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N035250-014BMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2231.350	250	1000	1226	101	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R133486_SO4**	SampType: **MBLK**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **PBW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364573**

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

Sample ID: **LCS-R133486_SO4**	SampType: **LCS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **LCSW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.039	0.50	4.000	0	101	90	110				

Sample ID: **N035251-001CDUP**	SampType: **DUP**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	238.670	25						241.6	1.21	20	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	708.475	25	200.0	509.4	99.5	80	120				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	714.125	25	200.0	509.4	102	80	120	708.5	0.794	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N035250-014BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133486**
Client ID: **ZZZZZZ** Batch ID: **R133486** TestNo: **EPA 300.0** Analysis Date: **4/25/2019** SeqNo: **3364593**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	529.265	25	200.0	332.5	98.4	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190425F**	QC Batch: **R133477**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	4/25/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190425F**	QC Batch: **R133477**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	2.5	0.16	0.25		mg/L	5	4/25/2019

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R133477**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **PBW**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363864**

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

Sample ID: **LCS-R133477**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **LCSW**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.3	85	115				

Sample ID: **N035180-003BDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.148	0.50						8.542	6.85	20	

Sample ID: **N035180-004BMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	6.403	0.25	2.500	3.990	96.5	75	125				

Sample ID: **N035180-004BMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	6.310	0.25	2.500	3.990	92.8	75	125	6.403	1.47	20	

Qualifiers:

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

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Others ✓ (Specify: RWQCB)
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RWQCB ✓
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Jason Mahn		Phone: 949-727-1400, ext 200	Fax:
Title: Project Manager	Phone: 916-786-3302 Fax:		Global ID:

Signature: Date: 4/23/19
I hereby authorize ASSET Labs to perform the tests indicated below.

Project Name: PG&E Topock - PMP
Project Number: RC000753.801D

Sampled By: Jason Mahn
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.
Signature: Date: 4/23/19

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

Specify State:

Sample Receipt Condition: 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number; 6. Method of Cooling: Ice; Sample Temp: 5.0c

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Dissolved metals (EPA 200.8) FF; HNO3, Cr, Mn (500 mL poly)	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, (1 L poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (1 L poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035251-01	PE-01-0419	4/23/2019	0850		X	X	X			X	X	X	X	X		X	E	4	P	BN	
2	-02	TW-03D-0419	4/23/2019	0840		X	X	X			X	X	X	X	X		X	E	4	P	BN	
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Relinquished by (Signature and Printed Name): Jason Mahn Date/Time: 4/23/19 1630
Received by (Signature and Printed Name): JORDAN ICE Date/Time: 4-23-19 1637
Relinquished by (Signature and Printed Name): JORDAN ICE Date/Time: 4-23-19 1700
Received by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

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

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

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

Preservatives:

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

Container Type:

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

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	4/23/2019	Workorder:	N035251
Rep sample Temp (Deg C):	5.0	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments: Sampls for pH were past holding time upon receipt.

Checklist Completed By: YR 4/26/2019

Reviewed By: LG 042919

ASSET Laboratories

WORK ORDER Summary

24-Apr-19

WorkOrder: N035251

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035251-001A	PE-01-0419	4/23/2019 8:50:00 AM	5/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035251-001B			5/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			5/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			5/7/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035251-001C			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			5/7/2019		SM4500-H+B	pH	☐	☐	☐	WW
			5/7/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			5/7/2019			Total Dissolved Solids Prep	☐	☐	☐	WW
			5/7/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			5/7/2019		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N035251-001D			5/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035251-002A	TW-03D-0419	4/23/2019 8:40:00 AM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035251-002B			5/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			5/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			5/7/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035251-002C			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

24-Apr-19

WorkOrder: N035251

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035251-002C	TW-03D-0419	4/23/2019 8:40:00 AM	5/7/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			5/7/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			5/7/2019			Total Dissolved Solids Prep	☐	☐	☐	WW
			5/7/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			5/7/2019		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N035251-002D			5/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035251-003A	FOLDER	5/7/2019	5/7/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/7/2019		Folder	Folder	☐	☐	☐	LAB
			5/7/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - PMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035251

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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Raw Data	
EPA 120.1	49-52
SM 4500-H+B	53-56
SM 2540C	57-67
EPA 200.7_Dissolved	68-105
EPA 200.8_Dissolved	106-140
EPA 218.6	141-283
SM 2320 B	284-293
EPA 300.0	294-319
SM 4500-NO3F	320-335

May 09, 2019

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

TEL: (916) 786-3302
FAX:

Workorder No.: N035251

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

Attention: Dan Bush

Enclosed are the results for sample(s) received on April 23, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

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

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

Sincerely,

Nancy Lucas for

Quennie Manimtim
Laboratory Director

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

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035251

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

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

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

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

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

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N035251-002B-MS2 and N035251-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *09-May-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035251
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035251-001A	PE-01-0419	Groundwater	4/23/2019 8:50:00 AM	4/23/2019	5/9/2019
N035251-001B	PE-01-0419	Groundwater	4/23/2019 8:50:00 AM	4/23/2019	5/9/2019
N035251-001C	PE-01-0419	Groundwater	4/23/2019 8:50:00 AM	4/23/2019	5/9/2019
N035251-001D	PE-01-0419	Groundwater	4/23/2019 8:50:00 AM	4/23/2019	5/9/2019
N035251-002A	TW-03D-0419	Groundwater	4/23/2019 8:40:00 AM	4/23/2019	5/9/2019
N035251-002B	TW-03D-0419	Groundwater	4/23/2019 8:40:00 AM	4/23/2019	5/9/2019
N035251-002C	TW-03D-0419	Groundwater	4/23/2019 8:40:00 AM	4/23/2019	5/9/2019
N035251-002D	TW-03D-0419	Groundwater	4/23/2019 8:40:00 AM	4/23/2019	5/9/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	1900	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190424A**	QC Batch: **R133439**			PrepDate:			Analyst: **LR**
Specific Conductance	7400	0.10	0.10		umhos/cm	1	4/24/2019 10:45 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035250-004BDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **133439**
Client ID: **ZZZZZZ**	Batch ID: **R133439**	TestNo: **EPA 120.1**		Analysis Date: **4/24/2019**	SeqNo: **3362209**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	19460.000	0.10						19440	0.103	2	

Sample ID: **N035250-016BDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **133439**
Client ID: **ZZZZZZ**	Batch ID: **R133439**	TestNo: **EPA 120.1**		Analysis Date: **4/24/2019**	SeqNo: **3362217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	24500.000	0.10						24400	0.409	2	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-001

Client Sample ID: PE-01-0419
Collection Date: 4/23/2019 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190424E**	QC Batch: **R133463**			PrepDate:			Analyst: **LR**
pH	7.4	0.10	0.10	H	pH Units	1	4/24/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	4/24/2019 11:25 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-002

Client Sample ID: TW-03D-0419
Collection Date: 4/23/2019 8:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190424E**	QC Batch: **R133463**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	4/24/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	4/24/2019 11:25 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: **N035251-001CDUP** SampType: **DUP** TestCode: **150.1_4500H+** Units: **pH Units** Prep Date: RunNo: **133463**
Client ID: **ZZZZZZ** Batch ID: **R133463** TestNo: **SM4500-H+B** Analysis Date: **4/24/2019** SeqNo: **3363490**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.360	0.10						7.350	0.136	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190425I**	QC Batch: **73568**			PrepDate:	**4/25/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1200	13	13		mg/L	1	4/25/2019 01:17 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190425I**	QC Batch: **73568**			PrepDate:	**4/25/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4300	50	50		mg/L	1	4/25/2019 01:17 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **LCS-73568**	SampType: **LCS**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/25/2019**	RunNo: **133554**
Client ID: **LCSW**	Batch ID: **73568**	TestNo: **SM2540C**		Analysis Date: **4/25/2019**	SeqNo: **3368273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	986.000	10	1000	0	98.6	80	120				

Sample ID: **MB-73568**	SampType: **MBLK**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/25/2019**	RunNo: **133554**
Client ID: **PBW**	Batch ID: **73568**	TestNo: **SM2540C**		Analysis Date: **4/25/2019**	SeqNo: **3368274**

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

Sample ID: **N035249-011BDUP**	SampType: **DUP**	TestCode: **160.1_2540C_**	Units: **mg/L**	Prep Date: **4/25/2019**	RunNo: **133554**
Client ID: **ZZZZZZ**	Batch ID: **73568**	TestNo: **SM2540C**		Analysis Date: **4/25/2019**	SeqNo: **3368279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	193000.000	1000						184900	4.29	5	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-001

Client Sample ID: PE-01-0419
Collection Date: 4/23/2019 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190508C**	QC Batch: **73714**				PrepDate:	**5/6/2019**	Analyst: **CEI**
Calcium	140000	85	500		µg/L	1	5/8/2019 09:12 PM
Iron	ND	18	20		µg/L	1	5/8/2019 09:12 PM
Magnesium	33000	48	100		µg/L	1	5/8/2019 09:12 PM
Sodium	310000	2400	12000		µg/L	25	5/9/2019 10:50 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-002

Client Sample ID: TW-03D-0419
Collection Date: 4/23/2019 8:40:00 AM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP

EPA 200.7

RunID: **NV00922-ICP2_190508C** QC Batch: **73714** PrepDate: **5/6/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Calcium	230000	85	500		µg/L	1	5/8/2019 09:49 PM
Iron	ND	18	20		µg/L	1	5/8/2019 09:49 PM
Magnesium	28000	48	100		µg/L	1	5/8/2019 09:49 PM
Sodium	1600000	4800	25000		µg/L	50	5/9/2019 10:54 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **MB-73714** SampType: **MBLK** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **5/6/2019** RunNo: **133765**
Client ID: **PBW** Batch ID: **73714** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379301**

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

Sample ID: **LCS1-73714** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **5/6/2019** RunNo: **133765**
Client ID: **LCSW** Batch ID: **73714** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	5049.800	500	5000	0	101	85	115				
Iron	106.275	20	100.0	0	106	85	115				
Magnesium	5283.967	100	5000	0	106	85	115				

Sample ID: **N035251-001B-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **5/6/2019** RunNo: **133765**
Client ID: **ZZZZZZ** Batch ID: **73714** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	140993.030	500	5000	136000	100	75	125				
Iron	93.197	20	100.0	0	93.2	75	125				
Magnesium	37541.661	100	5000	33460	81.7	75	125				

Sample ID: **N035251-001B-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **5/6/2019** RunNo: **133765**
Client ID: **ZZZZZZ** Batch ID: **73714** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	141880.037	500	5000	136000	118	75	125	141000	0.627	20	
Iron	91.966	20	100.0	0	92.0	75	125	93.20	1.33	20	
Magnesium	37547.963	100	5000	33460	81.8	75	125	37540	0.0168	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **MB-73714**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133768**
Client ID: **PBW**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379327**

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

Sample ID: **LCS2-73714**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133768**
Client ID: **LCSW**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	18804.998	500	20000	0	94.0	85	115				

Sample ID: **N035251-002B-MS2**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133768**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379333**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1512566.355	25000	20000	1625000	-560	75	125				S

Sample ID: **N035251-002B-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133768**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1517240.185	25000	20000	1625000	-537	75	125	1513000	0.309	20	S

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **N035251-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133765**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/8/2019**	SeqNo: **3379305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	145258.233	500	5000	136000	186	80	120				S
Iron	101.839	20	100.0	0	102	80	120				
Magnesium	39408.147	100	5000	33460	119	80	120				

Sample ID: **N035251-002B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1509999.230	25000	20000	1625000	-573	80	120				S

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_190506B** QC Batch: **73722** PrepDate: **5/6/2019** Analyst: **CEI**							
Manganese	510	1.3	2.5		µg/L	5	5/6/2019 11:20 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_190506B** QC Batch: **73722** PrepDate: **5/6/2019** Analyst: **CEI**							
Manganese	18	0.26	0.50		µg/L	1	5/6/2019 11:25 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: **MB-73722**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **PBW**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376885**

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

Sample ID: **LCS-73722**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **LCSW**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376886**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.023	0.50	100.0	0	107	85	115				

Sample ID: **N035374-001D-DUP**	SampType: **DUP**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50						0	0	20	

Sample ID: **N035374-001D-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	113.403	0.50	100.0	0	113	75	125				

Sample ID: **N035374-001D-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	113.248	0.50	100.0	0	113	75	125	113.4	0.137	20	

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-001

Client Sample ID: PE-01-0419
Collection Date: 4/23/2019 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/24/2019 03:13 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190506B** QC Batch: **73722**				PrepDate:	**5/6/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/6/2019 11:15 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-002

Client Sample ID: TW-03D-0419
Collection Date: 4/23/2019 8:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190424A** QC Batch: **R133474**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	470	3.3	20		µg/L	100	4/24/2019 03:50 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190506B** QC Batch: **73722**				PrepDate:	**5/6/2019**		Analyst: **CEI**
Chromium	480	0.65	5.0		µg/L	5	5/6/2019 11:30 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID: **MB-73722**	SampType: **MBLK**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **PBW**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376924**

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

Sample ID: **LCS-73722**	SampType: **LCS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **LCSW**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.361	1.0	10.00	0	104	85	115				

Sample ID: **N035374-001D-DUP**	SampType: **DUP**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0						0	0	20	

Sample ID: **N035374-001D-MS**	SampType: **MS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376935**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.356	1.0	10.00	0	114	75	125				

Sample ID: **N035374-001D-MSD**	SampType: **MSD**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/6/2019**	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **73722**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376937**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.241	1.0	10.00	0	112	75	125	11.36	1.02	20	

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133474**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **PBW**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363781**

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

Sample ID: **LCS-R133474**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **LCSW**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363782**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.040	0.20	5.000	0	101	90	110				

Sample ID: **N035250-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.961	1.0	5.000	0	99.2	90	110				

Sample ID: **N035250-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.025	1.0	5.000	0	101	90	110				

Sample ID: **N035250-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363788**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.018	0.20	1.000	0	102	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.155	1.0	5.000	0	103	90	110				

Sample ID: **N035250-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363794**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.959	1.0	5.000	0	99.2	90	110				

Sample ID: **N035250-016AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.986	1.0	5.000	0	99.7	90	110				

Sample ID: **N035250-017AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363800**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.037	1.0	5.000	0	101	90	110				

Sample ID: **N035250-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.074	0.20	1.000	0	107	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.077	0.20	1.000	0	108	90	110				

Sample ID: **N035250-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363806**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	194.764	4.0	100.0	92.86	102	90	110				

Sample ID: **N035251-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0	104	90	110				

Sample ID: **N035251-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363812**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	964.700	20	500.0	466.7	99.6	90	110				

Sample ID: **N035250-014AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	193.654	4.0	100.0	92.86	101	90	110	194.8	0.572	20	

Qualifiers:

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

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035251-002ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	472.350	20						466.7	1.21	20	

Sample ID: **N035250-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363816**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.026	0.20	1.000	0	103	90	110				

Sample ID: **N035250-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.048	0.20	1.000	0	105	90	110				

Sample ID: **N035250-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.077	0.20	1.000	0	108	90	110				

Sample ID: **N035250-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.987	0.20	1.000	0	98.7	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035250-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.022	0.20	1.000	0	102	90	110				

Sample ID: **N035250-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID: **N035250-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID: **N035250-018AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133474**
Client ID: **ZZZZZZ** Batch ID: **R133474** TestNo: **EPA 218.6** Analysis Date: **4/24/2019** SeqNo: **3363836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.014	0.20	1.000	0	101	90	110				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190425D**	QC Batch: **R133470**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	210	1.2	5.0		mg/L	1	4/25/2019 09:20 AM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190425D**	QC Batch: **R133470**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	170	1.2	5.0		mg/L	1	4/25/2019 09:20 AM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R133470**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **133470**			
Client ID: **LCSW**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**			SeqNo: **3363652**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	104.348	5.0	100.0	0	104	85	115				

Sample ID: **MB-R133470**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **133470**			
Client ID: **PBW**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**			SeqNo: **3363653**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID: **N035251-002CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **133470**			
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**			SeqNo: **3363657**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	169.565	5.0						166.3	1.94	30	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **133470**			
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**			SeqNo: **3363658**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	267.391	5.0	100.0	166.3	101	75	125				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **133470**			
Client ID: **ZZZZZZ**	Batch ID: **R133470**	TestNo: **SM 2320 B**		Analysis Date: **4/25/2019**			SeqNo: **3363659**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	265.217	5.0	100.0	166.3	98.9	75	125	267.4	0.816	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035251
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035251-001

Client Sample ID: PE-01-0419
Collection Date: 4/23/2019 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Chloride	350	0.46	25		mg/L	50	4/25/2019 12:34 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Sulfate	240	1.1	25		mg/L	50	4/25/2019 12:34 PM

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Chloride	2200	4.6	250		mg/L	500	4/25/2019 12:49 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190425A** QC Batch: **R133486**				PrepDate:			Analyst: **RAB**
Sulfate	510	1.1	25		mg/L	50	4/25/2019 01:04 PM

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **MB-R133486_CL**	SampType: **MBLK**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133486**			
Client ID: **PBW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**			SeqNo: **3364546**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **LCS-R133486_CL**	SampType: **LCS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133486**			
Client ID: **LCSW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**			SeqNo: **3364547**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.043	0.50	2.000	0	102	90	110				

Sample ID: **N035251-001CDUP**	SampType: **DUP**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133486**			
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**			SeqNo: **3364561**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	346.220	25						350.9	1.35	20	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133486**			
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**			SeqNo: **3364562**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3154.650	250	1000	2198	95.7	80	120				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133486**			
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**			SeqNo: **3364563**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3196.000	250	1000	2198	99.8	80	120	3155	1.30	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **N035250-014BMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2231.350	250	1000	1226	101	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **MB-R133486_SO4**	SampType: **MBLK**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **PBW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364573**

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

Sample ID: **LCS-R133486_SO4**	SampType: **LCS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **LCSW**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364574**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.039	0.50	4.000	0	101	90	110				

Sample ID: **N035251-001CDUP**	SampType: **DUP**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	238.670	25						241.6	1.21	20	

Sample ID: **N035251-002CMS**	SampType: **MS**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	708.475	25	200.0	509.4	99.5	80	120				

Sample ID: **N035251-002CMSD**	SampType: **MSD**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ZZZZZZ**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	714.125	25	200.0	509.4	102	80	120	708.5	0.794	20	

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **N035250-014BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133486**
Client ID: **ZZZZZZ** Batch ID: **R133486** TestNo: **EPA 300.0** Analysis Date: **4/25/2019** SeqNo: **3364593**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	529.265	25	200.0	332.5	98.4	80	120				

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:50:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190425F**	QC Batch: **R133477**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	4/25/2019

Qualifiers:

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

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0419
Lab Order:	N035251	**Collection Date:**	4/23/2019 8:40:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035251-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190425F**	QC Batch: **R133477**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	2.5	0.16	0.25		mg/L	5	4/25/2019

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R133477**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **PBW**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363864**

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

Sample ID: **LCS-R133477**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **LCSW**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.3	85	115				

Sample ID: **N035180-003BDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.148	0.50						8.542	6.85	20	

Sample ID: **N035180-004BMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	6.403	0.25	2.500	3.990	96.5	75	125				

Sample ID: **N035180-004BMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ZZZZZZ**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	6.310	0.25	2.500	3.990	92.8	75	125	6.403	1.47	20	

Qualifiers:

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

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Others ✓ (Specify: RWQCB)
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RWQCB ✓
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Jason Mahn		Phone: 949-727-1400, ext 200	Fax:
Title: Project Manager	Phone: 916-786-3302 Fax:		Global ID:

Signature: Date: 4/23/19
I hereby authorize ASSET Labs to perform the tests indicated below.

Project Name: PG&E Topock - PMP
Project Number: RC000753.801D

Sampled By: Jason Mahn
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.
Signature: Date: 4/23/19

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

Specify State:

Sample Receipt Condition: 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number; 6. Method of Cooling: Ice; Sample Temp: 5.0c

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly)	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, (1 L poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (1 L poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035251-01	PE-01-0419	4/23/2019	0850		X	X	X			X	X	X	X	X		X	E	4	P	BN	
2	-02	TW-03D-0419	4/23/2019	0840		X	X	X			X	X	X	X	X		X	E	4	P	BN	
3																						
4																						
5																						
6																						
7																						
8																						
9																						
10																						

Relinquished by (Signature and Printed Name): Jason Mahn Date/Time: 4/23/19 1630
Relinquished by (Signature and Printed Name): JORDAN 166 Date/Time: 4-23-19 1637
Relinquished by (Signature and Printed Name): JORDAN 166 Date/Time: 4-23-19 2000
Relinquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

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

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

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

Preservatives:

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

Container Type:

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

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

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

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

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

Cooler Received/Opened On:	4/23/2019	Workorder:	N035251
Rep sample Temp (Deg C):	5.0	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

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

Comments: Sampls for pH were past holding time upon receipt.

Checklist Completed By: YR 4/26/2019

Reviewed By: LG 042919

ASSET Laboratories

WORK ORDER Summary

24-Apr-19

WorkOrder: N035251

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035251-001A	PE-01-0419	4/23/2019 8:50:00 AM	5/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035251-001B			5/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			5/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			5/7/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035251-001C			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			5/7/2019		SM4500-H+B	pH	☐	☐	☐	WW
			5/7/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			5/7/2019			Total Dissolved Solids Prep	☐	☐	☐	WW
			5/7/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			5/7/2019		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N035251-001D			5/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035251-002A	TW-03D-0419	4/23/2019 8:40:00 AM	5/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035251-002B			5/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			5/7/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/7/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			5/7/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035251-002C			5/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

WORK ORDER Summary

24-Apr-19

WorkOrder: N035251

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/23/2019

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

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035251-002C	TW-03D-0419	4/23/2019 8:40:00 AM	5/7/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			5/7/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			5/7/2019			Total Dissolved Solids Prep	☐	☐	☐	WW
			5/7/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			5/7/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			5/7/2019		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	WW
N035251-002D			5/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035251-003A	FOLDER	5/7/2019	5/7/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/7/2019		Folder	Folder	☐	☐	☐	LAB
			5/7/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035251

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

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133439 **Analyst:** LSR

ASSET #: N035251 **Date Analyzed:** 24-Apr

Method: EPA 120.1

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer Silvia Ramit Date: 4/29/2019

2nd Level Reviewer 5/7/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 4/24/19 1045 KR

Analyst: LSR

CONTD

Standard	Std ID	Reading	Comments
~~1413~~ 11.26 µS/cm	GNV-181011A	11.42 @19.5°C	% Rec: (90-110%)
1410	190107D	1412 @19.4°C	
9965	190218B	9910 @19.2°C	
100390	190218C	100200 @19.2°C	

	Sample ID	Matrix	Reading	Comments
1	N035250-16B	H_2O	24400 @20.2°C	
2	16BDUP		24500 @19.9°C	
3	17B		18470 @19.5°C	
4	N035251-1C		1867 @20.1°C	
5	2C		7430 @20.0°C	
6				
7				
8	1413 µS/cm	GNV-181022A	1405 @21.5°C	
9	10000	B	9680 @21.5°C	
10	99922	GNV-190111H	95100 @21.6°C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 4/25/19 1110

Analyst: KR

Julia Ramit 4/29/2019

Standard	Std ID	Reading	Comments
11.26 µS/cm	GNV-181011A	11.45 @21.4°C	% Rec: (90-110%)
1410	190107D	1422 @21.4°C	
9965	190218B	10040 @21.5°C	
100390	190218C	101100 @21.5°C	

	Sample ID	Matrix	Reading	Comments
1	N035274-1B	H_2O	1805 @20.9°C	STD CHECK
2	2B		10140 @20.0°C	1413 GNV 181022A
3	3B		5720 @19.8°C	= 1462 @23.0°C
4	6B		7910 @19.7°C	10000 GNV 181022B
5	8B		9690 @20.1°C	= 9820 @22.8°C
6	9B		11870 @19.9°C	99922 GNV 190111H
7	11B		4810 @20.1°C	= 95900 @22.7°C
8	13B		6630 @20.2°C	
9	14B		6650 @19.7°C KR 4/25	
10	14BDUP		6640 @19.8°C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133463 **Instrument ID:** pH meter

ASSET #: N035251 **Analyst:** LSR

Date Analyzed: 24-Apr

Method: EPA 150.1

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

Comments:

Samples were received past holding time.

SECOND LEVEL REVIEW:

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

1st Level Reviewer Silvia Ramit Date: 4/29/2019

2nd Level Reviewer 5/7/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 4/24/19 1125
Analyst: KR

Standard	Std ID	pH	Comments
Buffer 7	CINV-190107A	6.99 @25°C	
Buffer 4	〃 B	4.02 @25C	
Buffer 10	CINV-190111G	10.01 @25°C	
Slope		96.3%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	N035251-1C	H2O	7.35 @25°C	
2	〃 1CDup	〃	7.36 @25°C	
3	〃 2C	〃	7.15 @25°C	
4				
5				
6				
7				
8				
9				
10				
Dup				
	Buffer (7), 4, 10 (Circle one)	CINV-190218A	6.95 @25°C	Accept: 10% water, 20% soil
				Accept: +/-0.05 pH units from expected value

Date: 4/25/19 1055
Analyst: KR

Julia Ramit 4/29/2019

Standard	Std ID	pH	Comments
Buffer 7	CINV-190107A	7.00 @25°C	
Buffer 4	〃 B	4.02 @25C	
Buffer 10	CINV-190111G	10.00 @25°C	
Slope		96.2%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	N035249-10B	H2O	7.19 @25°C	
2	〃 11B	〃	7.88 @25°C	
3	N035276-1B	〃	7.36 @25°C	
4	〃 1BDup	〃	7.36 @25°C	
5	〃 2B	〃	7.43 @25°C	
6	〃 3B	〃	7.22 @25°C	
7	〃 4B	〃	7.29 @25°C	
8	〃 5B	〃	7.10 @25°C	
9	〃 6B	〃	6.94 @25°C	
10	〃 7B	〃	7.43 @25°C	
Dup				
	Buffer (7), 4, 10 (Circle one)	CINV-190218A	6.96 @25°C	Accept: 10% water, 20% soil
				Accept: +/-0.05 pH units from expected value

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ORELAP/NELAP Cert 4046

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73568 **Analyst:** LSR

ASSET #: N035251 **Date Analyzed:** 25-Apr

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

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

Comments:

SECOND LEVEL REVIEW:

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

1st Level Reviewer Julia Ramit Date: 4/30/2019

2nd Level Reviewer 5/7/2019 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

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

Where:

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

For **N035251-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(48.1981 - 48.1103)*1000000}{75}$$
$$= 1170.6667 \text{ mg/L}$$

Reporting result in two significant figures,

TDS= 1200 mg/L

Julia Ramit 4/30/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **4/25/2019 1:17:47 P**
Prep End Date: **4/26/2019 11:10:00**
Reviewed/ Date: 5/7/2019
Initials/ Date: Lilia Ramit 4/30/2019

Prep Batch **73568** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

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

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73568	Water		100	☐	0	0	100	1.000		
MB-73568	Water		100	☐	0	0	100	1.000		
N035249-002B	Water		5	☐	0	0	100	20.000		
N035249-003B	Water		5	☐	0	0	100	20.000		
N035249-010B	Water		2	☐	0	0	100	50.000		
N035249-011B	Water		1	☐	0	0	100	100.000		
N035249-011B-DU	Water		1	☐	0	0	100	100.000		
N035251-001C	Groundwater		75	☐	0	0	100	1.333		
N035251-002C	Groundwater		20	☐	0	0	100	5.000		
N035276-011B	Water		2	☐	0	0	100	50.000		
N035288-001C	Water		40	☐	0	0	100	2.500		
N035288-002C	Water		40	☐	0	0	100	2.500		
N035288-003C	Water		40	☐	0	0	100	2.500		

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

Number	Reagent Name
10408	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190409A	1000 ppm NaCl	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **4/25/2019 1:17:47 P**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 4/30/2019

Prep Batch **73568** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73568	Water	IWST190409A	100	☐	0	0	100	1.000		
MB-73568	Water		100	☐	0	0	100	1.000		
N035249-002B	Water	2440	100 /5	☐	0	0	100	1.000		
N035249-003B	Water	28300	100 /5	☐	0	0	100	1.000		
N035249-010B	Water	57600	100 /2	☐	0	0	100	1.000		
N035249-011B	Water	103600	100 /1	☐	0	0	100	1.000		
N035249-011B DU	Water	1	100 /1	☐	0	0	100	1.000		
N035251-001C	Groundwater	1567	100 /75	☐	0	0	100	1.000		
N035251-002C	Groundwater	7430	100 /20	☐	0	0	100	1.000		
N035276-011B	Water	62700	100 /2	☐	0	0	100	1.000		
N035288-001C	Water	3690	100 /40	☐	0	0	100	1.000		
N035288-002C	Water	3840	100 /40	☐	0	0	100	1.000		
N035288-003C	Water	3680	100 /40	☐	0	0	100	1.000		

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

10408

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
4/25/19 1317 EE	MB 73568	100	68.0804 68.0806	68.0810 68.0809	
CC	LCS 73568	100	69.7495 69.7497	69.8485 69.8483	
X	NW35249-2B	5	50.9859 50.9861	51.1049 51.1053	
Q	3B	5	50.6344 50.6347	50.8061 50.8064	
E	10B	2	47.9843 47.9846	48.1304 48.1307	1
G	11B	1	49.2226 49.2228	49.4073 49.4077	
H	11B DUP	1	49.6028 49.6032	49.7964 49.7962	
R	NW35251-1C	75	48.1100 48.1103	48.1983 48.1981	
P	2C	20	49.2014 49.2018	49.2869 49.2873	
N	NW3527L-11B	2	49.9563 49.9565	50.1565 50.1568	

Julia Ramit 4/30/2019

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

SOLIDS RAW DATA

TEST :TSS/TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
4/25/19 A	NG25588-1C	40	48.8969 48.8968	49.0330 49.0329	
12	2C	40	53.6375 53.6379	53.7793 53.7794	
07	3C	40	53.7776 53.7780	53.9158 53.9159	
					1
	Julia Ramit 4/30/2019				
	49.9996 @ 1110 & 4/26/19 USK				

ASSET Laboratories

Logbook#15

TOTAL DISSOLVED SOLIDS, TDS

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

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

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
4/26/2019									
MB-73568	100	68.0806	68.0809	3	1	3			MBLK
LCS-73568	100	69.7497	69.8483	986	1	986			LCS
N035249-002B	5	50.9861	51.1053	1192	20	23840	24400	0.977	SAMP
N035249-003B	5	50.6347	50.8064	1717	20	34340	28300	1.213	SAMP
N035249-010B	2	47.9846	48.1307	1461	50	73050	57600	1.268	SAMP
N035249-011B	1	49.2228	49.4077	1849	100	184900	103600	1.785	SAMP
N035249-011BDUP	1	49.6032	49.7962	1930	100	193000	103600	1.863	DUP
N035251-001C	75	48.1103	48.1981	878	1.33333333	1170.66667	1867	0.627	SAMP
N035251-002C	20	49.2018	49.2873	855	5	4275	7430	0.575	SAMP
N035276-011B	2	49.9565	50.1568	2003	50	100150	62700	1.597	SAMP
N035288-001C	40	48.8968	49.0329	1361	2.5	3402.5	3690	0.922	SAMP
N035288-002C	40	53.6379	53.7794	1415	2.5	3537.5	3840	0.921	SAMP
N035288-003C	40	53.778	53.9159	1379	2.5	3447.5	3680	0.937	SAMP

Sirisha Ramisetty 4/30/2019

EPA 200.7
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73714
ASSET #: N035251
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 5/8/2019

Method:

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

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

Comments:

% Rec of Ca in N035251-001B PS failed, high bias. However, LCS passed criteria.
Dilution test for Mg failed. However, PS passed criteria.

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

1st Level Reviewer CEI Date: 5/15/2019
2nd Level Reviewer NS Date: 5/15/2019

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73714
ASSET #: N035251
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 5/9/2019

Method:

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

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

Comments:

% Rec of Na in N035251-002B PS/MS/MSD failed, low bias. However, LCS passed criteria.
Na run.

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

1st Level Reviewer CEI Date: 5/15/2019

2nd Level Reviewer NS Date: 5/15/2019

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

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

where:

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

For Sample **N035251-001B** , the concentration ir ug/L is calculated as follows:

Sodium , ug/L = 12.5867 * 25 *(25/25) * 1000

Sodium , ug/L = 314667.5

Reporting results in two significant figures,

Sodium , ug/L = 310000

NS 5/15/2019

% RSD SUMMARY

RSD SUMMARY: 190508B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Ca	0	7.039	15	PASS
Standard1	ICAL	1	Ca	0.2	14.31	15	PASS
Standard2	ICAL	1	Ca	1	0.82	15	PASS
Standard3	ICAL	1	Ca	2	0.16	15	PASS
Standard4	ICAL	1	Ca	5	1.15	15	PASS
Standard5	ICAL	1	Ca	7.5	0.6	15	PASS
Standard6	ICAL	1	Ca	10	1.028	15	PASS
Standard7	ICAL	1	Ca	20	0.46	15	PASS
ICV	ICV	1	Ca	10.14	0.2	15	PASS
ICB	ICB	1	Ca	0.002	779.24	15	<PQL
LLICV1	CCV1	1	Ca	0.2	6.27	20	PASS
ICSA1	ICSA	1	Ca	492.82	0.15	15	PASS
ICSAB1	ICSAB	1	Ca	550.29	0.0089	15	PASS
MB-73714	MBLK	1	Ca	0.039	68.62	15	<PQL
LCS1-73714	LCS	1	Ca	5.05	0.34	15	PASS
N035251-001B	SAMP	1	Ca	135.98	0.26	15	PASS
N035251-001B	SAMP	5	Ca	28.92	0.49	15	PASS
N035251-001B-PS	PS	1	Ca	145.26	0.47	15	PASS
N035251-001B-MS1	MS	1	Ca	140.99	0.57	15	PASS
N035251-001B-MSD1	MSD	1	Ca	141.88	0.76	15	PASS
N035251-002B	SAMP	1	Ca	227.39	0.67	15	PASS
CCV1	CCV	1	Ca	10.28	0.69	15	PASS
CCB1	CCB	1	Ca	0.013	113.2	15	<PQL
ICSA2	ICSA	1	Ca	494.5	0.18	15	PASS
ICSAB2	ICSAB	1	Ca	553.77	0.33	15	PASS
CalBlk	IBLK	1	Fe	0	41.6	15	<PQL
Standard1	ICAL	1	Fe	0.02	2.87	15	PASS
Standard2	ICAL	1	Fe	0.05	5.62	15	PASS
Standard3	ICAL	1	Fe	2	0.73	15	PASS
Standard4	ICAL	1	Fe	5	0.29	15	PASS
Standard5	ICAL	1	Fe	7.5	0.91	15	PASS
Standard6	ICAL	1	Fe	10	0.53	15	PASS
Standard7	ICAL	1	Fe	20	0.053	15	PASS
ICV	ICV	1	Fe	10.36	0.07	15	PASS
ICB	ICB	1	Fe	-0.0026	31.47	15	<PQL
LLICV1	CCV1	1	Fe	0.016	5.49	20	PASS
ICSA1	ICSA	1	Fe	180.91	0.22	15	PASS
ICSAB1	ICSAB	1	Fe	181.44	0.26	15	PASS
MB-73714	MBLK	1	Fe	0.0054	34.38	15	<PQL
LCS1-73714	LCS	1	Fe	0.11	0.45	15	PASS
N035251-001B	SAMP	1	Fe	-0.007	11.029	15	PASS
N035251-001B	SAMP	5	Fe	-0.01	4.071	15	PASS

RSD SUMMARY: 190508B

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N035251-001B-PS	PS	1	Fe	0.1	2.3	15	PASS
N035251-001B-MS1	MS	1	Fe	0.093	1.97	15	PASS
N035251-001B-MSD1	MSD	1	Fe	0.092	0.17	15	PASS
N035251-002B	SAMP	1	Fe	-0.014	1.51	15	PASS
CCV1	CCV	1	Fe	10.37	0.66	15	PASS
CCB1	CCB	1	Fe	-0.0026	10.94	15	PASS
ICSA2	ICSA	1	Fe	178.49	0.27	15	PASS
ICSAB2	ICSAB	1	Fe	179.79	0.28	15	PASS
CalBlk	IBLK	1	Mg	0	12.14	15	PASS
Standard1	ICAL	1	Mg	0.1	1.18	15	PASS
Standard2	ICAL	1	Mg	1	0.29	15	PASS
Standard3	ICAL	1	Mg	2	0.7	15	PASS
Standard4	ICAL	1	Mg	5	0.32	15	PASS
Standard5	ICAL	1	Mg	7.5	0.82	15	PASS
Standard6	ICAL	1	Mg	10	0.54	15	PASS
Standard7	ICAL	1	Mg	20	0.038	15	PASS
ICV	ICV	1	Mg	10.35	0.065	15	PASS
ICB	ICB	1	Mg	-0.0051	18.74	15	<PQL
LLICV1	CCV1	1	Mg	0.088	0.76	20	PASS
ICSA1	ICSA	1	Mg	470.08	0.18	15	PASS
ICSAB1	ICSAB	1	Mg	513.79	0.32	15	PASS
MB-73714	MBLK	1	Mg	0.014	61.26	15	<PQL
LCS1-73714	LCS	1	Mg	5.28	0.41	15	PASS
N035251-001B	SAMP	1	Mg	33.46	0.05	15	PASS
N035251-001B	SAMP	5	Mg	7.45	0.36	15	PASS
N035251-001B-PS	PS	1	Mg	39.41	0.081	15	PASS
N035251-001B-MS1	MS	1	Mg	37.54	0.28	15	PASS
N035251-001B-MSD1	MSD	1	Mg	37.55	0.22	15	PASS
N035251-002B	SAMP	1	Mg	28.074	0.082	15	PASS
CCV1	CCV	1	Mg	10.33	0.67	15	PASS
CCB1	CCB	1	Mg	-0.0046	5.22	15	PASS
ICSA2	ICSA	1	Mg	462.87	0.31	15	PASS
ICSAB2	ICSAB	1	Mg	508.24	0.3	15	PASS

RSD SUMMARY: 190509A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Na	0	4.57	15	PASS
Standard1	ICAL	1	Na	0.1	2.49	15	PASS
Standard2	ICAL	1	Na	1	0.24	15	PASS
Standard3	ICAL	1	Na	5	0.41	15	PASS
Standard4	ICAL	1	Na	10	0.25	15	PASS
Standard5	ICAL	1	Na	20	0.25	15	PASS
Standard6	ICAL	1	Na	40	0.1	15	PASS
ICV	ICV	1	Na	9.97	0.11	15	PASS
ICB	ICB	1	Na	0.028	11.45	15	PASS
LLICV	CCV	1	Na	0.6	0.6	20	PASS
LLICV	CCV	1	Na	0.11	3.35	20	PASS
ICSA1	ICSA	1	Na	0.013	47.63	15	<PQL
ICSAB1	ICSAB	1	Na	9.93	0.0098	15	PASS
MB-73714	MBLK	1	Na	0.0034	154.27	15	<PQL
LCS2-73714	LCS	1	Na	18.8	0.12	15	PASS
N035251-001B	SAMP	25	Na	12.59	0.077	15	PASS
N035251-002B	SAMP	50	Na	32.49	0.16	15	PASS
N035251-002B	SAMP	250	Na	6.48	0.13	15	PASS
N035251-002B-PS	PS	50	Na	30.2	0.096	15	PASS
N035251-002B-MS2	MS	50	Na	30.25	0.15	15	PASS
N035251-002B-MSD2	MSD	50	Na	30.34	0.16	15	PASS
CCV1	CCV	1	Na	10.038	0.35	15	PASS
CCB1	CCB	1	Na	0.033	11.98	15	PASS
ICSA2	ICSA	1	Na	0.011	104.018	15	<PQL
ICSAB2	ICSAB	1	Na	9.93	0.23	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190508B

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	05/08/2019	08:05:58 PM
2	Standard1	ICAL	1	05/08/2019	08:09:48 PM
3	Standard2	ICAL	1	05/08/2019	08:14:03 PM
4	Standard3	ICAL	1	05/08/2019	08:18:18 PM
5	Standard4	ICAL	1	05/08/2019	08:22:35 PM
6	Standard5	ICAL	1	05/08/2019	08:26:53 PM
7	Standard6	ICAL	1	05/08/2019	08:31:14 PM
8	Standard7	ICAL	1	05/08/2019	08:35:34 PM
250	ICV	ICV	1	05/08/2019	08:40:29 PM
1	ICB	ICB	1	05/08/2019	08:45:51 PM
2	LLICV1	CCV1	1	05/08/2019	08:49:37 PM
9	ICSA1	ICSA	1	05/08/2019	08:53:53 PM
10	ICSAB1	ICSAB	1	05/08/2019	08:59:24 PM
35	MB-73714	MBLK	1	05/08/2019	09:04:57 PM
36	LCS1-73714	LCS	1	05/08/2019	09:08:42 PM
37	N035251-001B	SAMP	1	05/08/2019	09:12:59 PM
38	N035251-001B	SAMP	5	05/08/2019	09:18:16 PM
39	N035251-001B-PS	PS	1	05/08/2019	09:33:55 PM
40	N035251-001B-MS1	MS	1	05/08/2019	09:39:14 PM
41	N035251-001B-MSD1	MSD	1	05/08/2019	09:44:34 PM
42	N035251-002B	SAMP	1	05/08/2019	09:49:52 PM
7	CCV1	CCV	1	05/08/2019	09:55:11 PM
1	CCB1	CCB	1	05/08/2019	10:00:30 PM
9	ICSA2	ICSA	1	05/08/2019	10:04:15 PM
10	ICSAB2	ICSAB	1	05/08/2019	10:09:45 PM

INJECTION LOG: 190509A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401Y,0.025<50mL
Standard2	MWST-190401Y,0.25<50mL
Standard3	MWST-190401Y,1.25<50mL
Standard4	MWST-190401Y,2.5<50mL
Standard5	MWST-190401Y,5<50mL
Standard6	MWST-190401Y,10<50mL
ICV	MWST-190401Z
CCV	MWST-190401Y,2.5<50mL
ICSA/ICSAB	MWST-190401W/MWST-190401AA
Int. Std. (Sc):	MSST-190315B
PS Spike	MSST-140120B/ -180608B/A

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	05/09/2019	09:47:06 AM
11	Standard1	ICAL	1	05/09/2019	09:50:21 AM
12	Standard2	ICAL	1	05/09/2019	09:53:34 AM
13	Standard3	ICAL	1	05/09/2019	09:57:19 AM
14	Standard4	ICAL	1	05/09/2019	10:01:07 AM
15	Standard5	ICAL	1	05/09/2019	10:04:55 AM
16	Standard6	ICAL	1	05/09/2019	10:08:47 AM
17	ICV	ICV	1	05/09/2019	10:12:49 AM
1	ICB	ICB	1	05/09/2019	10:16:39 AM
11	LLICV	CCV	1	05/09/2019	10:27:45 AM
11	LLICV	CCV	1	05/09/2019	10:33:20 AM
18	ICSA1	ICSA	1	05/09/2019	10:36:34 AM
19	ICSAB1	ICSAB	1	05/09/2019	10:39:49 AM
23	MB-73714	MBLK	1	05/09/2019	10:43:38 AM
24	LCS2-73714	LCS	1	05/09/2019	10:46:52 AM
25	N035251-001B	SAMP	25	05/09/2019	10:50:52 AM
26	N035251-002B	SAMP	50	05/09/2019	10:54:06 AM
27	N035251-002B	SAMP	250	05/09/2019	10:57:22 AM
28	N035251-002B-PS	PS	50	05/09/2019	11:00:37 AM
29	N035251-002B-MS2	MS	50	05/09/2019	11:03:52 AM
30	N035251-002B-MSD2	MSD	50	05/09/2019	11:07:08 AM
14	CCV1	CCV	1	05/09/2019	11:10:24 AM
1	CCB1	CCB	1	05/09/2019	11:14:12 AM
18	ICSA2	ICSA	1	05/09/2019	11:17:26 AM
19	ICSAB2	ICSAB	1	05/09/2019	11:20:42 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/6/2019 8:01:45 A**
Prep End Date: **5/6/2019 11:00:00 A**
Prep Batch **73714** Prep Code: **200.7_PR**

Reviewed/ Date: NS 5/15/2019
Initials/ Date: 5/6/2019
Technician: **Mark Gesmundo**

Prep Factor Units:	Temp. (°C):	Location:
mL / mL	**95**	**DB-2-3**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-73714	Aqueous		25	☐	0	0	25	1.000		
LCS2-73714	Aqueous		25	☐	0	0	25	1.000		
MB-73714	Aqueous		25	☐	0	0	25	1.000		
N035251-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035251-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035251-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035251-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035251-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035251-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
10760	HYDROCHLORIC ACID
10767	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190508B

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Magnesium								
CalBlk	05/08/2019	08:05:58 PM	Mg	279.079	368	0.00	mg/L	
Standard1	05/08/2019	08:09:48 PM	Mg	279.079	1178	0.1000	mg/L	
Standard2	05/08/2019	08:14:03 PM	Mg	279.079	13456	1.000	mg/L	
Standard3	05/08/2019	08:18:18 PM	Mg	279.079	27867	2.000	mg/L	
Standard4	05/08/2019	08:22:35 PM	Mg	279.079	69117	5.000	mg/L	
Standard5	05/08/2019	08:26:53 PM	Mg	279.079	103654	7.500	mg/L	
Standard6	05/08/2019	08:31:14 PM	Mg	279.079	138350	10.000	mg/L	
Standard7	05/08/2019	08:35:34 PM	Mg	279.079	263174	20.000	mg/L	0.9997
Calcium								
CalBlk	05/08/2019	08:05:58 PM	Ca	227.546	-99	0.00	mg/L	
Standard1	05/08/2019	08:09:48 PM	Ca	227.546	56	0.2000	mg/L	
Standard2	05/08/2019	08:14:03 PM	Ca	227.546	275	1.000	mg/L	
Standard3	05/08/2019	08:18:18 PM	Ca	227.546	570	2.000	mg/L	
Standard4	05/08/2019	08:22:35 PM	Ca	227.546	1400	5.000	mg/L	
Standard5	05/08/2019	08:26:53 PM	Ca	227.546	2091	7.500	mg/L	
Standard6	05/08/2019	08:31:14 PM	Ca	227.546	2792	10.000	mg/L	
Standard7	05/08/2019	08:35:34 PM	Ca	227.546	5472	20.000	mg/L	1.0000
Iron								
CalBlk	05/08/2019	08:05:58 PM	Fe	273.953	268	0.00	mg/L	
Standard1	05/08/2019	08:09:48 PM	Fe	273.953	385	0.0200	mg/L	
Standard2	05/08/2019	08:14:03 PM	Fe	273.953	1726	0.050	mg/L	
Standard3	05/08/2019	08:18:18 PM	Fe	273.953	49951	2.000	mg/L	
Standard4	05/08/2019	08:22:35 PM	Fe	273.953	123945	5.000	mg/L	
Standard5	05/08/2019	08:26:53 PM	Fe	273.953	186008	7.500	mg/L	
Standard6	05/08/2019	08:31:14 PM	Fe	273.953	246316	10.000	mg/L	
Standard7	05/08/2019	08:35:34 PM	Fe	273.953	467060	20.000	mg/L	0.9996

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190509A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Sodium								
CalBlk	05/09/2019	09:47:06 AM	Na	589.594	122	0.00	mg/L	
Standard1	05/09/2019	09:50:21 AM	Na	589.594	350	0.1000	mg/L	
Standard2	05/09/2019	09:53:34 AM	Na	589.594	2847	1.000	mg/L	
Standard3	05/09/2019	09:57:19 AM	Na	589.594	14217	5.000	mg/L	
Standard4	05/09/2019	10:01:07 AM	Na	589.594	27979	10.000	mg/L	
Standard5	05/09/2019	10:04:55 AM	Na	589.594	55255	20.000	mg/L	
Standard6	05/09/2019	10:08:47 AM	Na	589.594	111047	40.000	mg/L	1.0000

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV** SampType: **ICV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133765**
Client ID: **ICV** Batch ID: **R133765** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379296**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10145.141	500	10000	0	101	90	110				
Iron	10357.423	20	10000	0	104	90	110				
Magnesium	10345.223	100	10000	0	103	90	110				

Sample ID **LLICV1** SampType: **CCV1** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133765**
Client ID: **ZZZZZZ** Batch ID: **R133765** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379298**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	201.109	500	200.0	0	101	80	120				
Iron	16.334	20	20.00	0	81.7	80	120				
Magnesium	87.816	100	100.0	0	87.8	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133765**
Client ID: **CCV** Batch ID: **R133765** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379309**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10280.059	500	10000	0	103	90	110				
Iron	10374.091	20	10000	0	104	90	110				
Magnesium	10334.008	100	10000	0	103	90	110				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **ICV**	Batch ID: **R133768**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379321**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9968.563	500	10000	0	99.7	90	110				

Sample ID **LLICV**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **CCV**	Batch ID: **R133768**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379324**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	109.712	500	100.0	0	110	90	110				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **CCV**	Batch ID: **R133768**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10038.109	500	10000	0	100	90	110				

Qualifiers:

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133765**
Client ID: **ICB**	Batch ID: **R133765**	TestNo: **EPA 200.7**		Analysis Date: **5/8/2019**	SeqNo: **3379297**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	1.998	500									
Iron	-2.652252	20									
Magnesium	-5.069806	100									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133765**
Client ID: **CCB**	Batch ID: **R133765**	TestNo: **EPA 200.7**		Analysis Date: **5/8/2019**	SeqNo: **3379310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	12.976	500									
Iron	-2.559799	20									
Magnesium	-4.654936	100									

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **ICB**	Batch ID: **R133768**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379322**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	27.910	500									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **CCB**	Batch ID: **R133768**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379336**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	33.226	500									

Qualifiers:

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

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133765**
Client ID: **ICSA** Batch ID: **R133765** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	419011.582	50	500000	0	83.8	80	120				
Calcium	492821.447	500	500000	0	98.6	80	120				
Iron	180914.416	20	200000	0	90.5	80	120				
Magnesium	470077.831	100	500000	0	94.0	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133765**
Client ID: **ICSAB** Batch ID: **R133765** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	549350.000	50	500000	0	110	80	120				
Calcium	550290.095	500	500000	0	110	80	120				
Iron	181438.697	20	200000	0	90.7	80	120				
Magnesium	513790.492	100	500000	0	103	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133765**
Client ID: **ICSA** Batch ID: **R133765** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379311**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	418880.469	50	500000	0	83.8	80	120				
Calcium	494501.190	500	500000	0	98.9	80	120				
Iron	178485.827	20	200000	0	89.2	80	120				
Magnesium	462869.155	100	500000	0	92.6	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133765**
Client ID: **ICSAB** Batch ID: **R133765** TestNo: **EPA 200.7** Analysis Date: **5/8/2019** SeqNo: **3379312**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	550693.302	50	500000	0	110	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133765**
Client ID: **ICSAB**	Batch ID: **R133765**	TestNo: **EPA 200.7**		Analysis Date: **5/8/2019**	SeqNo: **3379312**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	553765.771	500	500000	0	111	80	120				
Iron	179788.041	20	200000	0	89.9	80	120				
Magnesium	508243.720	100	500000	0	102	80	120				

Qualifiers:

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **ICSA**	Batch ID: **R133768**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379325**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	12.745	500									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **ICSAB**	Batch ID: **R133768**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379326**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9934.490	500	10000	0	99.3	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **ICSA**	Batch ID: **R133768**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379337**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10.788	500									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **ICSAB**	Batch ID: **R133768**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379338**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9930.316	500	10000	0	99.3	80	120				

Qualifiers:

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

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190508B

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0015	100.15	65-125	PASS
Standard2	ICAL	1	1.042	104.19	65-125	PASS
Standard3	ICAL	1	1.032	103.2	65-125	PASS
Standard4	ICAL	1	1.025	102.52	65-125	PASS
Standard5	ICAL	1	1.027	102.66	65-125	PASS
Standard6	ICAL	1	0.99	99.031	65-125	PASS
Standard7	ICAL	1	0.99	98.69	65-125	PASS
ICV	ICV	1	0.99	99.13	65-125	PASS
ICB	ICB	1	1	99.77	65-125	PASS
LLICV1	CCV1	1	1.0049	100.49	65-125	PASS
ICSA1	ICSA	1	1.041	104.07	65-125	PASS
ICSAB1	ICSAB	1	0.91	91.091	65-125	PASS
MB-73714	MBLK	1	0.99	99.42	65-125	PASS
LCS1-73714	LCS	1	1.009	100.9	65-125	PASS
N035251-001B	SAMP	1	1.0039	100.39	65-125	PASS
N035251-001B	SAMP	5	0.99	98.8	65-125	PASS
N035251-001B-PS	PS	1	1.0082	100.82	65-125	PASS
N035251-001B-MS1	MS	1	1	99.9	65-125	PASS
N035251-001B-MSD1	MSD	1	1	99.6	65-125	PASS
N035251-002B	SAMP	1	0.9	89.52	65-125	PASS
CCV1	CCV	1	0.99	98.93	65-125	PASS
CCB1	CCB	1	1.0018	100.18	65-125	PASS
ICSA2	ICSA	1	1.045	104.52	65-125	PASS
ICSAB2	ICSAB	1	0.91	91.32	65-125	PASS

INTERNAL STANDARD: 190509A

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0041	100.41	65-125	PASS
Standard2	ICAL	1	1.011	101.06	65-125	PASS
Standard3	ICAL	1	1.0061	100.61	65-125	PASS
Standard4	ICAL	1	1.0028	100.28	65-125	PASS
Standard5	ICAL	1	1.0052	100.52	65-125	PASS
Standard6	ICAL	1	1.0055	100.55	65-125	PASS
ICV	ICV	1	1.011	101.14	65-125	PASS
ICB	ICB	1	1.0097	100.97	65-125	PASS
LLICV	CCV	1	1.0063	100.63	65-125	PASS
LLICV	CCV	1	1.014	101.35	65-125	PASS
ICSA1	ICSA	1	1.015	101.47	65-125	PASS
ICSAB1	ICSAB	1	1.0085	100.85	65-125	PASS
MB-73714	MBLK	1	1.027	102.7	65-125	PASS
LCS2-73714	LCS	1	1.2	120.28	65-125	PASS
N035251-001B	SAMP	25	1.037	103.7	65-125	PASS
N035251-002B	SAMP	50	1.038	103.75	65-125	PASS
N035251-002B	SAMP	250	1.04	103.99	65-125	PASS
N035251-002B-PS	PS	50	1.02	102.04	65-125	PASS
N035251-002B-MS2	MS	50	1.014	101.43	65-125	PASS
N035251-002B-MSD2	MSD	50	1.021	102.1	65-125	PASS
CCV1	CCV	1	1.0037	100.37	65-125	PASS
CCB1	CCB	1	1.015	101.48	65-125	PASS
ICSA2	ICSA	1	1.012	101.24	65-125	PASS
ICSAB2	ICSAB	1	1.0048	100.48	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N035251
Test Method: EPA 200.7
Analysis Date: 05 / 08 - 09 / 2019

Matrix: Groundwater
Batch No.: 73714

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

Comments:

Analyzed By: Mary Claire Ignacio

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

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035251-001B DT 5x	Calcium	Ca	µg/L	144582.4	PASS	135983.2	6.32%	10
N035251-001B DT 5x	Iron	Fe	µg/L	0	NA	0		10
N035251-001B DT 5x	Magnesium	Mg	µg/L	37247.9	FAIL	33458.34	11.33%	10
N035251-002B DT 250x	Sodium	Na	µg/L	1619587	PASS	1624550	0.31%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N035251-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133765**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/8/2019**	SeqNo: **3379305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	145258.233	500	5000	136000	186	80	120				S
Iron	101.839	20	100.0	0	102	80	120				
Magnesium	39408.147	100	5000	33460	119	80	120				

Sample ID **N035251-002B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133768**
Client ID: **ZZZZZZ**	Batch ID: **73714**	TestNo: **EPA 200.7**		Analysis Date: **5/9/2019**	SeqNo: **3379332**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1509999.230	25000	20000	1625000	-573	80	120				S

Qualifiers:

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

MDL STUDY

METHOD DETECTION LIMIT 2017

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

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

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

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

METHOD DETECTION LIMIT 2017

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

Instrument Name: **ICP-02**

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

Method Detection Limit

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

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

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

MBLK

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

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

LOD & PQL VERIFICATION

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

Matrix: Water
Units: mg/L

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

EPA 200.8
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73722
ASSET #: N035251
Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 5/6/2019

Method:

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

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

Comments:

ISTD of Cr in N035374-001D-DUP failed; 69.8%.

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

1st Level Reviewer CEI 5/8/2019 Date: _____

2nd Level Reviewer [illegible] 5/8/2019 Date: _____

SAMPLE CALCULATION

SAMPLE CALCULATION

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

FORMULA:

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

Manganese , ug/L = A * DF * PF

where:

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

For Sample **N035251-001B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 101.814 * 5

Manganese , ug/L = 509.07

Reporting results in two significant figures,

Manganese , ug/L = 510

5/8/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190506B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	6.96	15	PASS	0.12	4.77	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.56	5.93	15	PASS	0.57	7.97	15	PASS
Std3-5/50 ppb	ICAL	1	5.38	0.52	15	PASS	5.48	1.35	15	PASS
Std4-10/100 ppb	ICAL	1	10.58	2.13	15	PASS	10.66	2.74	15	PASS
Std5-20/200 ppb	ICAL	1	21.2	2.26	15	PASS	21.17	2.47	15	PASS
Std6-40/400 ppb	ICAL	1	41.86	2.66	15	PASS	42.077	3.053	15	PASS
Std7-100/1000 ppb	ICAL	1	101.7	2.78	15	PASS	101.86	2.75	15	PASS
Std8-200/2000 ppb	ICAL	1	198.62	2.44	15	PASS	198.49	2.38	15	PASS
ICV	ICV	1	10.32	1.55	15	PASS	105.96	1.22	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.0021	513.58	15	<PQL
LLICV	CCV1	1	1.04	1.54	20	PASS	0.58	6.87	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20	1.76	15	PASS	22.98	1.64	15	PASS
LLICV	CCV1	1	1.06	1.061	20	PASS	0.57	3.74	20	PASS
MB-73722	MBLK	1	<0.000	N/A	15	<PQL	0.016	99.7	15	<PQL
LCS-73722	LCS	1	10.36	3.36	15	PASS	107.023	2.71	15	PASS
N035374-001D	SAMP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035374-001D	SAMP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035374-001D	SAMP	25	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035374-001D-DUP	DUP	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035374-001D-DUP	DUP	5	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035374-001D-PS	PS	1	11.36	2.53	15	PASS	113.46	2.48	15	PASS
N035374-001D-PS	PS	5	2.01	0.8	15	PASS	20.42	2.3	15	PASS
CCV1	CCV	1	21.58	2.8	15	PASS	21.76	2.87	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.012	81.21	15	<PQL
N035374-001D-MS	MS	1	11.36	2.56	15	PASS	113.4	2.27	15	PASS
N035374-001D-MS	MS	5	2.03	2.55	15	PASS	20.71	2.33	15	PASS
N035374-001D-MSD	MSD	1	11.24	3.63	15	PASS	113.25	2.98	15	PASS
N035374-001D-MSD	MSD	5	2.022	3.0071	15	PASS	20.48	1.82	15	PASS
N035251-001B	SAMP	1	0.5	2.39	15	PASS	458.24	1.28	15	PASS
N035251-001B	SAMP	5	0.082	8.54	15	PASS	101.81	0.72	15	PASS
N035251-002B	SAMP	1	426.12	2.12	15	PASS	18.46	2.18	15	PASS
N035251-002B	SAMP	5	95.92	2.18	15	PASS	4.061	4.45	15	PASS
CCV2	CCV	1	21.9	2.36	15	PASS	21.75	2.41	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.012	55.36	15	<PQL
CCV3	CCV	1	20.79	0.58	15	PASS	20.54	0.89	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.017	52.03	15	<PQL
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.64	1.39	15	PASS	21.73	1.52	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190506B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0506001.D	RINSE	RINSE	1	05/06/19 8:35 PM
B0506002.D	Cal Blank	IBLK	1	05/06/19 8:40 PM
B0506003.D	Std1-0.1/1 ppb	ICAL	1	05/06/19 8:45 PM
B0506004.D	Std2-0.5/5 ppb	ICAL	1	05/06/19 8:50 PM
B0506005.D	Std3-5/50 ppb	ICAL	1	05/06/19 8:55 PM
B0506006.D	Std4-10/100 ppb	ICAL	1	05/06/19 9:00 PM
B0506007.D	Std5-20/200 ppb	ICAL	1	05/06/19 9:06 PM
B0506008.D	Std6-40/400 ppb	ICAL	1	05/06/19 9:11 PM
B0506009.D	Std7-100/1000 ppb	ICAL	1	05/06/19 9:16 PM
B0506010.D	Std8-200/2000 ppb	ICAL	1	05/06/19 9:21 PM
B0506011.D	ICV	ICV	1	05/06/19 9:25 PM
B0506012.D	ICB	ICB	1	05/06/19 9:31 PM
B0506013.D	LLICV	CCV1	1	05/06/19 9:36 PM
B0506014.D	ICSA1	ICSA	1	05/06/19 9:41 PM
B0506015.D	ICSAB1	ICSAB	1	05/06/19 9:46 PM
B0506016.D	LLICV	CCV1	1	05/06/19 9:51 PM
B0506017.D	N035227-001B	SAMP	1	05/06/19 9:56 PM
B0506018.D	MB-73722	MBLK	1	05/06/19 10:01 PM
B0506019.D	LCS-73722	LCS	1	05/06/19 10:06 PM
B0506020.D	N035374-001D	SAMP	1	05/06/19 10:11 PM
B0506021.D	N035374-001D	SAMP	5	05/06/19 10:16 PM
B0506022.D	N035374-001D	SAMP	25	05/06/19 10:21 PM
B0506023.D	N035374-001D-DUP	DUP	1	05/06/19 10:26 PM
B0506024.D	N035374-001D-DUP	DUP	5	05/06/19 10:31 PM
B0506025.D	N035374-001D-PS	PS	1	05/06/19 10:36 PM
B0506026.D	N035374-001D-PS	PS	5	05/06/19 10:41 PM
B0506027.D	CCV1	CCV	1	05/06/19 10:46 PM
B0506028.D	CCB1	CCB	1	05/06/19 10:51 PM
B0506029.D	N035374-001D-MS	MS	1	05/06/19 10:56 PM
B0506030.D	N035374-001D-MS	MS	5	05/06/19 11:01 PM
B0506031.D	N035374-001D-MSD	MSD	1	05/06/19 11:06 PM
B0506032.D	N035374-001D-MSD	MSD	5	05/06/19 11:11 PM
B0506033.D	N035251-001B	SAMP	1	05/06/19 11:15 PM
B0506034.D	N035251-001B	SAMP	5	05/06/19 11:20 PM
B0506035.D	N035251-002B	SAMP	1	05/06/19 11:25 PM
B0506036.D	N035251-002B	SAMP	5	05/06/19 11:30 PM
B0506037.D	MB-73711	MBLK	1	05/06/19 11:35 PM
B0506038.D	LCS-73711	LCS	1	05/06/19 11:40 PM
B0506039.D	CCV2	CCV	1	05/06/19 11:45 PM
B0506040.D	CCB2	CCB	1	05/06/19 11:50 PM
B0506041.D	N035398-005A	SAMP	1	05/06/19 11:55 PM
B0506042.D	N035398-005A	SAMP	5	05/07/19 12:00 AM

INJECTION LOG: 190506B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0506043.D	N035398-005A-PS	PS	1	05/07/19 12:05 AM
B0506044.D	N035398-005A-MS	MS	1	05/07/19 12:10 AM
B0506045.D	N035398-005A-MSD	MSD	1	05/07/19 12:15 AM
B0506046.D	CCV3	CCV	1	05/07/19 12:20 AM
B0506047.D	CCB3	CCB	1	05/07/19 12:26 AM
B0506048.D	ICSA1	ICSA	1	05/07/19 12:31 AM
B0506049.D	ICSAB1	ICSAB	1	05/07/19 12:35 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/6/2019 2:03:20 P**
Prep End Date: **5/6/2019 6:10:00 P**
Prep Batch **73722** Prep Code: **200.8_PR**

Reviewed/ Date: NS 5/15/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**95.2**	**01-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73722	Aqueous		25	☐	0	0	25	1.000		
MB-73722	Aqueous		25	☐	0	0	25	1.000		
N035251-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035251-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035374-001D	Wastewater	<2	25	☐	0	0	25	1.000		
N035374-001D-DU	Wastewater	<2	25	☐	0	0	25	1.000		
N035374-001D-MS	Wastewater	<2	25	☐	0	0	25	1.000		
N035374-001D-MS	Wastewater	<2	25	☐	0	0	25	1.000		

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

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 6 May 2019 12:56:35 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	3510300.00	0.00	
24	Mg	3726820.00	0.00	
25	Mg	471950.00	0.00	
26	Mg	536580.00	0.00	
59	Co	1805710.00	0.00	
115	In	2436930.00	0.00	
206	Pb	1614440.00	0.00	
207	Pb	1445980.00	0.00	
208	Pb	3517330.00	0.00	

RSD (%)

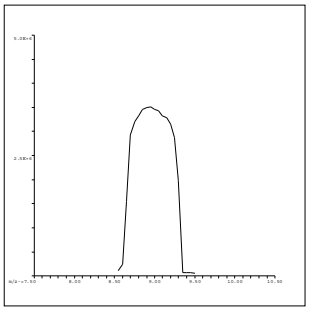
Element		Actual	Required	Flag
9	Be	1.29	5.00	
24	Mg	1.03	5.00	
25	Mg	0.95	5.00	
26	Mg	1.11	5.00	
59	Co	1.23	5.00	
115	In	1.67	5.00	
206	Pb	2.66	5.00	
207	Pb	3.40	5.00	
208	Pb	1.50	5.00	

Ion Ratio

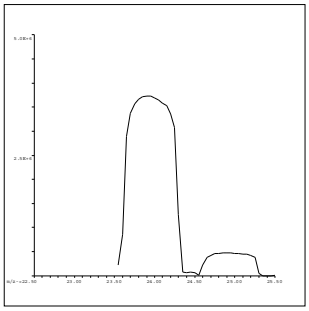
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

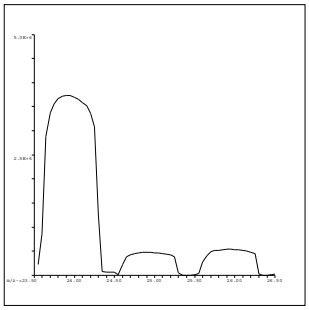
Element		Actual	Required	Flag



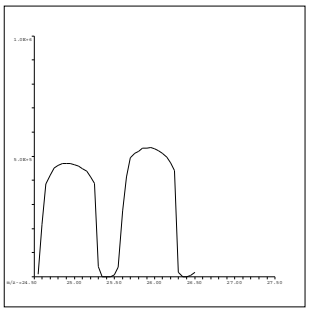
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



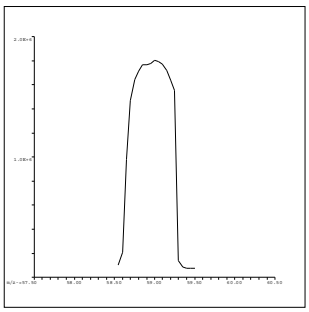
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



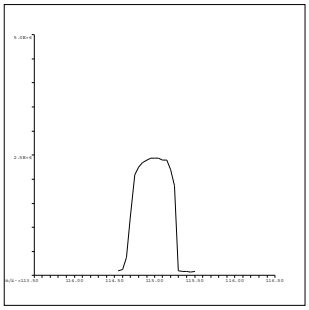
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



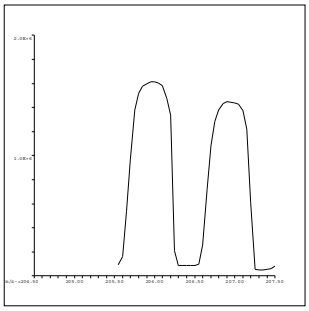
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



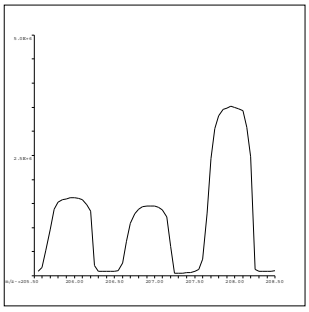
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



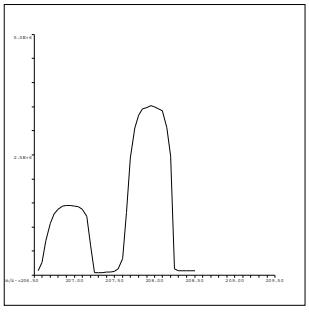
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190506B

Instrument ID: ICPMS-02

Analyte	Data File	B0506002.D	B0506004.D	B0506005.D	B0506006.D	B0506007.D	B0506008.D	B0506009.D	B0506010.D	
	Acq. Date-Time	05/06/2019 08:40 PM	05/06/2019 08:50 PM	05/06/2019 08:55 PM	05/06/2019 09:00 PM	05/06/2019 09:06 PM	05/06/2019 09:11 PM	05/06/2019 09:16 PM	05/06/2019 09:21 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	69028.8	67441	65968.5	65437.7	63871.7	62418.5	62533.4	61744.9	
55 Mn [2]	CPS	77.4	1528	13744	26436.1	51188.4	99320.5	240774.7	463271.6	0.9999
52 Cr [2]	CPS	536.2	3512.2	28570.9	55269.9	107585.9	207082.7	503296.1	970193.9	0.9999

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICV**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	105.955	0.50	100.0	0	106	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376883**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.570	0.50	0.5000	0	114	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCV**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.763	0.50	20.00	0	109	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCV**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376906**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.750	0.50	20.00	0	109	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCV**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/7/2019**	SeqNo: **3376913**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.545	0.50	20.00	0	103	90	110				

Qualifiers:

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

Calculations are based on raw values

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

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICV**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.323	1.0	10.00	0	103	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ZZZZZZ**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376922**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.060	1.0	1.000	0	106	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCV**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376933**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.576	1.0	20.00	0	108	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCV**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376945**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.903	1.0	20.00	0	110	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCV**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/7/2019**	SeqNo: **3376952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.790	1.0	20.00	0	104	90	110				

Qualifiers:

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

Calculations are based on raw values

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

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376879**

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

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376895**

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

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/7/2019**	SeqNo: **3376914**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376934**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376946**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **CCB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/7/2019**	SeqNo: **3376953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICSA**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICSAB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	22.975	0.50	20.00	0	115	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICSA**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/7/2019**	SeqNo: **3376915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICSAB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/7/2019**	SeqNo: **3376916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.734	0.50	20.00	0	109	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICSA**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICSAB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/6/2019**	SeqNo: **3376921**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.999	1.0	20.00	0	100	80	120				

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICSA**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/7/2019**	SeqNo: **3376954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **133709**
Client ID: **ICSAB**	Batch ID: **R133709**	TestNo: **EPA 200.8**		Analysis Date: **5/7/2019**	SeqNo: **3376955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.637	1.0	20.00	0	103	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190506B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					
			CPS	REF	%REC	Comment	Criteria	
Cal Blank	IBLK	1	69028.8	69028.8	100	PASS	70-125	
Std1-0.1/1 ppb	ICAL	1	68216.4	69028.8	98.82	PASS	70-125	
Std2-0.5/5 ppb	ICAL	1	67441	69028.8	97.7	PASS	70-125	
Std3-5/50 ppb	ICAL	1	65968.5	69028.8	95.57	PASS	70-125	
Std4-10/100 ppb	ICAL	1	65437.7	69028.8	94.8	PASS	70-125	
Std5-20/200 ppb	ICAL	1	63871.7	69028.8	92.53	PASS	70-125	
Std6-40/400 ppb	ICAL	1	62418.5	69028.8	90.42	PASS	70-125	
Std7-100/1000 ppb	ICAL	1	62533.4	69028.8	90.59	PASS	70-125	
Std8-200/2000 ppb	ICAL	1	61744.9	69028.8	89.45	PASS	70-125	
ICV	ICV	1	61347.9	69028.8	88.87	PASS	70-125	
ICB	ICB	1	56086	69028.8	81.25	PASS	70-125	
LLICV	CCV1	1	63982.2	69028.8	92.69	PASS	70-125	
ICSA1	ICSA	1	69972.6	69028.8	101.37	PASS	70-125	
ICSAB1	ICSAB	1	76654.1	69028.8	111.05	PASS	70-125	
LLICV	CCV1	1	74604.8	69028.8	108.08	PASS	70-125	
MB-73722	MBLK	1	58057.2	69028.8	84.11	PASS	70-125	
LCS-73722	LCS	1	61170.6	69028.8	88.62	PASS	70-125	
N035374-001D	SAMP	1	49220.1	69028.8	71.3	PASS	70-125	
N035374-001D	SAMP	5	51478.1	69028.8	74.57	PASS	70-125	
N035374-001D	SAMP	25	59606	69028.8	86.35	PASS	70-125	
N035374-001D-DUP	DUP	1	48193.6	69028.8	69.82	~~NR!~~	70-125	FAIL
N035374-001D-DUP	DUP	5	55497.4	69028.8	80.4	PASS	70-125	
N035374-001D-PS	PS	1	49032.9	69028.8	71.033	PASS	70-125	
N035374-001D-PS	PS	5	56528.8	69028.8	81.89	PASS	70-125	
CCV1	CCV	1	61064.6	69028.8	88.46	PASS	70-125	
CCB1	CCB	1	59367.3	69028.8	86.004	PASS	70-125	
N035374-001D-MS	MS	1	49361.5	69028.8	71.51	PASS	70-125	
N035374-001D-MS	MS	5	56621.3	69028.8	82.026	PASS	70-125	
N035374-001D-MSD	MSD	1	49712.7	69028.8	72.017	PASS	70-125	
N035374-001D-MSD	MSD	5	57309	69028.8	83.022	PASS	70-125	
N035251-001B	SAMP	1	54933.3	69028.8	79.58	PASS	70-125	
N035251-001B	SAMP	5	55336.9	69028.8	80.16	PASS	70-125	
N035251-002B	SAMP	1	62398.3	69028.8	90.39	PASS	70-125	
N035251-002B	SAMP	5	67376.4	69028.8	97.61	PASS	70-125	
CCV2	CCV	1	64180.7	69028.8	92.98	PASS	70-125	
CCB2	CCB	1	61417.9	69028.8	88.97	PASS	70-125	
CCV3	CCV	1	66751.8	69028.8	96.7	PASS	70-125	
CCB3	CCB	1	63539.1	69028.8	92.047	PASS	70-125	
ICSA1	ICSA	1	71694.6	69028.8	103.86	PASS	70-125	
ICSAB1	ICSAB	1	71095.1	69028.8	102.99	PASS	70-125	

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035251
Test Method: EPA 200.8
Analysis Date: 5/6/2019

Matrix: Groundwater
Batch No.: 73722

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn & Cr. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035374-001D DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N035374-001D DT 5x	Chromium	Cr	µg/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N035374-001D-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **133709**
Client ID: **ZZZZZZ** Batch ID: **73722** TestNo: **EPA 200.8** Analysis Date: **5/6/2019** SeqNo: **3376892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	113.456	0.50	100.0	0	113	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	N035374-001D-PS	SampType:	PS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	133709
Client ID:	ZZZZZZ	Batch ID:	73722	TestNo:	EPA 200.8			Analysis Date:	5/6/2019	SeqNo:	3376931

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	11.363	1.0	10.00	0	114	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133474
ASSET #: N035251

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 4/24/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			x		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			x		
6. Calibration blanks run after ICV and CCV?	X			x		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			x		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			x		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			x		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer rba Date: 5/7/2019

2nd Level Reviewer 5/7/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035251-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.6669 * 100$$

$$Cr^{+6}, \mu g/L = 466.6900$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 470}$$

ANALYSIS RUN LOG

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	04/23/19 10:30 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/23/19 10:41 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	04/23/19 10:51 AM	Reported
13	MB-R133438	MBLK	1	Hexavalent Chromium	04/23/19 11:00 AM	Reported
14	LCS-R133438	LCS	1	Hexavalent Chromium	04/23/19 11:10 AM	Reported
15	N035240-001A	SAMP	5	Hexavalent Chromium	04/23/19 11:19 AM	Not Reported
16	N035240-001AMS	MS	5	Hexavalent Chromium	04/23/19 11:29 AM	Not Reported
17	N035240-003A	SAMP	5	Hexavalent Chromium	04/23/19 11:38 AM	Not Reported
18	N035240-003AMS	MS	5	Hexavalent Chromium	04/23/19 11:48 AM	Not Reported
19	N035240-004A	SAMP	5	Hexavalent Chromium	04/23/19 11:57 AM	Reported
20	N035240-004AMS	MS	5	Hexavalent Chromium	04/23/19 12:07 PM	Reported
21	N035240-002A	SAMP	1	Hexavalent Chromium	04/23/19 12:16 PM	Reported
22	N035240-002AMS	MS	1	Hexavalent Chromium	04/23/19 12:25 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	04/23/19 12:35 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	04/23/19 12:44 PM	Reported
25	N035240-005A	SAMP	1	Hexavalent Chromium	04/23/19 12:54 PM	Reported
26	N035240-005AMS	MS	1	Hexavalent Chromium	04/23/19 1:03 PM	Reported
27	N035240-001A	SAMP	1	Hexavalent Chromium	04/23/19 1:13 PM	Reported
28	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 1:22 PM	Not Reported
29	N035240-003A	SAMP	1	Hexavalent Chromium	04/23/19 1:32 PM	Reported
30	N035240-003AMS	MS	1	Hexavalent Chromium	04/23/19 1:41 PM	Reported
31	N035240-004A	SAMP	1	Hexavalent Chromium	04/23/19 1:51 PM	Not Reported
32	N035240-004AMS	MS	1	Hexavalent Chromium	04/23/19 2:00 PM	Not Reported
33	N035240-004ADUP	DUP	5	Hexavalent Chromium	04/23/19 2:11 PM	Reported
34	N035240-004AMSD	MSD	5	Hexavalent Chromium	04/23/19 2:22 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	04/23/19 2:32 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	04/23/19 2:41 PM	Reported
37	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 2:51 PM	Reported
38	N035039-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:00 PM	Not Reported
39	N035039-009AMS	MS	1	Hexavalent Chromium	04/23/19 3:10 PM	Not Reported
40	N035065-002A	SAMP	1	Hexavalent Chromium	04/23/19 3:19 PM	Not Reported
41	N035065-002AMS	MS	1	Hexavalent Chromium	04/23/19 3:28 PM	Not Reported
42	N035023-012A	SAMP	1	Hexavalent Chromium	04/23/19 3:38 PM	Not Reported

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035023-012AMS	MS	1	Hexavalent Chromium	04/23/19 3:47 PM	Not Reported
44	N035065-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:57 PM	Not Reported
45	N035065-009AMS	MS	1	Hexavalent Chromium	04/23/19 4:06 PM	Not Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	04/23/19 4:16 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	04/23/19 4:25 PM	Reported
48	N035065-012A	SAMP	1	Hexavalent Chromium	04/23/19 4:35 PM	Not Reported
49	N035065-012AMS	MS	1	Hexavalent Chromium	04/23/19 4:44 PM	Not Reported
50	N035065-005A	SAMP	1	Hexavalent Chromium	04/23/19 4:54 PM	Not Reported
51	N035065-005AMS	MS	1	Hexavalent Chromium	04/23/19 5:03 PM	Not Reported
52	N035074-001A	SAMP	1	Hexavalent Chromium	04/23/19 5:13 PM	Not Reported
53	N035074-001AMS	MS	1	Hexavalent Chromium	04/23/19 5:22 PM	Not Reported
54	CCV-4	CCV	1	Hexavalent Chromium	04/23/19 5:31 PM	Reported
55	CCB-4	CCB	1	Hexavalent Chromium	04/23/19 5:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190423A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 09:17:37**
No. of Injections:	**58**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	12	1000	Unknown		04/23/2019 10:30	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	13	1000	Unknown		04/23/2019 10:41	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		04/23/2019 10:51	Finished	ICB R190411C
13	MB-H2O,MBLK,1,	15	1000	Unknown		04/23/2019 11:00	Finished	MB R190411C
14	LCS-H2O,LCS,1,	16	1000	Unknown		04/23/2019 11:10	Finished	LCS @5ppb, IWST-190423B
15	N035240-001A,SAMF	17	1000	Unknown		04/23/2019 11:19	Finished	SAMP,2>10mL
16	N035240-001AMS,MS	18	1000	Unknown		04/23/2019 11:29	Finished	MS (1ppb), IWST-190423B,2>
17	N035240-003A,SAMF	19	1000	Unknown		04/23/2019 11:38	Finished	SAMP,2>10mL
18	N035240-003AMS,MS	20	1000	Unknown		04/23/2019 11:48	Finished	MS (1ppb), IWST-190423B,2>
19	N035240-004A,SAMF	21	1000	Unknown		04/23/2019 11:57	Finished	SAMP,2>10mL
20	N035240-004AMS,MS	22	1000	Unknown		04/23/2019 12:07	Finished	MS (1ppb), IWST-190423B,2>
21	N035240-002A,SAMF	23	1000	Unknown		04/23/2019 12:16	Finished	SAMP,10mL
22	N035240-002AMS,MS	24	1000	Unknown		04/23/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>
23	CCV-1,CCV1,1,	25	1000	Unknown		04/23/2019 12:35	Finished	CCV @10ppb, IWST-190423A
24	CCB-1,CCB,1,	26	1000	Unknown		04/23/2019 12:44	Finished	CCB R190411C
25	N035240-005A,SAMF	27	1000	Unknown		04/23/2019 12:54	Finished	SAMP,10mL
26	N035240-005AMS,MS	28	1000	Unknown		04/23/2019 13:03	Finished	MS (1ppb), IWST-190423B,10
27	N035240-001A,SAMF	29	1000	Unknown		04/23/2019 13:13	Finished	SAMP,10mL
28	N035240-001AMS,MS	30	1000	Unknown		04/23/2019 13:22	Finished	MS (1ppb), IWST-190423B,10
29	N035240-003A,SAMF	31	1000	Unknown		04/23/2019 13:32	Finished	SAMP,10mL
30	N035240-003AMS,MS	32	1000	Unknown		04/23/2019 13:41	Finished	MS (1ppb), IWST-190423B,10
31	N035240-004A,SAMF	33	1000	Unknown		04/23/2019 13:51	Finished	SAMP,10mL
32	N035240-004AMS,MS	34	1000	Unknown		04/23/2019 14:00	Finished	MS (1ppb), IWST-190423B,2>
33	N035240-004ADUP,D	1	1000	Unknown		04/23/2019 14:11	Finished	DUP,2>10mL
34	N035240-004AMSD,M	2	1000	Unknown		04/23/2019 14:22	Finished	MSD (1ppb), IWST-190423B,2
35	CCV-2,CCV,1,	3	1000	Unknown		04/23/2019 14:32	Finished	CCV @5ppb, IWST-190423A
36	CCB-2,CCB,1,	4	1000	Unknown		04/23/2019 14:41	Finished	CCB R190411C
37	N035240-001AMS,MS	5	1000	Unknown		04/23/2019 14:51	Finished	MS (1ppb), IWST-190423B,10
38	N035039-009A,SAMF	6	1000	Unknown		04/23/2019 15:00	Finished	SAMP,10mL
39	N035039-009AMS,MS	7	1000	Unknown		04/23/2019 15:10	Finished	MS (5ppb), IWST-190423B,10
40	N035065-002A,SAMF	8	1000	Unknown		04/23/2019 15:19	Finished	SAMP,10mL
41	N035065-002AMS,MS	9	1000	Unknown		04/23/2019 15:28	Finished	MS (5ppb), IWST-190423B,10
42	N035023-012A,SAMF	10	1000	Unknown		04/23/2019 15:38	Finished	SAMP,10mL
43	N035023-012AMS,MS	11	1000	Unknown		04/23/2019 15:47	Finished	MS (1ppb), IWST-190423B,10
44	N035065-009A,SAMF	12	1000	Unknown		04/23/2019 15:57	Finished	SAMP,10mL
45	N035065-009AMS,MS	13	1000	Unknown		04/23/2019 16:06	Finished	MS (1ppb), IWST-190423B,10
46	CCV-3,CCV1,1,	14	1000	Unknown		04/23/2019 16:16	Finished	CCV @10ppb, IWST-190423A
47	CCB-3,CCB,1,	15	1000	Unknown		04/23/2019 16:25	Finished	CCB R190411C
48	N035065-012A,SAMF	16	1000	Unknown		04/23/2019 16:35	Finished	SAMP,10mL
49	N035065-012AMS,MS	17	1000	Unknown		04/23/2019 16:44	Finished	MS (1ppb), IWST-190423B,10
50	N035065-005A,SAMF	18	1000	Unknown		04/23/2019 16:54	Finished	SAMP,10mL
51	N035065-005AMS,MS	19	1000	Unknown		04/23/2019 17:03	Finished	MS (1ppb), IWST-190423B,10
52	N035074-001A,SAMF	20	1000	Unknown		04/23/2019 17:13	Finished	SAMP,10mL
53	N035074-001AMS,MS	21	1000	Unknown		04/23/2019 17:22	Finished	MS (1ppb), IWST-190423B,10
54	CCV-4,CCV,1,	22	1000	Unknown		04/23/2019 17:31	Finished	CCV @5ppb, IWST-190423A
55	CCB-4,CCB,1,	23	1000	Unknown		04/23/2019 17:41	Finished	CCB R190411C
56	SHUTDOWN	24	1000	Unknown		04/23/2019 17:50	Finished	
57	Eluent: R190422A	25	1000	Unknown		n.a.	Finished	Eluent
58	PCR: R190422B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190424A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	04/24/19 9:13 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	04/24/19 9:24 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/24/19 9:34 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	04/24/19 9:43 AM	Reported
14	MB-R133474	MBLK	1	Hexavalent Chromium	04/24/19 9:53 AM	Reported
15	LCS-R133474	LCS	1	Hexavalent Chromium	04/24/19 10:02 AM	Reported
16	N035250-001A	SAMP	5	Hexavalent Chromium	04/24/19 10:27 AM	Reported
17	N035250-001AMS	MS	5	Hexavalent Chromium	04/24/19 10:38 AM	Reported
18	N035250-002A	SAMP	5	Hexavalent Chromium	04/24/19 10:48 AM	Not Reported
19	N035250-002AMS	MS	5	Hexavalent Chromium	04/24/19 10:57 AM	Not Reported
20	N035250-003A	SAMP	5	Hexavalent Chromium	04/24/19 11:07 AM	Reported
21	N035250-003AMS	MS	5	Hexavalent Chromium	04/24/19 11:16 AM	Reported
22	N035250-006A	SAMP	1	Hexavalent Chromium	04/24/19 11:25 AM	Reported
23	N035250-006AMS	MS	1	Hexavalent Chromium	04/24/19 11:35 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	04/24/19 11:44 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	04/24/19 11:54 AM	Reported
26	N035250-004A	SAMP	5	Hexavalent Chromium	04/24/19 12:03 PM	Reported
27	N035250-004AMS	MS	5	Hexavalent Chromium	04/24/19 12:13 PM	Reported
28	N035250-005A	SAMP	5	Hexavalent Chromium	04/24/19 12:22 PM	Not Reported
29	N035250-005AMS	MS	5	Hexavalent Chromium	04/24/19 12:32 PM	Not Reported
30	N035250-007A	SAMP	5	Hexavalent Chromium	04/24/19 12:41 PM	Not Reported
31	N035250-007AMS	MS	5	Hexavalent Chromium	04/24/19 12:51 PM	Not Reported
32	N035250-012A	SAMP	5	Hexavalent Chromium	04/24/19 1:00 PM	Reported
33	N035250-012AMS	MS	5	Hexavalent Chromium	04/24/19 1:10 PM	Reported
34	N035250-016A	SAMP	5	Hexavalent Chromium	04/24/19 1:19 PM	Reported
35	N035250-016AMS	MS	5	Hexavalent Chromium	04/24/19 1:28 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	04/24/19 1:38 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	04/24/19 1:47 PM	Reported
38	N035250-017A	SAMP	5	Hexavalent Chromium	04/24/19 1:57 PM	Reported
39	N035250-017AMS	MS	5	Hexavalent Chromium	04/24/19 2:06 PM	Reported
40	N035250-009A	SAMP	1	Hexavalent Chromium	04/24/19 2:16 PM	Reported
41	N035250-011A	SAMP	1	Hexavalent Chromium	04/24/19 2:25 PM	Reported
42	N035250-009AMS	MS	1	Hexavalent Chromium	04/24/19 2:35 PM	Reported

INJECTION LOG: 190424A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035250-011AMS	MS	1	Hexavalent Chromium	04/24/19 2:44 PM	Reported
44	N035250-014A	SAMP	20	Hexavalent Chromium	04/24/19 2:54 PM	Reported
45	N035250-014AMS	MS	20	Hexavalent Chromium	04/24/19 3:03 PM	Reported
46	N035251-001A	SAMP	1	Hexavalent Chromium	04/24/19 3:13 PM	Reported
47	N035251-001AMS	MS	1	Hexavalent Chromium	04/24/19 3:22 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	04/24/19 3:31 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	04/24/19 3:41 PM	Reported
50	N035251-002A	SAMP	100	Hexavalent Chromium	04/24/19 3:50 PM	Reported
51	N035251-002AMS	MS	100	Hexavalent Chromium	04/24/19 4:00 PM	Reported
52	N035250-014AMSD	MSD	20	Hexavalent Chromium	04/24/19 4:09 PM	Reported
53	N035251-002ADUP	DUP	100	Hexavalent Chromium	04/24/19 4:19 PM	Reported
54	N035250-001A	SAMP	1	Hexavalent Chromium	04/24/19 4:31 PM	Not Reported
55	N035250-001AMS	MS	1	Hexavalent Chromium	04/24/19 4:42 PM	Not Reported
56	N035250-002A	SAMP	1	Hexavalent Chromium	04/24/19 4:51 PM	Reported
57	N035250-002AMS	MS	1	Hexavalent Chromium	04/24/19 5:02 PM	Reported
58	N035250-003A	SAMP	1	Hexavalent Chromium	04/24/19 5:12 PM	Not Reported
59	N035250-003AMS	MS	1	Hexavalent Chromium	04/24/19 5:21 PM	Not Reported
60	CCV-5	CCV	1	Hexavalent Chromium	04/24/19 5:30 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	04/24/19 5:40 PM	Reported
62	N035250-004A	SAMP	1	Hexavalent Chromium	04/24/19 5:49 PM	Not Reported
63	N035250-004AMS	MS	1	Hexavalent Chromium	04/24/19 5:59 PM	Not Reported
64	N035250-005A	SAMP	1	Hexavalent Chromium	04/24/19 6:08 PM	Reported
65	N035250-005AMS	MS	1	Hexavalent Chromium	04/24/19 6:18 PM	Reported
66	N035250-007A	SAMP	1	Hexavalent Chromium	04/24/19 6:27 PM	Reported
67	N035250-007AMS	MS	1	Hexavalent Chromium	04/24/19 6:37 PM	Reported
68	N035250-012A	SAMP	1	Hexavalent Chromium	04/24/19 6:46 PM	Not Reported
69	N035250-012AMS	MS	1	Hexavalent Chromium	04/24/19 6:56 PM	Not Reported
70	N035250-016A	SAMP	1	Hexavalent Chromium	04/24/19 7:05 PM	Not Reported
71	N035250-016AMS	MS	1	Hexavalent Chromium	04/24/19 7:15 PM	Not Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	04/24/19 7:24 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	04/24/19 7:33 PM	Reported
74	N035250-017A	SAMP	1	Hexavalent Chromium	04/24/19 7:43 PM	Not Reported
75	N035250-017AMS	MS	1	Hexavalent Chromium	04/24/19 7:52 PM	Not Reported
76	N035250-008A	SAMP	1	Hexavalent Chromium	04/24/19 8:02 PM	Reported
77	N035250-008AMS	MS	1	Hexavalent Chromium	04/24/19 8:11 PM	Reported
78	N035250-010A	SAMP	1	Hexavalent Chromium	04/24/19 8:21 PM	Reported
79	N035250-010AMS	MS	1	Hexavalent Chromium	04/24/19 8:30 PM	Reported
80	N035250-013A	SAMP	1	Hexavalent Chromium	04/24/19 8:40 PM	Reported
81	N035250-013AMS	MS	1	Hexavalent Chromium	04/24/19 8:49 PM	Reported
82	N035250-015A	SAMP	1	Hexavalent Chromium	04/24/19 8:59 PM	Reported
83	N035250-015AMS	MS	1	Hexavalent Chromium	04/24/19 9:08 PM	Reported
84	CCV-7	CCV	1	Hexavalent Chromium	04/24/19 9:18 PM	Reported

INJECTION LOG: 190424A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	CCB-7	CCB	1	Hexavalent Chromium	04/24/19 9:27 PM	Reported
86	N035250-018A	SAMP	1	Hexavalent Chromium	04/24/19 9:36 PM	Reported
87	N035250-018AMS	MS	1	Hexavalent Chromium	04/24/19 9:46 PM	Reported
88	CCV-8	CCV1	1	Hexavalent Chromium	04/24/19 9:55 PM	Reported
89	CCB-8	CCB	1	Hexavalent Chromium	04/24/19 10:05 PM	Reported
90	BLANK	BLANK	1	Hexavalent Chromium	04/24/19 10:14 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190424A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 22:45:10**
No. of Injections:	**93**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		04/24/2019 09:13	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		04/24/2019 09:24	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		04/24/2019 09:34	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		04/24/2019 09:43	Finished	CCB R190411C
14	MB-H2O,MBLK,1,	5	1000	Unknown		04/24/2019 09:53	Finished	MB R190411C
15	LCS-H2O,LCS,1,	6	1000	Unknown		04/24/2019 10:02	Finished	LCS @5ppb, IWST-190423B
16	N035250-001A,SAMP	1	1000	Unknown		04/24/2019 10:27	Finished	SAMP,2>10mL
17	N035250-001AMS,MS	2	1000	Unknown		04/24/2019 10:38	Finished	MS (1ppb), IWST-190423B,2>1
18	N035250-002A,SAMP	3	1000	Unknown		04/24/2019 10:48	Finished	SAMP,2>10mL
19	N035250-002AMS,MS	4	1000	Unknown		04/24/2019 10:57	Finished	MS (1ppb), IWST-190423B,2>1
20	N035250-003A,SAMP	5	1000	Unknown		04/24/2019 11:07	Finished	SAMP,2>10mL
21	N035250-003AMS,MS	6	1000	Unknown		04/24/2019 11:16	Finished	MS (1ppb), IWST-190423B,2>1
22	N035250-006A,SAMP	7	1000	Unknown		04/24/2019 11:25	Finished	SAMP,10mL
23	N035250-006AMS,MS	8	1000	Unknown		04/24/2019 11:35	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	9	1000	Unknown		04/24/2019 11:44	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	10	1000	Unknown		04/24/2019 11:54	Finished	CCB R190411C
26	N035250-004A,SAMP	11	1000	Unknown		04/24/2019 12:03	Finished	SAMP,2>10mL
27	N035250-004AMS,MS	12	1000	Unknown		04/24/2019 12:13	Finished	MS (1ppb), IWST-190423B,2>1
28	N035250-005A,SAMP	13	1000	Unknown		04/24/2019 12:22	Finished	SAMP,2>10mL
29	N035250-005AMS,MS	14	1000	Unknown		04/24/2019 12:32	Finished	MS (1ppb), IWST-190423B,2>1
30	N035250-007A,SAMP	15	1000	Unknown		04/24/2019 12:41	Finished	SAMP,2>10mL
31	N035250-007AMS,MS	16	1000	Unknown		04/24/2019 12:51	Finished	MS (1ppb), IWST-190423B,2>1
32	N035250-012A,SAMP	17	1000	Unknown		04/24/2019 13:00	Finished	SAMP,2>10mL
33	N035250-012AMS,MS	18	1000	Unknown		04/24/2019 13:10	Finished	MS (1ppb), IWST-190423B,2>1
34	N035250-016A,SAMP	19	1000	Unknown		04/24/2019 13:19	Finished	SAMP,2>10mL
35	N035250-016AMS,MS	20	1000	Unknown		04/24/2019 13:28	Finished	MS (1ppb), IWST-190423B,2>1
36	CCV-3,CCV,1,	21	1000	Unknown		04/24/2019 13:38	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	22	1000	Unknown		04/24/2019 13:47	Finished	CCB R190411C
38	N035250-017A,SAMP	23	1000	Unknown		04/24/2019 13:57	Finished	SAMP,2>10mL
39	N035250-017AMS,MS	24	1000	Unknown		04/24/2019 14:06	Finished	MS (1ppb), IWST-190423B,2>1
40	N035250-009A,SAMP	25	1000	Unknown		04/24/2019 14:16	Finished	SAMP,10mL
41	N035250-011A,SAMP	26	1000	Unknown		04/24/2019 14:25	Finished	SAMP,10mL
42	N035250-009AMS,MS	27	1000	Unknown		04/24/2019 14:35	Finished	MS (1ppb), IWST-190423B,10
43	N035250-011AMS,MS	28	1000	Unknown		04/24/2019 14:44	Finished	MS (1ppb), IWST-190423B,10
44	N035250-014A,SAMP	29	1000	Unknown		04/24/2019 14:54	Finished	SAMP,0.5>10mL
45	N035250-014AMS,MS	30	1000	Unknown		04/24/2019 15:03	Finished	MS (5ppb), IWST-190423B,0.5
46	N035251-001A,SAMP	31	1000	Unknown		04/24/2019 15:13	Finished	SAMP,10mL
47	N035251-001AMS,MS	32	1000	Unknown		04/24/2019 15:22	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	33	1000	Unknown		04/24/2019 15:31	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	34	1000	Unknown		04/24/2019 15:41	Finished	CCB R190411C
50	N035251-002A,SAMP	35	1000	Unknown		04/24/2019 15:50	Finished	SAMP,0.1>10mL
51	N035251-002AMS,MS	36	1000	Unknown		04/24/2019 16:00	Finished	MS (5ppb), IWST-190423B,0.1
52	N035250-014AMSD,M	37	1000	Unknown		04/24/2019 16:09	Finished	MSD (5ppb), IWST-190423B,0.
53	N035251-002ADUP,D	38	1000	Unknown		04/24/2019 16:19	Finished	DUP,0.1>10mL
54	N035250-001A,SAMP	1	1000	Unknown		04/24/2019 16:31	Finished	SAMP,10mL
55	N035250-001AMS,MS	2	1000	Unknown		04/24/2019 16:42	Finished	MS (1ppb), IWST-190423B,10
56	N035250-002A,SAMP	3	1000	Unknown		04/24/2019 16:51	Finished	SAMP,10mL
57	N035250-002AMS,MS	4	1000	Unknown		04/24/2019 17:02	Finished	MS (1ppb), IWST-190423B,10
58	N035250-003A,SAMP	5	1000	Unknown		04/24/2019 17:12	Finished	SAMP,10mL
59	N035250-003AMS,MS	6	1000	Unknown		04/24/2019 17:21	Finished	MS (1ppb), IWST-190423B,10
60	CCV-5,CCV,1,	7	1000	Unknown		04/24/2019 17:30	Finished	CCV @5ppb, IWST-190423A

61	CCB-5,CCB,1,	8	1000	Unknown		04/24/2019 17:40	Finished	CCB R190411C
62	N035250-004A,SAMP	9	1000	Unknown		04/24/2019 17:49	Finished	SAMP,10mL
63	N035250-004AMS,MS	10	1000	Unknown		04/24/2019 17:59	Finished	MS (1ppb), IWST-190423B,10
64	N035250-005A,SAMP	11	1000	Unknown		04/24/2019 18:08	Finished	SAMP,10mL
65	N035250-005AMS,MS	12	1000	Unknown		04/24/2019 18:18	Finished	MS (1ppb), IWST-190423B,10
66	N035250-007A,SAMP	13	1000	Unknown		04/24/2019 18:27	Finished	SAMP,10mL
67	N035250-007AMS,MS	14	1000	Unknown		04/24/2019 18:37	Finished	MS (1ppb), IWST-190423B,10
68	N035250-012A,SAMP	15	1000	Unknown		04/24/2019 18:46	Finished	SAMP,10mL
69	N035250-012AMS,MS	16	1000	Unknown		04/24/2019 18:56	Finished	MS (1ppb), IWST-190423B,10
70	N035250-016A,SAMP	17	1000	Unknown		04/24/2019 19:05	Finished	SAMP,10mL
71	N035250-016AMS,MS	18	1000	Unknown		04/24/2019 19:15	Finished	MS (1ppb), IWST-190423B,10
72	CCV-6,CCV1,1,	19	1000	Unknown		04/24/2019 19:24	Finished	CCV @10ppb, IWST-190423A
73	CCB-6,CCB,1,	20	1000	Unknown		04/24/2019 19:33	Finished	CCB R190411C
74	N035250-017A,SAMP	21	1000	Unknown		04/24/2019 19:43	Finished	SAMP,10mL
75	N035250-017AMS,MS	22	1000	Unknown		04/24/2019 19:52	Finished	MS (1ppb), IWST-190423B,10
76	N035250-008A,SAMP	23	1000	Unknown		04/24/2019 20:02	Finished	SAMP,10mL
77	N035250-008AMS,MS	24	1000	Unknown		04/24/2019 20:11	Finished	MS (1ppb), IWST-190423B,10
78	N035250-010A,SAMP	25	1000	Unknown		04/24/2019 20:21	Finished	SAMP,10mL
79	N035250-010AMS,MS	26	1000	Unknown		04/24/2019 20:30	Finished	MS (1ppb), IWST-190423B,10
80	N035250-013A,SAMP	27	1000	Unknown		04/24/2019 20:40	Finished	SAMP,10mL
81	N035250-013AMS,MS	28	1000	Unknown		04/24/2019 20:49	Finished	MS (1ppb), IWST-190423B,10
82	N035250-015A,SAMP	29	1000	Unknown		04/24/2019 20:59	Finished	SAMP,10mL
83	N035250-015AMS,MS	30	1000	Unknown		04/24/2019 21:08	Finished	MS (1ppb), IWST-190423B,10
84	CCV-7,CCV,1,	31	1000	Unknown		04/24/2019 21:18	Finished	CCV @5ppb, IWST-190423A
85	CCB-7,CCB,1,	32	1000	Unknown		04/24/2019 21:27	Finished	CCB R190411C
86	N035250-018A,SAMP	33	1000	Unknown		04/24/2019 21:36	Finished	SAMP,10mL
87	N035250-018AMS,MS	34	1000	Unknown		04/24/2019 21:46	Finished	MS (1ppb), IWST-190423B,10
88	CCV-8,CCV1,1,	35	1000	Unknown		04/24/2019 21:55	Finished	CCV @10ppb, IWST-190423A
89	CCB-8,CCB,1,	36	1000	Unknown		04/24/2019 22:05	Finished	CCB R190411C
90	BLANK	37	1000	Unknown		04/24/2019 22:14	Finished	BLANK
91	SHUTDOWN	38	1000	Unknown		04/24/2019 22:24	Finished	
92	Eluent: R190424A	39	1000	Unknown		n.a.	Finished	Eluent
93	PCR: R190424B	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 4/24/19
Time Prepared: 1005
Prepared By: [illegible]

SLOPE: 96.3%
pH 7 - 6.99
4 - 4.01
10 - 10.01

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90424A
NH4OH + NH4SO4 buffer: M90411C

6N NaOH: M90329A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M35250-001A	9.56	–	-250ml	-250ml		1/2
2)	1A	9.49	–				2/2
3)	2A	8.33	9.33			+10 dps NaOH	1/2
4)	2A	8.29	9.30			+10 " "	2/2
5)	3A	9.56	–				1/2
6)	3A	9.60	–				2/2
7)	4A	9.62	–				1/2
8)	4A	9.65	–				2/2
9)	5A	8.81	9.32			+7 " "	1/2
10)	5A	8.72	9.32			+8 " "	2/2
11)	6A	9.67	–				1/1
12)	7A	9.52	–				1/2
13)	7A	9.51	–				2/2
14)	8A	9.59	–				1/1
15)	9A	9.49	–				1/2
	9A	9.46	–				2/2

Sample Preparation

Date Prepared: 4/24/19
Time Prepared: 1005H
Prepared By: [illegible]

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90424A
NH4OH + NH4SO4 buffer: M90411C

6N NaOH: M90411C

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M35250-10A	9.57	–	-250ml	-250ml		1/1
2)	11A	9.37	–				1/2
3)	11A	9.36	–				2/2
4)	12A	8.11	9.32			+10 dps NaOH	1/1
5)	13A	9.57	–				1/1
6)	14A	9.31	–				1/1
7)	15A	9.62	–				1/1
8)	16A	9.47	–				1/2
9)	16A	9.49	–				2/2
10)	17A	9.50	–				1/2
11)	17A	9.57	–				2/2
12)	18A	9.64	–				1/1
13)	M35251-1A	9.26	9.40			+2 " "	
14)	2A	9.21	9.42			+3 " "	
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 4/23/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0538	0.2527	1.2462	2.4794	3.7395	4.9803	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ICV**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3363775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3363776**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.226	0.20	0.2000	0	113	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCV**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.936	0.20	5.000	0	98.7	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.217	0.20	0.2000	0	109	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363789**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.913	0.20	10.00	0	99.1	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCV**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.949	0.20	5.000	0	99.0	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.849	0.20	10.00	0	98.5	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCV**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363817**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.925	0.20	5.000	0	98.5	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.892	0.20	10.00	0	98.9	95	105				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCV**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.896	0.20	5.000	0	97.9	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-8**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ZZZZZZ**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.735	0.20	10.00	0	97.3	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **ICB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3363777**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363790**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363798**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363810**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363818**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363824**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-8**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133474**
Client ID: **CCB**	Batch ID: **R133474**	TestNo: **EPA 218.6**		Analysis Date: **4/24/2019**	SeqNo: **3363838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.831	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.848	
CCV-8	4.856	

Average	4.852
Actual RT Window	4.772 - 4.932
Applied RT Window	4.652 - 5.052

MB-R133474	N.A.	N.A.
LCS-R133474	4.856	PASS
N035250-001A	N.A.	N.A.
N035250-001AMS	4.815	PASS
N035250-002A	N.A.	N.A.
N035250-002AMS	4.831	PASS
N035250-003A	N.A.	N.A.
N035250-003AMS	4.790	PASS
N035250-006A	N.A.	N.A.
N035250-006AMS	4.856	PASS
N035250-004A	N.A.	N.A.
N035250-004AMS	4.790	PASS
N035250-005A	N.A.	N.A.
N035250-005AMS	4.831	PASS
N035250-007A	N.A.	N.A.
N035250-007AMS	4.831	PASS
N035250-012A	N.A.	N.A.
N035250-012AMS	4.815	PASS
N035250-016A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.831	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.848	
CCV-8	4.856	
Average	4.852	
Actual RT Window	4.772 - 4.932	
Applied RT Window	4.652 - 5.052	
N035250-016AMS	4.773	PASS
N035250-017A	N.A.	N.A.
N035250-017AMS	4.798	PASS
N035250-009A	N.A.	N.A.
N035250-011A	N.A.	N.A.
N035250-009AMS	4.848	PASS
N035250-011AMS	4.831	PASS
N035250-014A	4.848	PASS
N035250-014AMS	4.856	PASS
N035251-001A	N.A.	N.A.
N035251-001AMS	4.831	PASS
N035251-002A	4.856	PASS
N035251-002AMS	4.856	PASS
N035250-014AMSD	4.856	PASS
N035251-002ADUP	4.856	PASS
N035250-001A	N.A.	N.A.
N035250-001AMS	4.523	FAIL
N035250-002A	N.A.	N.A.
N035250-002AMS	4.706	PASS
N035250-003A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.831	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.848	
CCV-8	4.856	
Average	4.852	
Actual RT Window	4.772 - 4.932	
Applied RT Window	4.652 - 5.052	
N035250-003AMS	N.A.	N.A.
N035250-004A	N.A.	N.A.
N035250-004AMS	N.A.	N.A.
N035250-005A	N.A.	N.A.
N035250-005AMS	4.748	PASS
N035250-007A	N.A.	N.A.
N035250-007AMS	4.723	PASS
N035250-012A	N.A.	N.A.
N035250-012AMS	4.581	FAIL
N035250-016A	N.A.	N.A.
N035250-016AMS	N.A.	N.A.
N035250-017A	N.A.	N.A.
N035250-017AMS	N.A.	N.A.
N035250-008A	N.A.	N.A.
N035250-008AMS	4.856	PASS
N035250-010A	N.A.	N.A.
N035250-010AMS	4.856	PASS
N035250-013A	N.A.	N.A.
N035250-013AMS	4.865	PASS
N035250-015A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.831	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.848	
CCV-8	4.856	
Average	4.852	
Actual RT Window	4.772 - 4.932	
Applied RT Window	4.652 - 5.052	
N035250-015AMS	4.856	PASS
N035250-018A	N.A.	N.A.
N035250-018AMS	4.856	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	04/23/19 10:30 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/23/19 10:41 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	04/23/19 10:51 AM	Reported
13	MB-R133438	MBLK	1	Hexavalent Chromium	04/23/19 11:00 AM	Reported
14	LCS-R133438	LCS	1	Hexavalent Chromium	04/23/19 11:10 AM	Reported
15	N035240-001A	SAMP	5	Hexavalent Chromium	04/23/19 11:19 AM	Not Reported
16	N035240-001AMS	MS	5	Hexavalent Chromium	04/23/19 11:29 AM	Not Reported
17	N035240-003A	SAMP	5	Hexavalent Chromium	04/23/19 11:38 AM	Not Reported
18	N035240-003AMS	MS	5	Hexavalent Chromium	04/23/19 11:48 AM	Not Reported
19	N035240-004A	SAMP	5	Hexavalent Chromium	04/23/19 11:57 AM	Reported
20	N035240-004AMS	MS	5	Hexavalent Chromium	04/23/19 12:07 PM	Reported
21	N035240-002A	SAMP	1	Hexavalent Chromium	04/23/19 12:16 PM	Reported
22	N035240-002AMS	MS	1	Hexavalent Chromium	04/23/19 12:25 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	04/23/19 12:35 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	04/23/19 12:44 PM	Reported
25	N035240-005A	SAMP	1	Hexavalent Chromium	04/23/19 12:54 PM	Reported
26	N035240-005AMS	MS	1	Hexavalent Chromium	04/23/19 1:03 PM	Reported
27	N035240-001A	SAMP	1	Hexavalent Chromium	04/23/19 1:13 PM	Reported
28	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 1:22 PM	Not Reported
29	N035240-003A	SAMP	1	Hexavalent Chromium	04/23/19 1:32 PM	Reported
30	N035240-003AMS	MS	1	Hexavalent Chromium	04/23/19 1:41 PM	Reported
31	N035240-004A	SAMP	1	Hexavalent Chromium	04/23/19 1:51 PM	Not Reported
32	N035240-004AMS	MS	1	Hexavalent Chromium	04/23/19 2:00 PM	Not Reported
33	N035240-004ADUP	DUP	5	Hexavalent Chromium	04/23/19 2:11 PM	Reported
34	N035240-004AMSD	MSD	5	Hexavalent Chromium	04/23/19 2:22 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	04/23/19 2:32 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	04/23/19 2:41 PM	Reported
37	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 2:51 PM	Reported
38	N035039-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:00 PM	Not Reported
39	N035039-009AMS	MS	1	Hexavalent Chromium	04/23/19 3:10 PM	Not Reported
40	N035065-002A	SAMP	1	Hexavalent Chromium	04/23/19 3:19 PM	Not Reported
41	N035065-002AMS	MS	1	Hexavalent Chromium	04/23/19 3:28 PM	Not Reported
42	N035023-012A	SAMP	1	Hexavalent Chromium	04/23/19 3:38 PM	Not Reported

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035023-012AMS	MS	1	Hexavalent Chromium	04/23/19 3:47 PM	Not Reported
44	N035065-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:57 PM	Not Reported
45	N035065-009AMS	MS	1	Hexavalent Chromium	04/23/19 4:06 PM	Not Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	04/23/19 4:16 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	04/23/19 4:25 PM	Reported
48	N035065-012A	SAMP	1	Hexavalent Chromium	04/23/19 4:35 PM	Not Reported
49	N035065-012AMS	MS	1	Hexavalent Chromium	04/23/19 4:44 PM	Not Reported
50	N035065-005A	SAMP	1	Hexavalent Chromium	04/23/19 4:54 PM	Not Reported
51	N035065-005AMS	MS	1	Hexavalent Chromium	04/23/19 5:03 PM	Not Reported
52	N035074-001A	SAMP	1	Hexavalent Chromium	04/23/19 5:13 PM	Not Reported
53	N035074-001AMS	MS	1	Hexavalent Chromium	04/23/19 5:22 PM	Not Reported
54	CCV-4	CCV	1	Hexavalent Chromium	04/23/19 5:31 PM	Reported
55	CCB-4	CCB	1	Hexavalent Chromium	04/23/19 5:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190423A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 09:17:37**
No. of Injections:	**58**	*Updated By:*	**ics 5000**

Injection Details

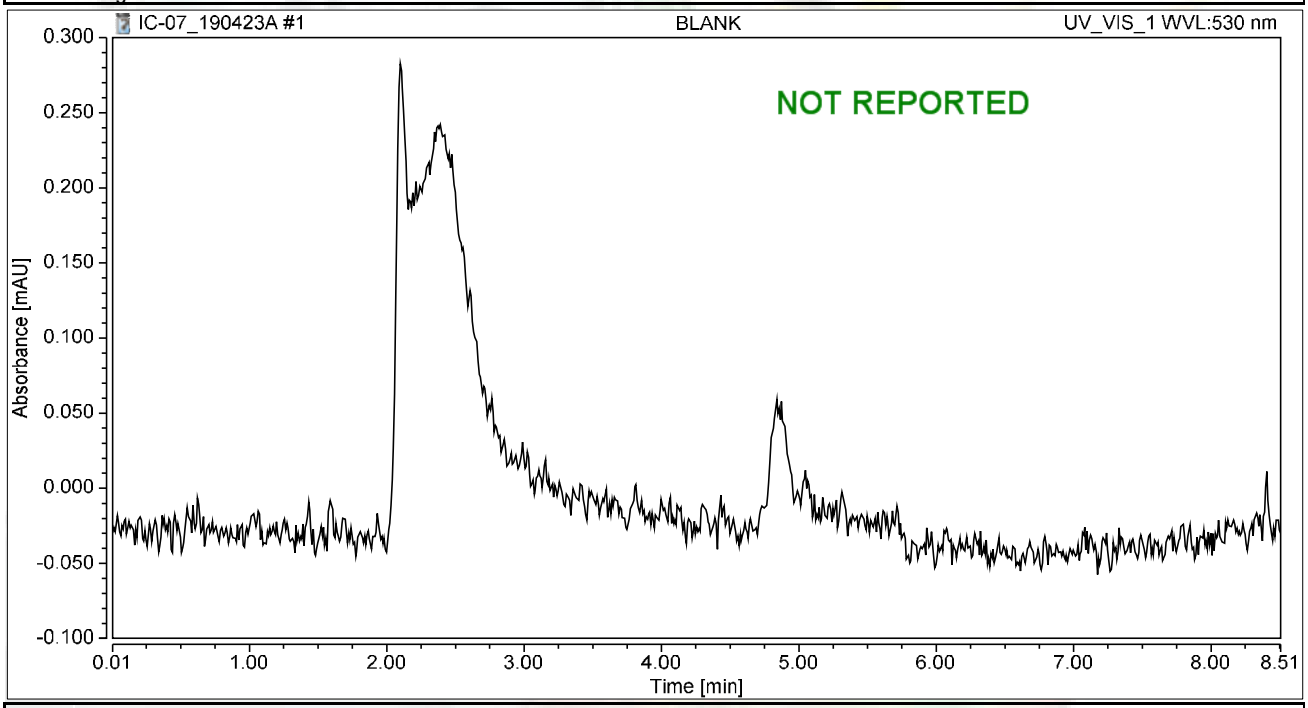
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	12	1000	Unknown		04/23/2019 10:30	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	13	1000	Unknown		04/23/2019 10:41	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		04/23/2019 10:51	Finished	ICB R190411C
13	MB-H2O,MBLK,1,	15	1000	Unknown		04/23/2019 11:00	Finished	MB R190411C
14	LCS-H2O,LCS,1,	16	1000	Unknown		04/23/2019 11:10	Finished	LCS @5ppb, IWST-190423B
15	N035240-001A,SAMF	17	1000	Unknown		04/23/2019 11:19	Finished	SAMP,2>10mL
16	N035240-001AMS,MS	18	1000	Unknown		04/23/2019 11:29	Finished	MS (1ppb), IWST-190423B,2>1
17	N035240-003A,SAMF	19	1000	Unknown		04/23/2019 11:38	Finished	SAMP,2>10mL
18	N035240-003AMS,MS	20	1000	Unknown		04/23/2019 11:48	Finished	MS (1ppb), IWST-190423B,2>1
19	N035240-004A,SAMF	21	1000	Unknown		04/23/2019 11:57	Finished	SAMP,2>10mL
20	N035240-004AMS,MS	22	1000	Unknown		04/23/2019 12:07	Finished	MS (1ppb), IWST-190423B,2>1
21	N035240-002A,SAMF	23	1000	Unknown		04/23/2019 12:16	Finished	SAMP,10mL
22	N035240-002AMS,MS	24	1000	Unknown		04/23/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>1
23	CCV-1,CCV1,1,	25	1000	Unknown		04/23/2019 12:35	Finished	CCV @10ppb, IWST-190423A
24	CCB-1,CCB,1,	26	1000	Unknown		04/23/2019 12:44	Finished	CCB R190411C
25	N035240-005A,SAMF	27	1000	Unknown		04/23/2019 12:54	Finished	SAMP,10mL
26	N035240-005AMS,MS	28	1000	Unknown		04/23/2019 13:03	Finished	MS (1ppb), IWST-190423B,10
27	N035240-001A,SAMF	29	1000	Unknown		04/23/2019 13:13	Finished	SAMP,10mL
28	N035240-001AMS,MS	30	1000	Unknown		04/23/2019 13:22	Finished	MS (1ppb), IWST-190423B,10
29	N035240-003A,SAMF	31	1000	Unknown		04/23/2019 13:32	Finished	SAMP,10mL
30	N035240-003AMS,MS	32	1000	Unknown		04/23/2019 13:41	Finished	MS (1ppb), IWST-190423B,10
31	N035240-004A,SAMF	33	1000	Unknown		04/23/2019 13:51	Finished	SAMP,10mL
32	N035240-004AMS,MS	34	1000	Unknown		04/23/2019 14:00	Finished	MS (1ppb), IWST-190423B,2>1
33	N035240-004ADUP,D	1	1000	Unknown		04/23/2019 14:11	Finished	DUP,2>10mL
34	N035240-004AMSD,M	2	1000	Unknown		04/23/2019 14:22	Finished	MSD (1ppb), IWST-190423B,2>
35	CCV-2,CCV,1,	3	1000	Unknown		04/23/2019 14:32	Finished	CCV @5ppb, IWST-190423A
36	CCB-2,CCB,1,	4	1000	Unknown		04/23/2019 14:41	Finished	CCB R190411C
37	N035240-001AMS,MS	5	1000	Unknown		04/23/2019 14:51	Finished	MS (1ppb), IWST-190423B,10
38	N035039-009A,SAMF	6	1000	Unknown		04/23/2019 15:00	Finished	SAMP,10mL
39	N035039-009AMS,MS	7	1000	Unknown		04/23/2019 15:10	Finished	MS (5ppb), IWST-190423B,10
40	N035065-002A,SAMF	8	1000	Unknown		04/23/2019 15:19	Finished	SAMP,10mL
41	N035065-002AMS,MS	9	1000	Unknown		04/23/2019 15:28	Finished	MS (5ppb), IWST-190423B,10
42	N035023-012A,SAMF	10	1000	Unknown		04/23/2019 15:38	Finished	SAMP,10mL
43	N035023-012AMS,MS	11	1000	Unknown		04/23/2019 15:47	Finished	MS (1ppb), IWST-190423B,10
44	N035065-009A,SAMF	12	1000	Unknown		04/23/2019 15:57	Finished	SAMP,10mL
45	N035065-009AMS,MS	13	1000	Unknown		04/23/2019 16:06	Finished	MS (1ppb), IWST-190423B,10
46	CCV-3,CCV1,1,	14	1000	Unknown		04/23/2019 16:16	Finished	CCV @10ppb, IWST-190423A
47	CCB-3,CCB,1,	15	1000	Unknown		04/23/2019 16:25	Finished	CCB R190411C
48	N035065-012A,SAMF	16	1000	Unknown		04/23/2019 16:35	Finished	SAMP,10mL
49	N035065-012AMS,MS	17	1000	Unknown		04/23/2019 16:44	Finished	MS (1ppb), IWST-190423B,10
50	N035065-005A,SAMF	18	1000	Unknown		04/23/2019 16:54	Finished	SAMP,10mL
51	N035065-005AMS,MS	19	1000	Unknown		04/23/2019 17:03	Finished	MS (1ppb), IWST-190423B,10
52	N035074-001A,SAMF	20	1000	Unknown		04/23/2019 17:13	Finished	SAMP,10mL
53	N035074-001AMS,MS	21	1000	Unknown		04/23/2019 17:22	Finished	MS (1ppb), IWST-190423B,10
54	CCV-4,CCV,1,	22	1000	Unknown		04/23/2019 17:31	Finished	CCV @5ppb, IWST-190423A
55	CCB-4,CCB,1,	23	1000	Unknown		04/23/2019 17:41	Finished	CCB R190411C
56	SHUTDOWN	24	1000	Unknown		04/23/2019 17:50	Finished	
57	Eluent: R190422A	25	1000	Unknown		n.a.	Finished	Eluent
58	PCR: R190422B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 08:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

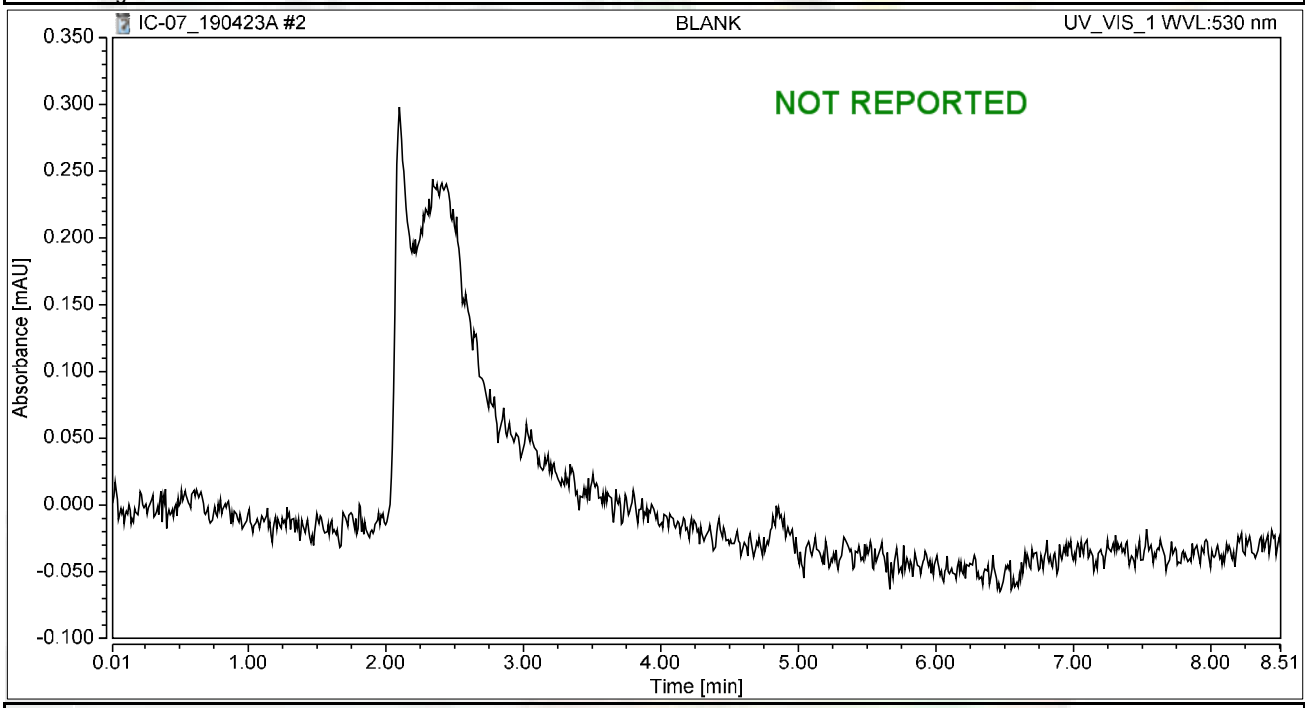
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

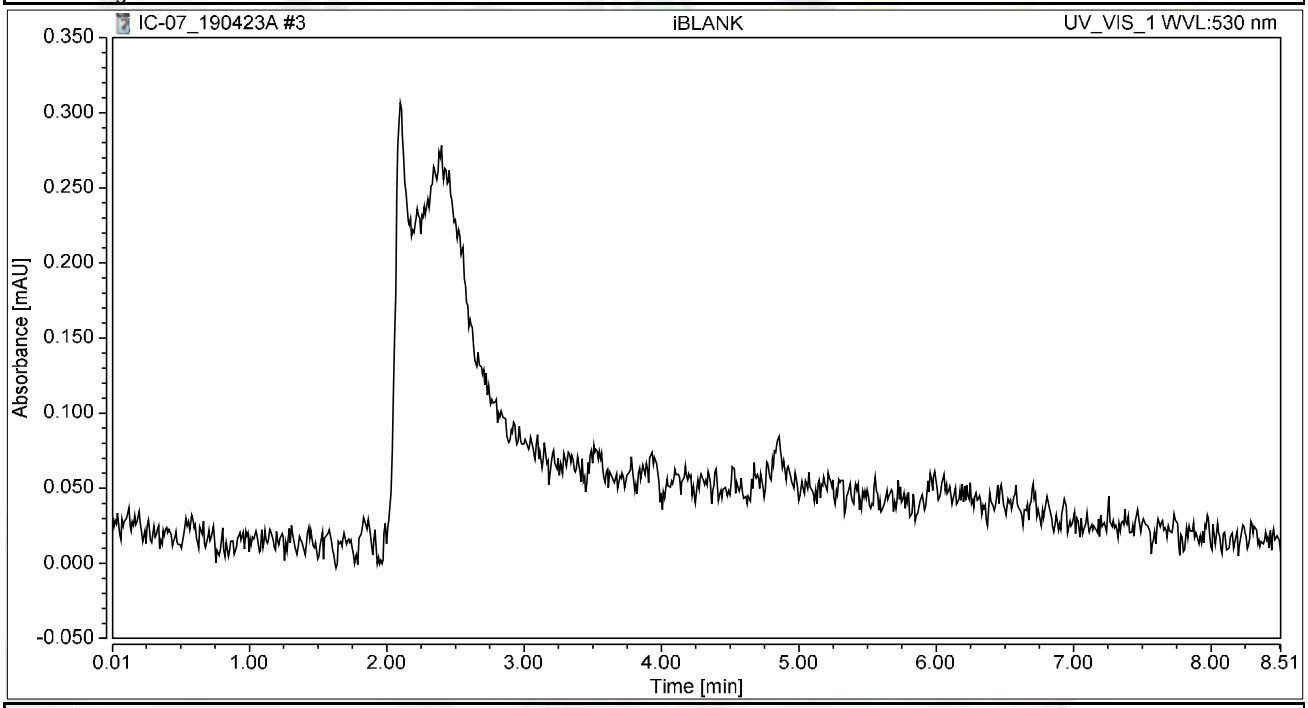
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

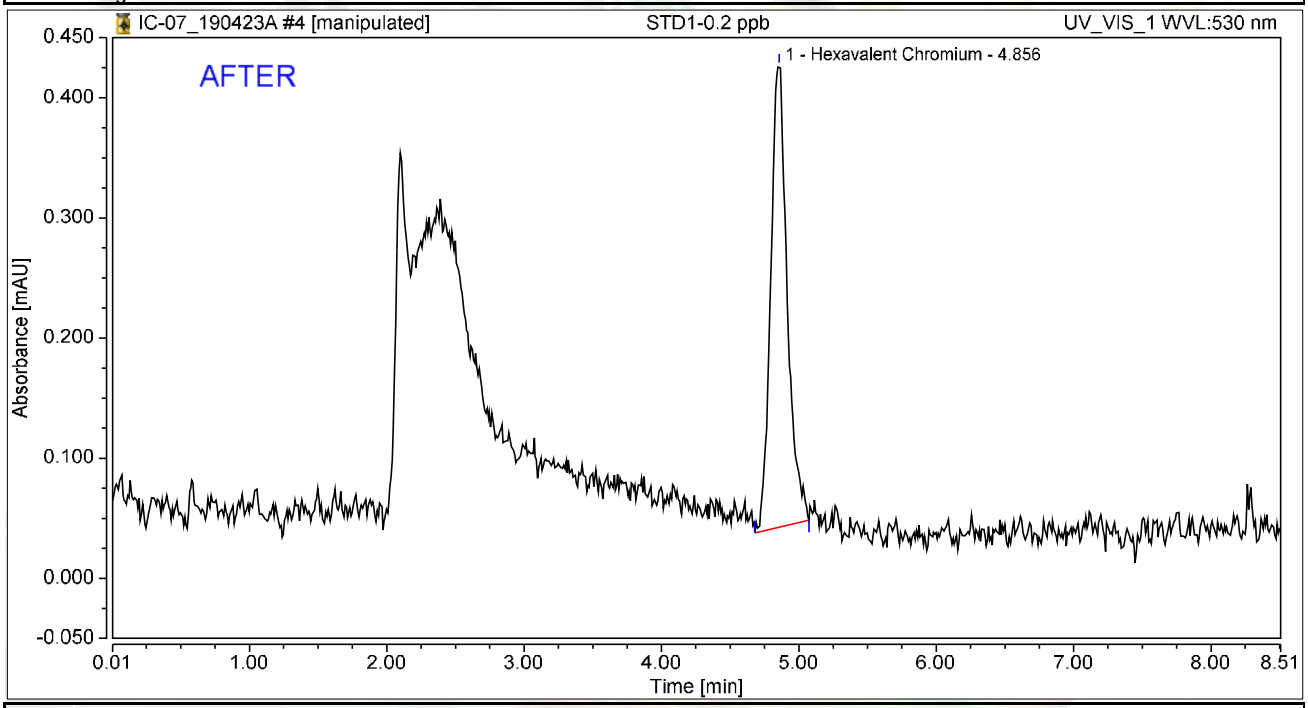
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.054	0.384	100.00	100.00	0.2161
Total:			**0.054**	**0.384**	**100.00**	**100.00**	

rba 4/28/2019

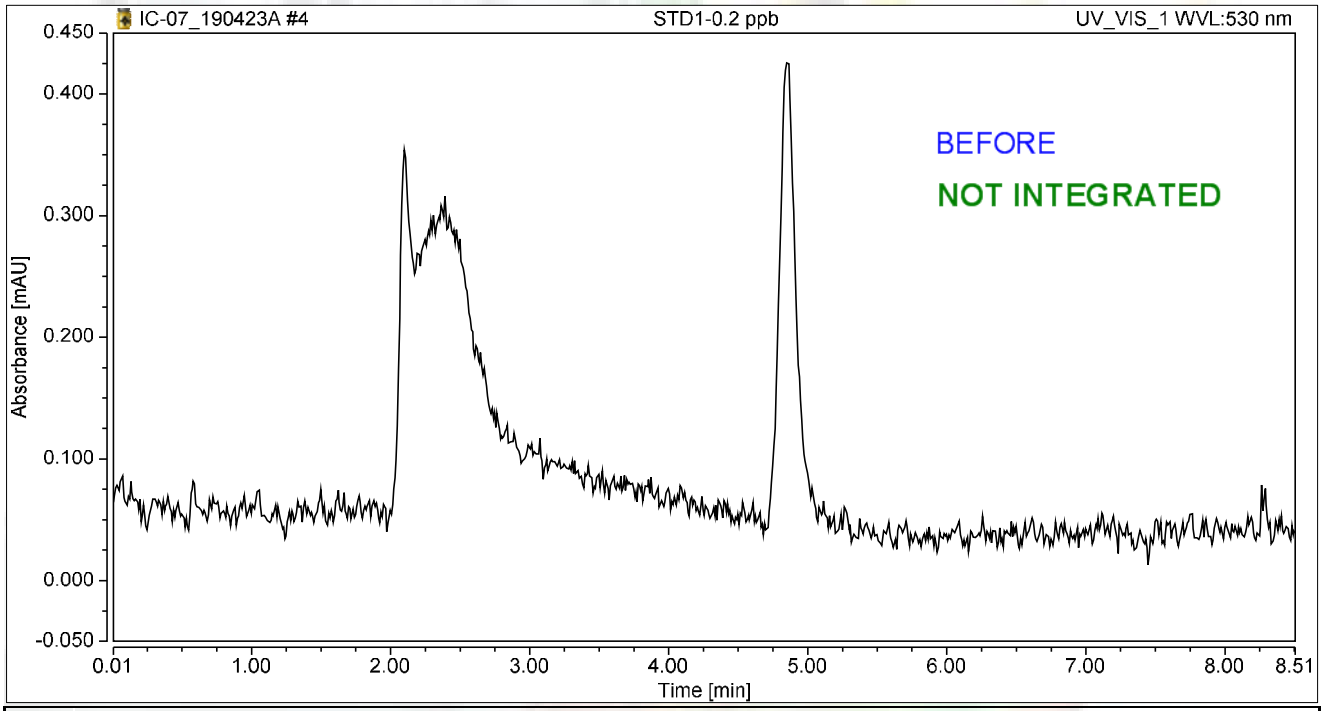
5/7/2019

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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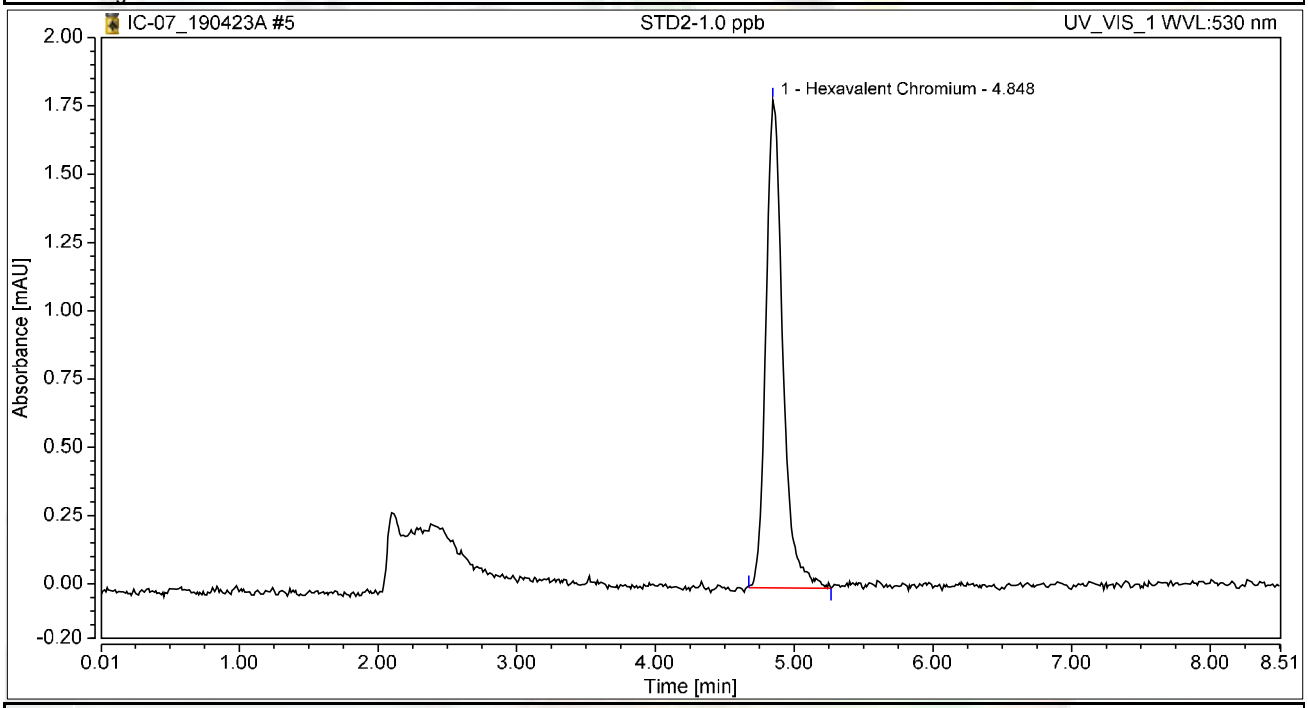
Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

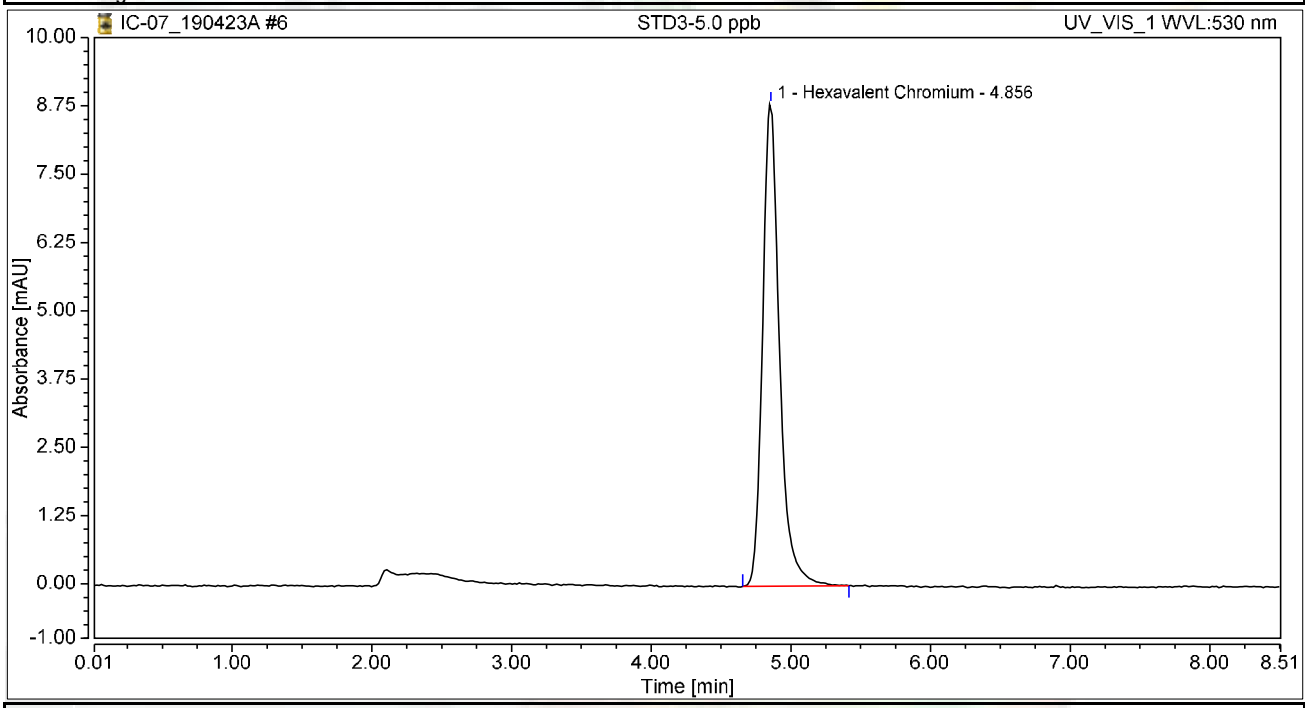
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.253	1.786	100.00	100.00	1.0148
Total:			**0.253**	**1.786**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

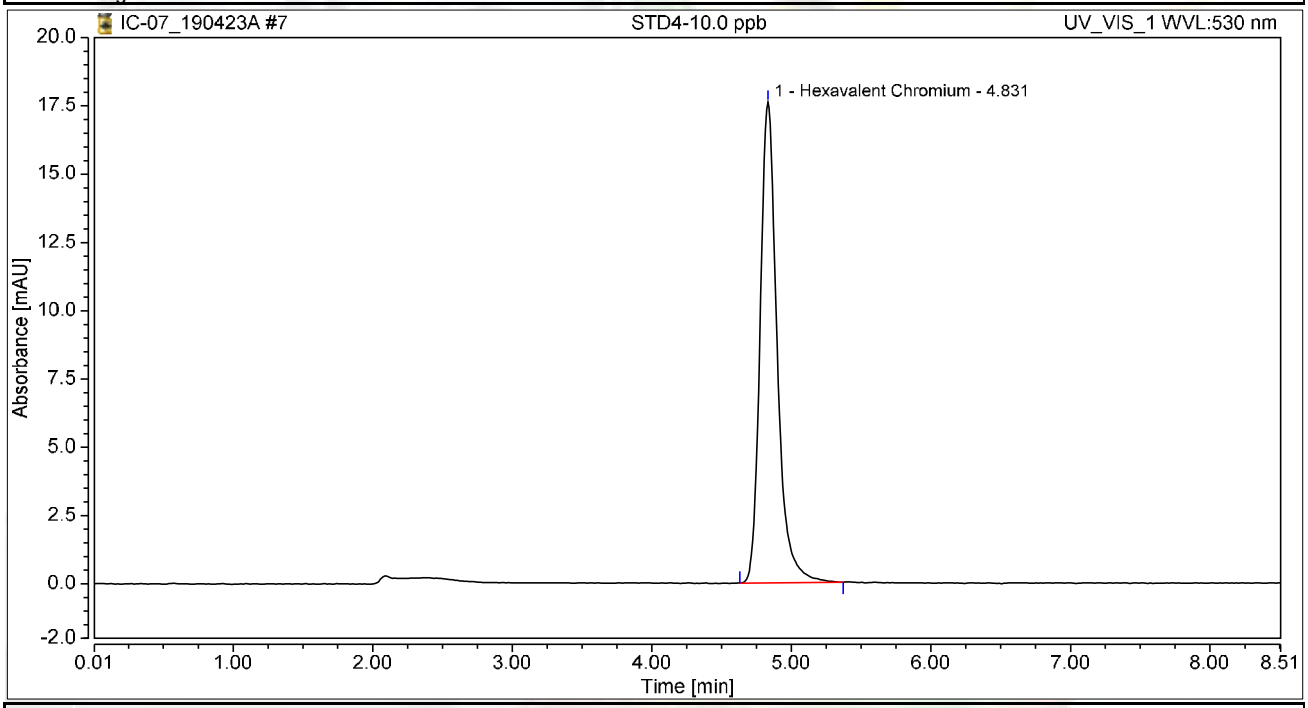
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.246	8.834	100.00	100.00	5.0054
Total:			**1.246**	**8.834**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

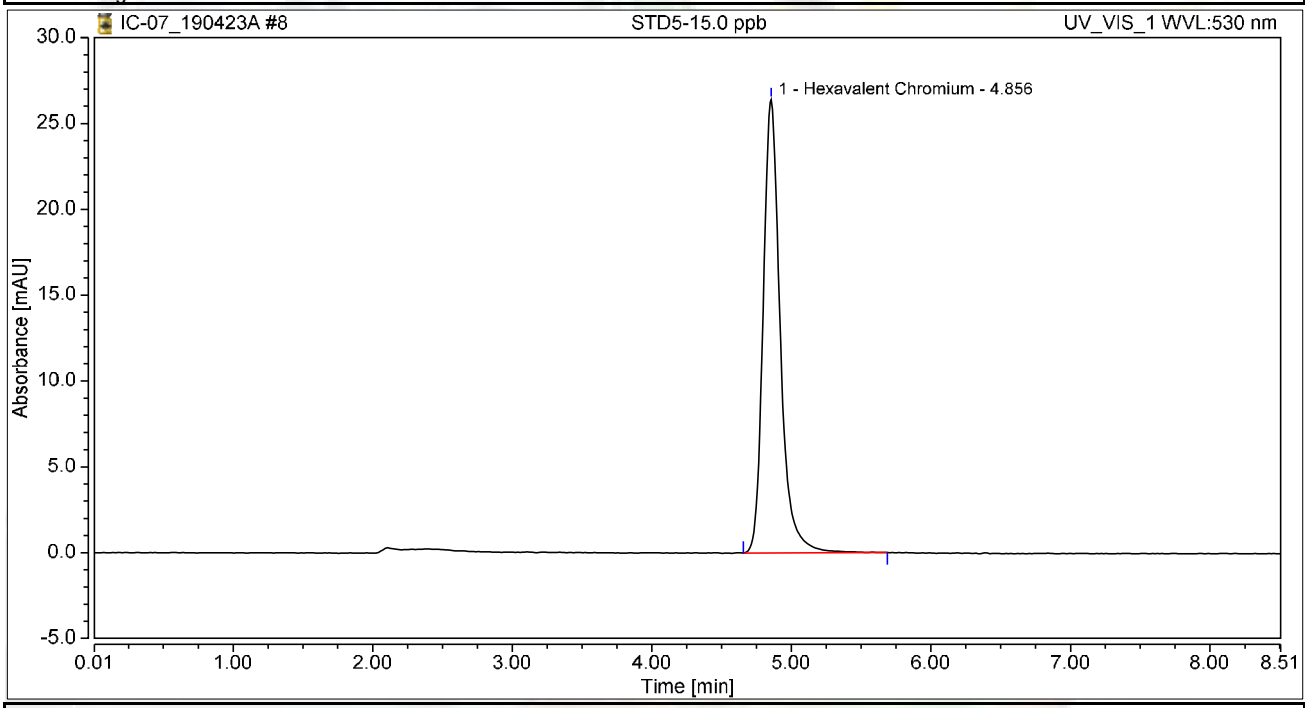
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	2.479	17.604	100.00	100.00	9.9587
Total:			**2.479**	**17.604**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

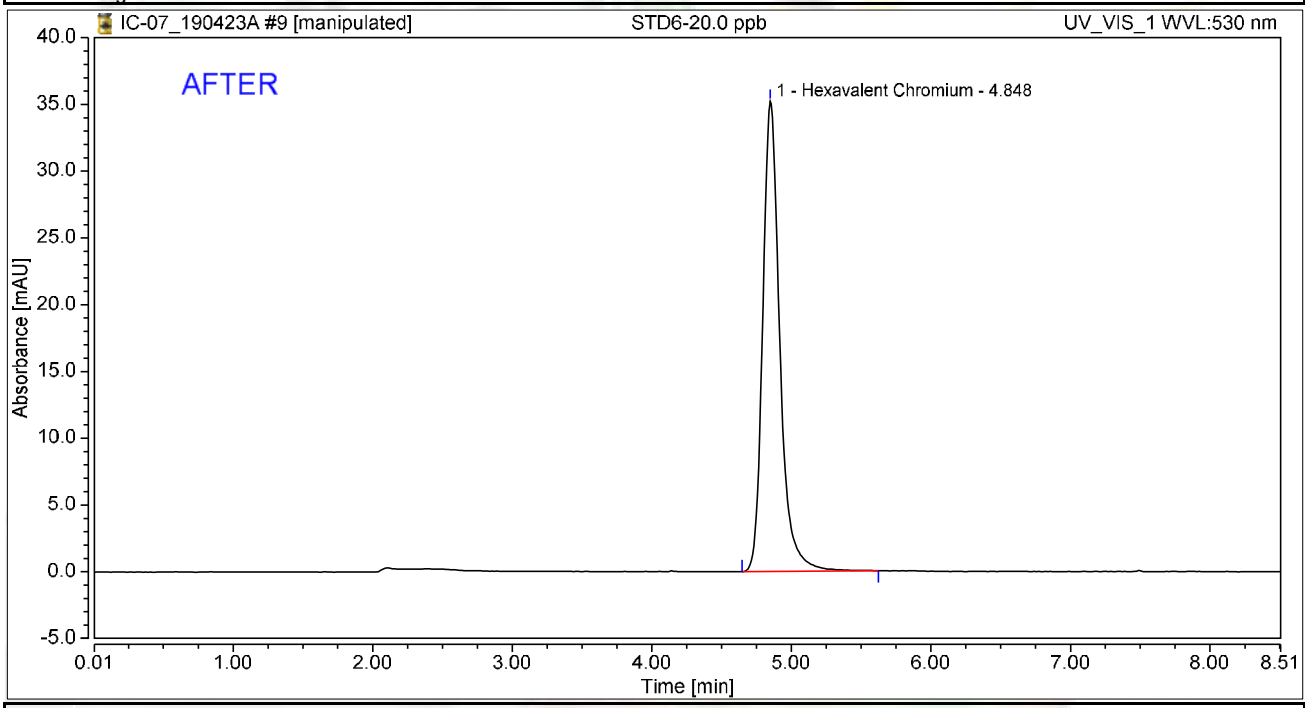
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	3.739	26.398	100.00	100.00	15.0197
Total:			**3.739**	**26.398**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	4.980	35.209	100.00	100.00	20.0036
Total:			**4.980**	**35.209**	**100.00**	**100.00**	

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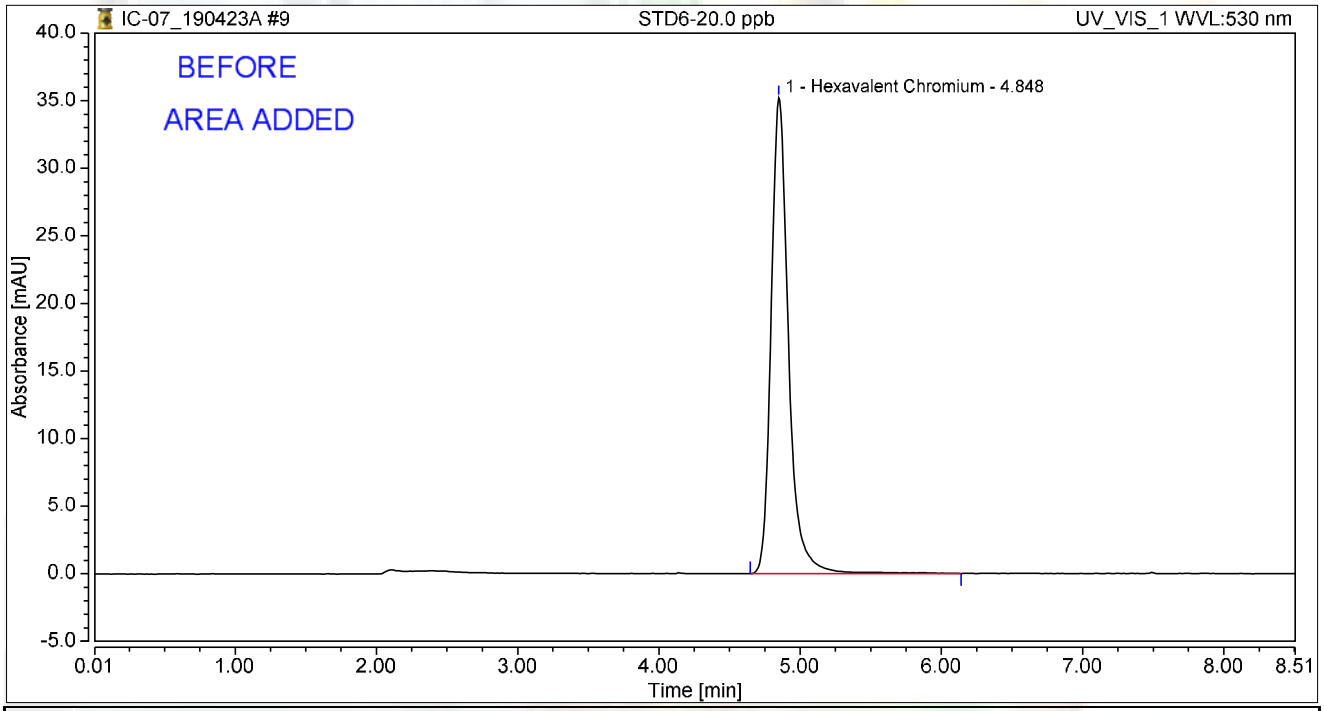
Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	5.038	35.224	100.00	100.00	20.1112
Total:			**5.038**	**35.224**	**100.00**	**100.00**	

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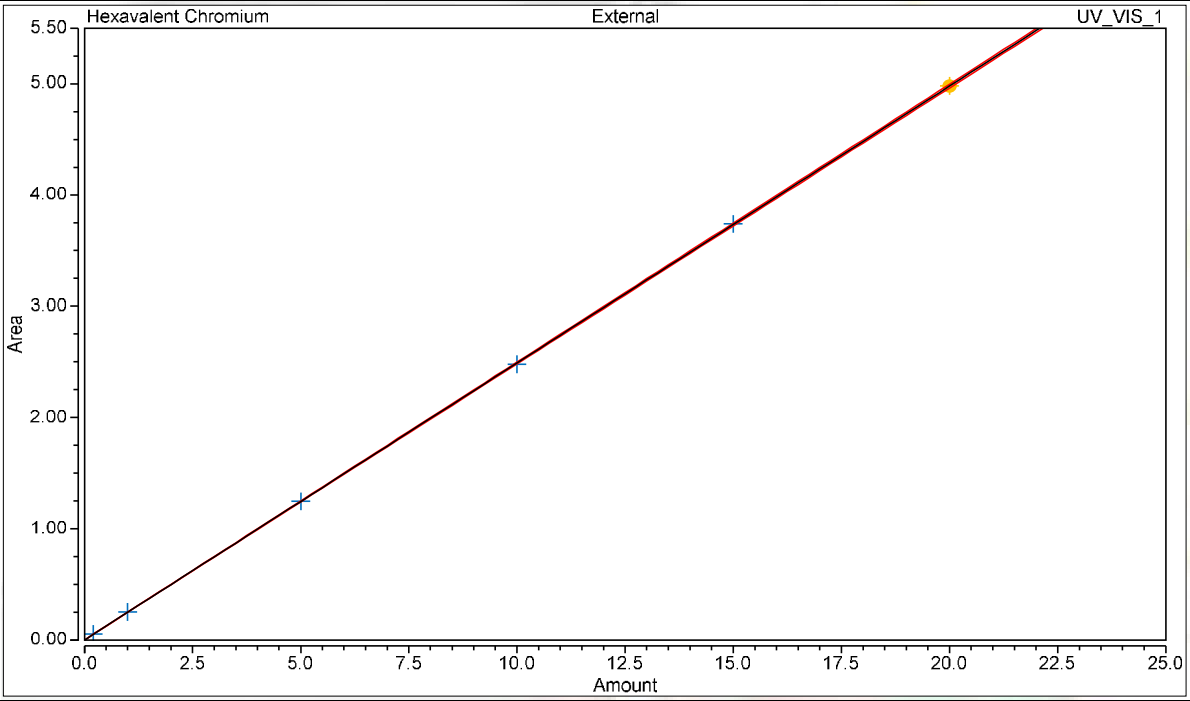
Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2490
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99999

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

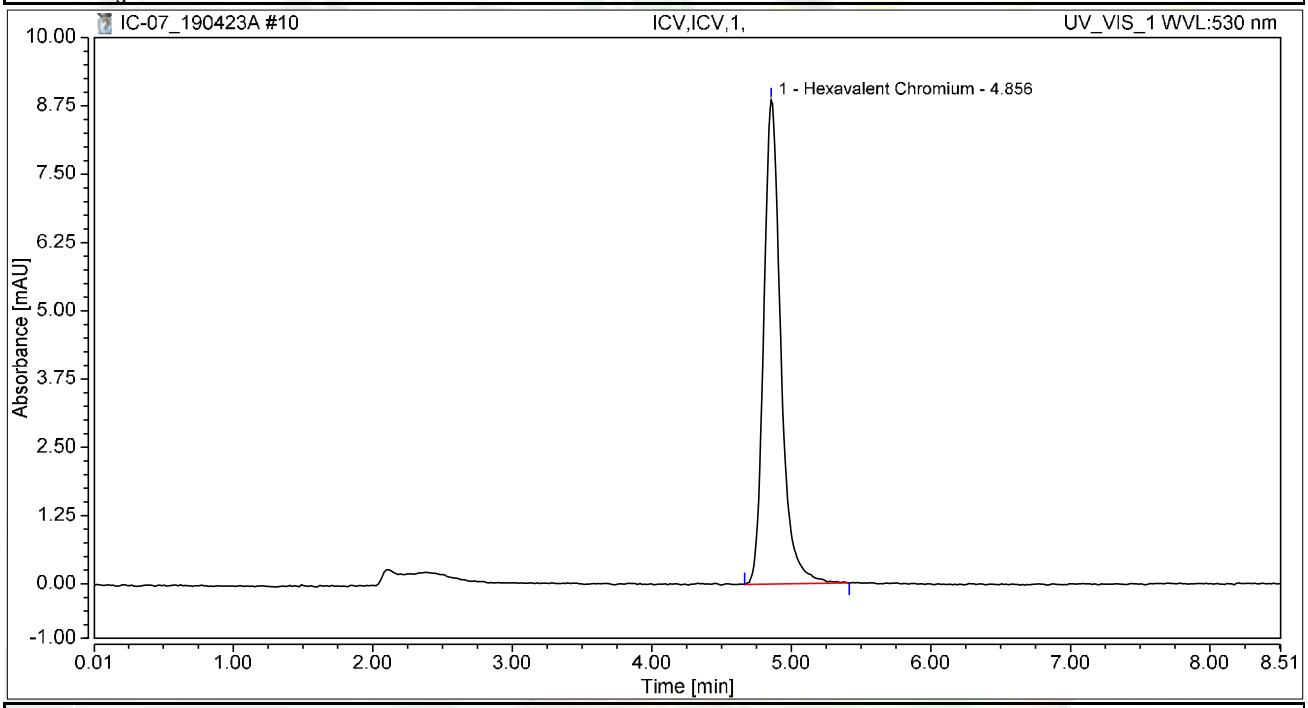
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0538	0.054	0.384
5	STD2-1.0 ppb	02	1.0000	0.2527	0.253	1.786
6	STD3-5.0 ppb	03	5.0000	1.2462	1.246	8.834
7	STD4-10.0 ppb	04	10.0000	2.4794	2.479	17.604
8	STD5-15.0 ppb	05	15.0000	3.7395	3.739	26.398
9	STD6-20.0 ppb	06	20.0000	4.9803	4.980	35.209

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

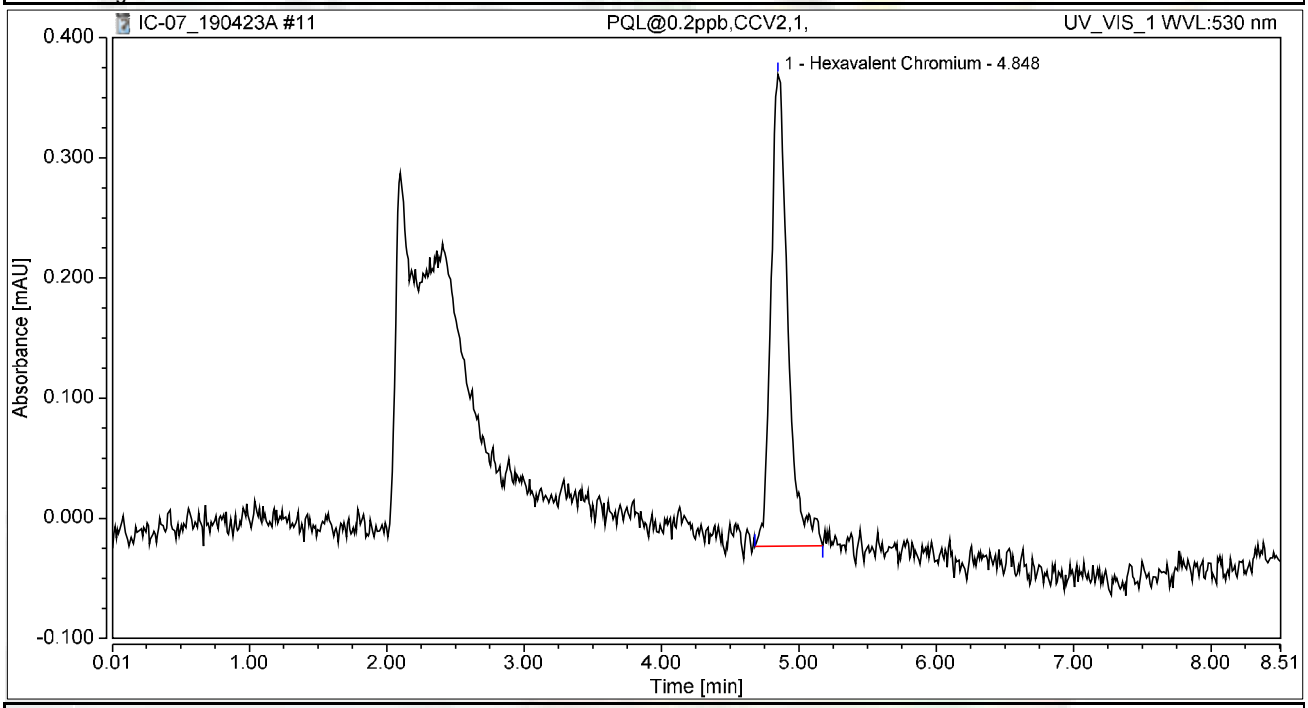
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.258	8.864	100.00	100.00	5.0544
Total:			**1.258**	**8.864**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

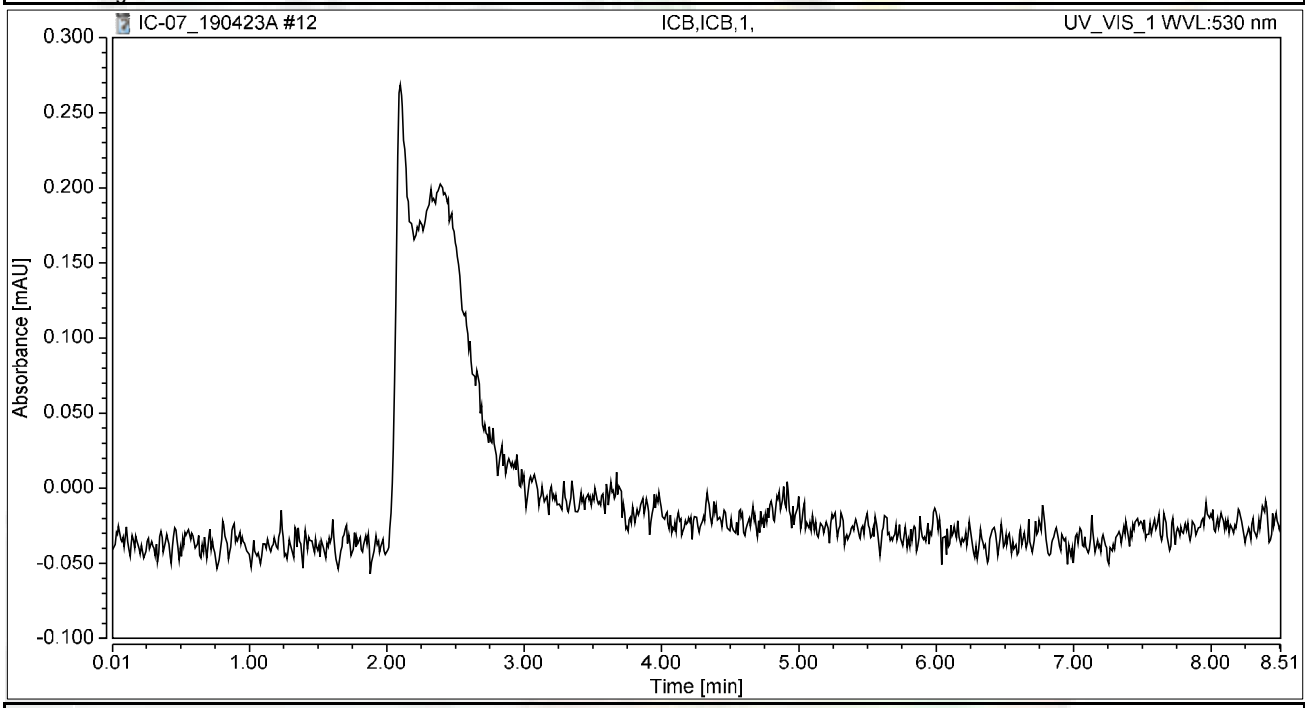
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.056	0.392	100.00	100.00	0.2256
Total:			**0.056**	**0.392**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190424A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	04/24/19 9:13 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	04/24/19 9:24 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/24/19 9:34 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	04/24/19 9:43 AM	Reported
14	MB-R133474	MBLK	1	Hexavalent Chromium	04/24/19 9:53 AM	Reported
15	LCS-R133474	LCS	1	Hexavalent Chromium	04/24/19 10:02 AM	Reported
16	N035250-001A	SAMP	5	Hexavalent Chromium	04/24/19 10:27 AM	Reported
17	N035250-001AMS	MS	5	Hexavalent Chromium	04/24/19 10:38 AM	Reported
18	N035250-002A	SAMP	5	Hexavalent Chromium	04/24/19 10:48 AM	Not Reported
19	N035250-002AMS	MS	5	Hexavalent Chromium	04/24/19 10:57 AM	Not Reported
20	N035250-003A	SAMP	5	Hexavalent Chromium	04/24/19 11:07 AM	Reported
21	N035250-003AMS	MS	5	Hexavalent Chromium	04/24/19 11:16 AM	Reported
22	N035250-006A	SAMP	1	Hexavalent Chromium	04/24/19 11:25 AM	Reported
23	N035250-006AMS	MS	1	Hexavalent Chromium	04/24/19 11:35 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	04/24/19 11:44 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	04/24/19 11:54 AM	Reported
26	N035250-004A	SAMP	5	Hexavalent Chromium	04/24/19 12:03 PM	Reported
27	N035250-004AMS	MS	5	Hexavalent Chromium	04/24/19 12:13 PM	Reported
28	N035250-005A	SAMP	5	Hexavalent Chromium	04/24/19 12:22 PM	Not Reported
29	N035250-005AMS	MS	5	Hexavalent Chromium	04/24/19 12:32 PM	Not Reported
30	N035250-007A	SAMP	5	Hexavalent Chromium	04/24/19 12:41 PM	Not Reported
31	N035250-007AMS	MS	5	Hexavalent Chromium	04/24/19 12:51 PM	Not Reported
32	N035250-012A	SAMP	5	Hexavalent Chromium	04/24/19 1:00 PM	Reported
33	N035250-012AMS	MS	5	Hexavalent Chromium	04/24/19 1:10 PM	Reported
34	N035250-016A	SAMP	5	Hexavalent Chromium	04/24/19 1:19 PM	Reported
35	N035250-016AMS	MS	5	Hexavalent Chromium	04/24/19 1:28 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	04/24/19 1:38 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	04/24/19 1:47 PM	Reported
38	N035250-017A	SAMP	5	Hexavalent Chromium	04/24/19 1:57 PM	Reported
39	N035250-017AMS	MS	5	Hexavalent Chromium	04/24/19 2:06 PM	Reported
40	N035250-009A	SAMP	1	Hexavalent Chromium	04/24/19 2:16 PM	Reported
41	N035250-011A	SAMP	1	Hexavalent Chromium	04/24/19 2:25 PM	Reported
42	N035250-009AMS	MS	1	Hexavalent Chromium	04/24/19 2:35 PM	Reported

INJECTION LOG: 190424A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035250-011AMS	MS	1	Hexavalent Chromium	04/24/19 2:44 PM	Reported
44	N035250-014A	SAMP	20	Hexavalent Chromium	04/24/19 2:54 PM	Reported
45	N035250-014AMS	MS	20	Hexavalent Chromium	04/24/19 3:03 PM	Reported
46	N035251-001A	SAMP	1	Hexavalent Chromium	04/24/19 3:13 PM	Reported
47	N035251-001AMS	MS	1	Hexavalent Chromium	04/24/19 3:22 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	04/24/19 3:31 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	04/24/19 3:41 PM	Reported
50	N035251-002A	SAMP	100	Hexavalent Chromium	04/24/19 3:50 PM	Reported
51	N035251-002AMS	MS	100	Hexavalent Chromium	04/24/19 4:00 PM	Reported
52	N035250-014AMSD	MSD	20	Hexavalent Chromium	04/24/19 4:09 PM	Reported
53	N035251-002ADUP	DUP	100	Hexavalent Chromium	04/24/19 4:19 PM	Reported
54	N035250-001A	SAMP	1	Hexavalent Chromium	04/24/19 4:31 PM	Not Reported
55	N035250-001AMS	MS	1	Hexavalent Chromium	04/24/19 4:42 PM	Not Reported
56	N035250-002A	SAMP	1	Hexavalent Chromium	04/24/19 4:51 PM	Reported
57	N035250-002AMS	MS	1	Hexavalent Chromium	04/24/19 5:02 PM	Reported
58	N035250-003A	SAMP	1	Hexavalent Chromium	04/24/19 5:12 PM	Not Reported
59	N035250-003AMS	MS	1	Hexavalent Chromium	04/24/19 5:21 PM	Not Reported
60	CCV-5	CCV	1	Hexavalent Chromium	04/24/19 5:30 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	04/24/19 5:40 PM	Reported
62	N035250-004A	SAMP	1	Hexavalent Chromium	04/24/19 5:49 PM	Not Reported
63	N035250-004AMS	MS	1	Hexavalent Chromium	04/24/19 5:59 PM	Not Reported
64	N035250-005A	SAMP	1	Hexavalent Chromium	04/24/19 6:08 PM	Reported
65	N035250-005AMS	MS	1	Hexavalent Chromium	04/24/19 6:18 PM	Reported
66	N035250-007A	SAMP	1	Hexavalent Chromium	04/24/19 6:27 PM	Reported
67	N035250-007AMS	MS	1	Hexavalent Chromium	04/24/19 6:37 PM	Reported
68	N035250-012A	SAMP	1	Hexavalent Chromium	04/24/19 6:46 PM	Not Reported
69	N035250-012AMS	MS	1	Hexavalent Chromium	04/24/19 6:56 PM	Not Reported
70	N035250-016A	SAMP	1	Hexavalent Chromium	04/24/19 7:05 PM	Not Reported
71	N035250-016AMS	MS	1	Hexavalent Chromium	04/24/19 7:15 PM	Not Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	04/24/19 7:24 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	04/24/19 7:33 PM	Reported
74	N035250-017A	SAMP	1	Hexavalent Chromium	04/24/19 7:43 PM	Not Reported
75	N035250-017AMS	MS	1	Hexavalent Chromium	04/24/19 7:52 PM	Not Reported
76	N035250-008A	SAMP	1	Hexavalent Chromium	04/24/19 8:02 PM	Reported
77	N035250-008AMS	MS	1	Hexavalent Chromium	04/24/19 8:11 PM	Reported
78	N035250-010A	SAMP	1	Hexavalent Chromium	04/24/19 8:21 PM	Reported
79	N035250-010AMS	MS	1	Hexavalent Chromium	04/24/19 8:30 PM	Reported
80	N035250-013A	SAMP	1	Hexavalent Chromium	04/24/19 8:40 PM	Reported
81	N035250-013AMS	MS	1	Hexavalent Chromium	04/24/19 8:49 PM	Reported
82	N035250-015A	SAMP	1	Hexavalent Chromium	04/24/19 8:59 PM	Reported
83	N035250-015AMS	MS	1	Hexavalent Chromium	04/24/19 9:08 PM	Reported
84	CCV-7	CCV	1	Hexavalent Chromium	04/24/19 9:18 PM	Reported

INJECTION LOG: 190424A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
85	CCB-7	CCB	1	Hexavalent Chromium	04/24/19 9:27 PM	Reported
86	N035250-018A	SAMP	1	Hexavalent Chromium	04/24/19 9:36 PM	Reported
87	N035250-018AMS	MS	1	Hexavalent Chromium	04/24/19 9:46 PM	Reported
88	CCV-8	CCV1	1	Hexavalent Chromium	04/24/19 9:55 PM	Reported
89	CCB-8	CCB	1	Hexavalent Chromium	04/24/19 10:05 PM	Reported
90	BLANK	BLANK	1	Hexavalent Chromium	04/24/19 10:14 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190424A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 22:45:10**
No. of Injections:	**93**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		04/24/2019 09:13	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		04/24/2019 09:24	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		04/24/2019 09:34	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		04/24/2019 09:43	Finished	CCB R190411C
14	MB-H2O,MBLK,1,	5	1000	Unknown		04/24/2019 09:53	Finished	MB R190411C
15	LCS-H2O,LCS,1,	6	1000	Unknown		04/24/2019 10:02	Finished	LCS @5ppb, IWST-190423B
16	N035250-001A,SAMF	1	1000	Unknown		04/24/2019 10:27	Finished	SAMP,2>10mL
17	N035250-001AMS,MS	2	1000	Unknown		04/24/2019 10:38	Finished	MS (1ppb), IWST-190423B,2>1
18	N035250-002A,SAMF	3	1000	Unknown		04/24/2019 10:48	Finished	SAMP,2>10mL
19	N035250-002AMS,MS	4	1000	Unknown		04/24/2019 10:57	Finished	MS (1ppb), IWST-190423B,2>1
20	N035250-003A,SAMF	5	1000	Unknown		04/24/2019 11:07	Finished	SAMP,2>10mL
21	N035250-003AMS,MS	6	1000	Unknown		04/24/2019 11:16	Finished	MS (1ppb), IWST-190423B,2>1
22	N035250-006A,SAMF	7	1000	Unknown		04/24/2019 11:25	Finished	SAMP,10mL
23	N035250-006AMS,MS	8	1000	Unknown		04/24/2019 11:35	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	9	1000	Unknown		04/24/2019 11:44	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	10	1000	Unknown		04/24/2019 11:54	Finished	CCB R190411C
26	N035250-004A,SAMF	11	1000	Unknown		04/24/2019 12:03	Finished	SAMP,2>10mL
27	N035250-004AMS,MS	12	1000	Unknown		04/24/2019 12:13	Finished	MS (1ppb), IWST-190423B,2>1
28	N035250-005A,SAMF	13	1000	Unknown		04/24/2019 12:22	Finished	SAMP,2>10mL
29	N035250-005AMS,MS	14	1000	Unknown		04/24/2019 12:32	Finished	MS (1ppb), IWST-190423B,2>1
30	N035250-007A,SAMF	15	1000	Unknown		04/24/2019 12:41	Finished	SAMP,2>10mL
31	N035250-007AMS,MS	16	1000	Unknown		04/24/2019 12:51	Finished	MS (1ppb), IWST-190423B,2>1
32	N035250-012A,SAMF	17	1000	Unknown		04/24/2019 13:00	Finished	SAMP,2>10mL
33	N035250-012AMS,MS	18	1000	Unknown		04/24/2019 13:10	Finished	MS (1ppb), IWST-190423B,2>1
34	N035250-016A,SAMF	19	1000	Unknown		04/24/2019 13:19	Finished	SAMP,2>10mL
35	N035250-016AMS,MS	20	1000	Unknown		04/24/2019 13:28	Finished	MS (1ppb), IWST-190423B,2>1
36	CCV-3,CCV,1,	21	1000	Unknown		04/24/2019 13:38	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	22	1000	Unknown		04/24/2019 13:47	Finished	CCB R190411C
38	N035250-017A,SAMF	23	1000	Unknown		04/24/2019 13:57	Finished	SAMP,2>10mL
39	N035250-017AMS,MS	24	1000	Unknown		04/24/2019 14:06	Finished	MS (1ppb), IWST-190423B,2>1
40	N035250-009A,SAMF	25	1000	Unknown		04/24/2019 14:16	Finished	SAMP,10mL
41	N035250-011A,SAMF	26	1000	Unknown		04/24/2019 14:25	Finished	SAMP,10mL
42	N035250-009AMS,MS	27	1000	Unknown		04/24/2019 14:35	Finished	MS (1ppb), IWST-190423B,10
43	N035250-011AMS,MS	28	1000	Unknown		04/24/2019 14:44	Finished	MS (1ppb), IWST-190423B,10
44	N035250-014A,SAMF	29	1000	Unknown		04/24/2019 14:54	Finished	SAMP,0.5>10mL
45	N035250-014AMS,MS	30	1000	Unknown		04/24/2019 15:03	Finished	MS (5ppb), IWST-190423B,0.5
46	N035251-001A,SAMF	31	1000	Unknown		04/24/2019 15:13	Finished	SAMP,10mL
47	N035251-001AMS,MS	32	1000	Unknown		04/24/2019 15:22	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	33	1000	Unknown		04/24/2019 15:31	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	34	1000	Unknown		04/24/2019 15:41	Finished	CCB R190411C
50	N035251-002A,SAMF	35	1000	Unknown		04/24/2019 15:50	Finished	SAMP,0.1>10mL
51	N035251-002AMS,MS	36	1000	Unknown		04/24/2019 16:00	Finished	MS (5ppb), IWST-190423B,0.1
52	N035250-014AMSD,M	37	1000	Unknown		04/24/2019 16:09	Finished	MSD (5ppb), IWST-190423B,0.
53	N035251-002ADUP,D	38	1000	Unknown		04/24/2019 16:19	Finished	DUP,0.1>10mL
54	N035250-001A,SAMF	1	1000	Unknown		04/24/2019 16:31	Finished	SAMP,10mL
55	N035250-001AMS,MS	2	1000	Unknown		04/24/2019 16:42	Finished	MS (1ppb), IWST-190423B,10
56	N035250-002A,SAMF	3	1000	Unknown		04/24/2019 16:51	Finished	SAMP,10mL
57	N035250-002AMS,MS	4	1000	Unknown		04/24/2019 17:02	Finished	MS (1ppb), IWST-190423B,10
58	N035250-003A,SAMF	5	1000	Unknown		04/24/2019 17:12	Finished	SAMP,10mL
59	N035250-003AMS,MS	6	1000	Unknown		04/24/2019 17:21	Finished	MS (1ppb), IWST-190423B,10
60	CCV-5,CCV,1,	7	1000	Unknown		04/24/2019 17:30	Finished	CCV @5ppb, IWST-190423A

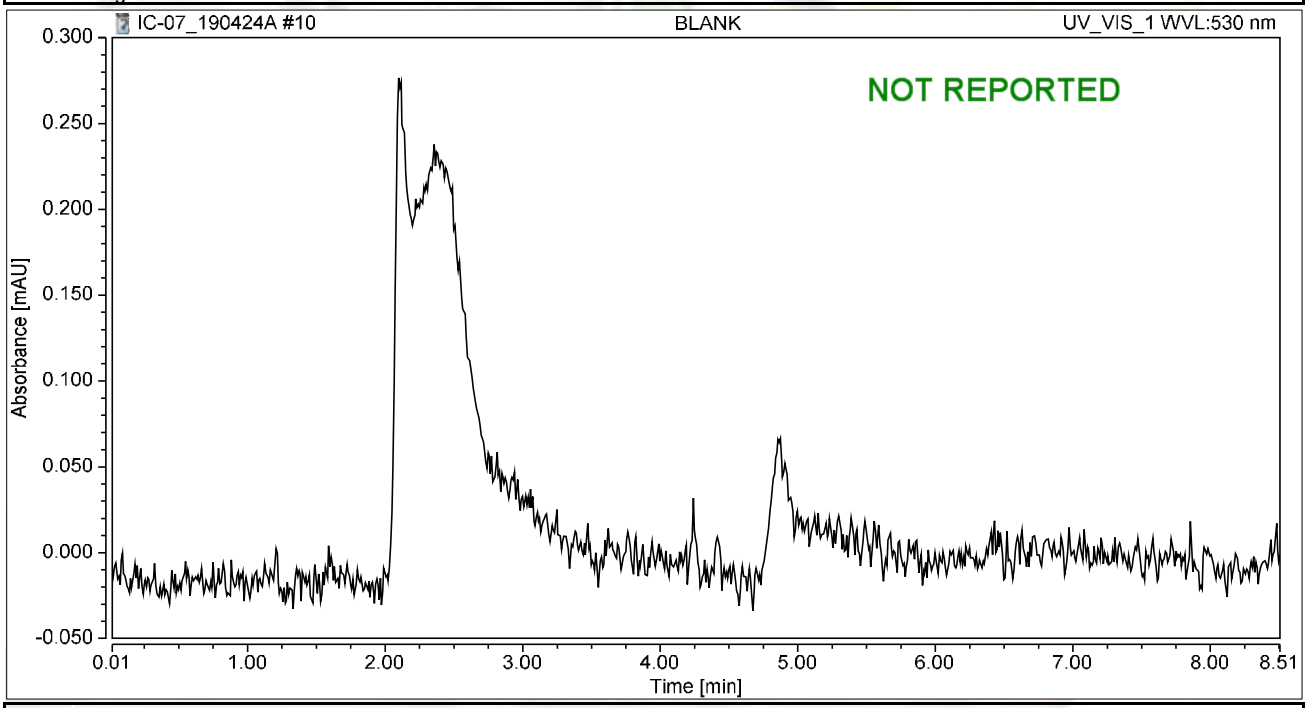
61	CCB-5,CCB,1,	8	1000	Unknown		04/24/2019 17:40	Finished	CCB R190411C
62	N035250-004A,SAMF	9	1000	Unknown		04/24/2019 17:49	Finished	SAMP,10mL
63	N035250-004AMS,MS	10	1000	Unknown		04/24/2019 17:59	Finished	MS (1ppb), IWST-190423B,10
64	N035250-005A,SAMF	11	1000	Unknown		04/24/2019 18:08	Finished	SAMP,10mL
65	N035250-005AMS,MS	12	1000	Unknown		04/24/2019 18:18	Finished	MS (1ppb), IWST-190423B,10
66	N035250-007A,SAMF	13	1000	Unknown		04/24/2019 18:27	Finished	SAMP,10mL
67	N035250-007AMS,MS	14	1000	Unknown		04/24/2019 18:37	Finished	MS (1ppb), IWST-190423B,10
68	N035250-012A,SAMF	15	1000	Unknown		04/24/2019 18:46	Finished	SAMP,10mL
69	N035250-012AMS,MS	16	1000	Unknown		04/24/2019 18:56	Finished	MS (1ppb), IWST-190423B,10
70	N035250-016A,SAMF	17	1000	Unknown		04/24/2019 19:05	Finished	SAMP,10mL
71	N035250-016AMS,MS	18	1000	Unknown		04/24/2019 19:15	Finished	MS (1ppb), IWST-190423B,10
72	CCV-6,CCV1,1,	19	1000	Unknown		04/24/2019 19:24	Finished	CCV @10ppb, IWST-190423A
73	CCB-6,CCB,1,	20	1000	Unknown		04/24/2019 19:33	Finished	CCB R190411C
74	N035250-017A,SAMF	21	1000	Unknown		04/24/2019 19:43	Finished	SAMP,10mL
75	N035250-017AMS,MS	22	1000	Unknown		04/24/2019 19:52	Finished	MS (1ppb), IWST-190423B,10
76	N035250-008A,SAMF	23	1000	Unknown		04/24/2019 20:02	Finished	SAMP,10mL
77	N035250-008AMS,MS	24	1000	Unknown		04/24/2019 20:11	Finished	MS (1ppb), IWST-190423B,10
78	N035250-010A,SAMF	25	1000	Unknown		04/24/2019 20:21	Finished	SAMP,10mL
79	N035250-010AMS,MS	26	1000	Unknown		04/24/2019 20:30	Finished	MS (1ppb), IWST-190423B,10
80	N035250-013A,SAMF	27	1000	Unknown		04/24/2019 20:40	Finished	SAMP,10mL
81	N035250-013AMS,MS	28	1000	Unknown		04/24/2019 20:49	Finished	MS (1ppb), IWST-190423B,10
82	N035250-015A,SAMF	29	1000	Unknown		04/24/2019 20:59	Finished	SAMP,10mL
83	N035250-015AMS,MS	30	1000	Unknown		04/24/2019 21:08	Finished	MS (1ppb), IWST-190423B,10
84	CCV-7,CCV,1,	31	1000	Unknown		04/24/2019 21:18	Finished	CCV @5ppb, IWST-190423A
85	CCB-7,CCB,1,	32	1000	Unknown		04/24/2019 21:27	Finished	CCB R190411C
86	N035250-018A,SAMF	33	1000	Unknown		04/24/2019 21:36	Finished	SAMP,10mL
87	N035250-018AMS,MS	34	1000	Unknown		04/24/2019 21:46	Finished	MS (1ppb), IWST-190423B,10
88	CCV-8,CCV1,1,	35	1000	Unknown		04/24/2019 21:55	Finished	CCV @10ppb, IWST-190423A
89	CCB-8,CCB,1,	36	1000	Unknown		04/24/2019 22:05	Finished	CCB R190411C
90	BLANK	37	1000	Unknown		04/24/2019 22:14	Finished	BLANK
91	SHUTDOWN	38	1000	Unknown		04/24/2019 22:24	Finished	
92	Eluent: R190424A	39	1000	Unknown		n.a.	Finished	Eluent
93	PCR: R190424B	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

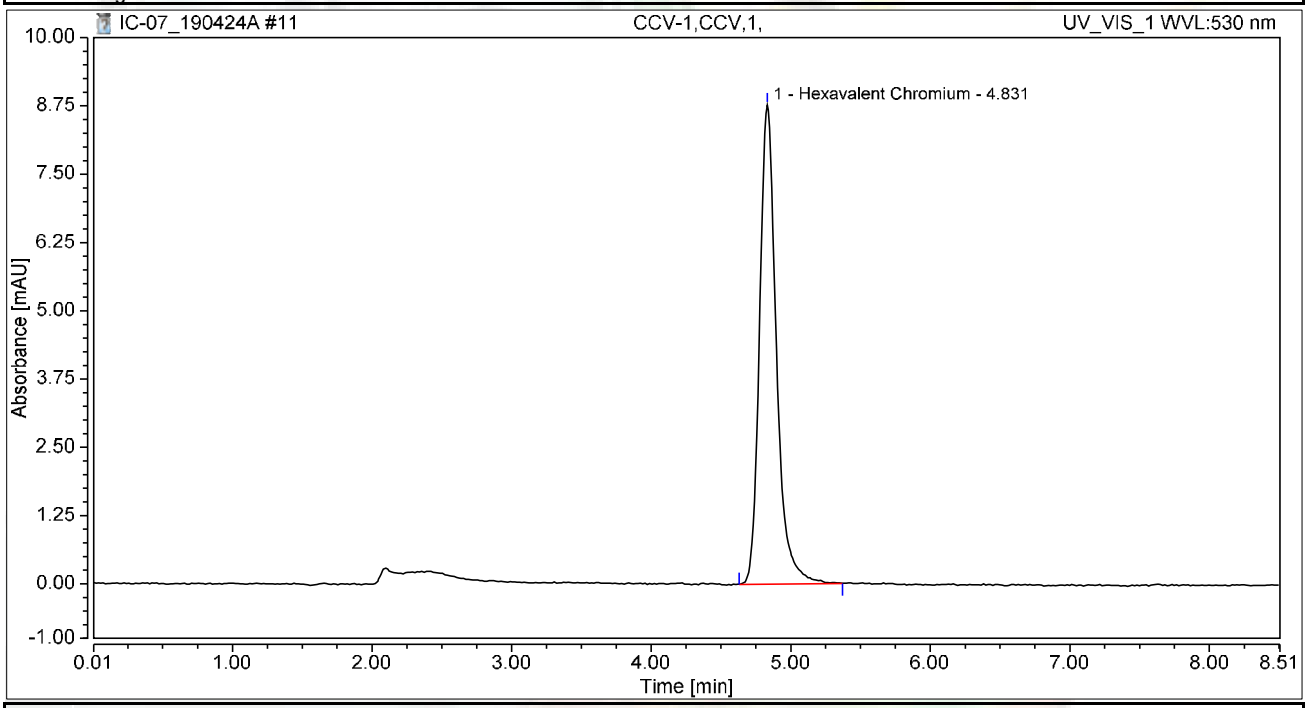
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

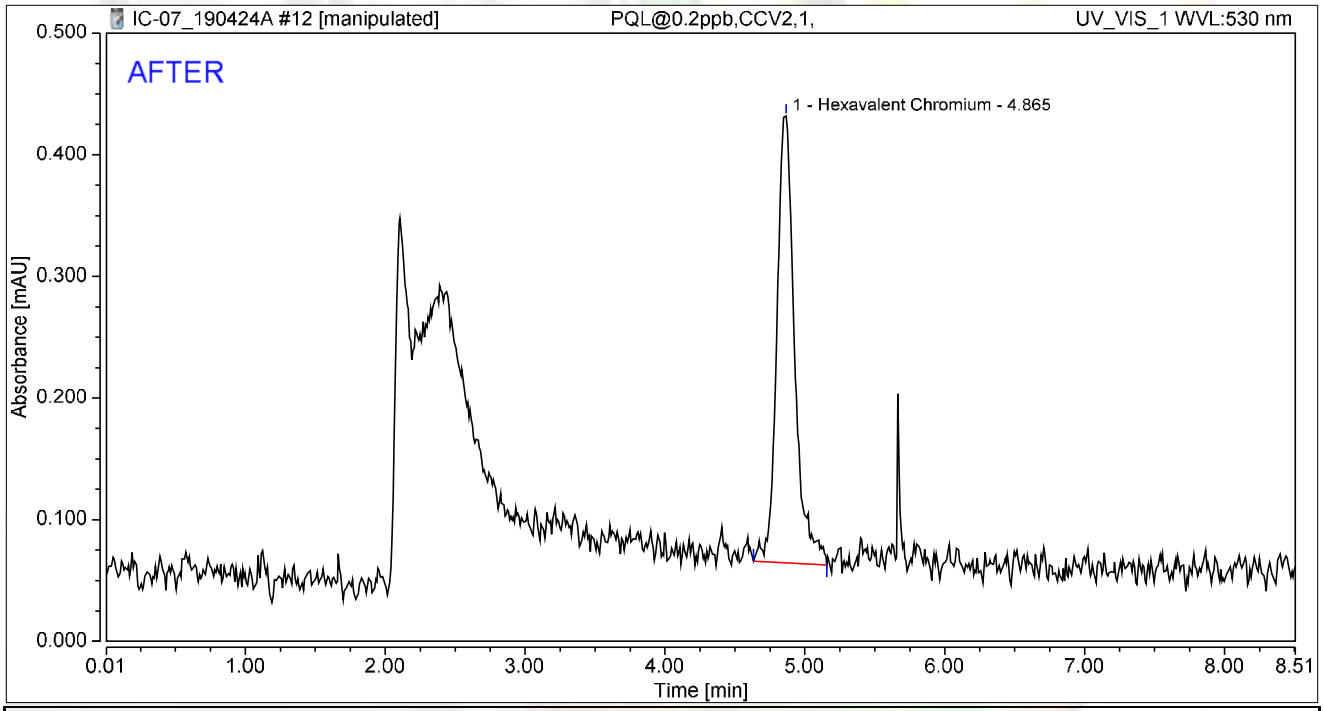
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	1.229	8.773	100.00	100.00	4.9358
Total:			**1.229**	**8.773**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	0.054	0.367	100.00	100.00	0.2174
Total:			**0.054**	**0.367**	**100.00**	**100.00**	

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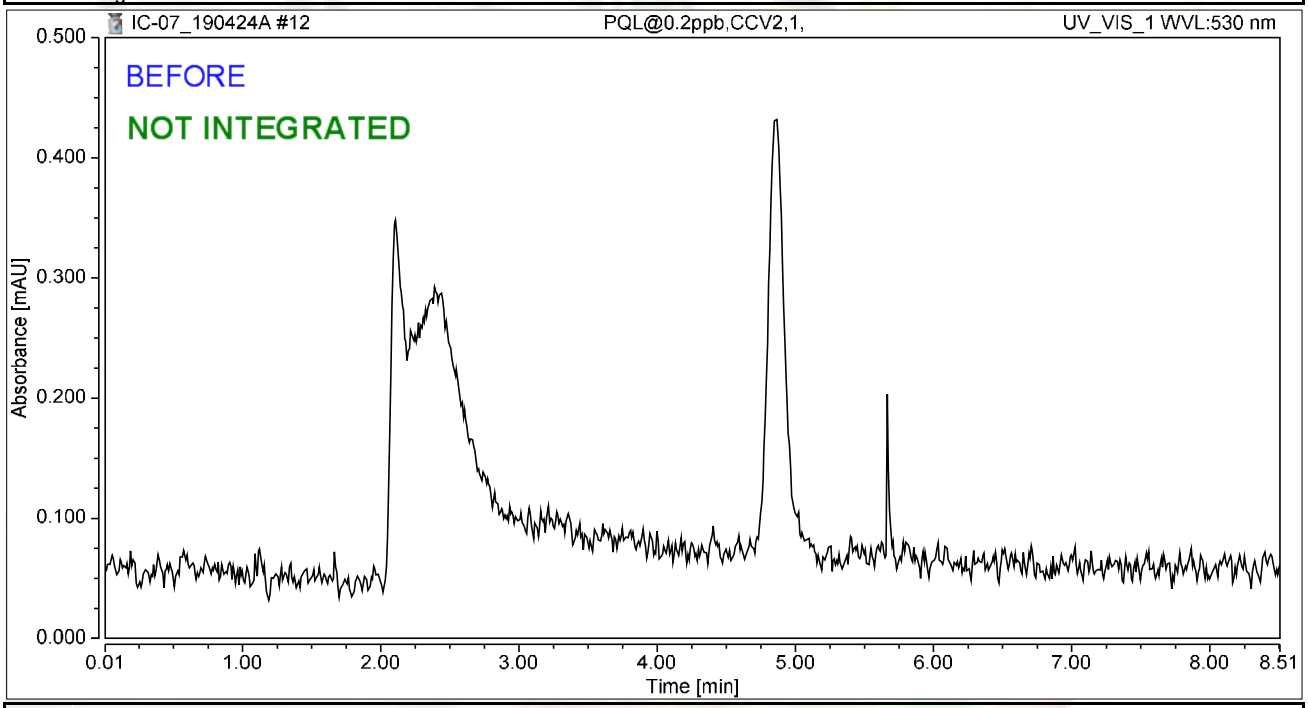
Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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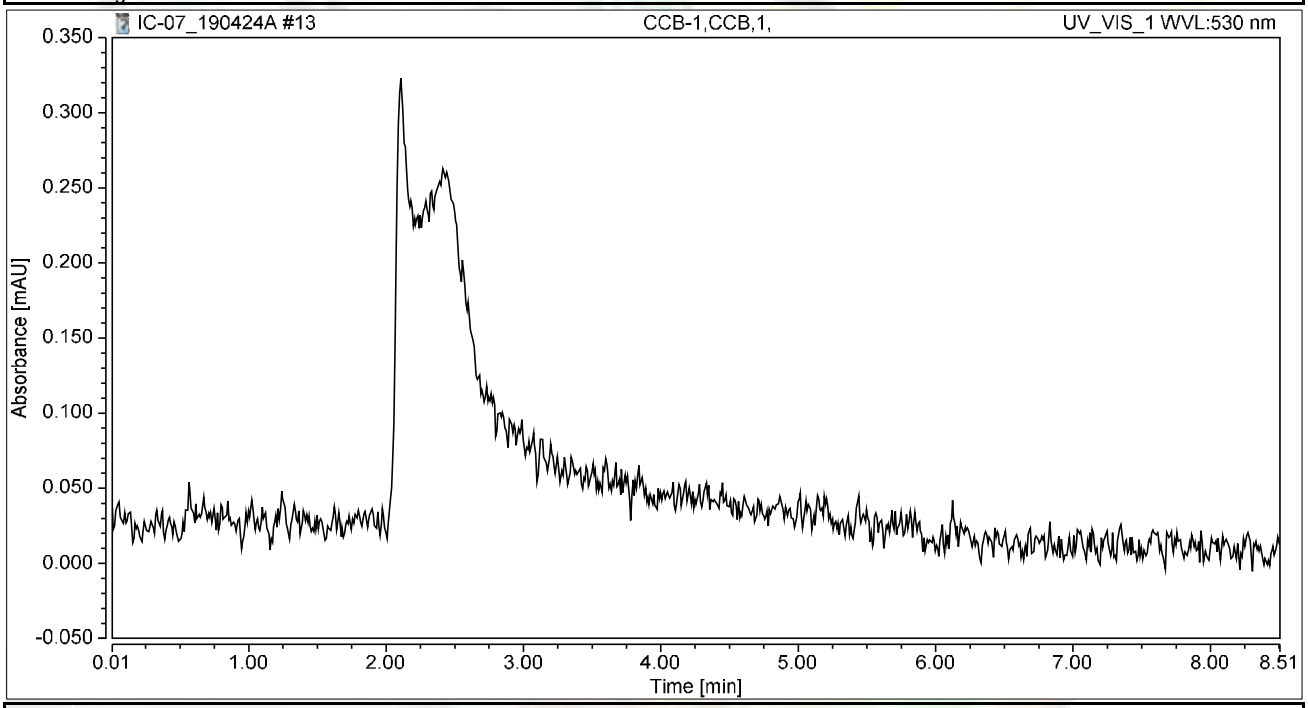
5/7/2019

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

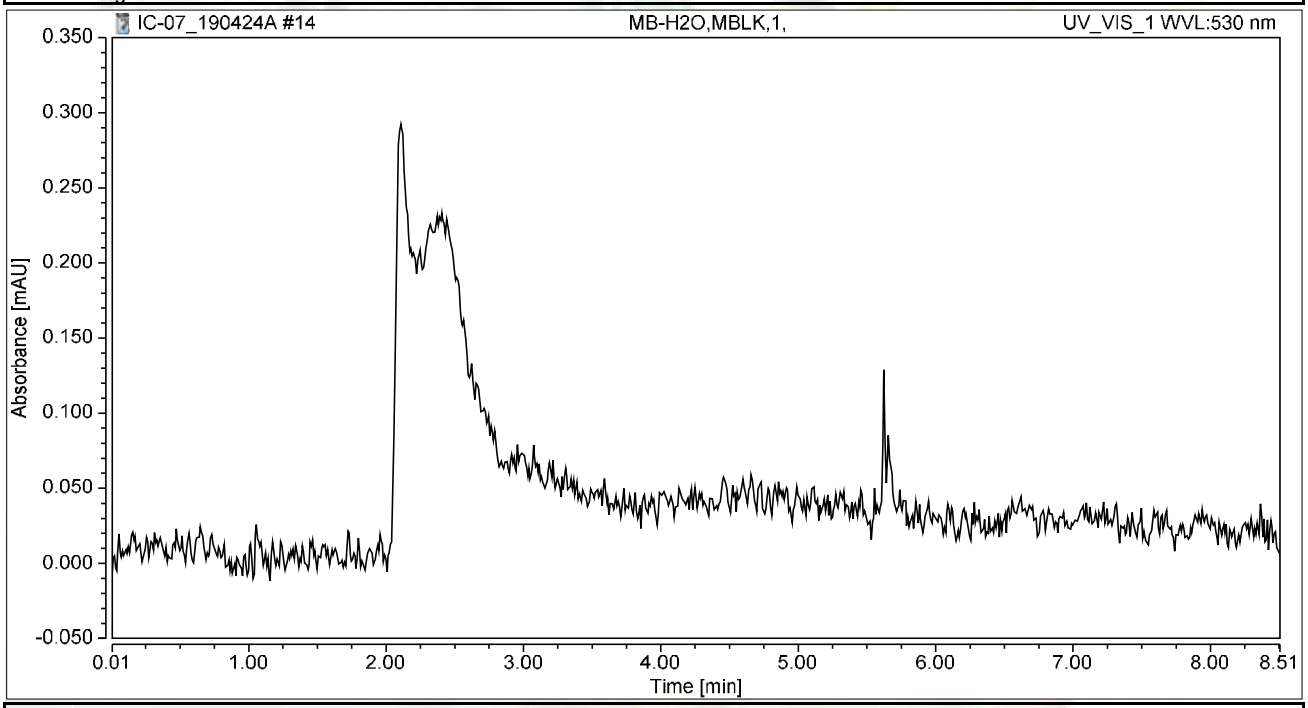
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 09:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

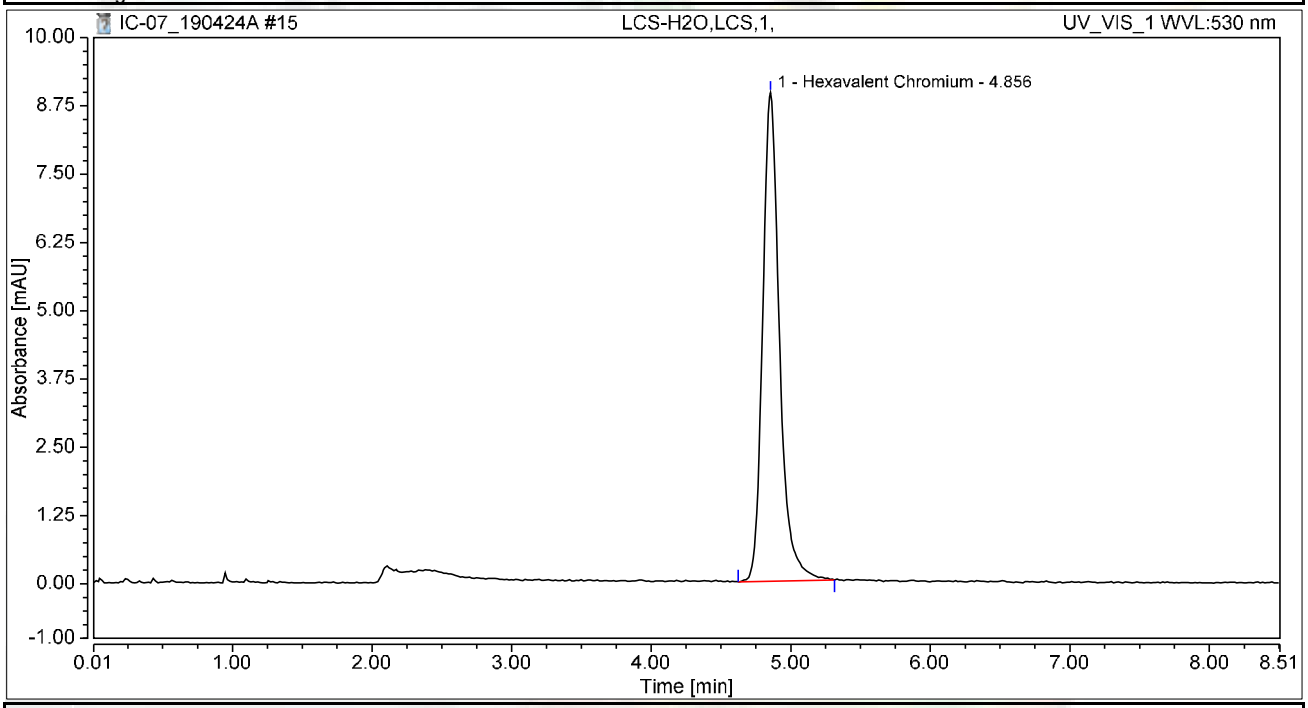
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 10:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

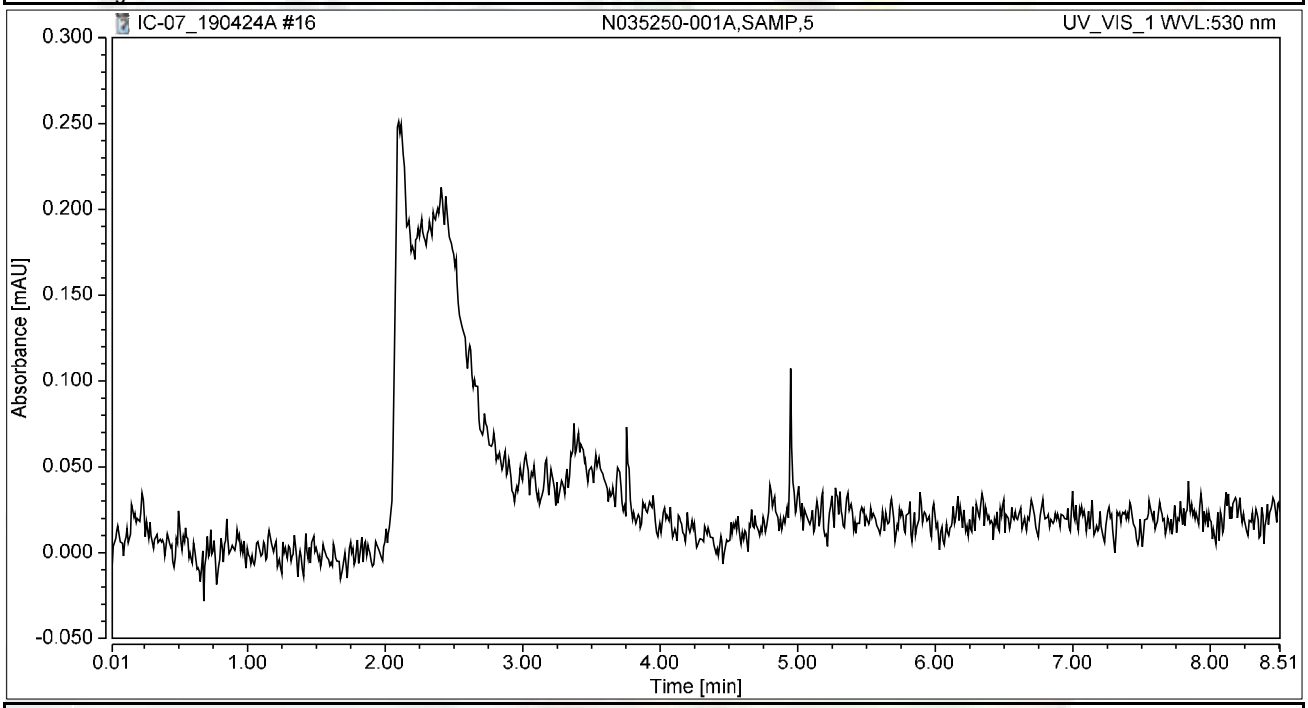
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.255	8.939	100.00	100.00	5.0400
Total:			**1.255**	**8.939**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-001A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 10:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

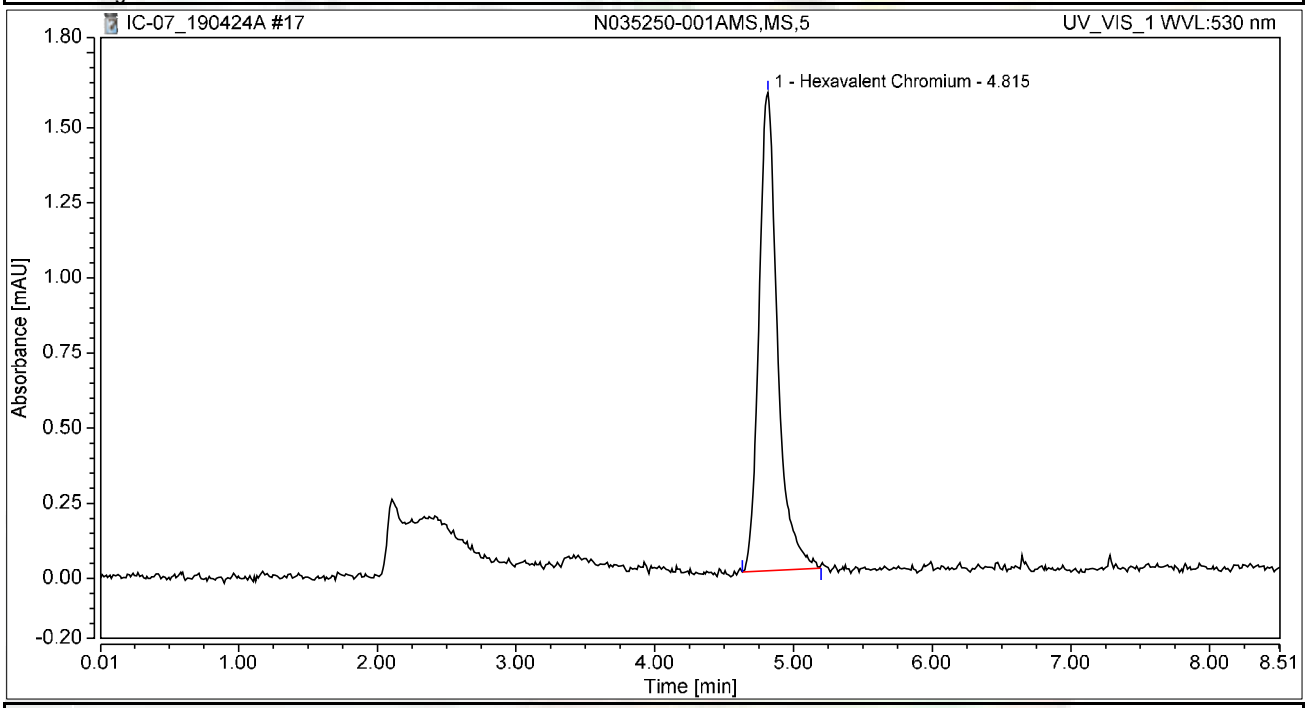
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 10:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

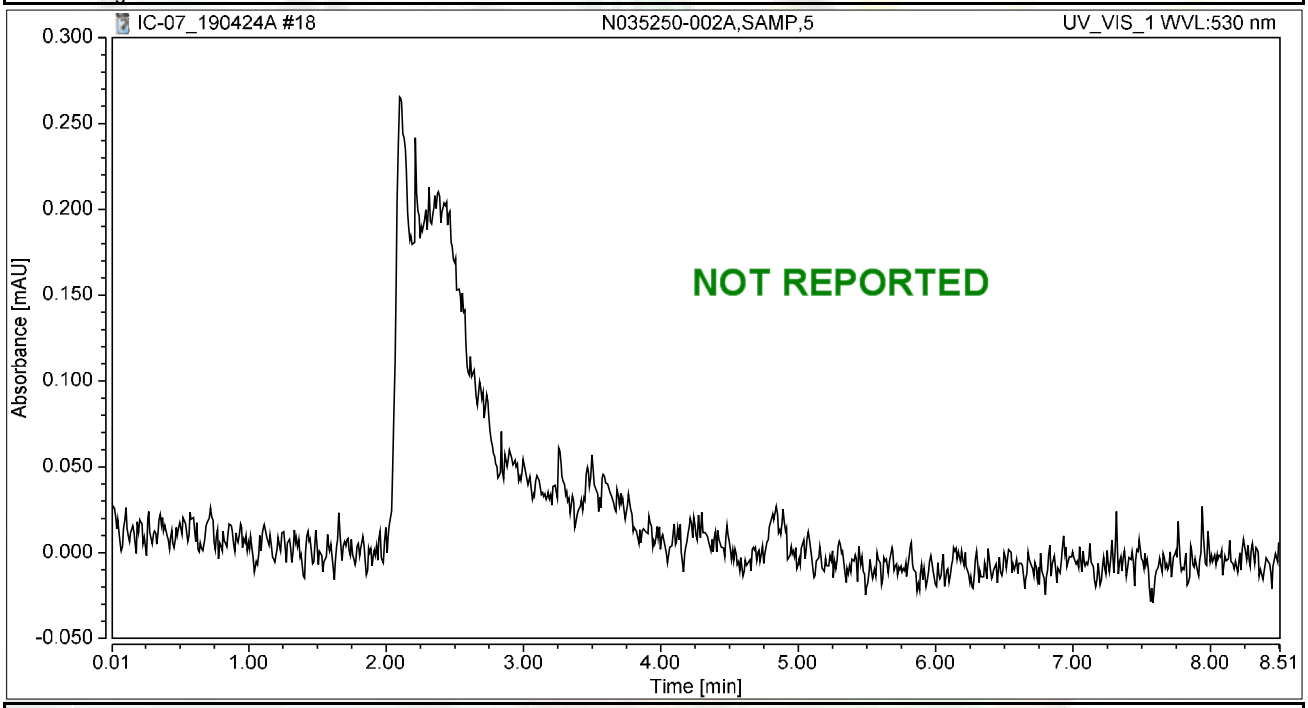
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.815	0.247	1.591	100.00	100.00	0.9921
Total:			**0.247**	**1.591**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 10:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

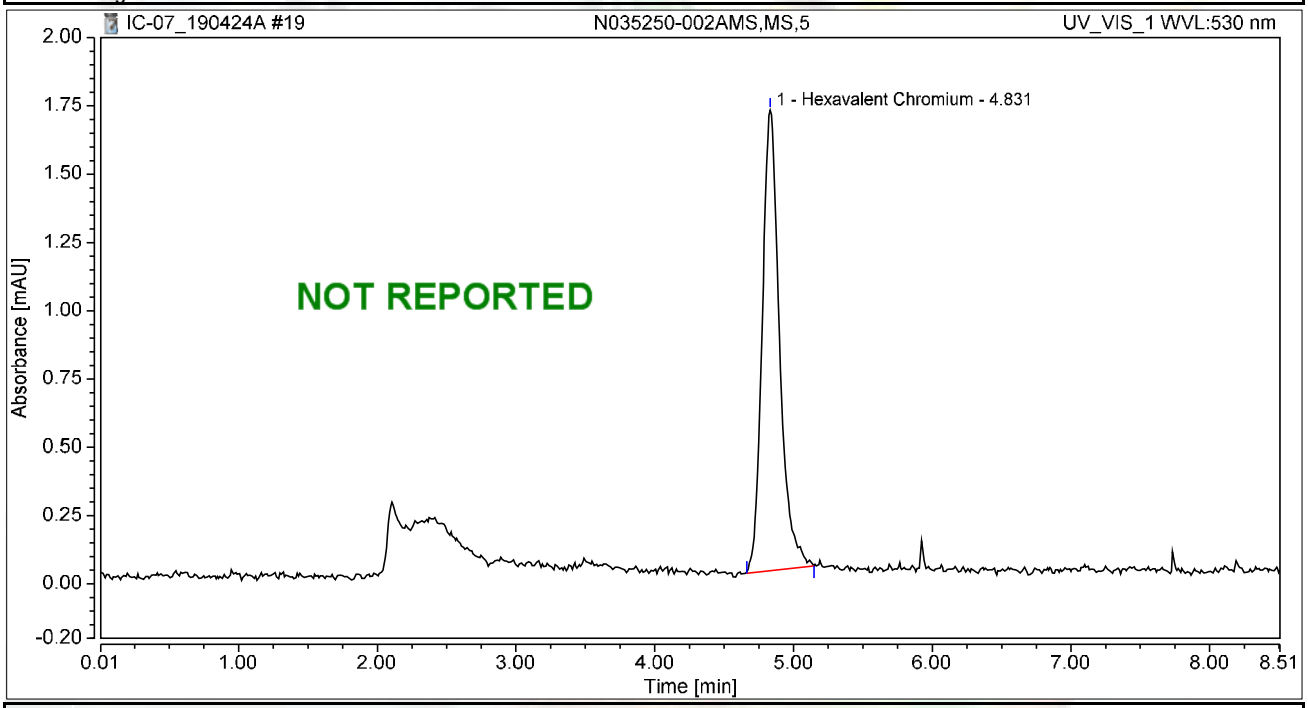
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

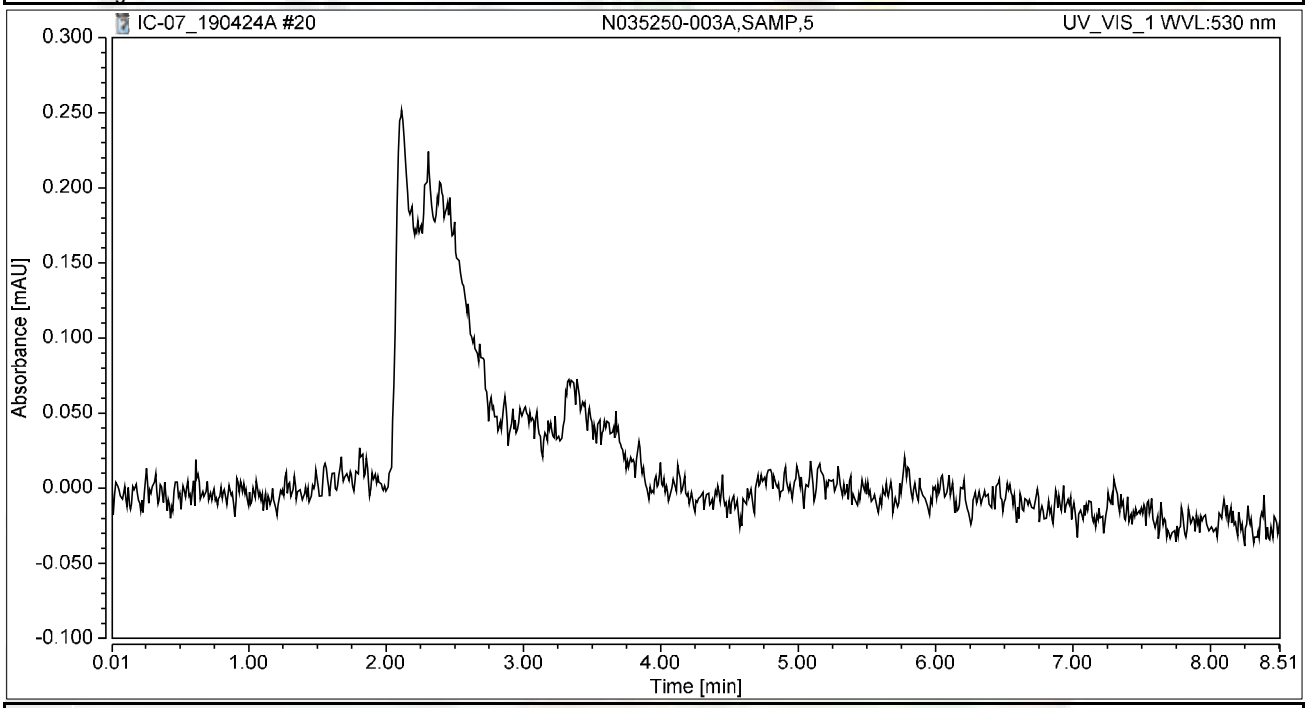
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.245	1.686	100.00	100.00	0.9822
Total:			**0.245**	**1.686**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

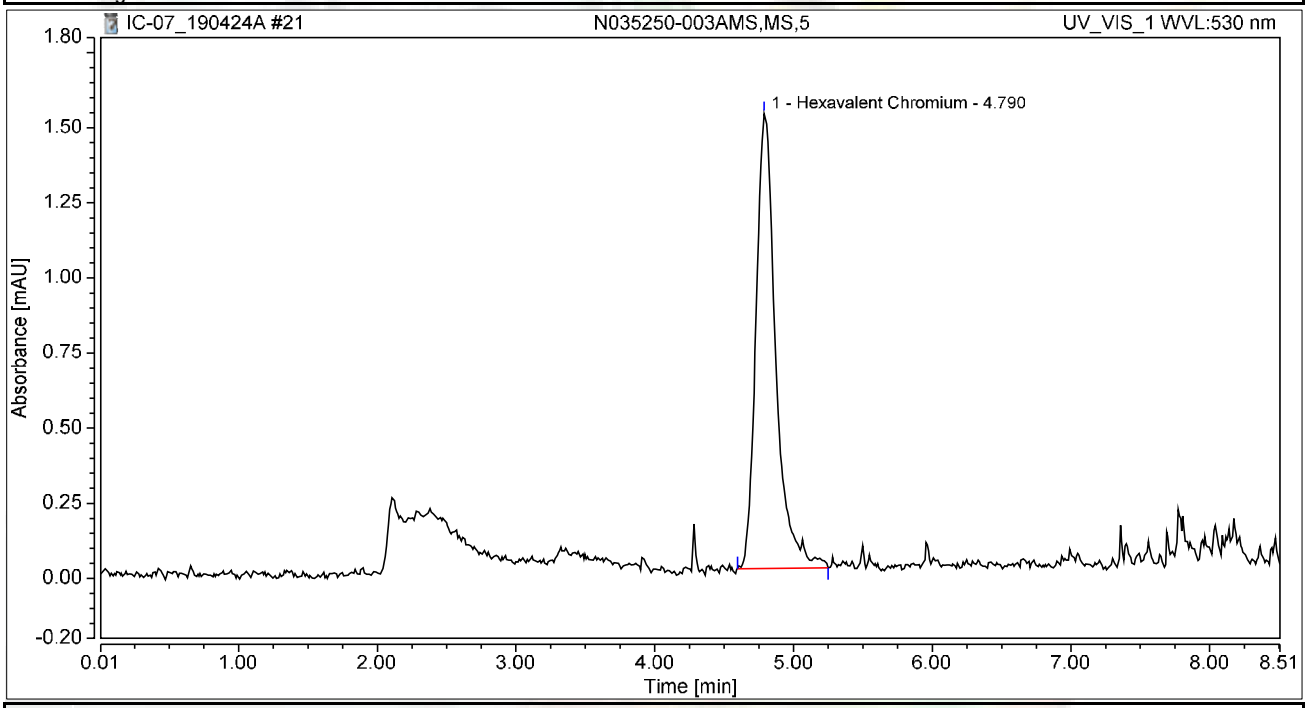
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-003AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

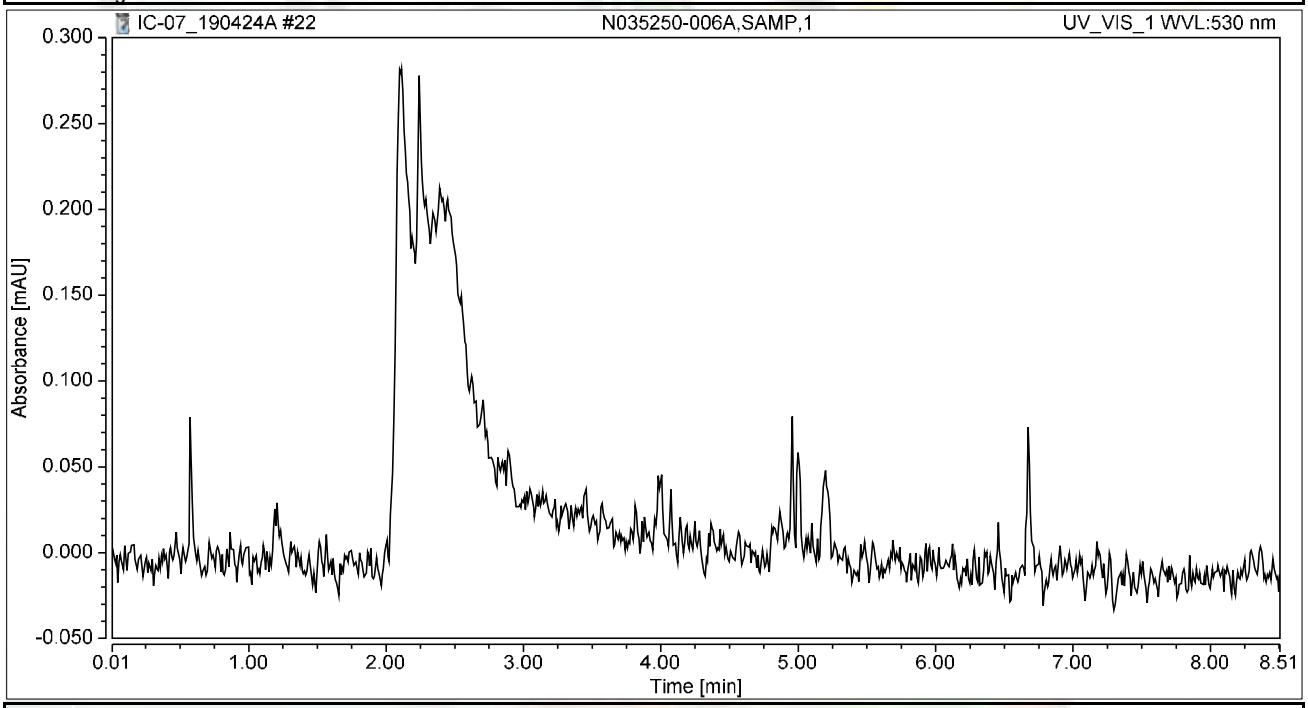
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.790	0.250	1.513	100.00	100.00	1.0050
Total:			**0.250**	**1.513**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

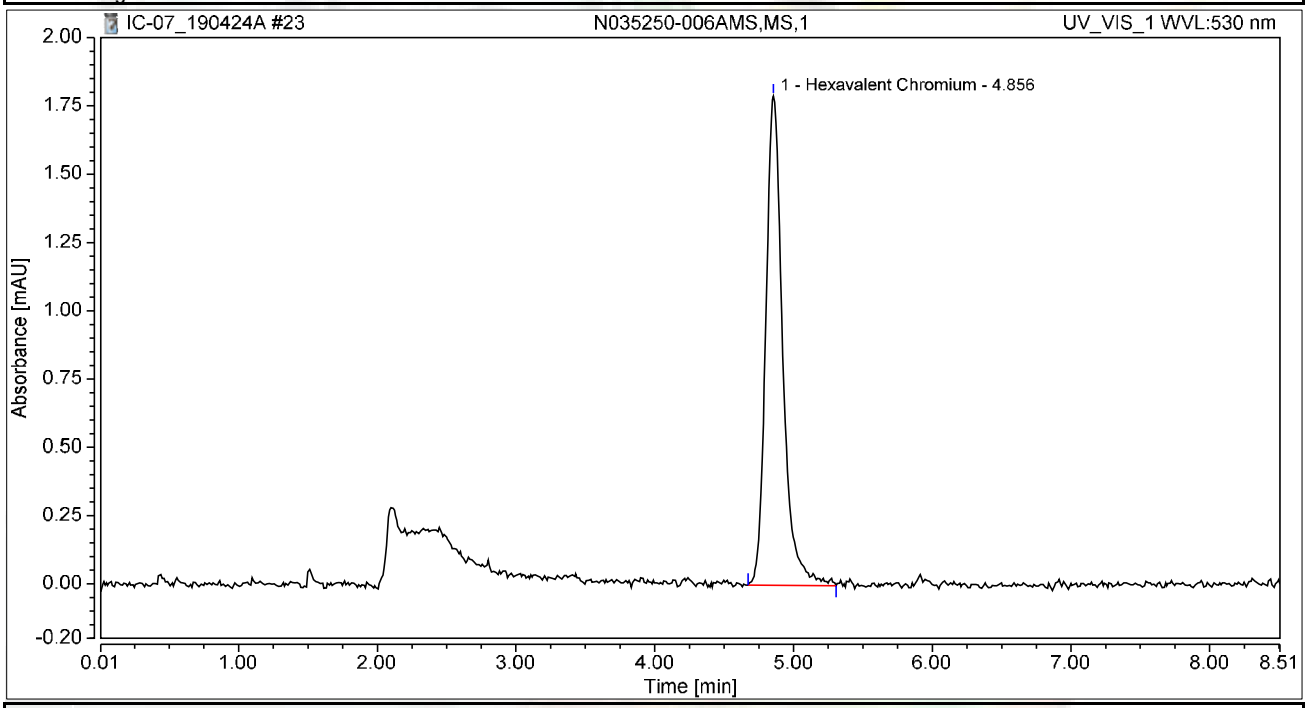
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

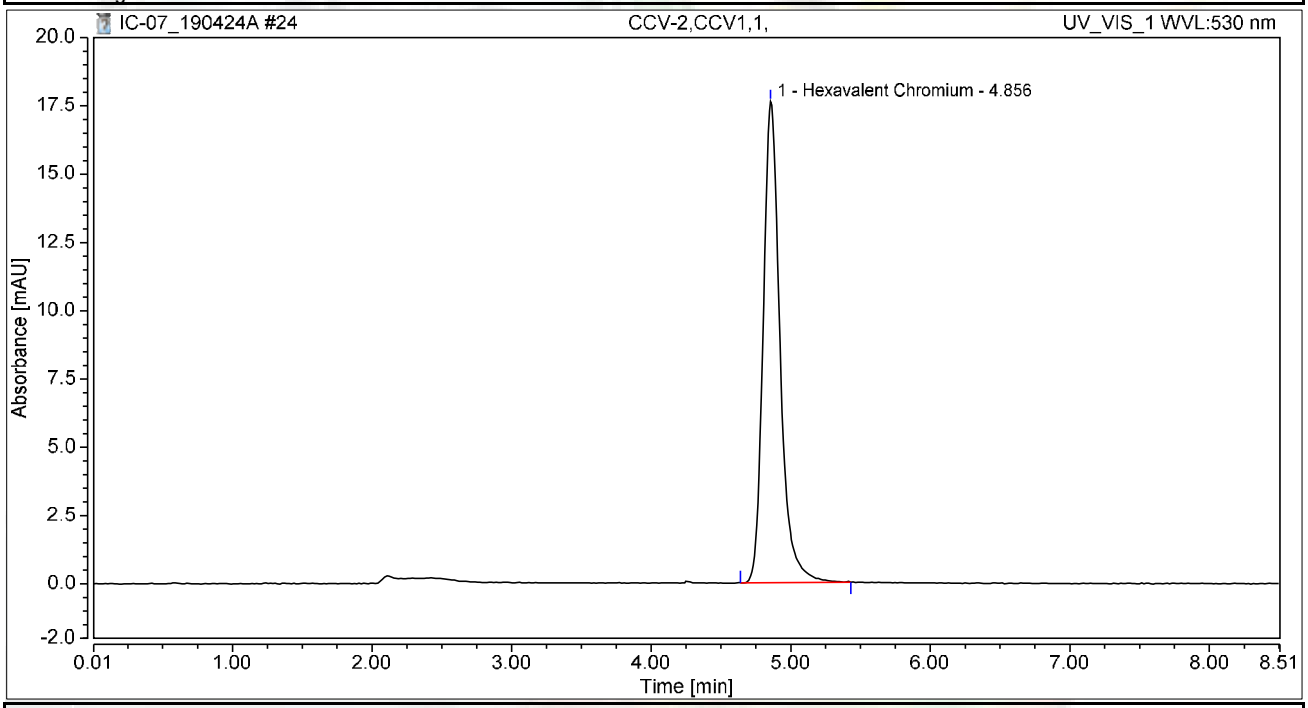
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.253	1.791	100.00	100.00	1.0181
Total:			**0.253**	**1.791**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

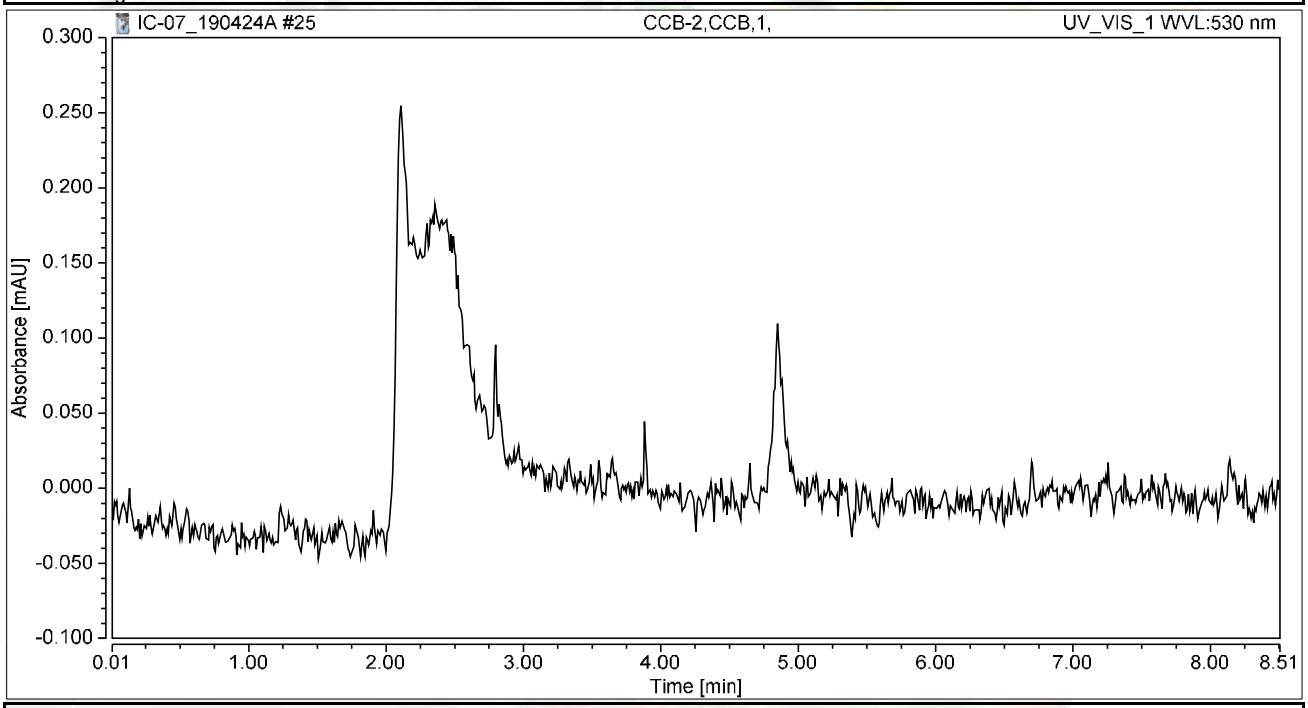
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.468	17.615	100.00	100.00	9.9131
Total:			**2.468**	**17.615**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 11:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

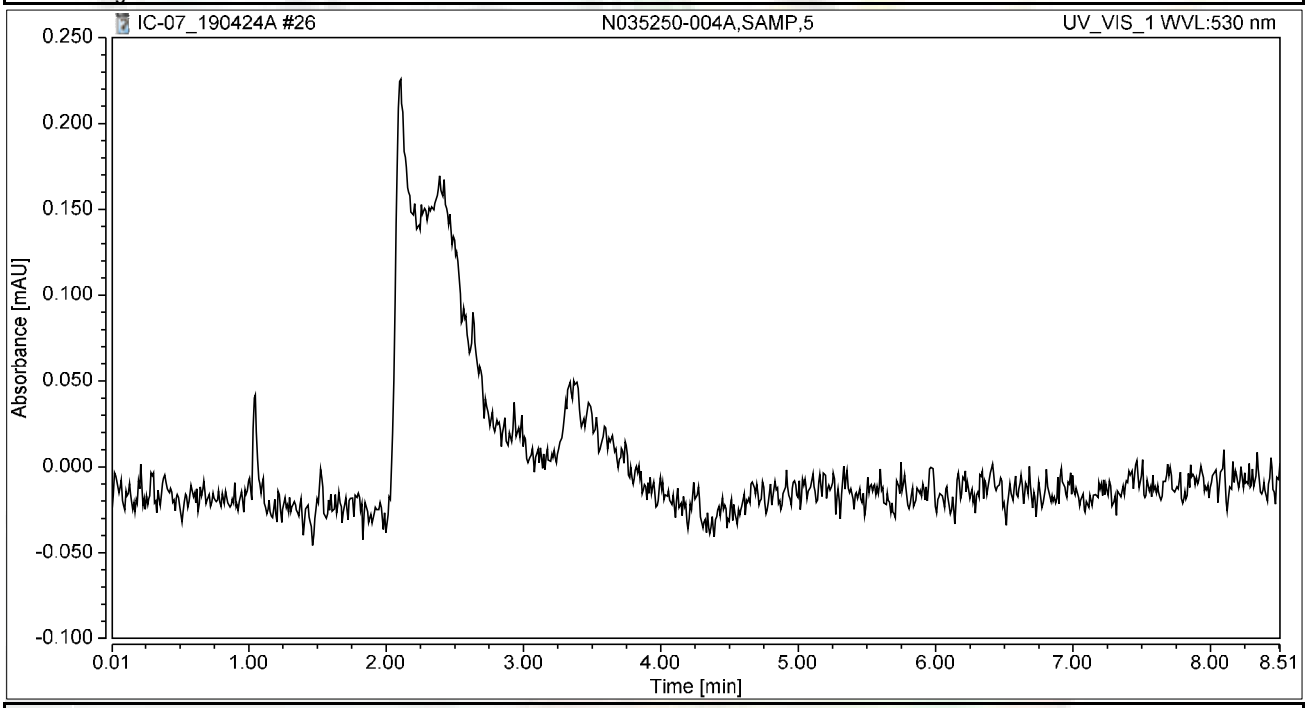
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-004A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

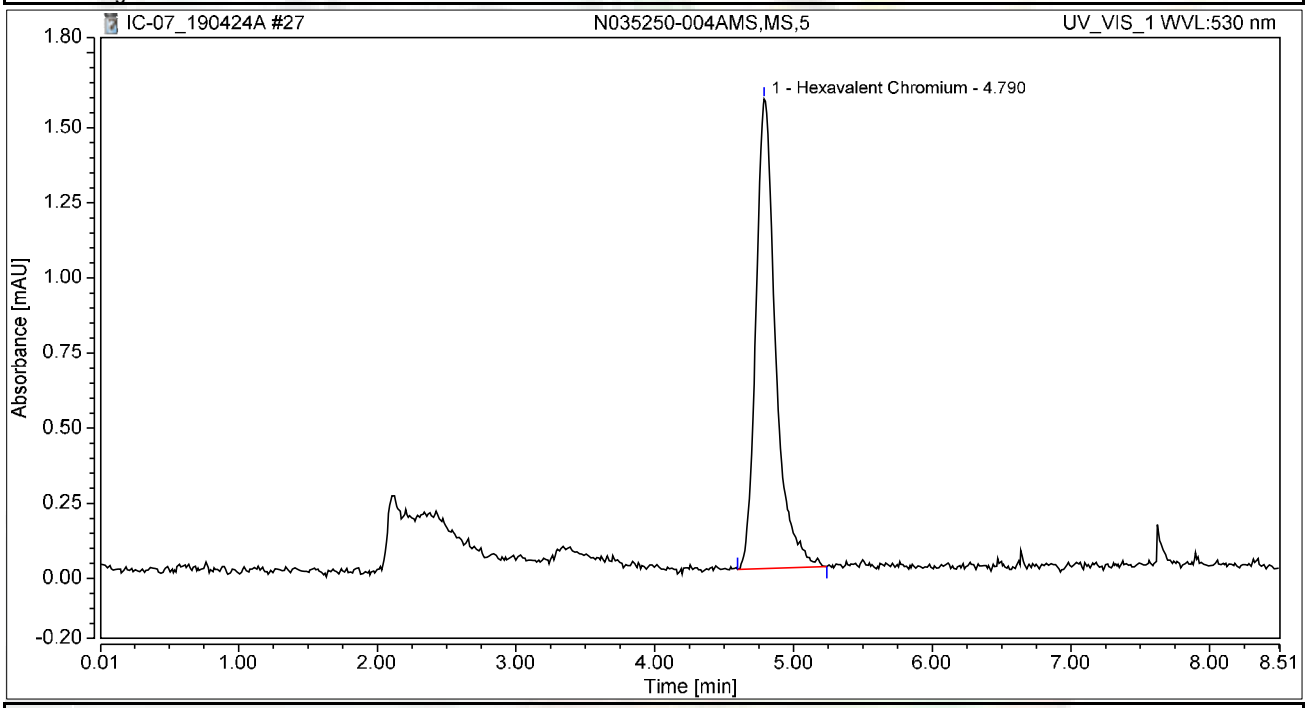
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-004AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

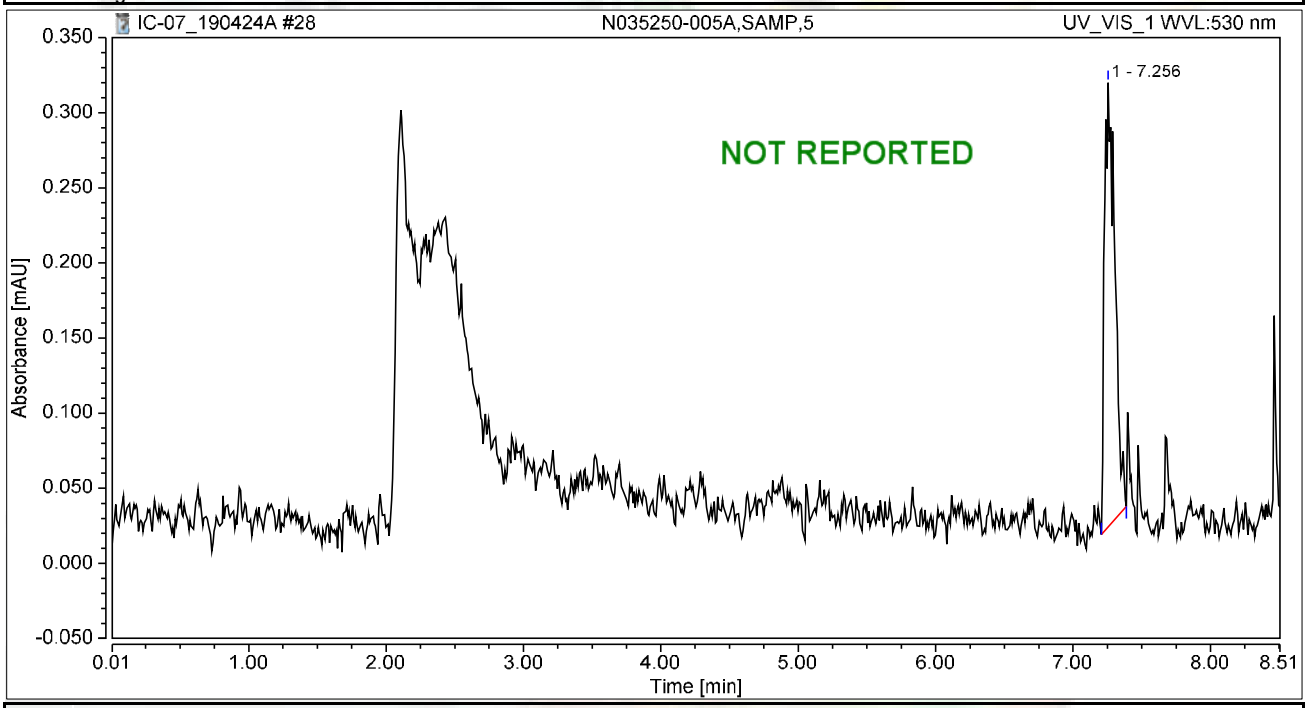
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.790	0.257	1.563	100.00	100.00	1.0309
Total:			**0.257**	**1.563**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-005A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

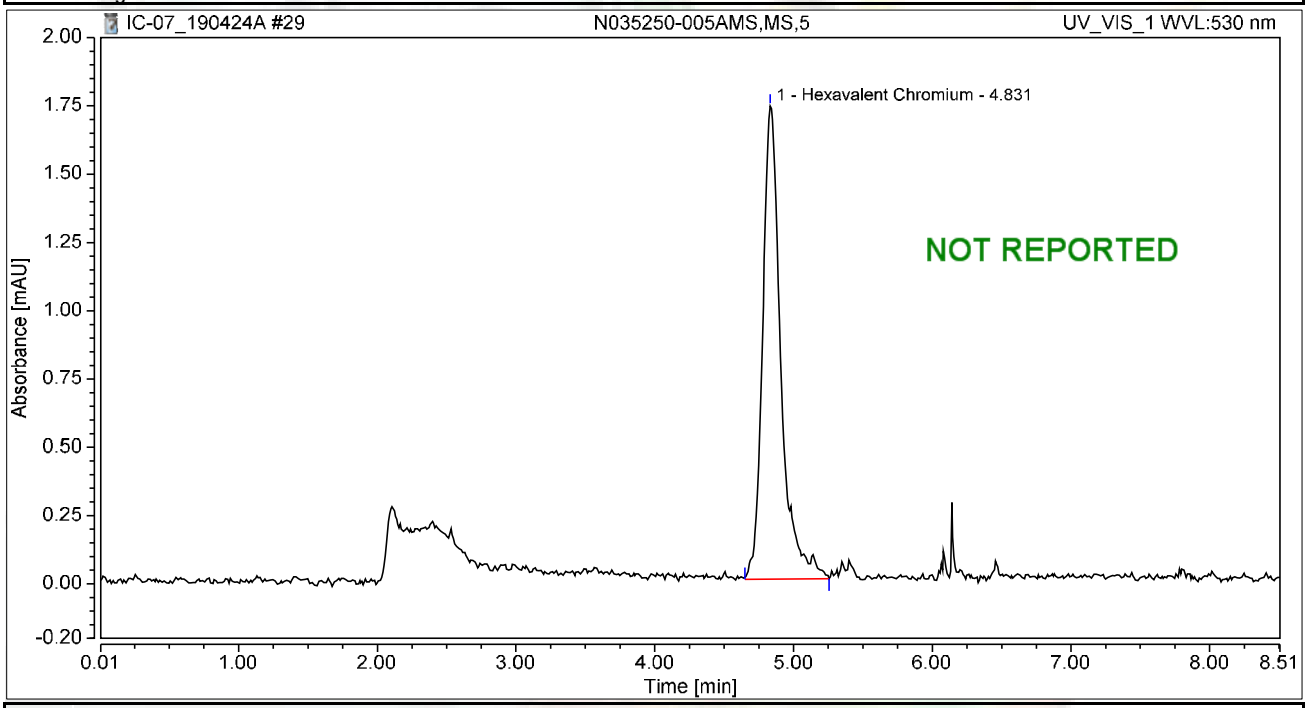
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.256	0.026	0.296	100.00	100.00	n.a.
Total:			**0.026**	**0.296**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-005AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

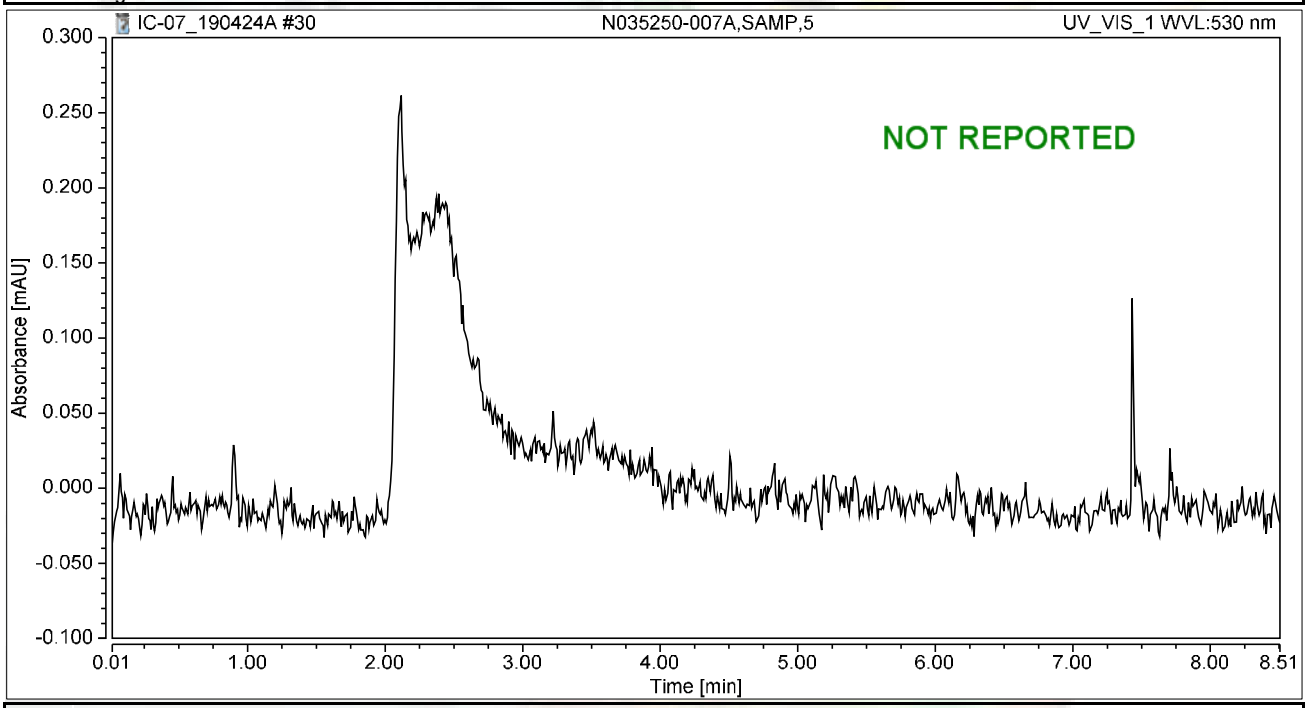
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.265	1.732	100.00	100.00	1.0639
Total:			**0.265**	**1.732**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-007A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

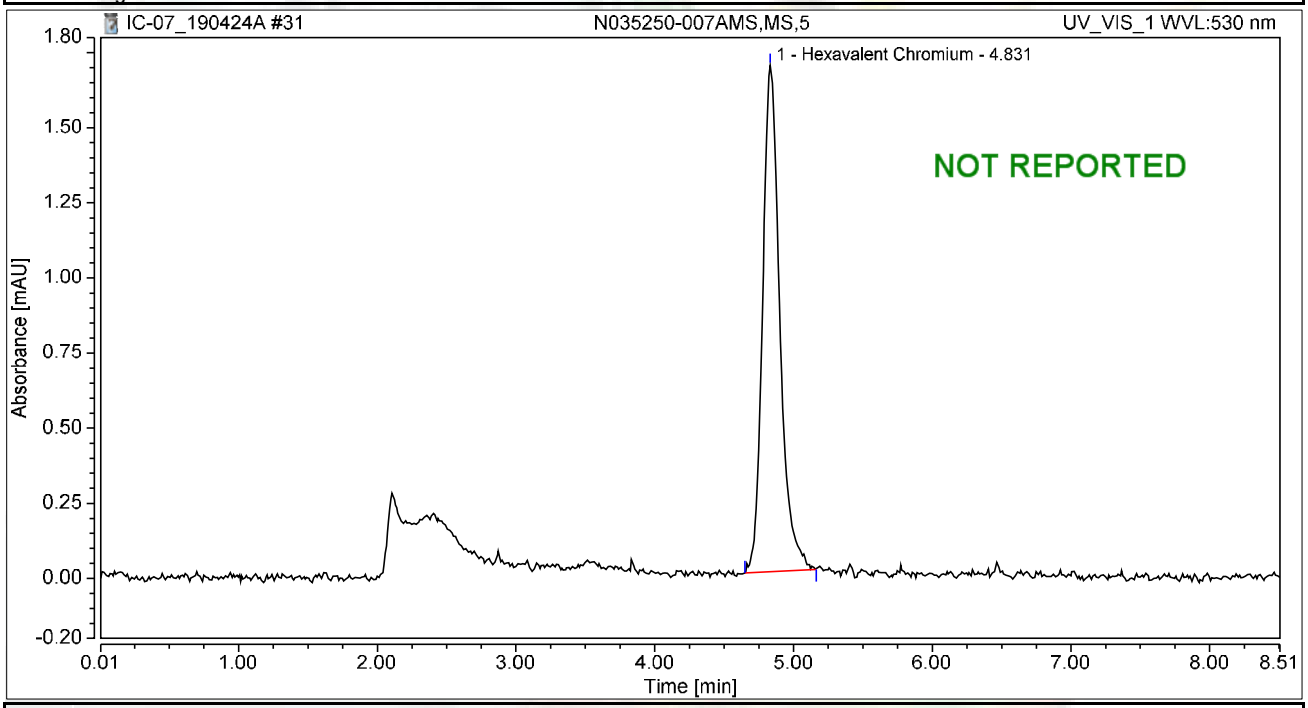
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-007AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 12:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

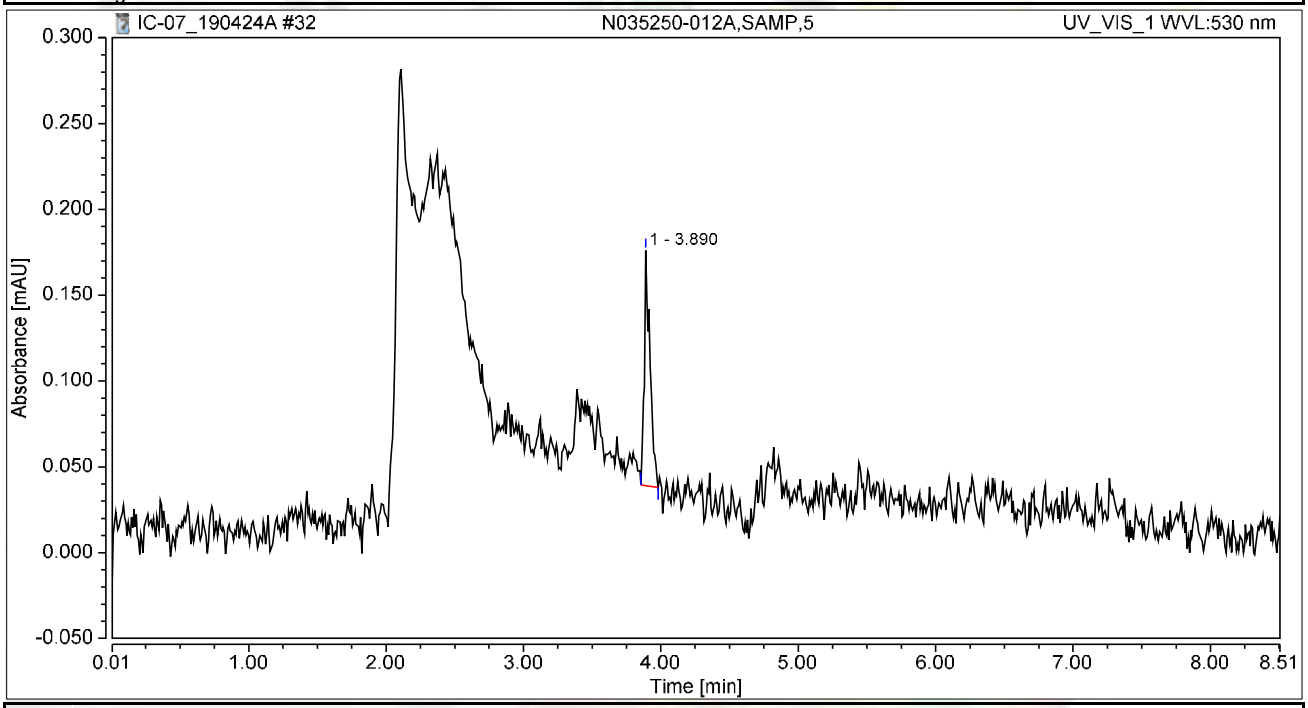
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.243	1.685	100.00	100.00	0.9765
Total:			**0.243**	**1.685**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-012A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

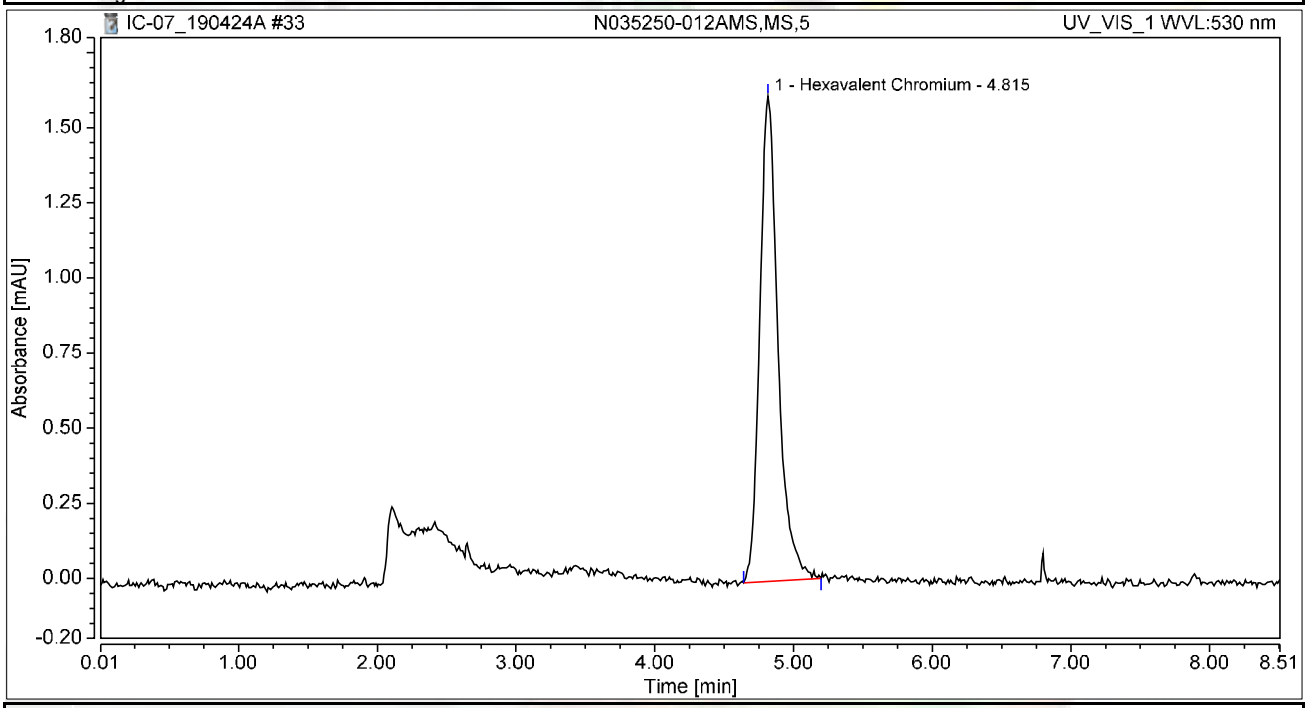
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.890	0.006	0.137	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.006**	**0.137**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-012AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

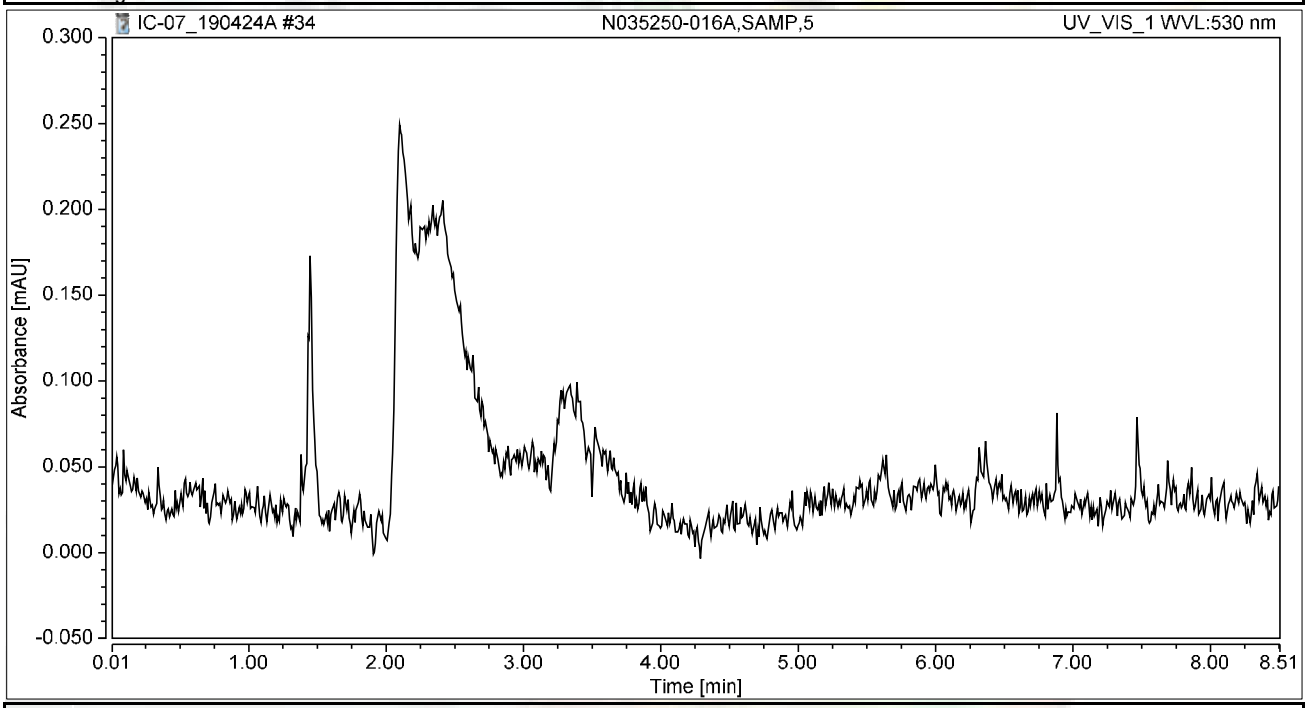
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.815	0.247	1.616	100.00	100.00	0.9918
Total:			**0.247**	**1.616**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-016A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

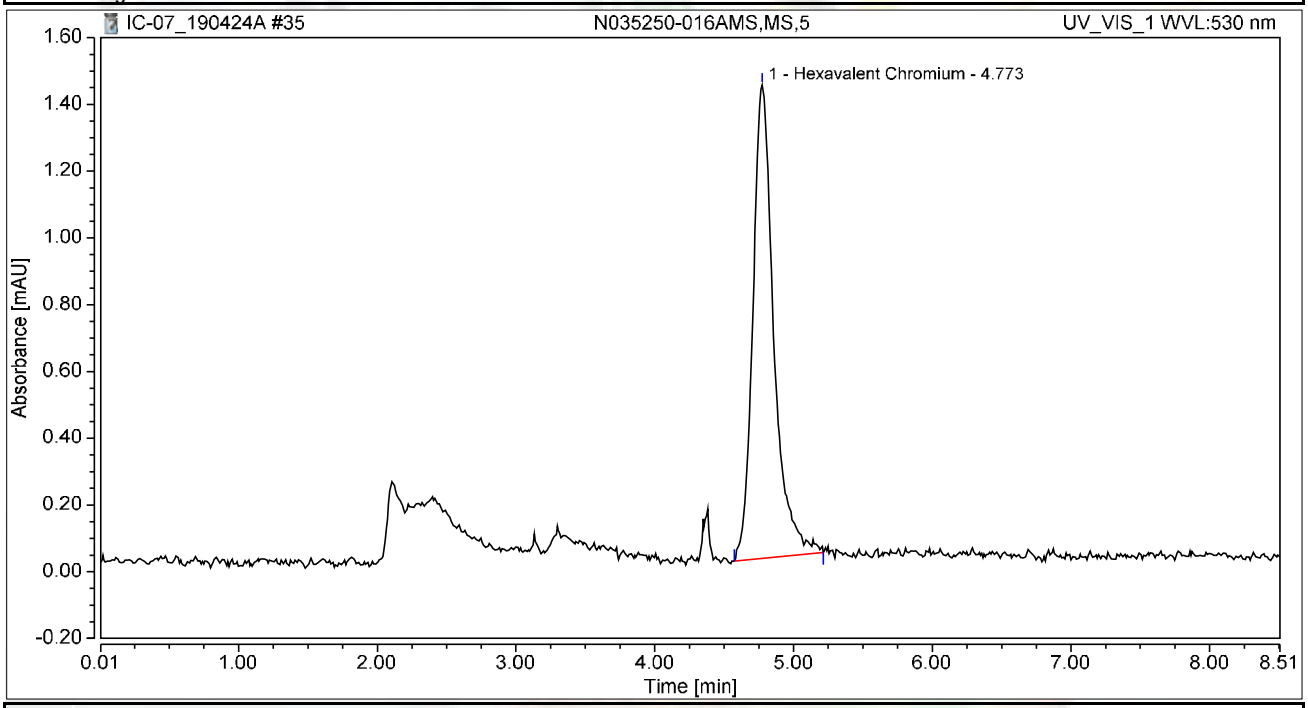
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-016AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

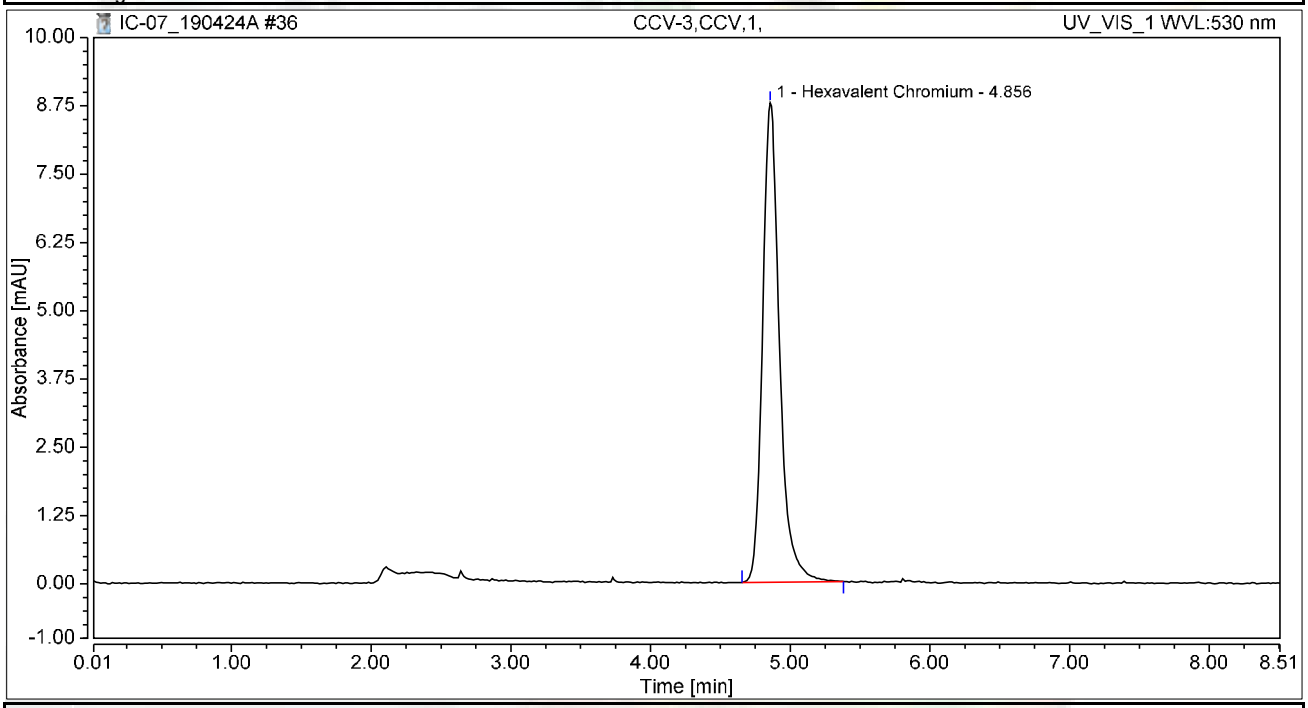
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	0.248	1.419	100.00	100.00	0.9972
Total:			**0.248**	**1.419**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

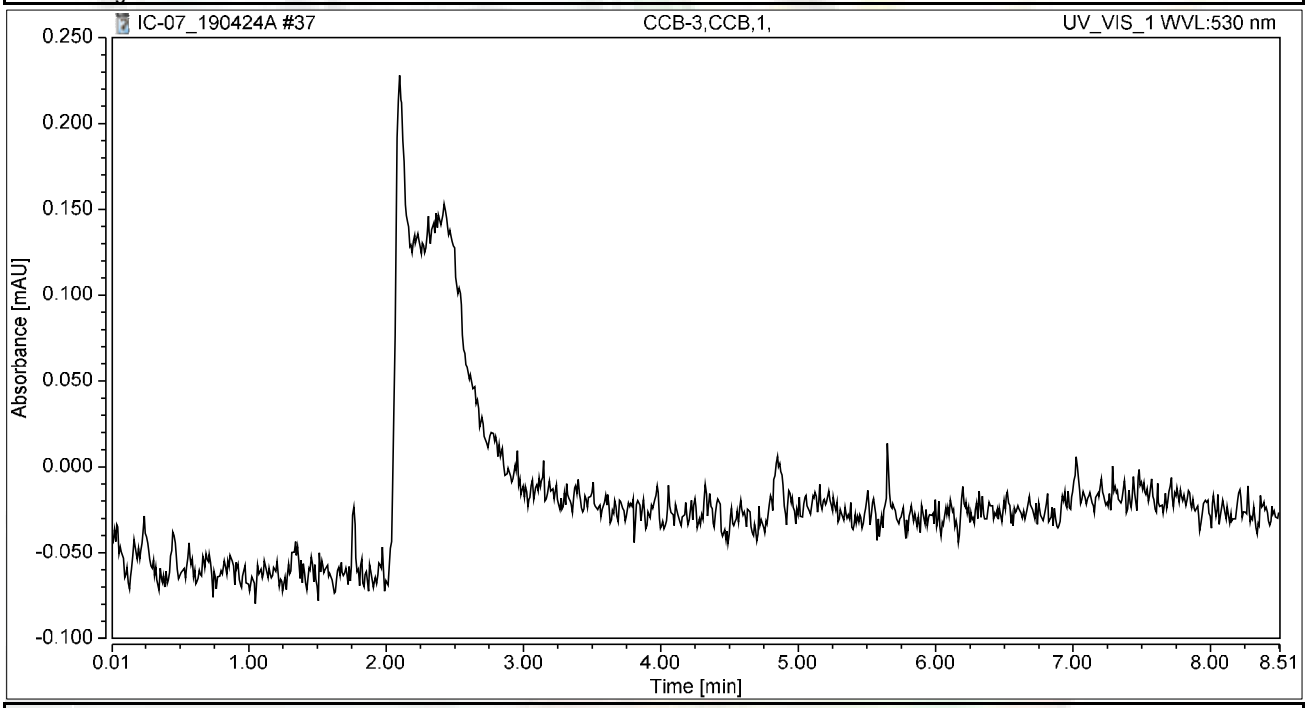
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.232	8.772	100.00	100.00	4.9490
Total:			**1.232**	**8.772**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

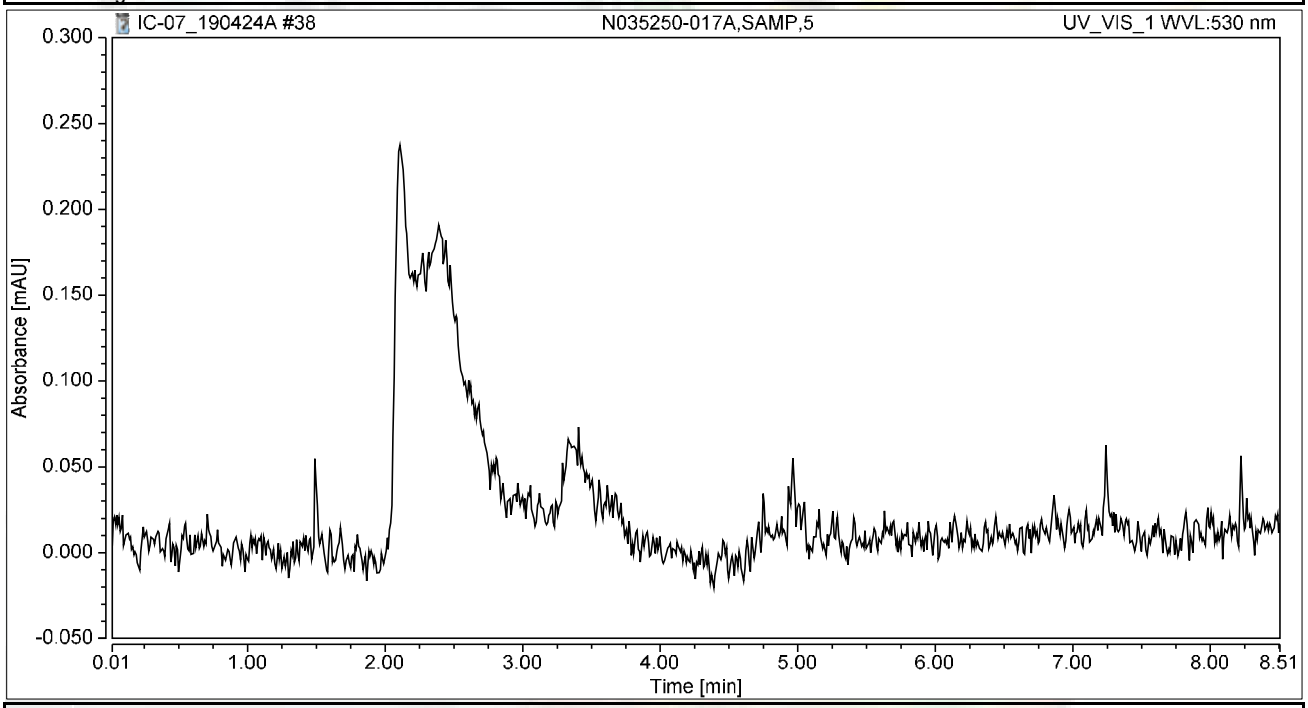
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-017A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 13:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

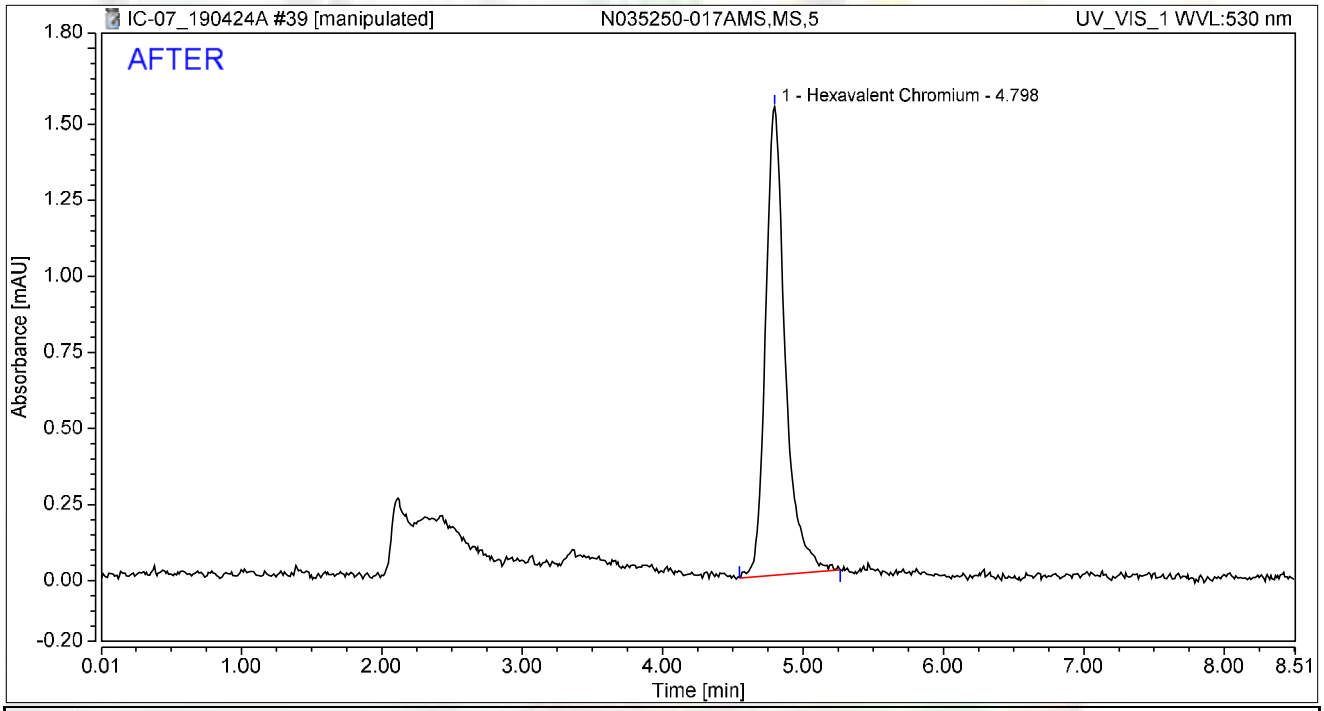
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-017AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.798	0.251	1.540	100.00	100.00	1.0073
Total:			**0.251**	**1.540**	**100.00**	**100.00**	

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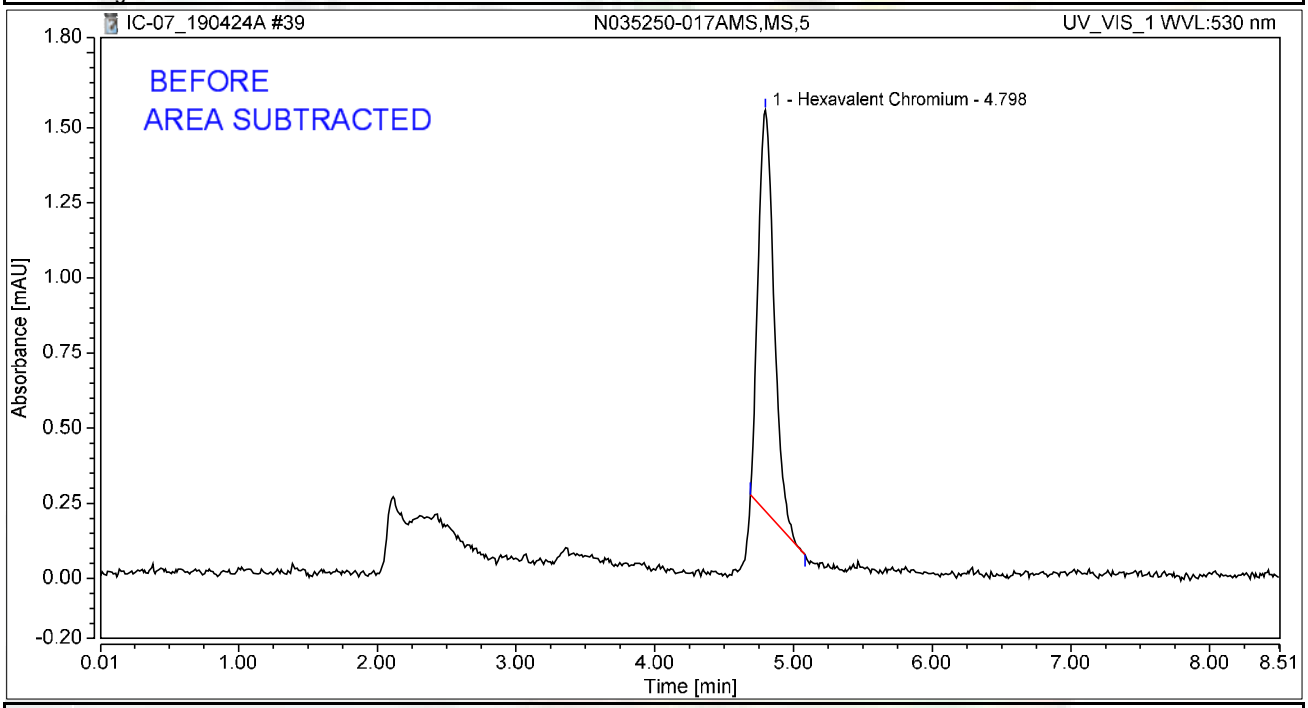
Chromatogram and Results

Injection Details

Injection Name:	**N035250-017AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.798	0.178	1.333	100.00	100.00	0.7132
Total:			**0.178**	**1.333**	**100.00**	**100.00**	

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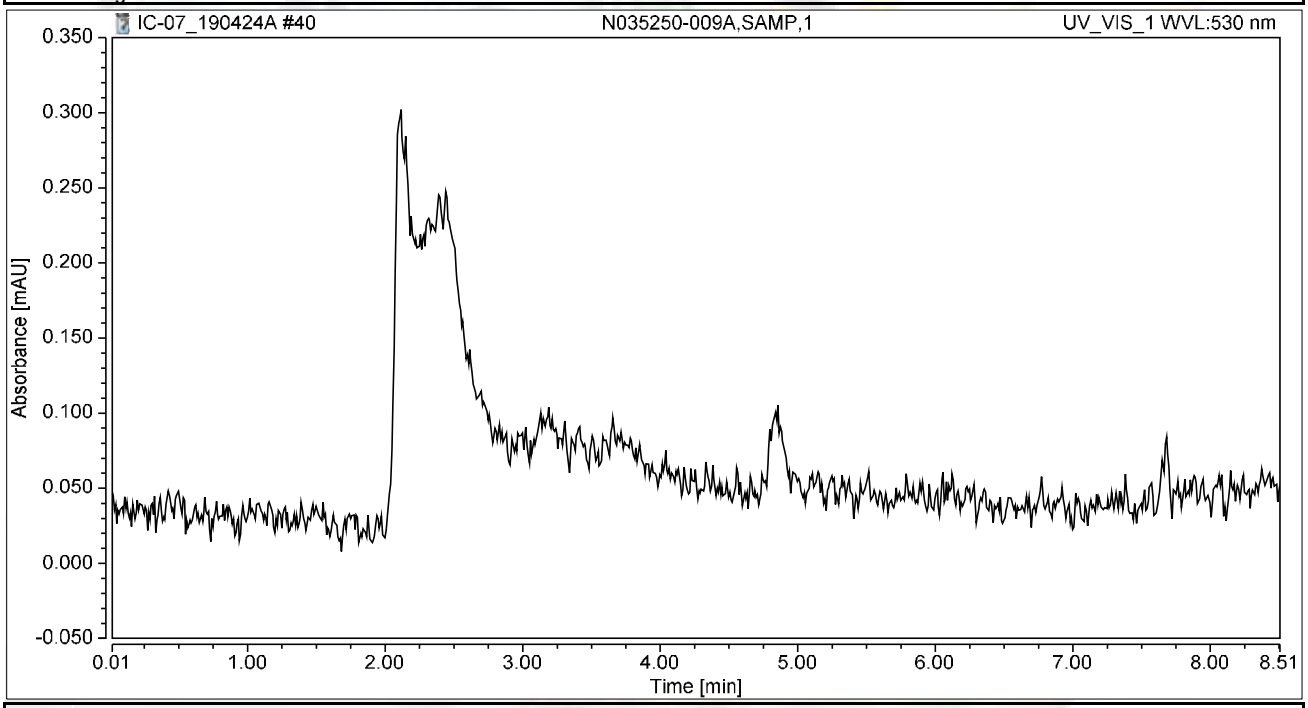
5/7/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035250-009A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

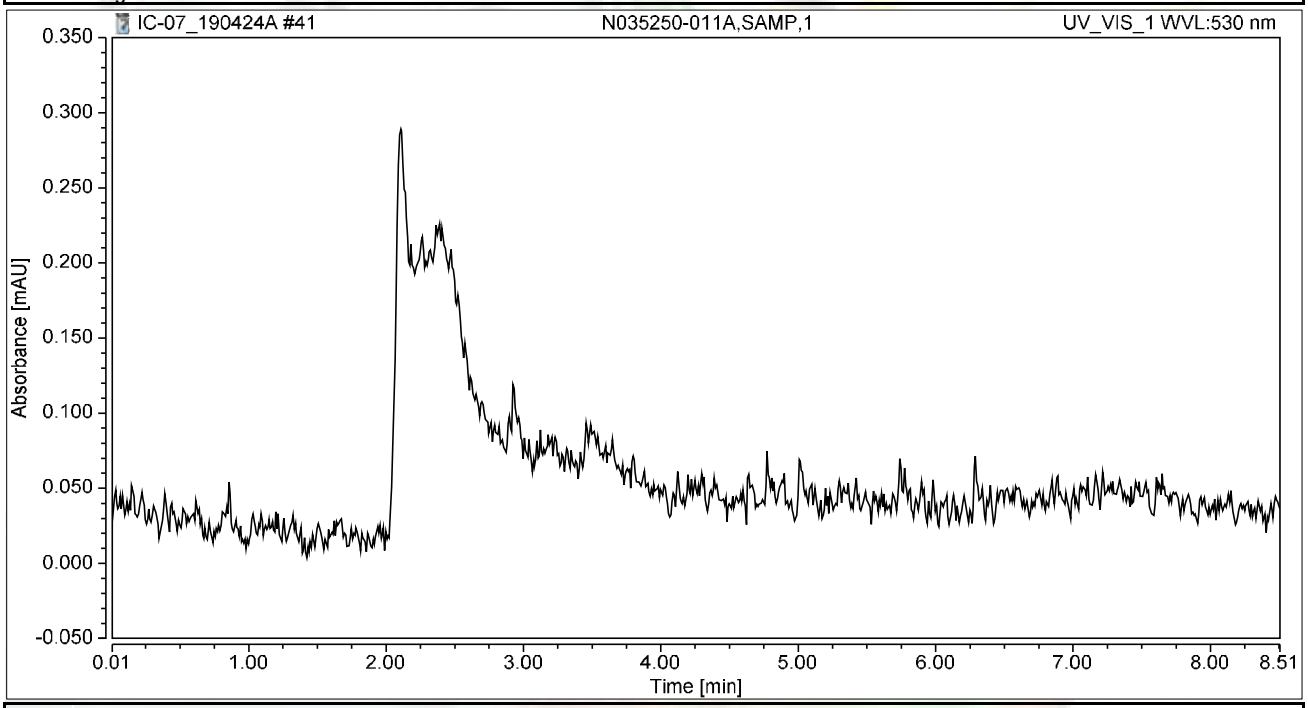
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-011A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

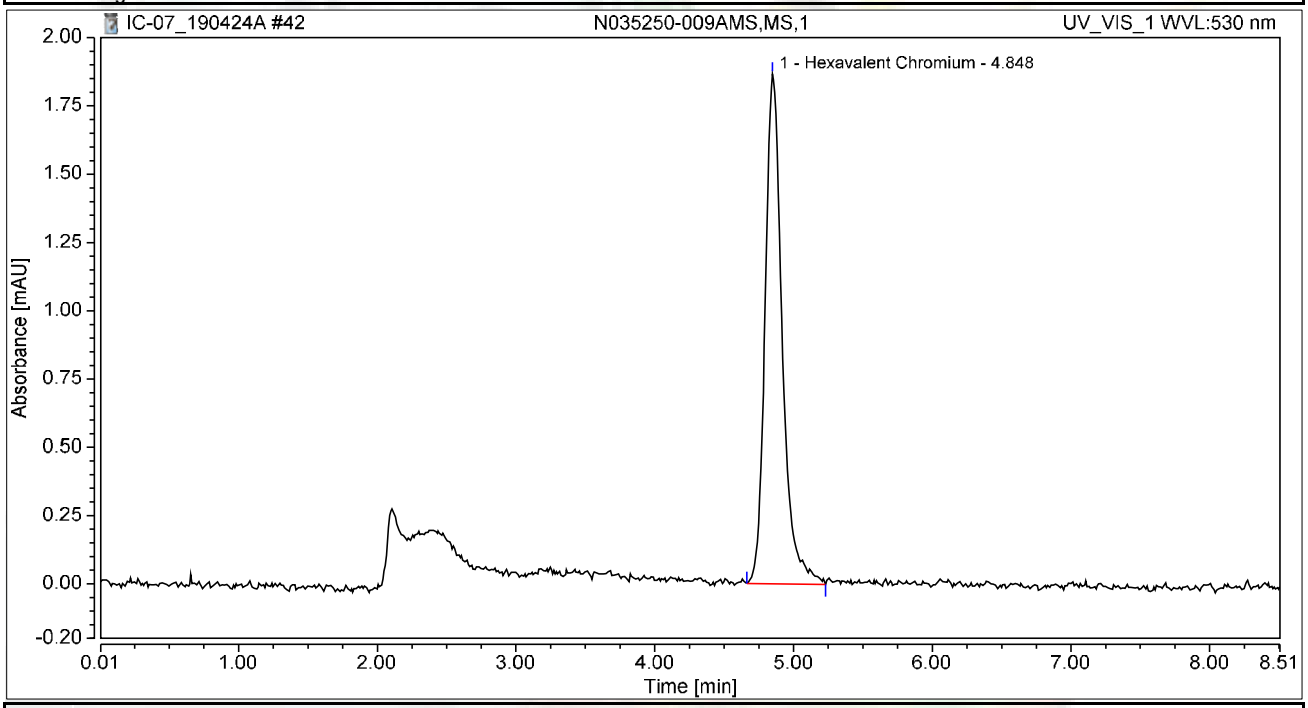
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-009AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

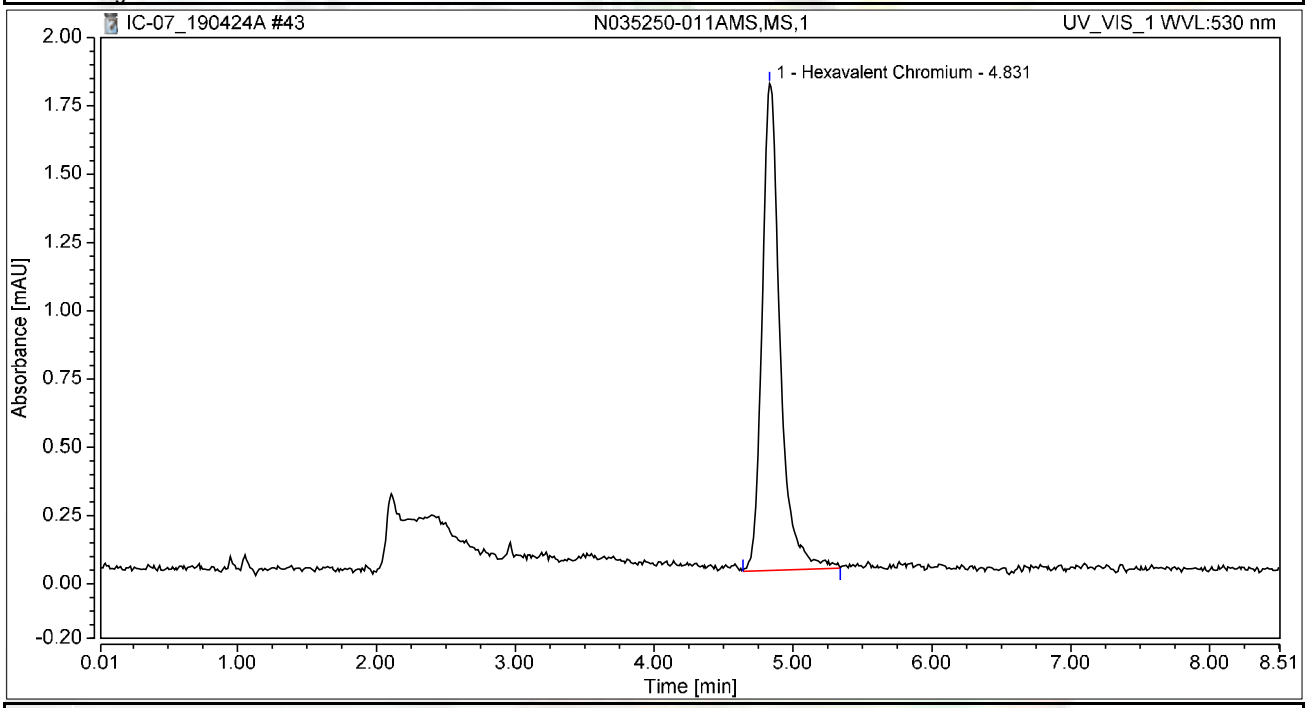
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.267	1.866	100.00	100.00	1.0742
Total:			**0.267**	**1.866**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-011AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

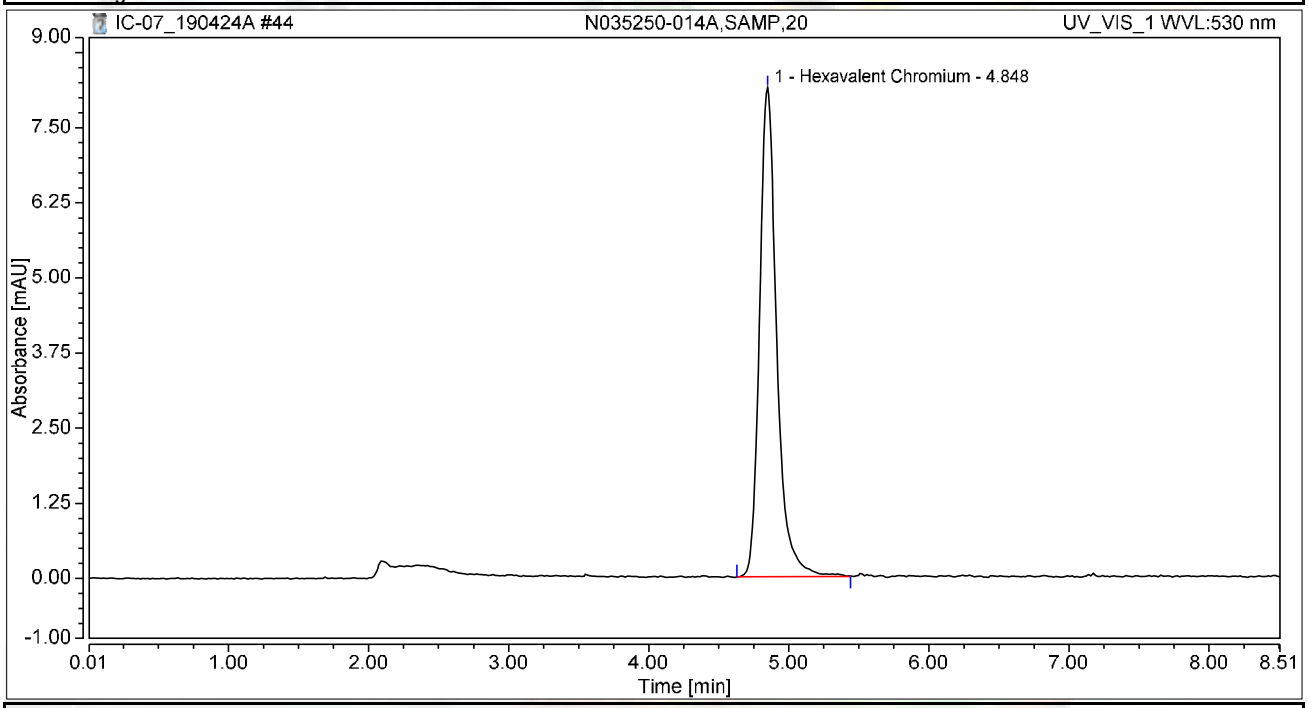
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.268	1.783	100.00	100.00	1.0772
Total:			**0.268**	**1.783**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-014A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 14:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

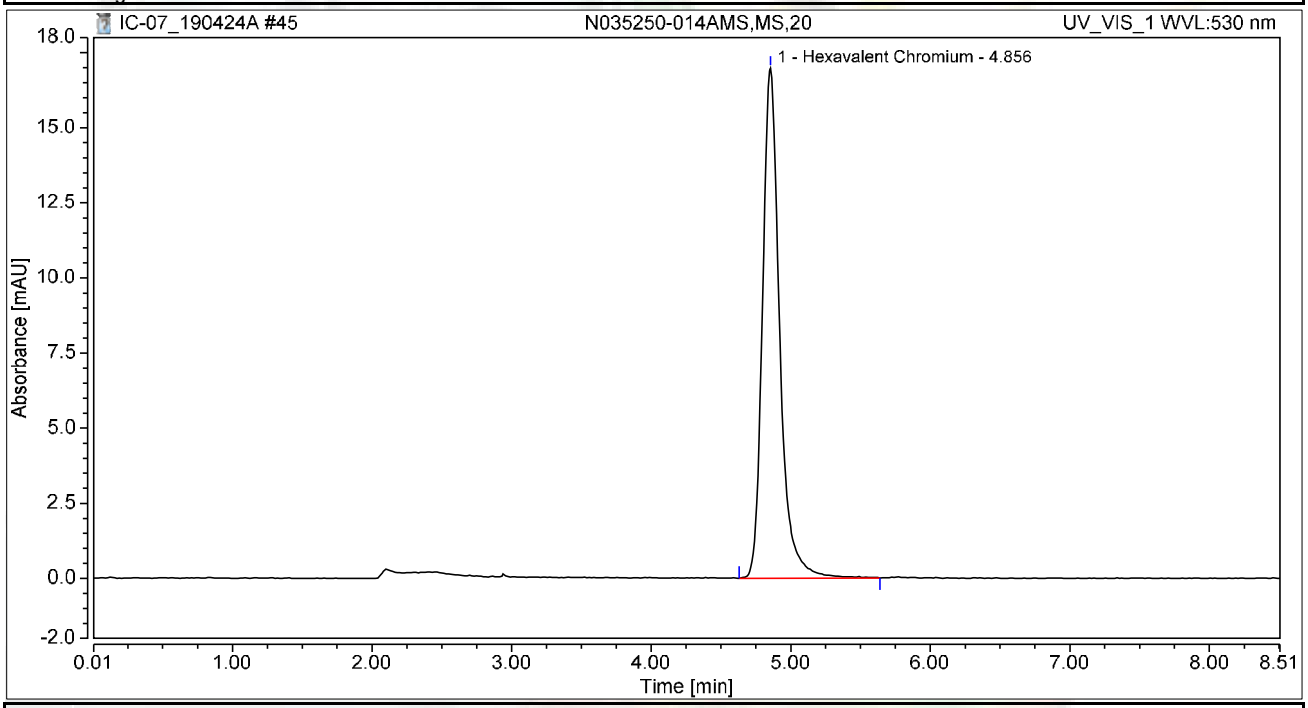
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	1.156	8.138	100.00	100.00	4.6430
Total:			**1.156**	**8.138**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-014AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

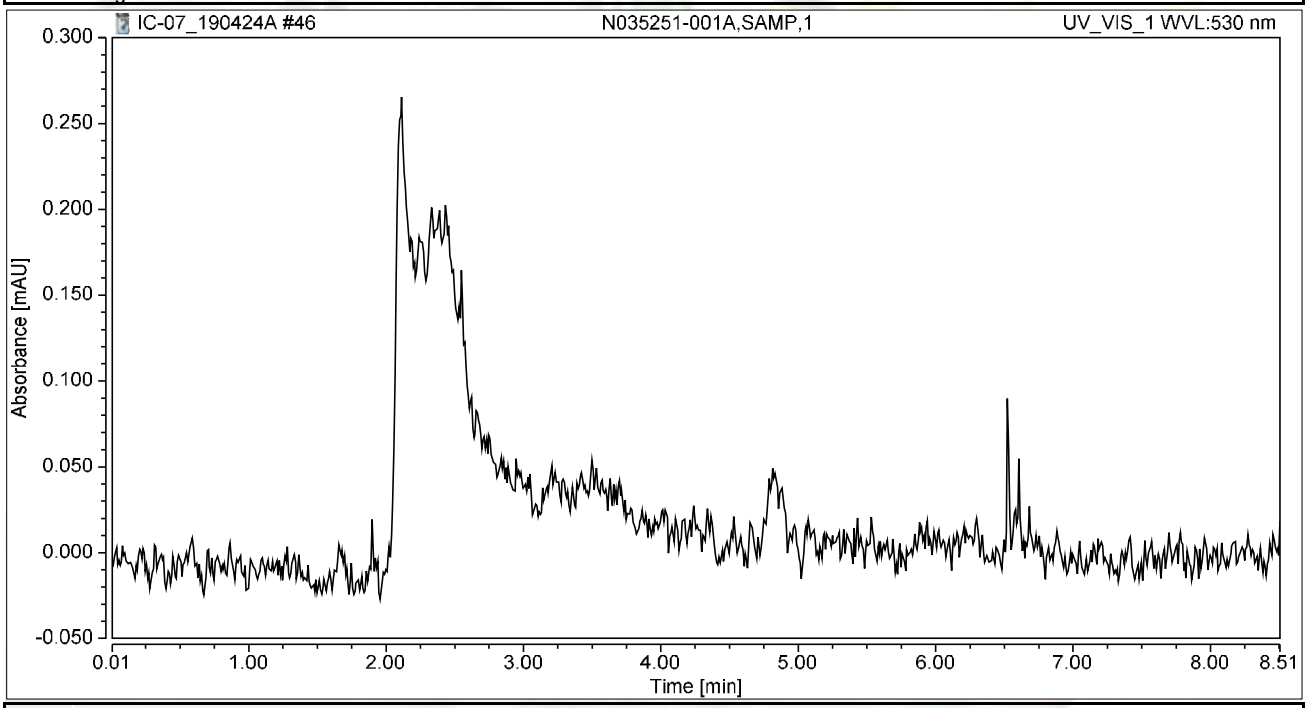
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.425	16.979	100.00	100.00	9.7382
Total:			**2.425**	**16.979**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035251-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

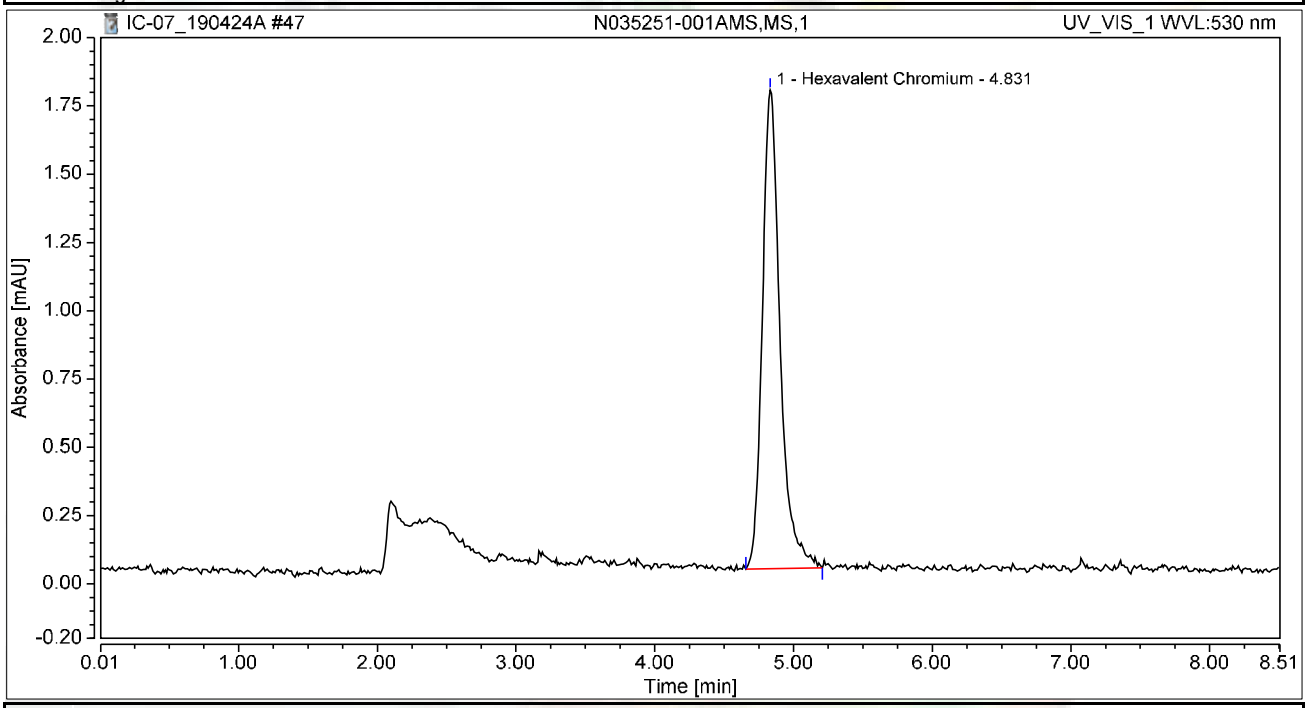
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035251-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

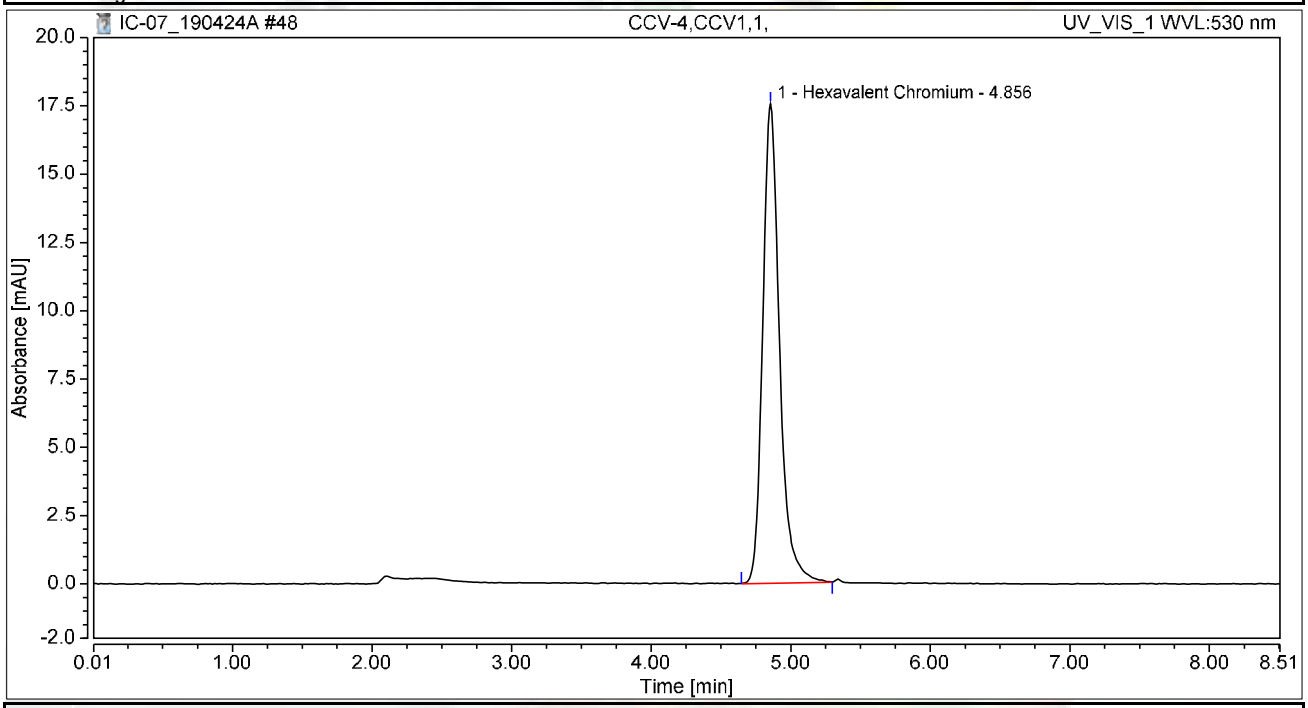
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.259	1.751	100.00	100.00	1.0418
Total:			**0.259**	**1.751**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

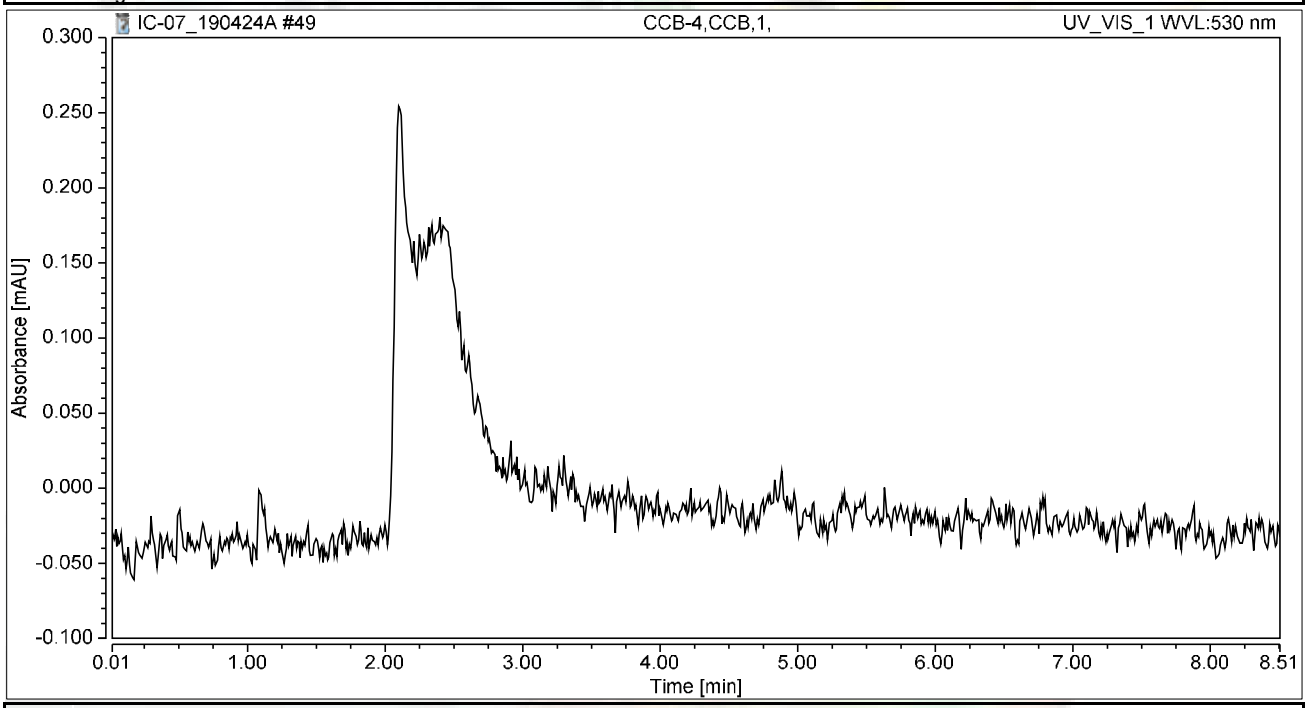
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.452	17.556	100.00	100.00	9.8492
Total:			**2.452**	**17.556**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

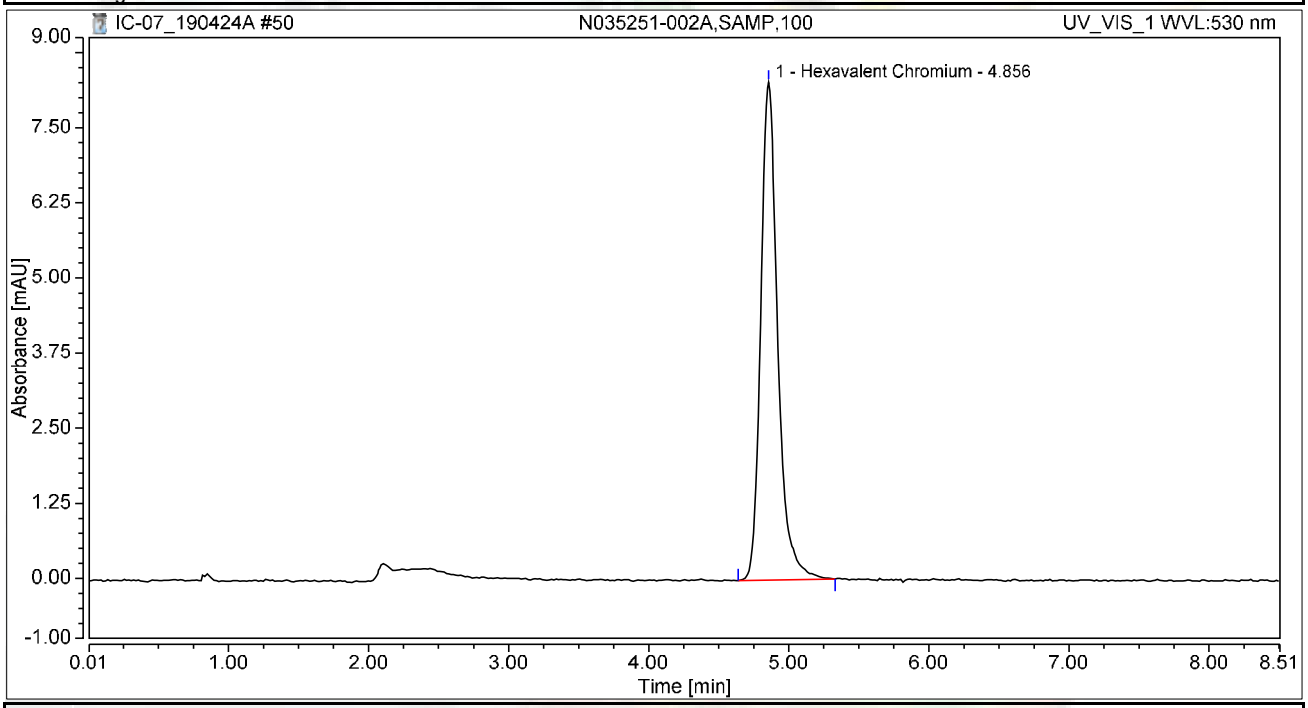
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035251-002A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 15:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

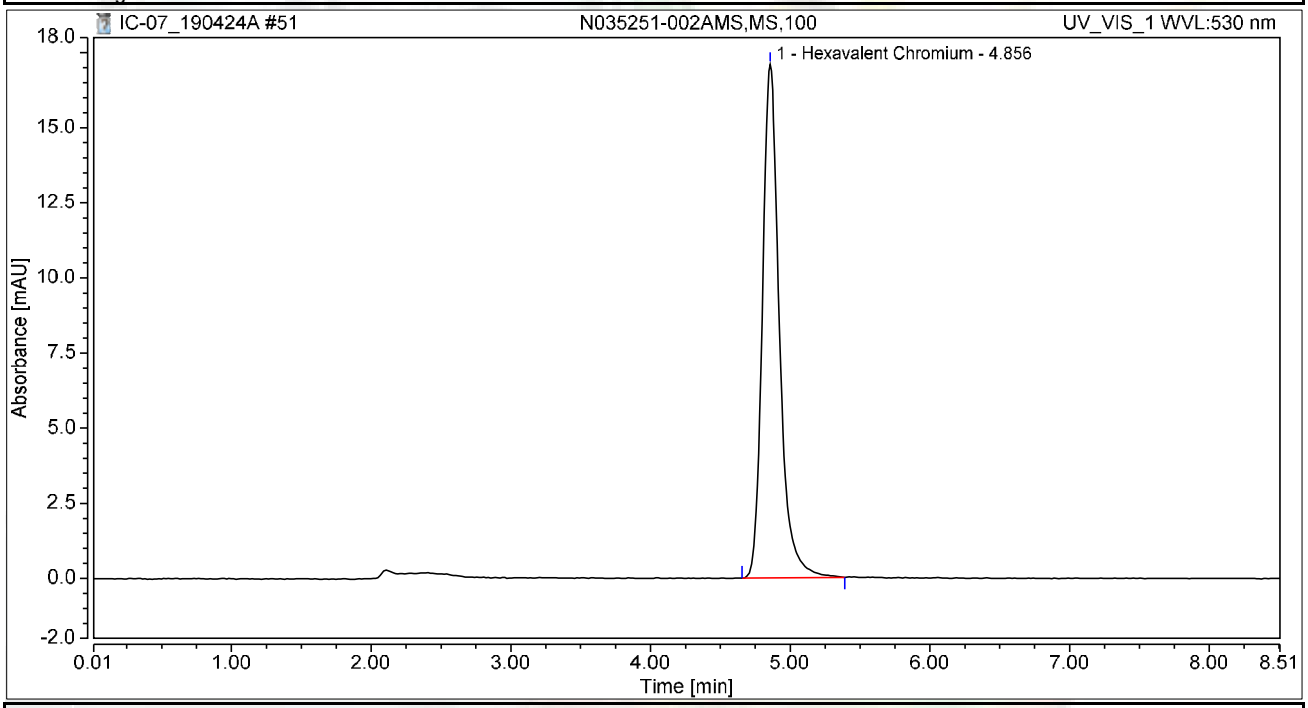
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.162	8.284	100.00	100.00	4.6669
Total:			**1.162**	**8.284**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035251-002AMS,MS,100**	*Run Time (min):*	**8.49**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

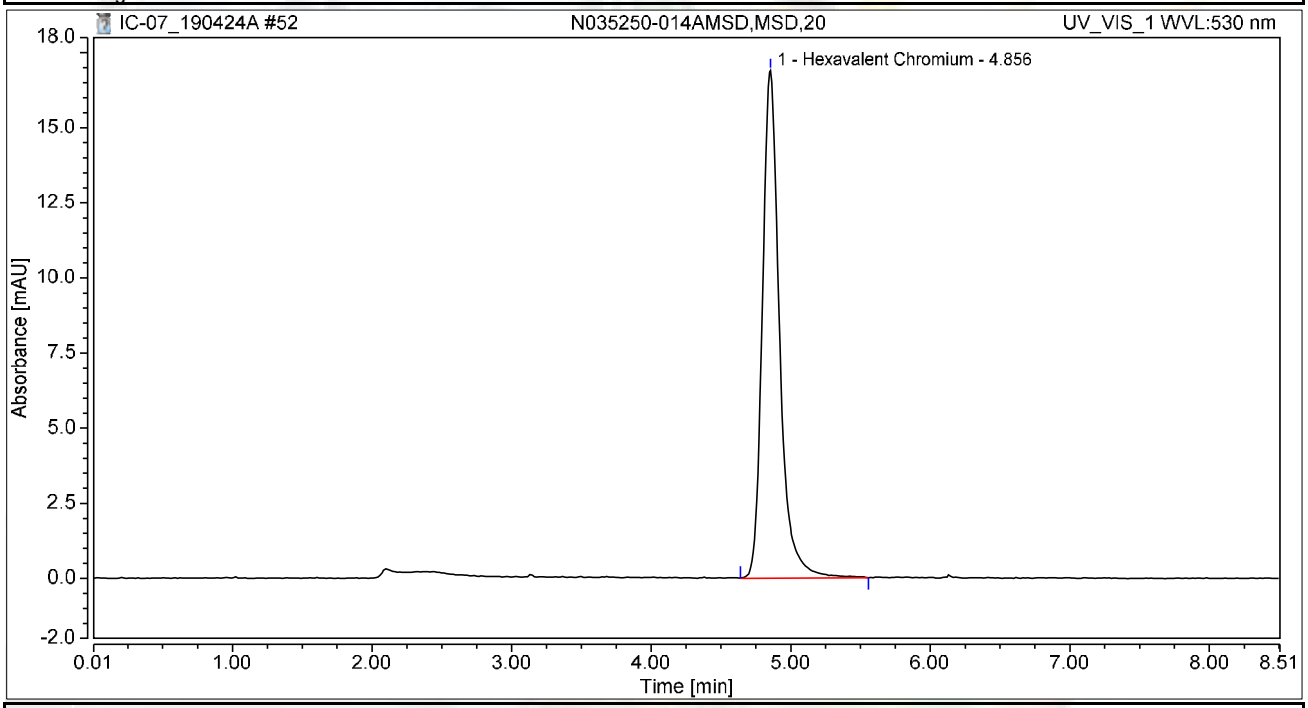
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.402	17.093	100.00	100.00	9.6470
Total:			**2.402**	**17.093**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-014AMSD,MSD,20**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

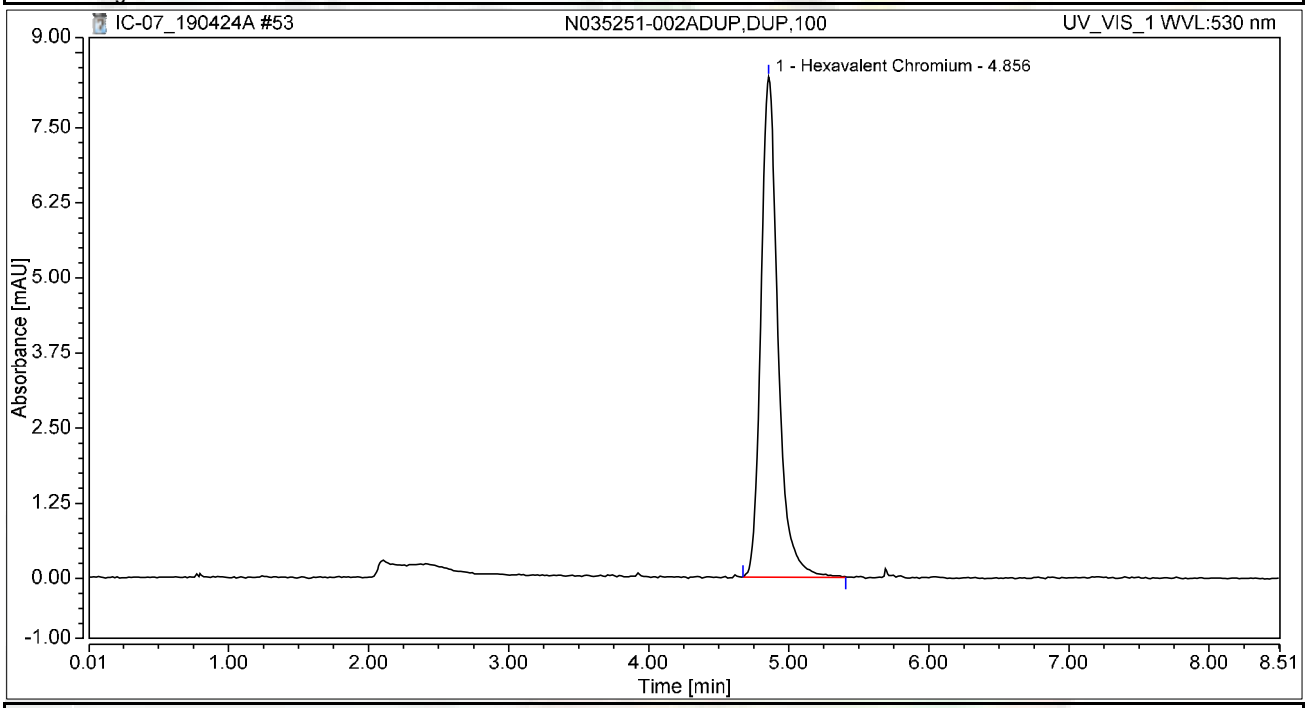
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.411	16.890	100.00	100.00	9.6827
Total:			**2.411**	**16.890**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035251-002ADUP,DUP,100**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

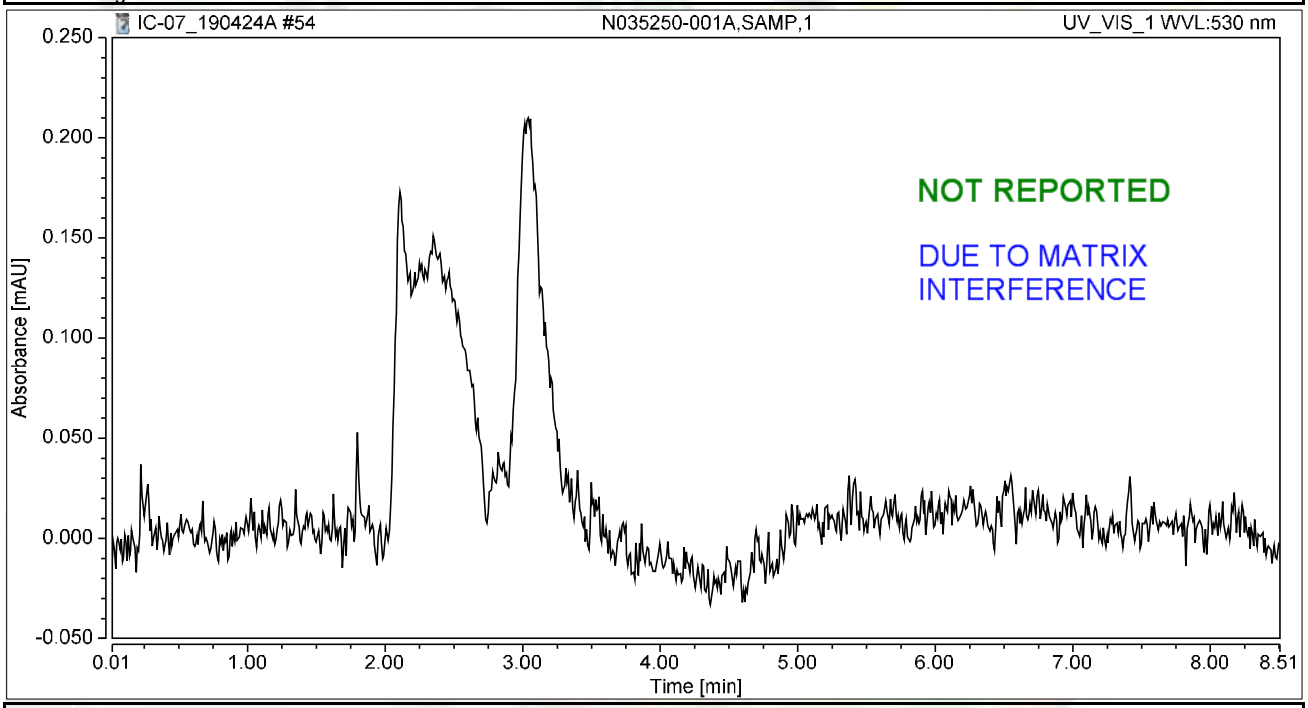
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.176	8.330	100.00	100.00	4.7235
Total:			**1.176**	**8.330**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

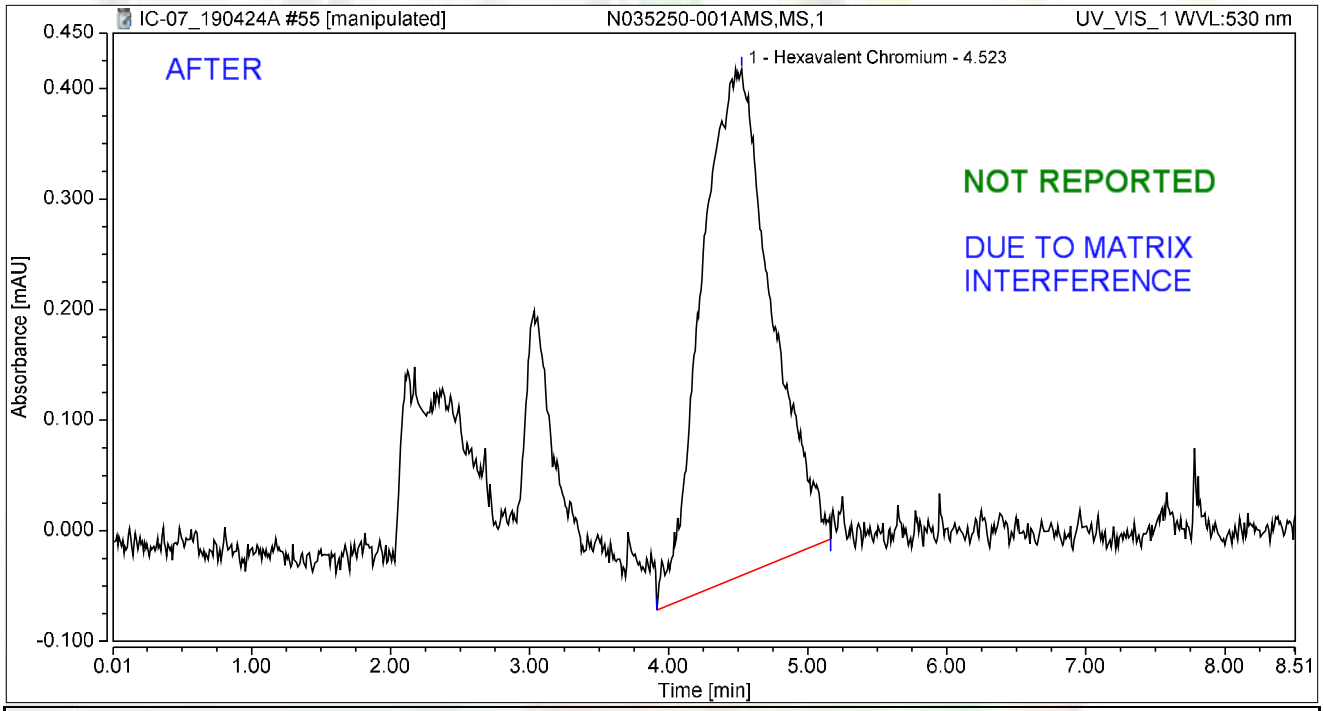
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.523	0.268	0.458	100.00	100.00	1.0770
Total:			**0.268**	**0.458**	**100.00**	**100.00**	

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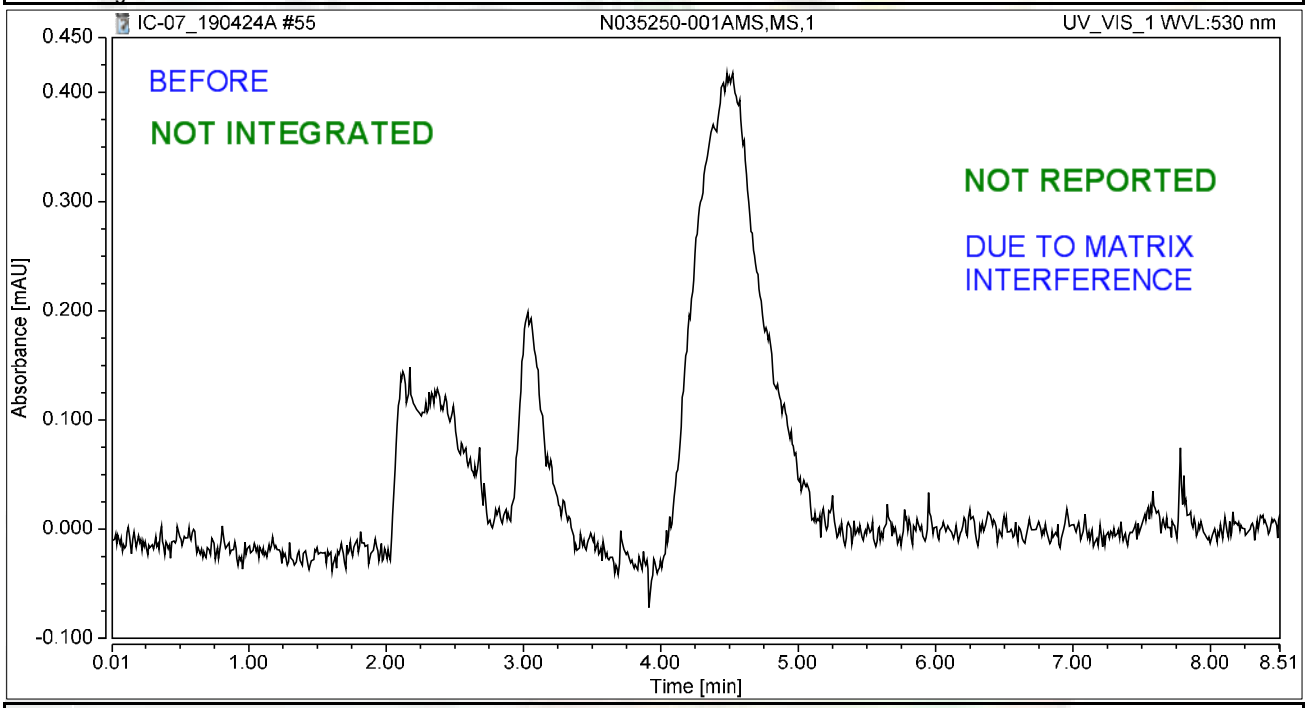
Chromatogram and Results

Injection Details

Injection Name:	**N035250-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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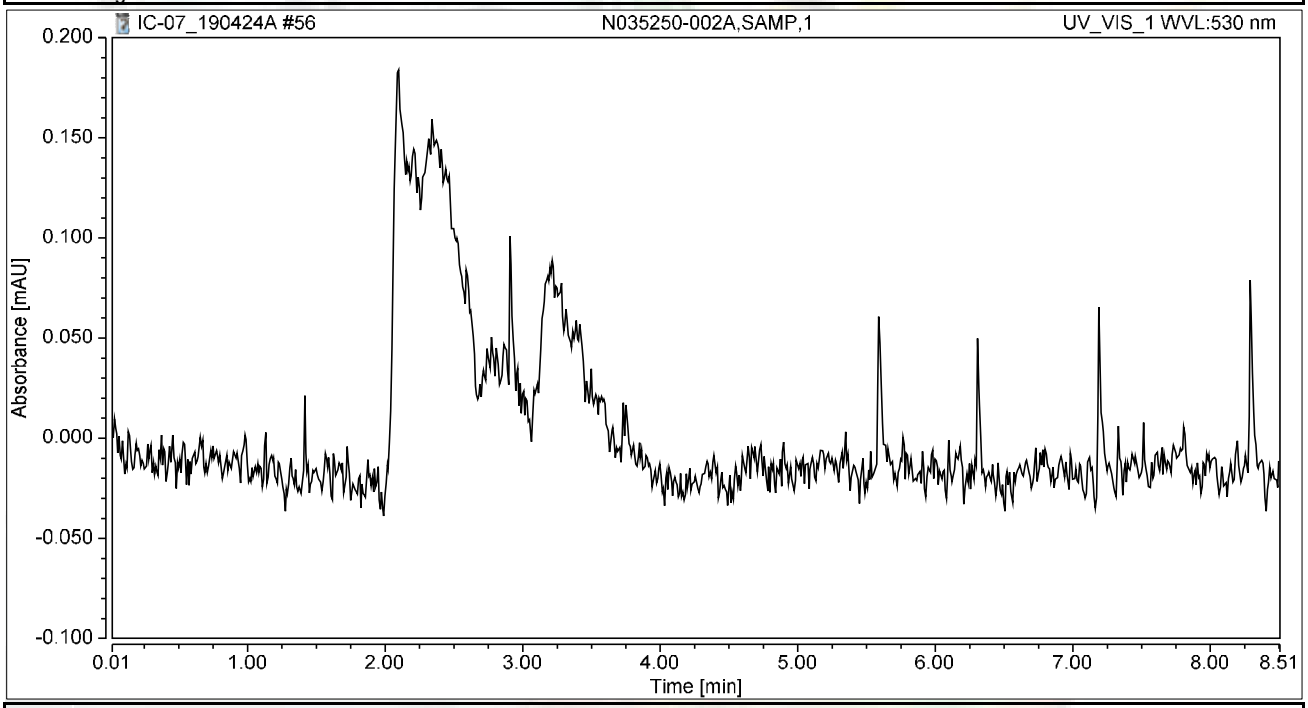
Chromatogram and Results

Injection Details

Injection Name:	**N035250-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 16:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

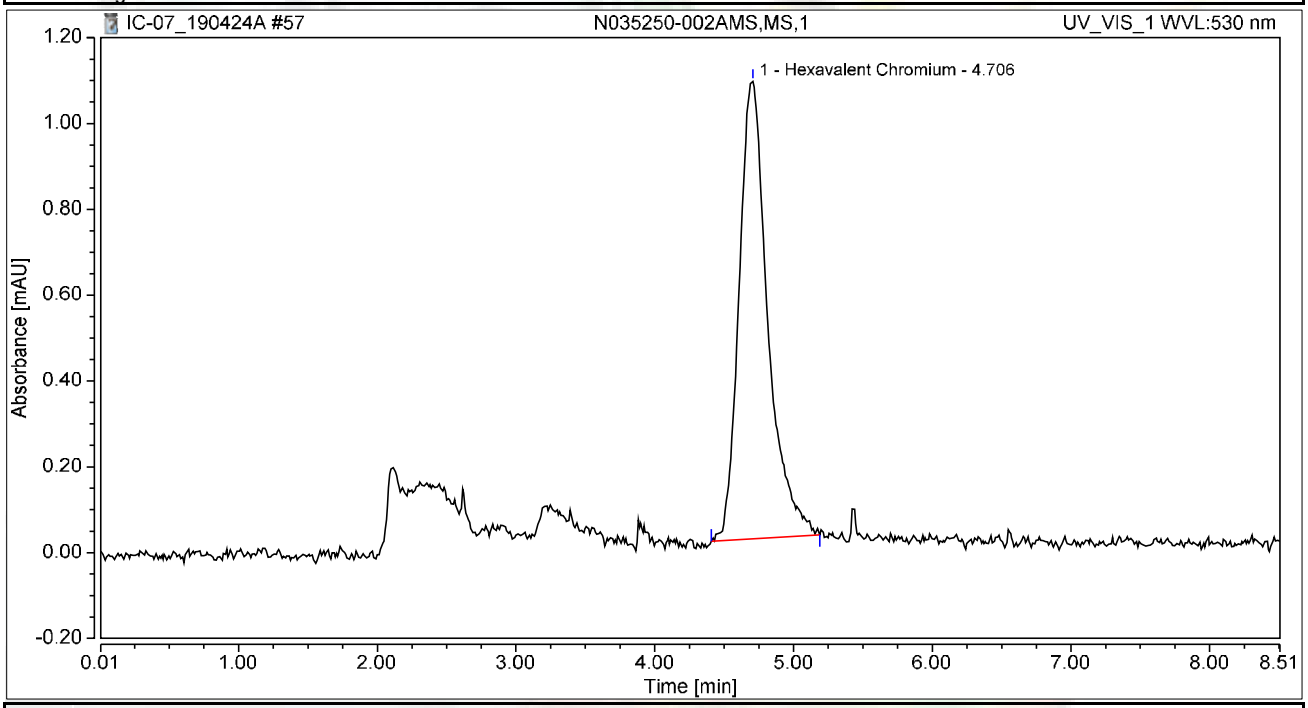
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

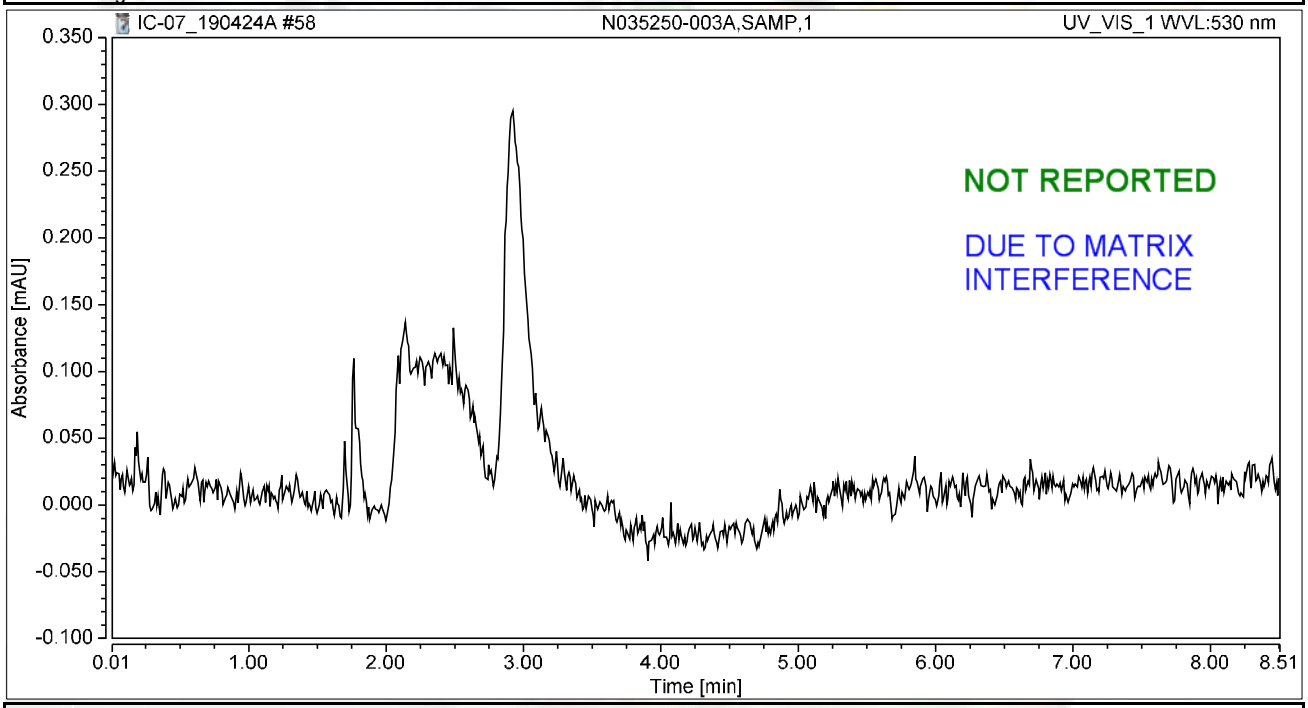
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.255	1.066	100.00	100.00	1.0260
Total:			**0.255**	**1.066**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

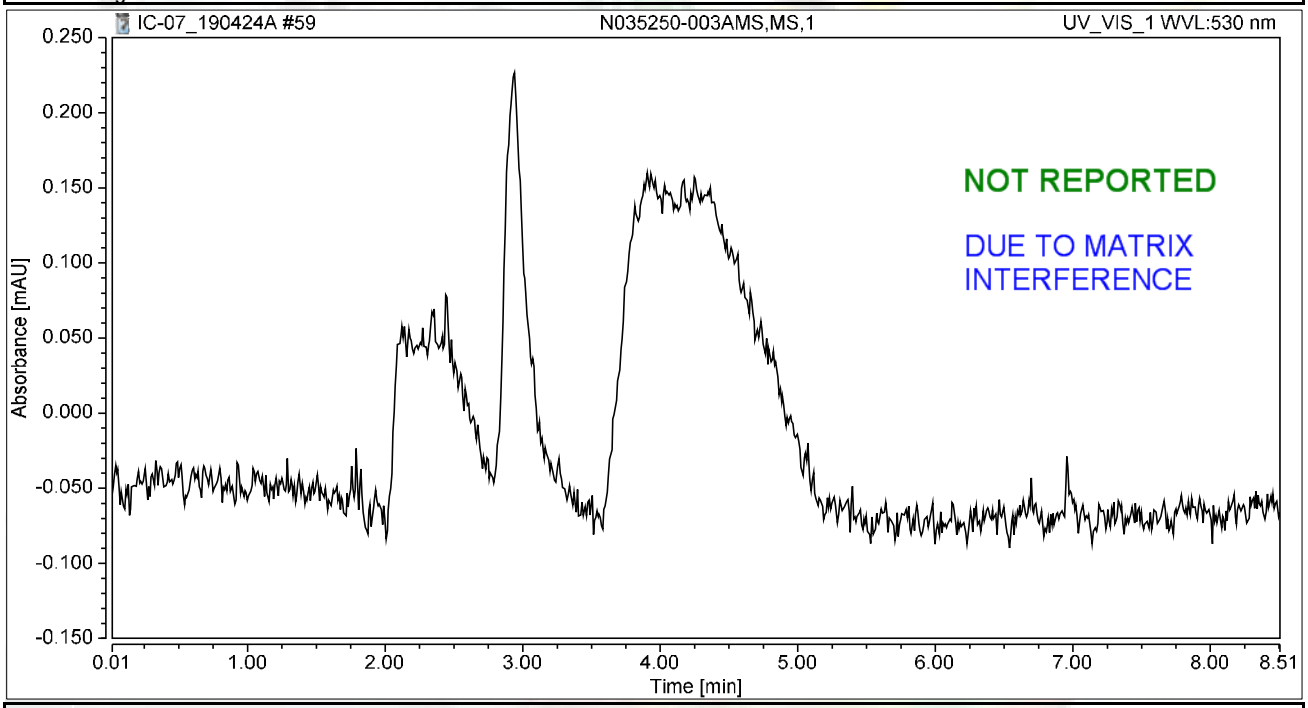
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-003AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

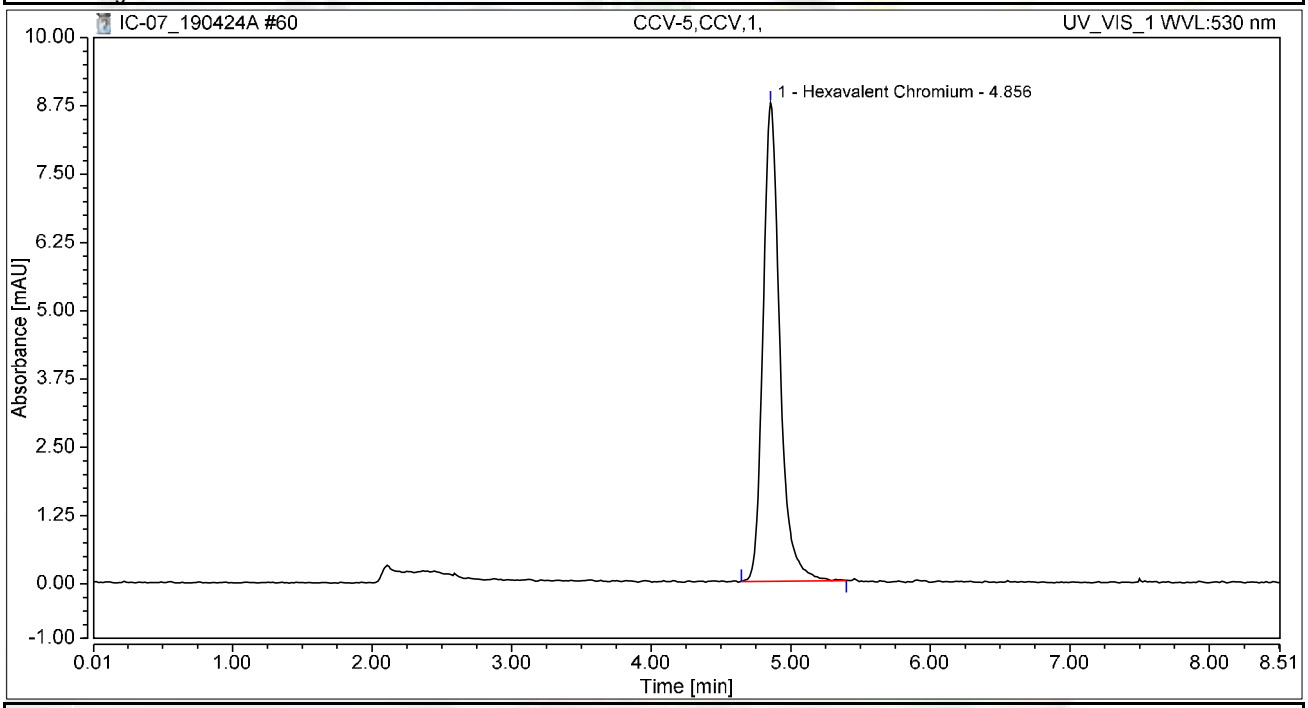
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

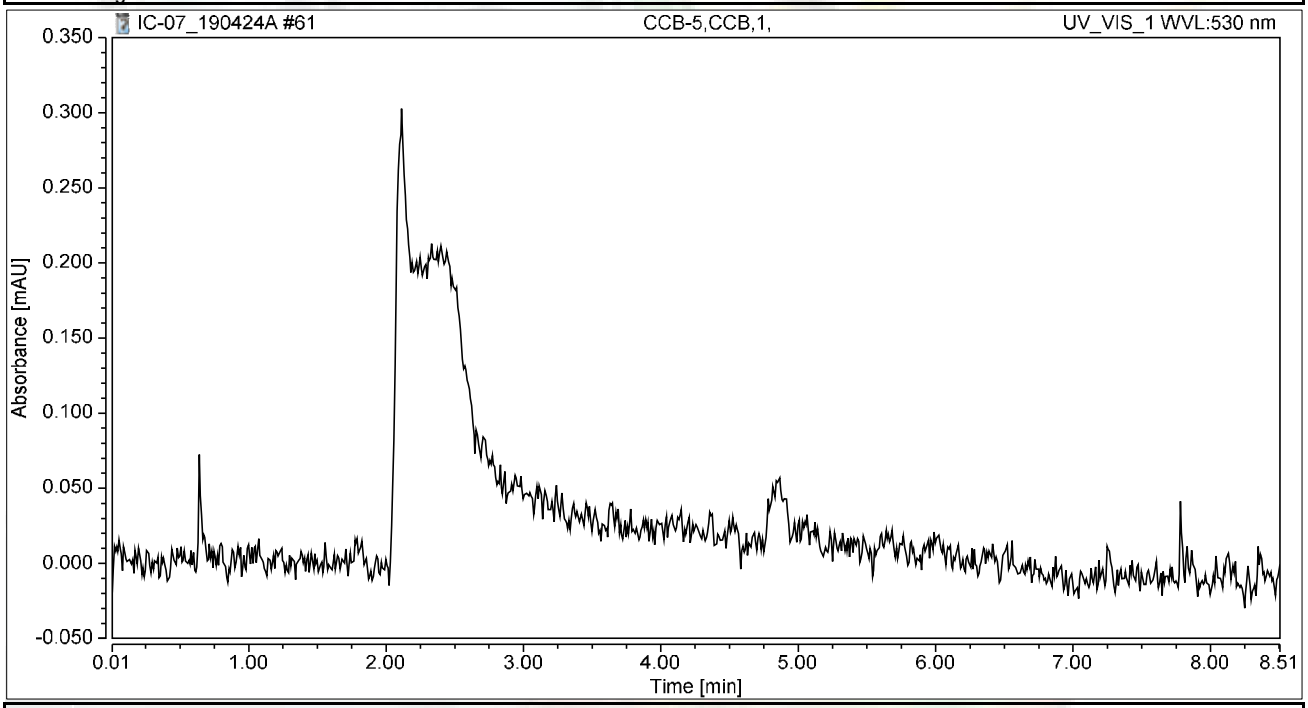
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.226	8.757	100.00	100.00	4.9247
Total:			**1.226**	**8.757**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

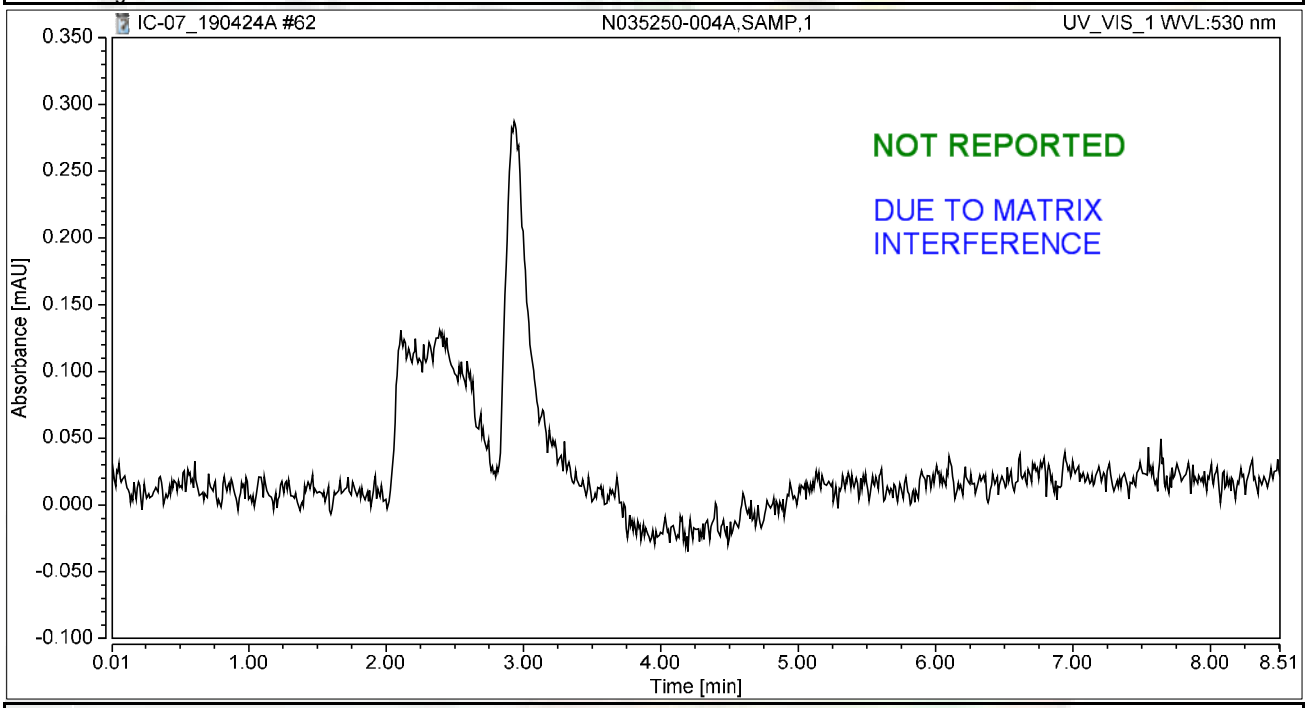
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

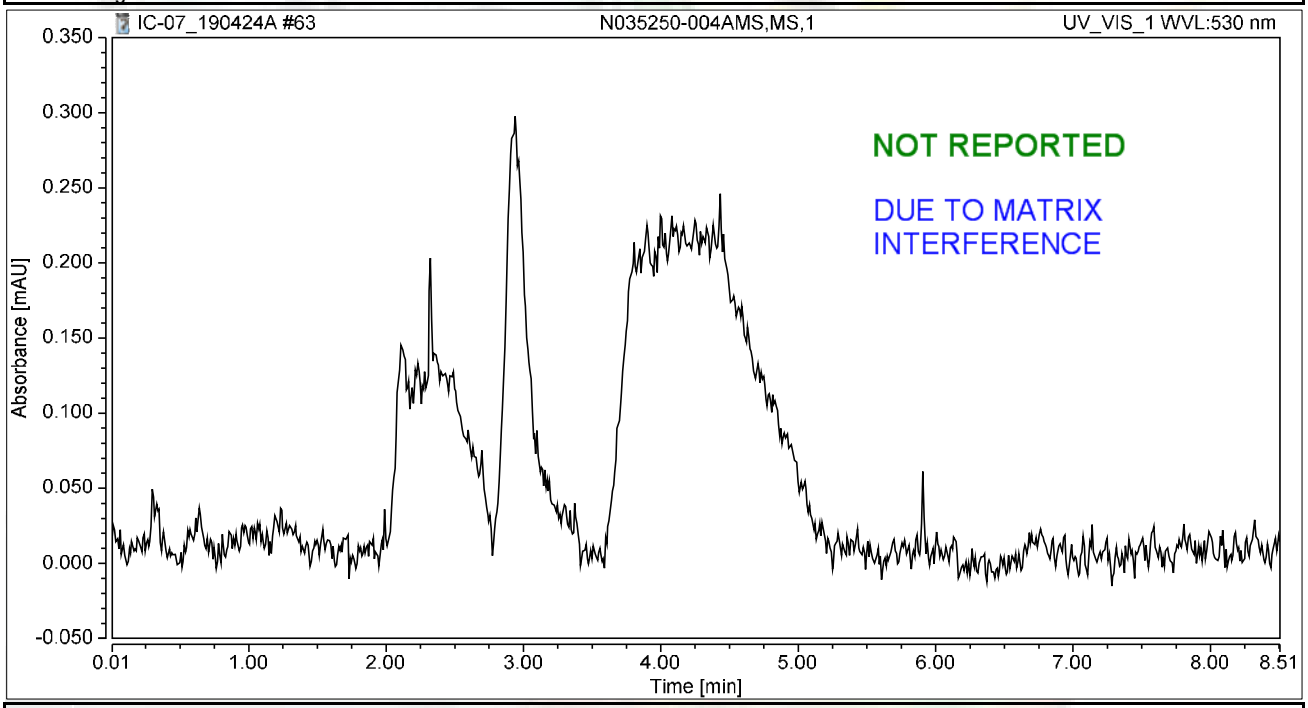
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 17:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

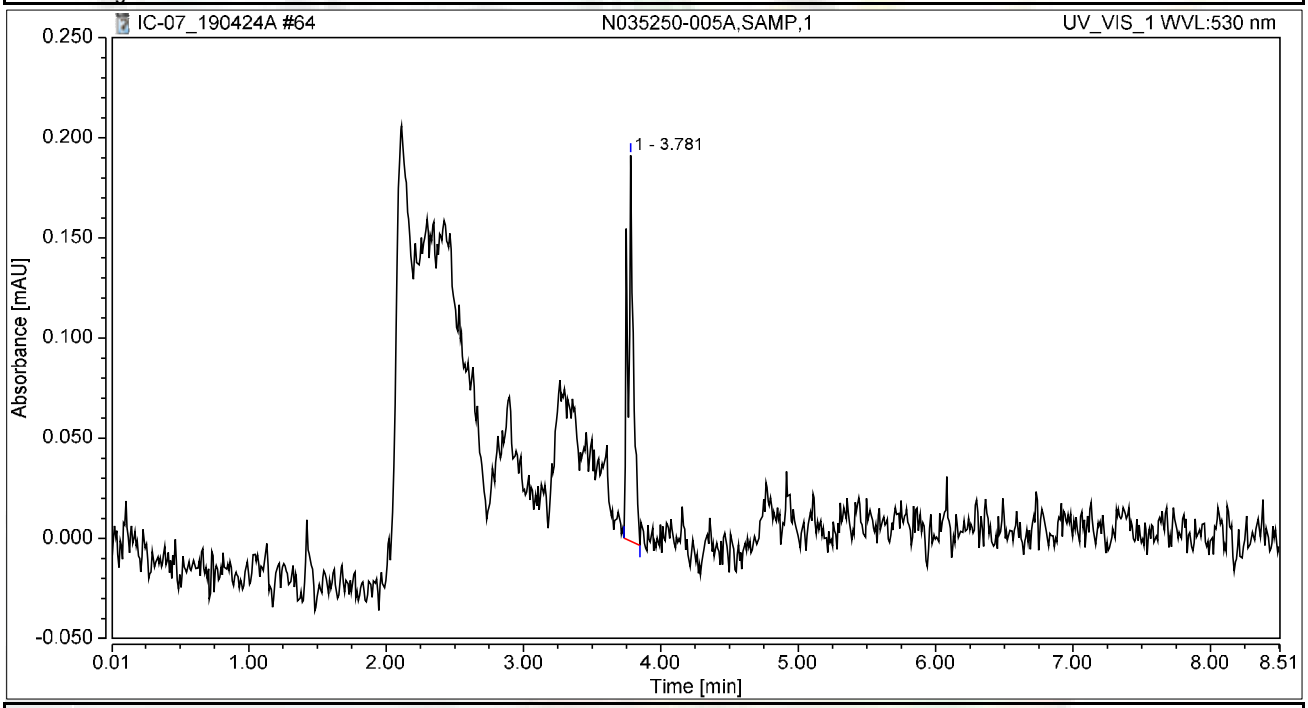
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

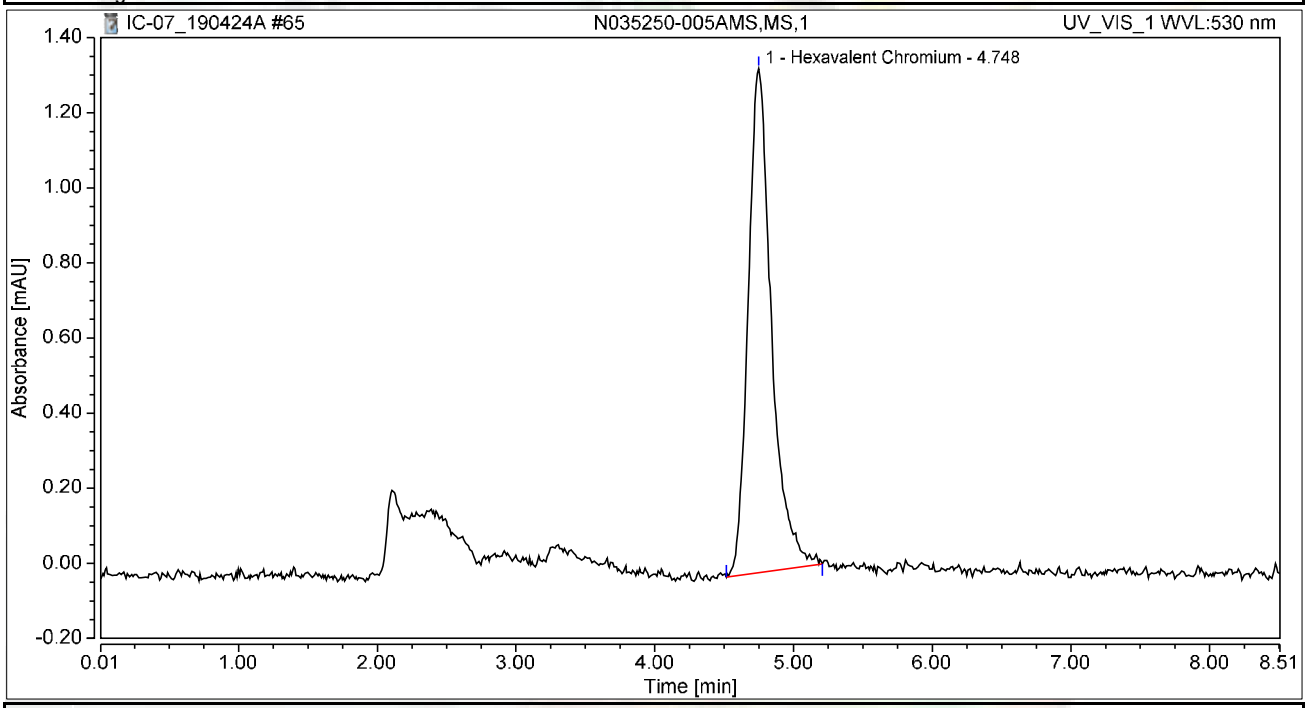
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.781	0.009	0.193	100.00	100.00	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.009**	**0.193**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-005AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

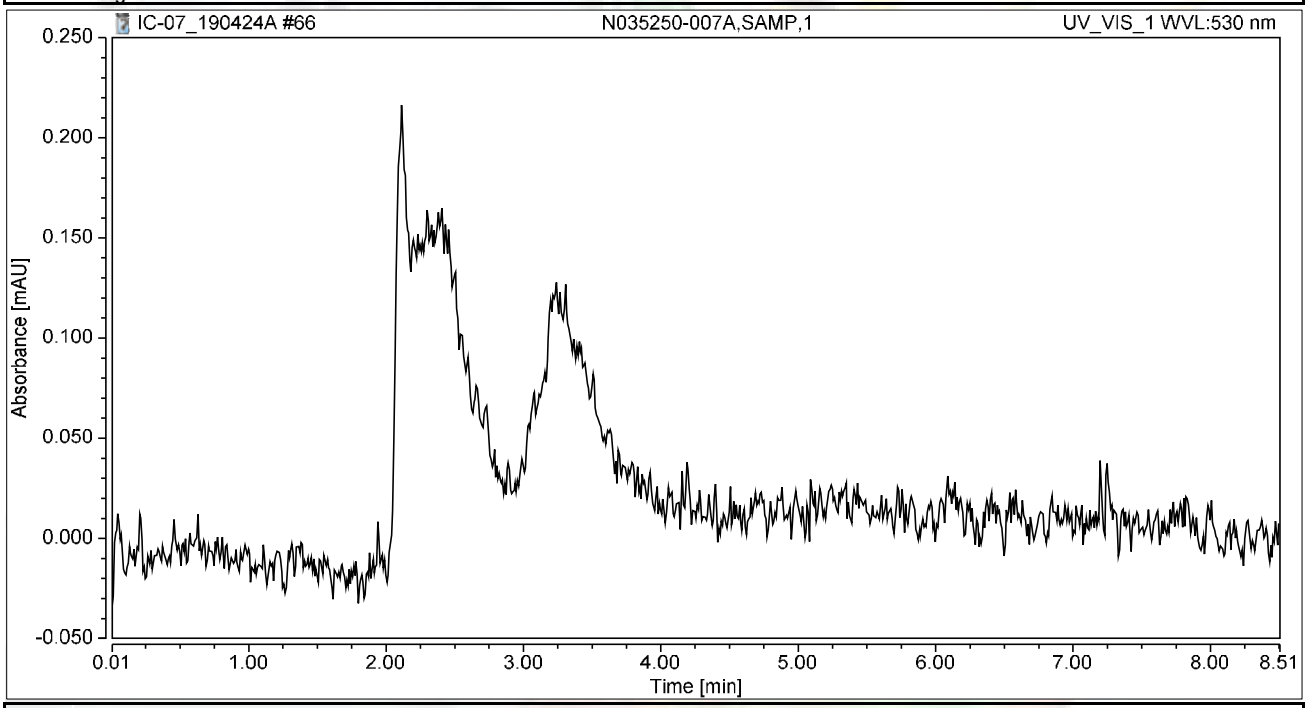
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.261	1.342	100.00	100.00	1.0481
Total:			**0.261**	**1.342**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

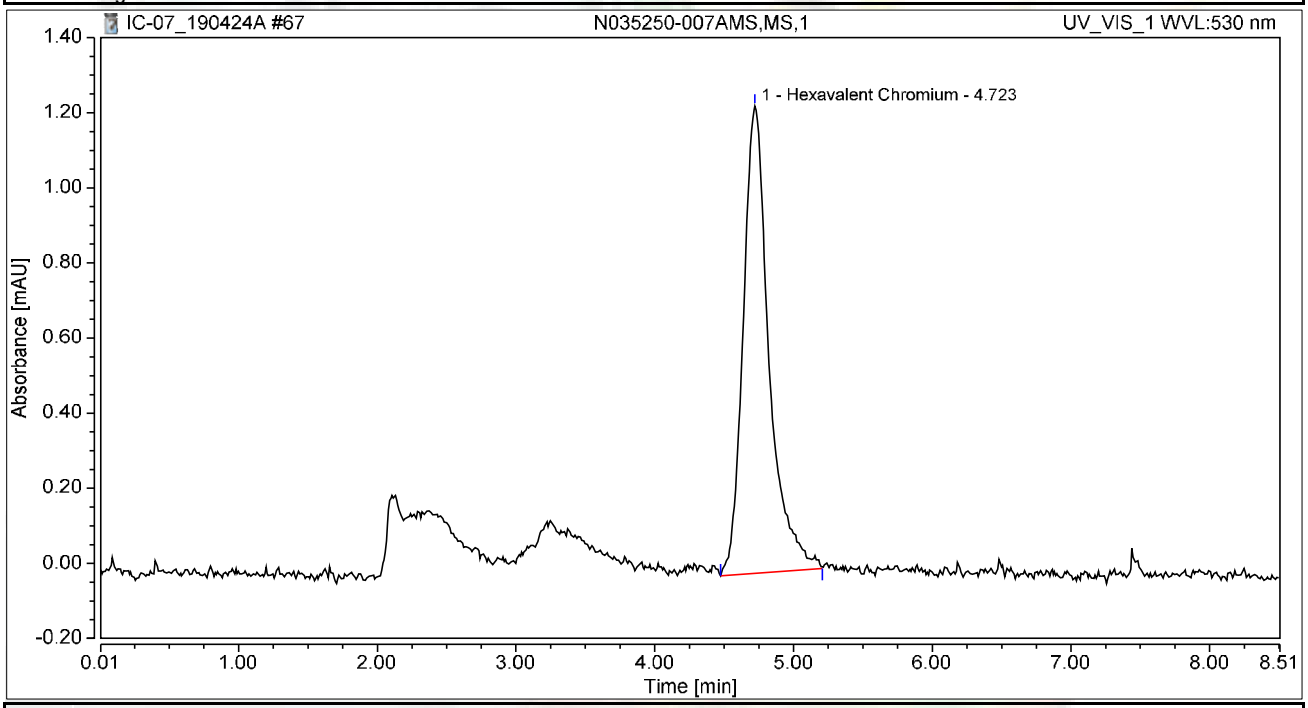
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

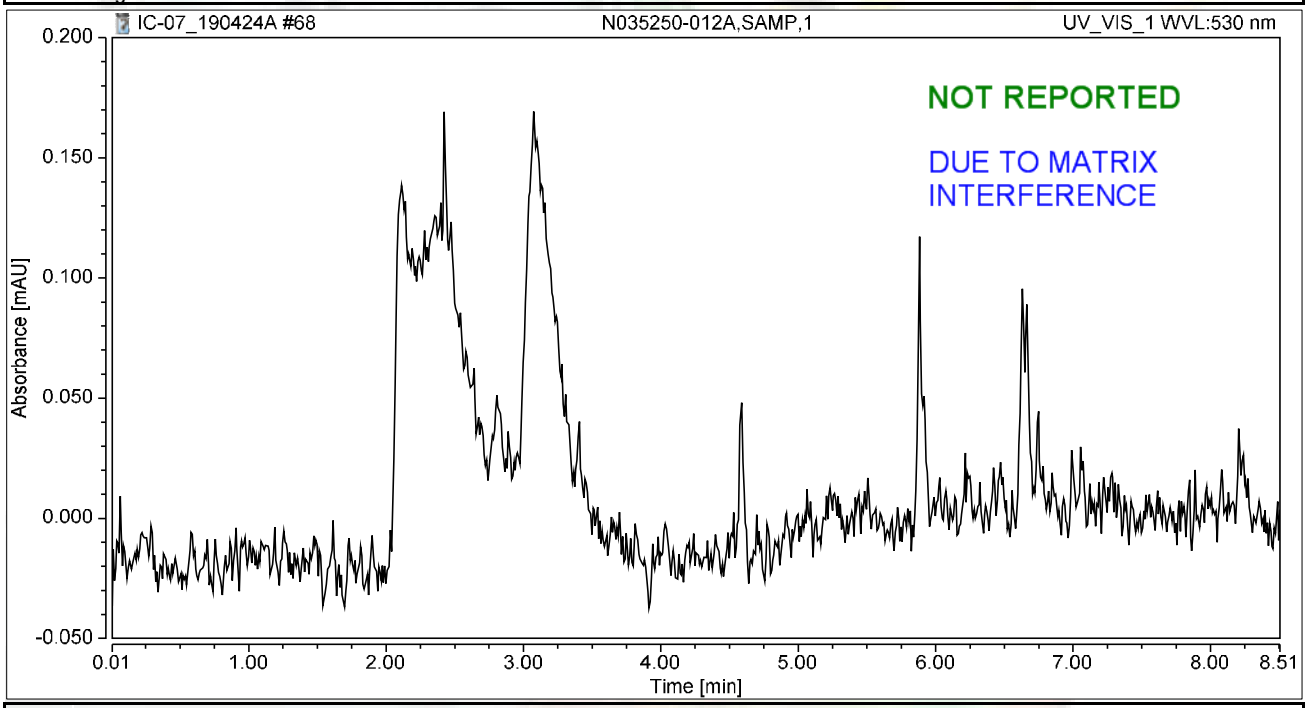
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.268	1.244	100.00	100.00	1.0772
Total:			**0.268**	**1.244**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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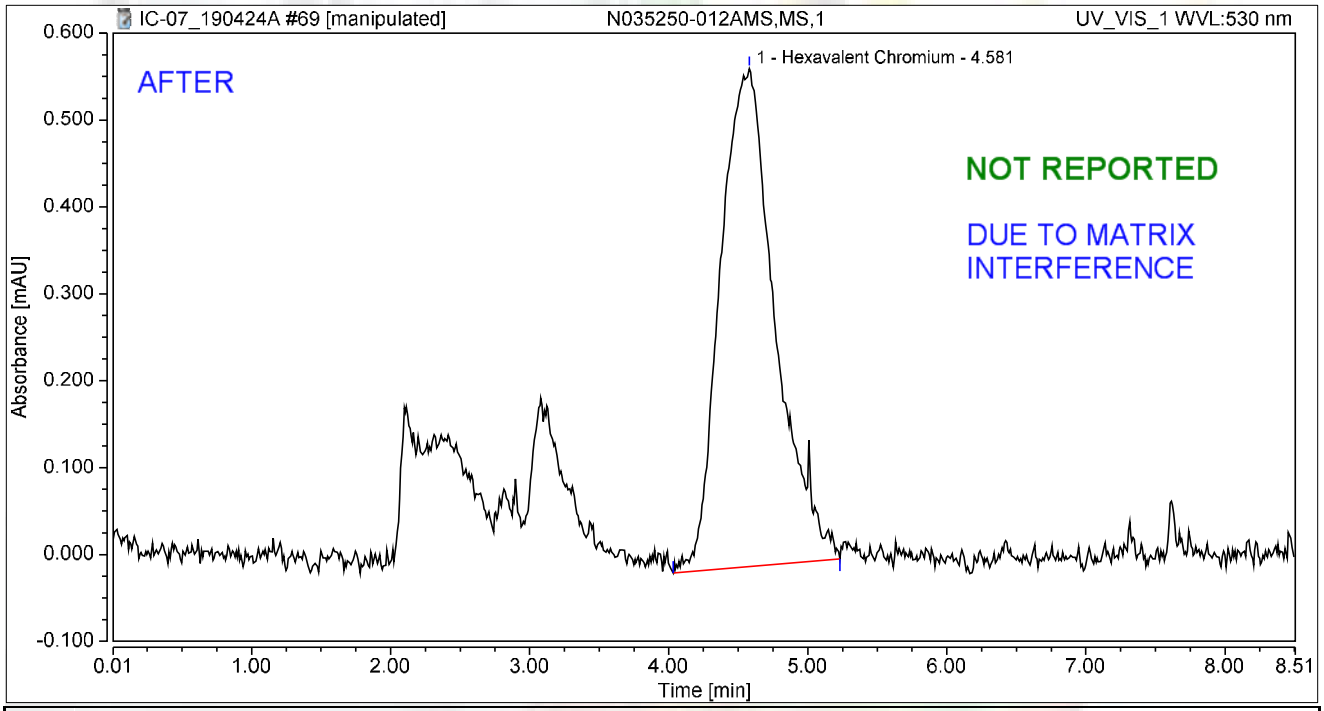
Chromatogram and Results

Injection Details

Injection Name:	**N035250-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.581	0.262	0.573	100.00	100.00	1.0531
Total:			**0.262**	**0.573**	**100.00**	**100.00**	

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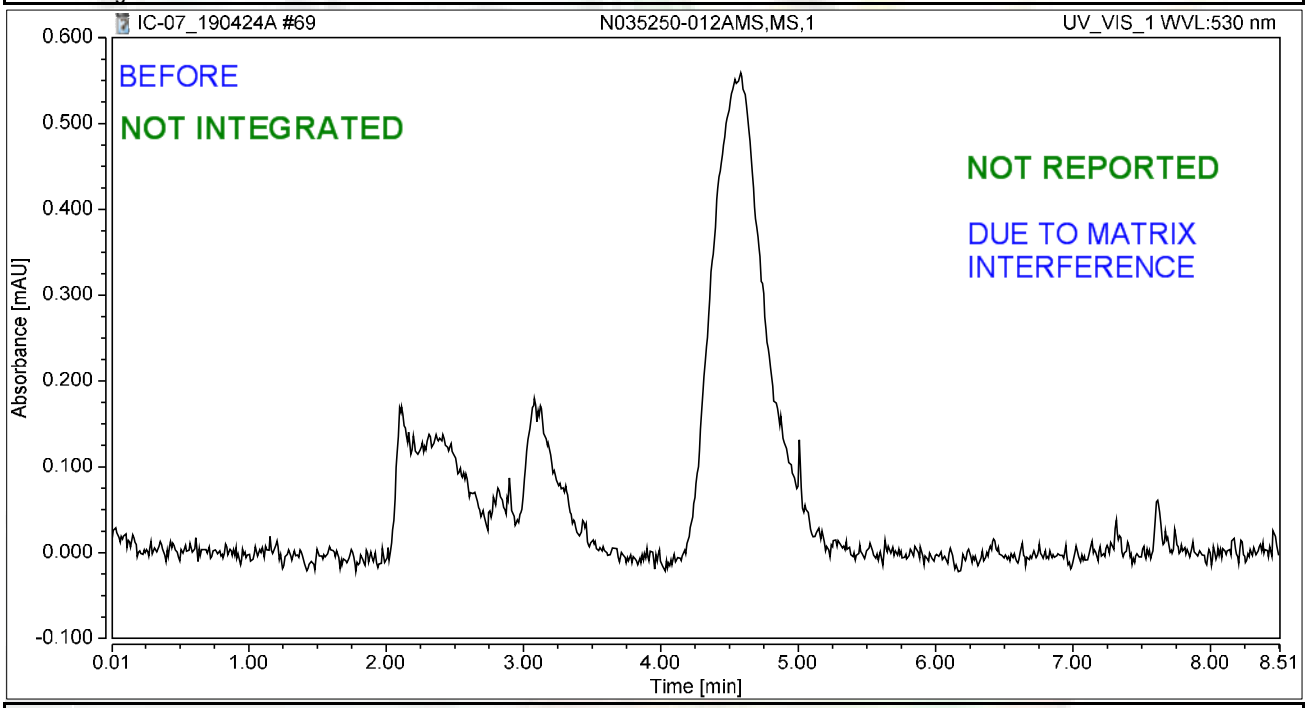
Chromatogram and Results

Injection Details

Injection Name:	**N035250-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 18:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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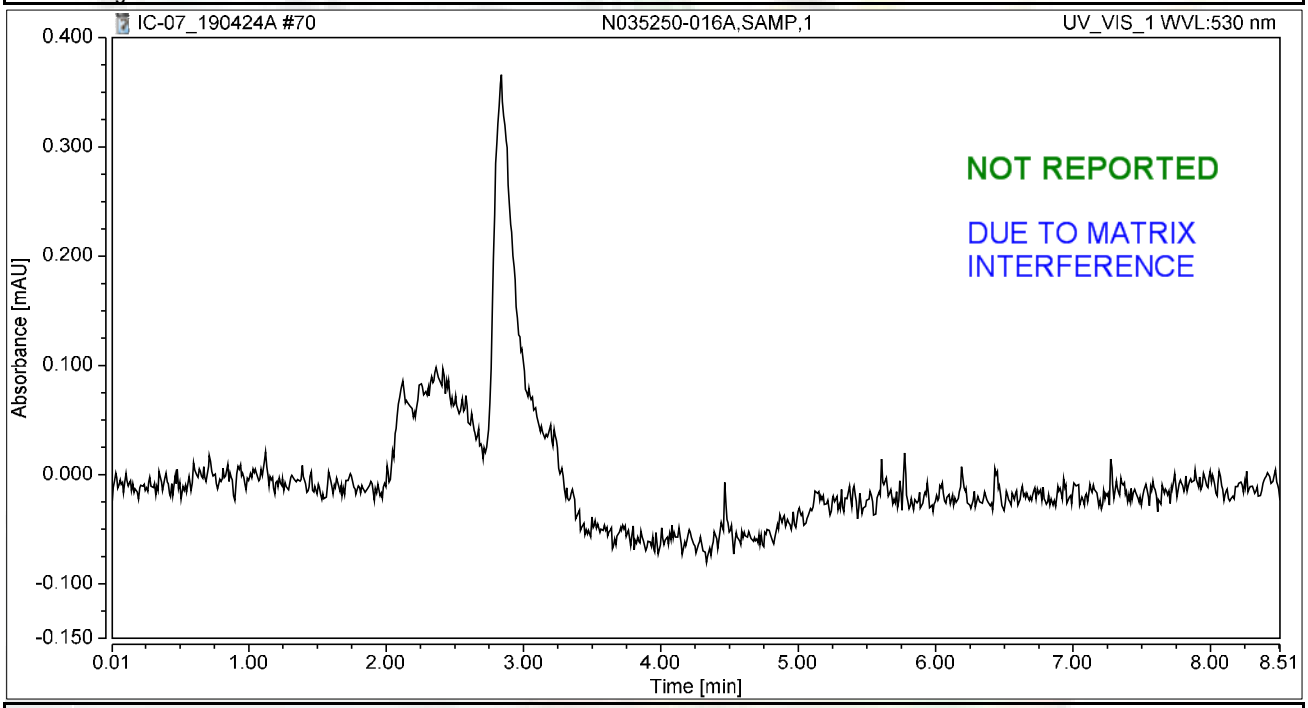
Chromatogram and Results

Injection Details

Injection Name:	**N035250-016A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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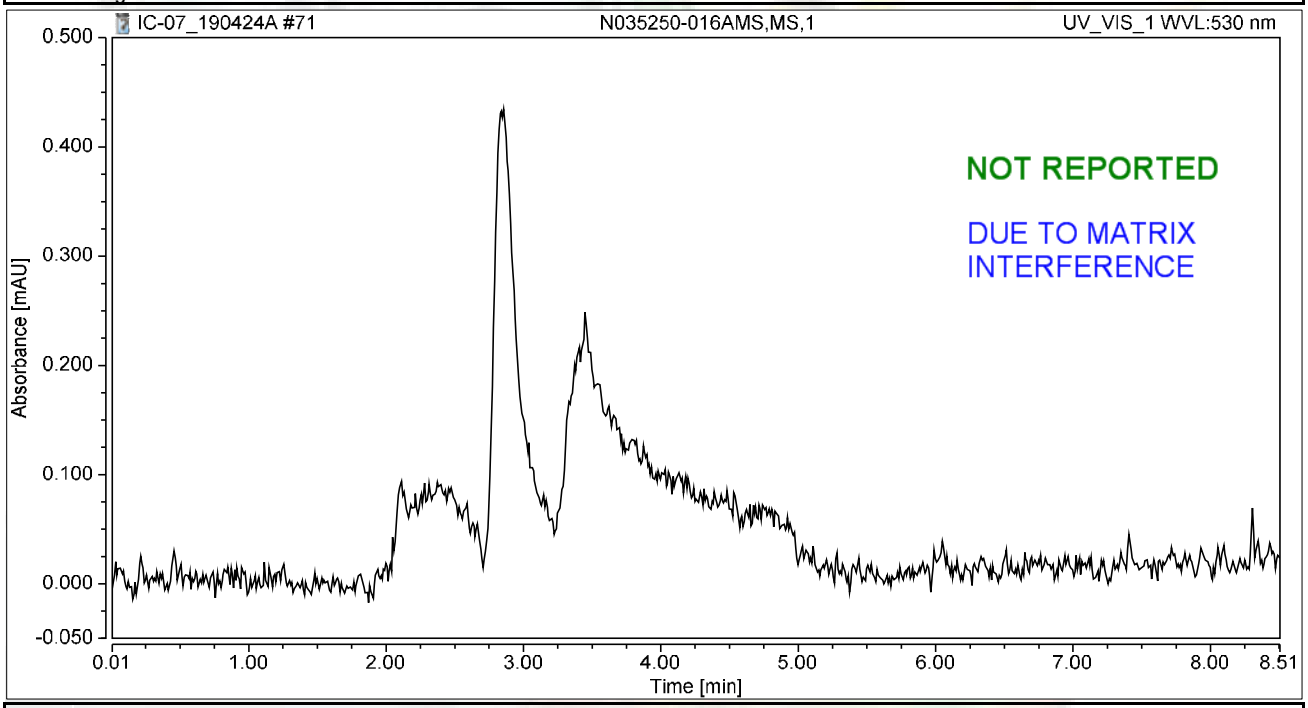
Chromatogram and Results

Injection Details

Injection Name:	**N035250-016AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

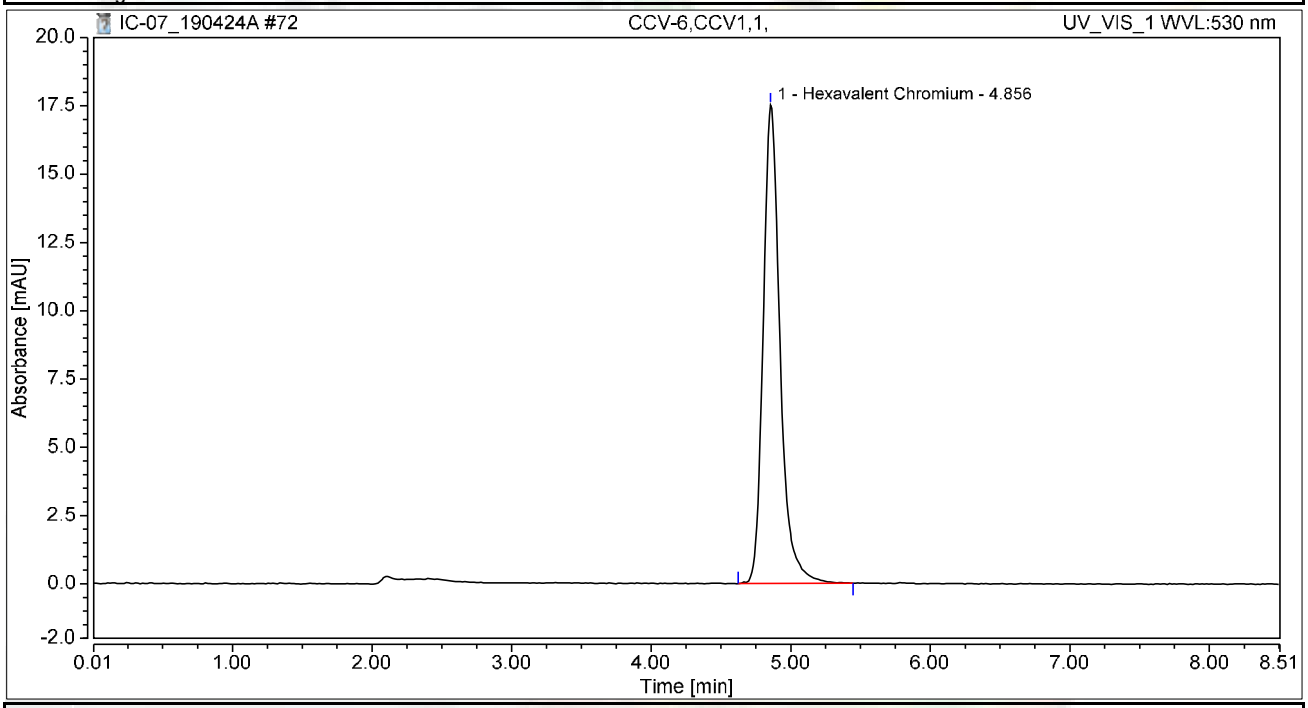
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

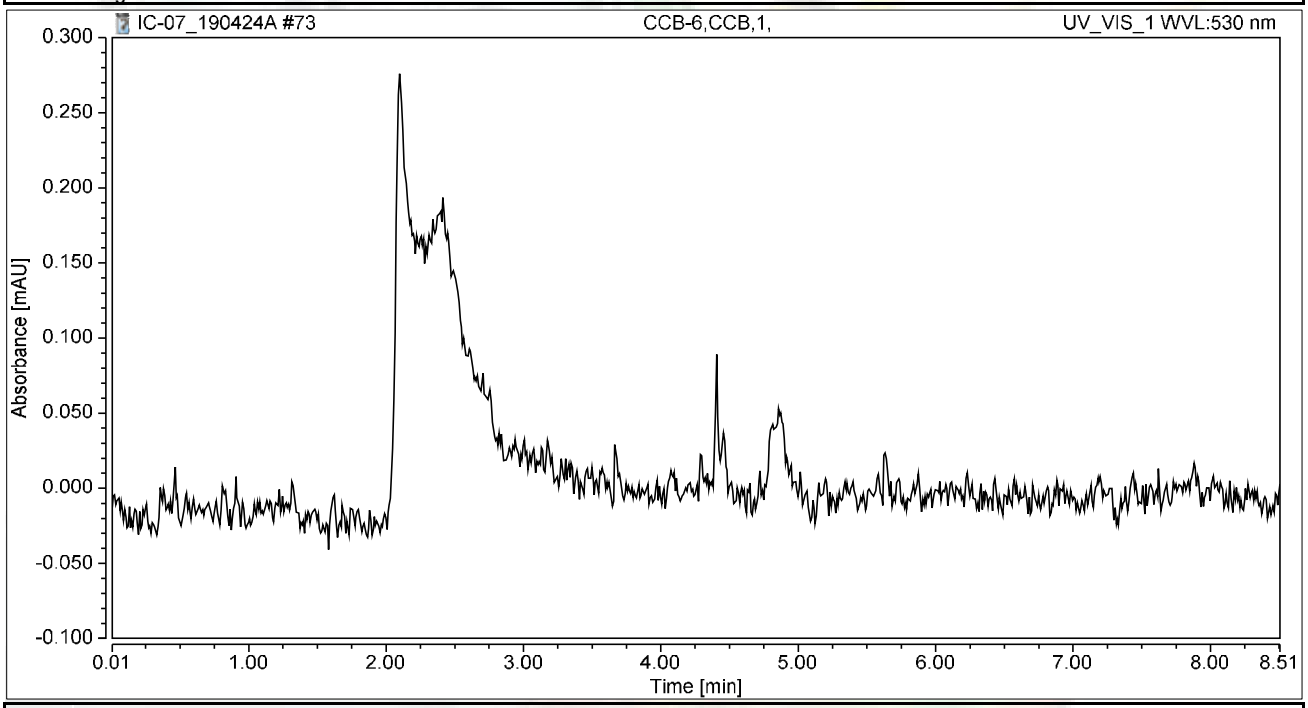
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.463	17.517	100.00	100.00	9.8917
Total:			**2.463**	**17.517**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

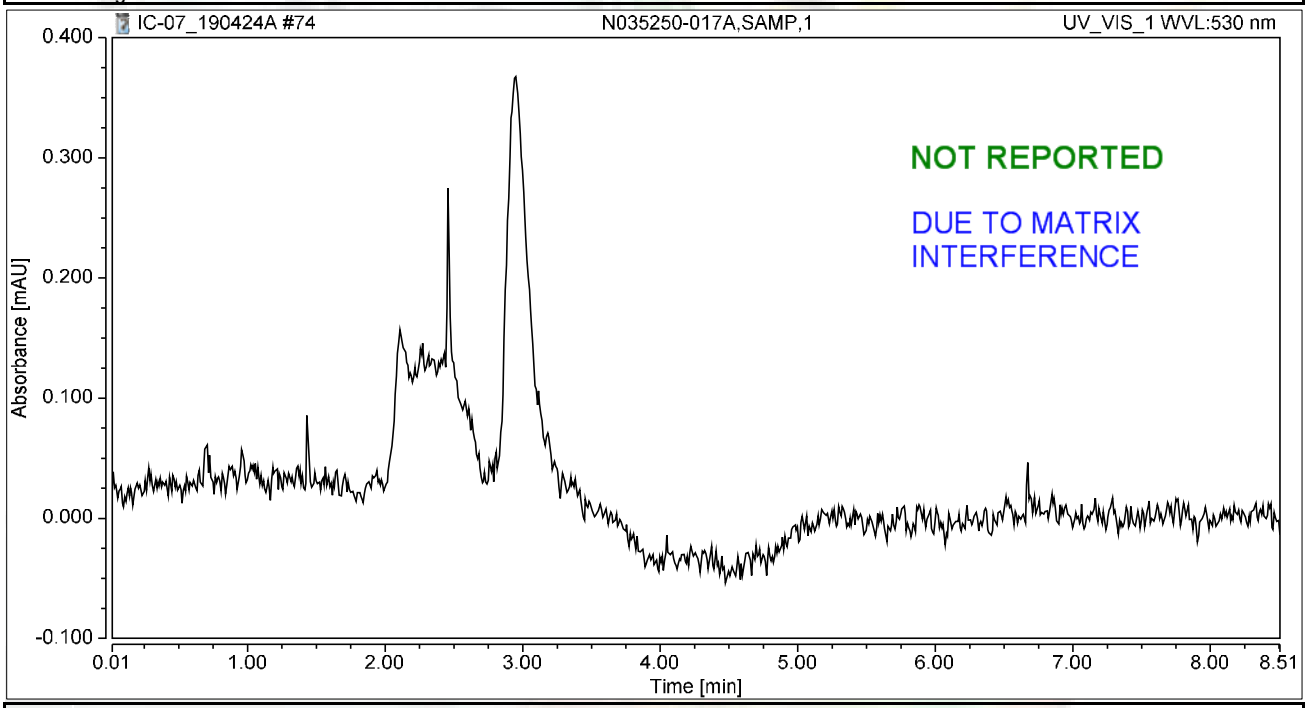
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-017A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

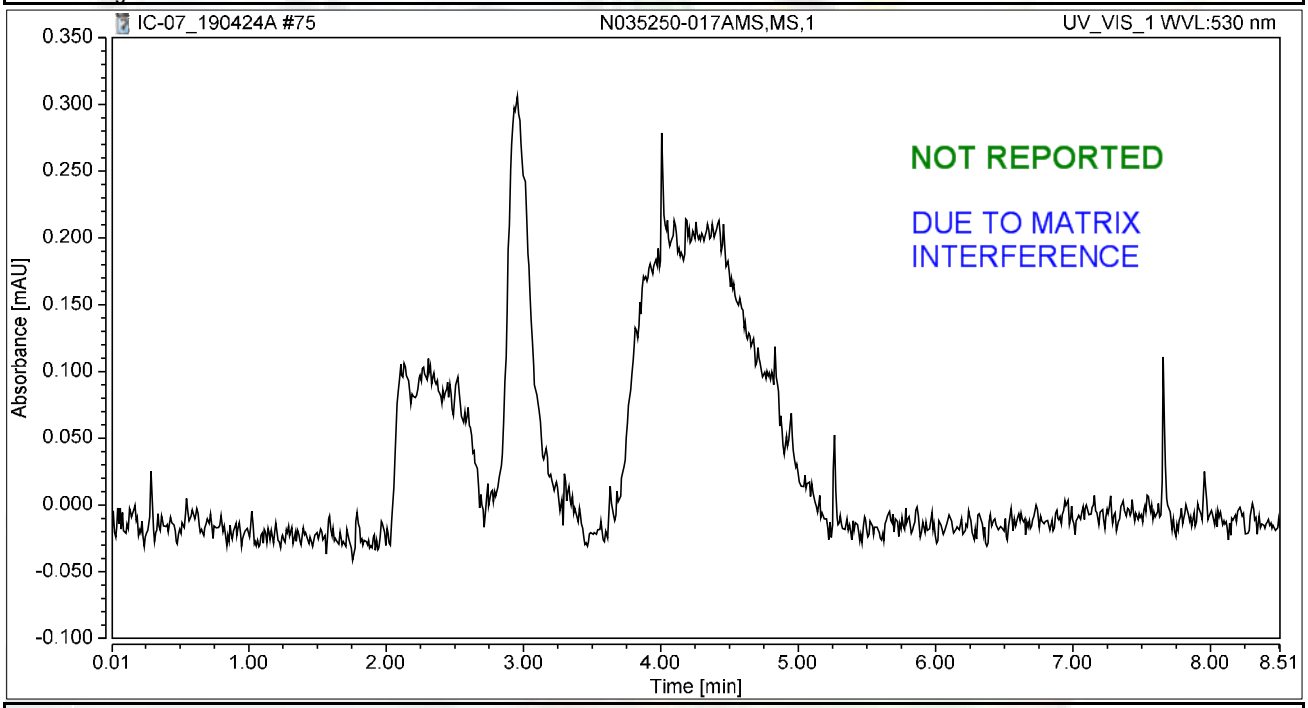
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-017AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 19:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

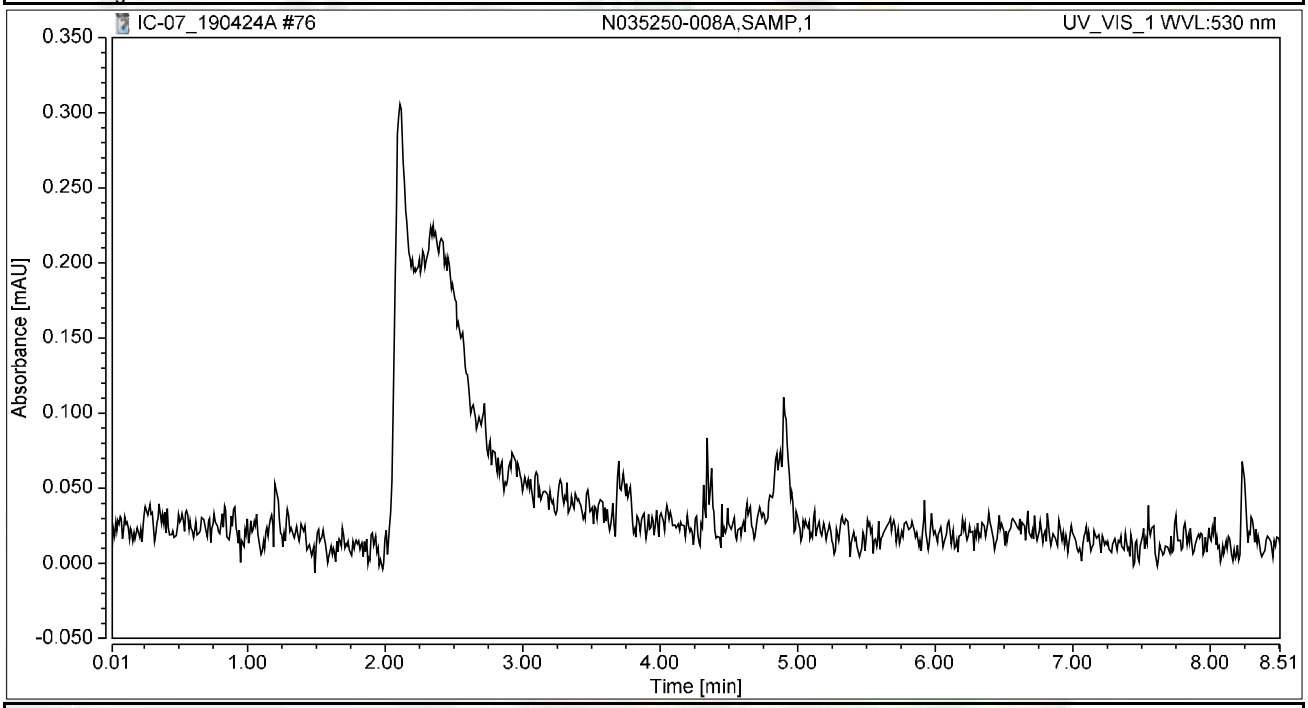
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-008A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

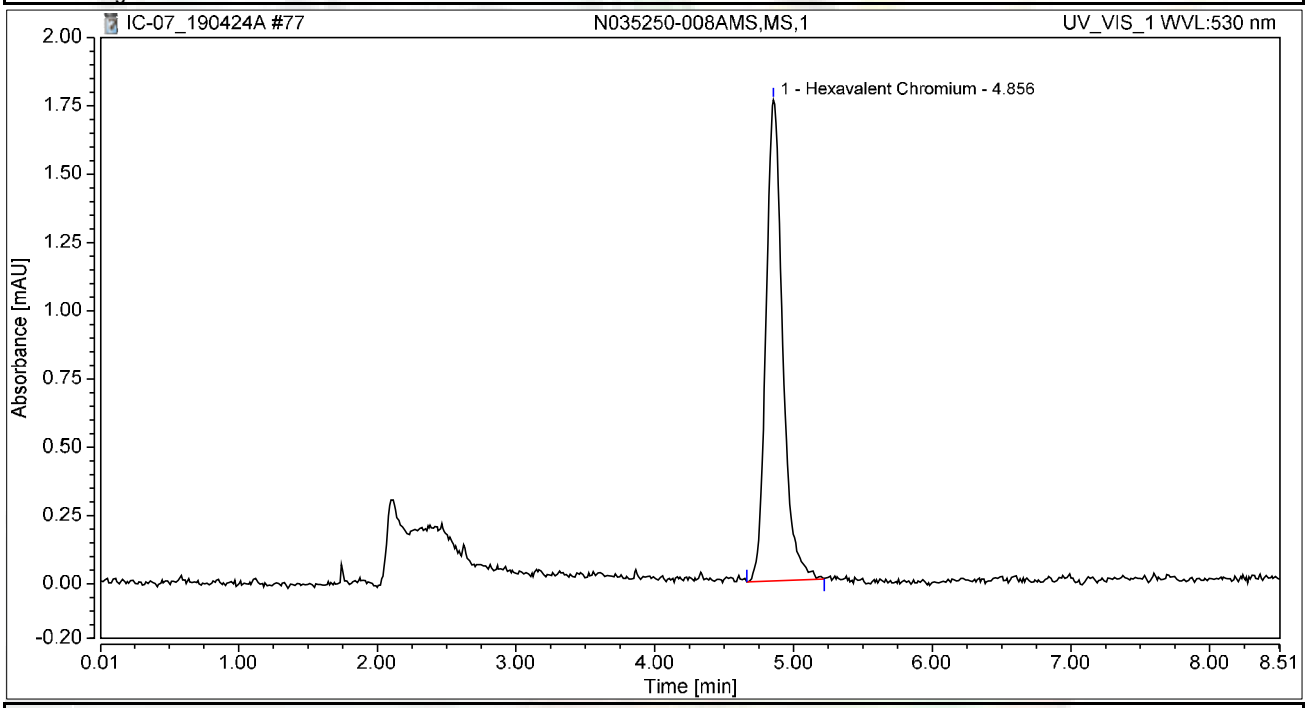
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-008AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

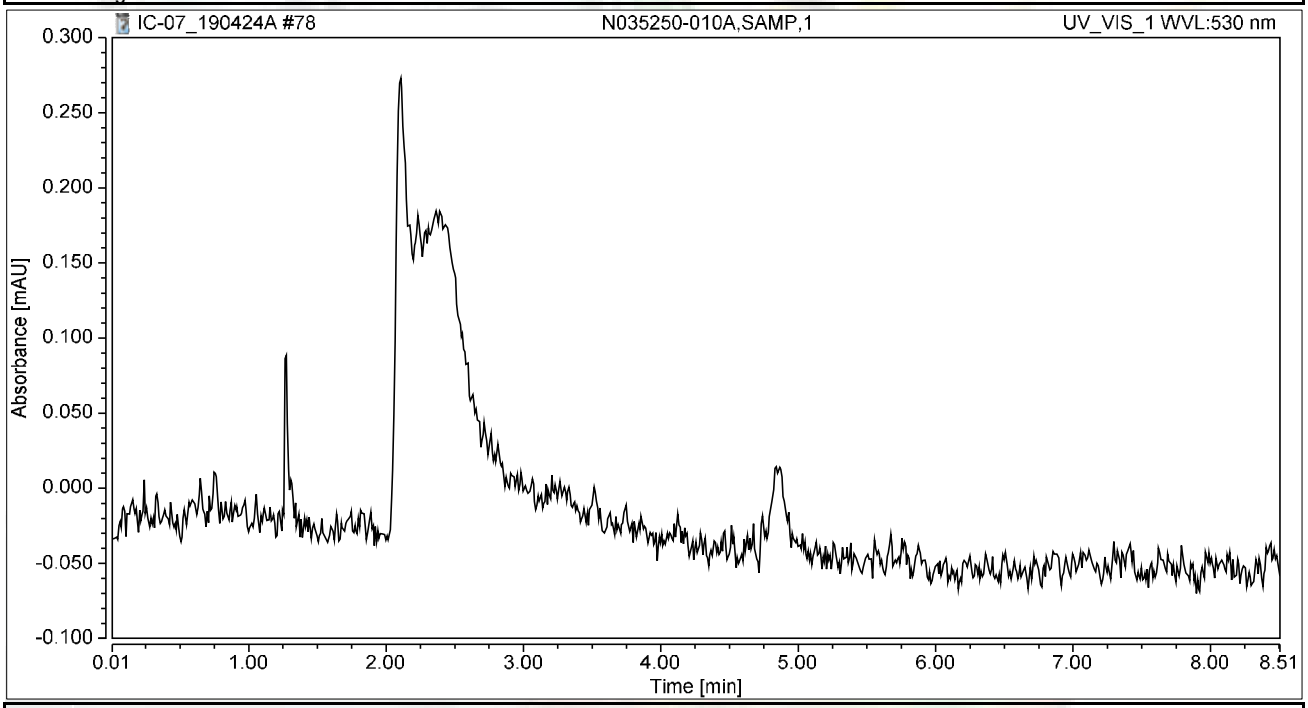
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.246	1.762	100.00	100.00	0.9874
Total:			**0.246**	**1.762**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

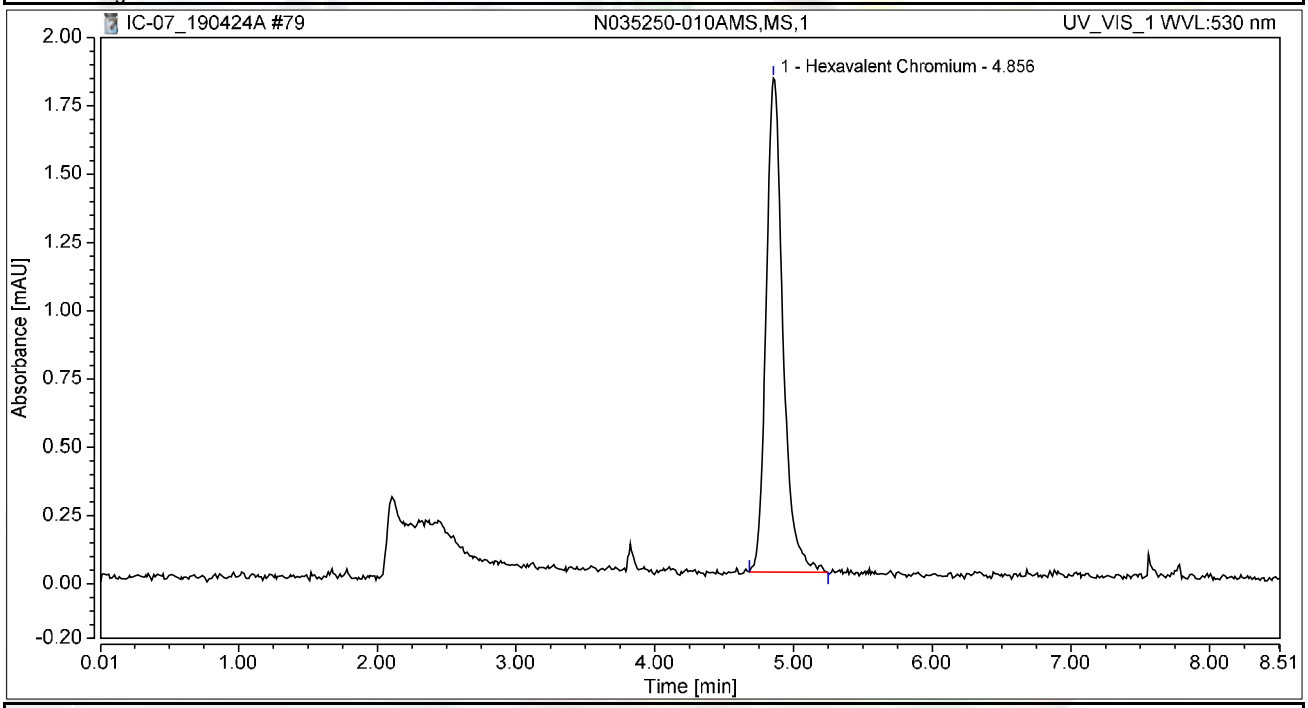
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

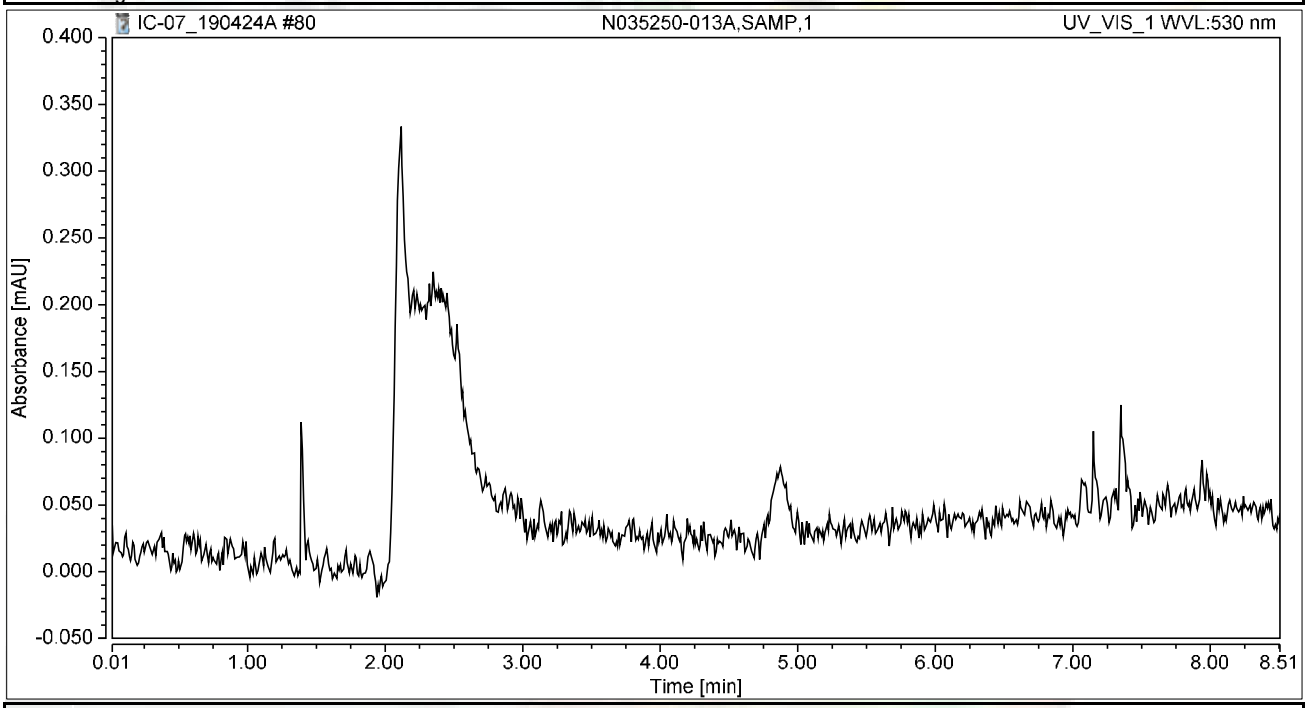
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.255	1.809	100.00	100.00	1.0223
Total:			**0.255**	**1.809**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-013A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

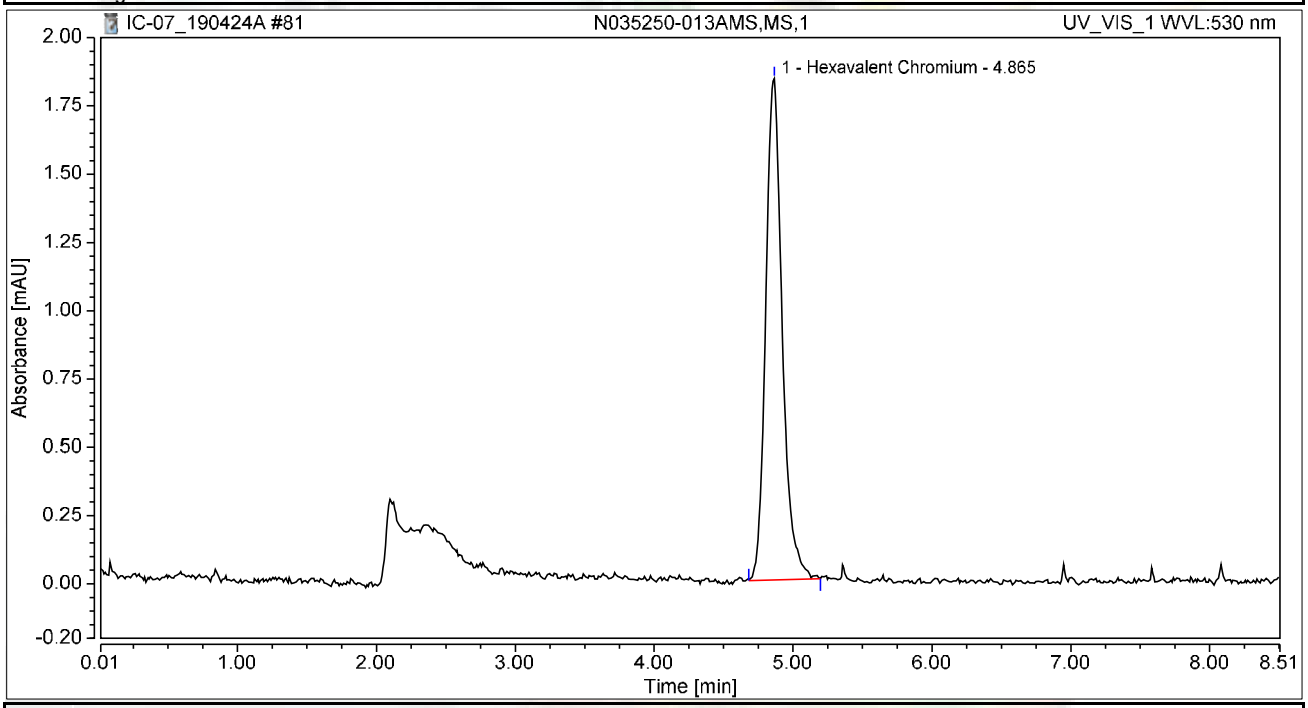
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-013AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

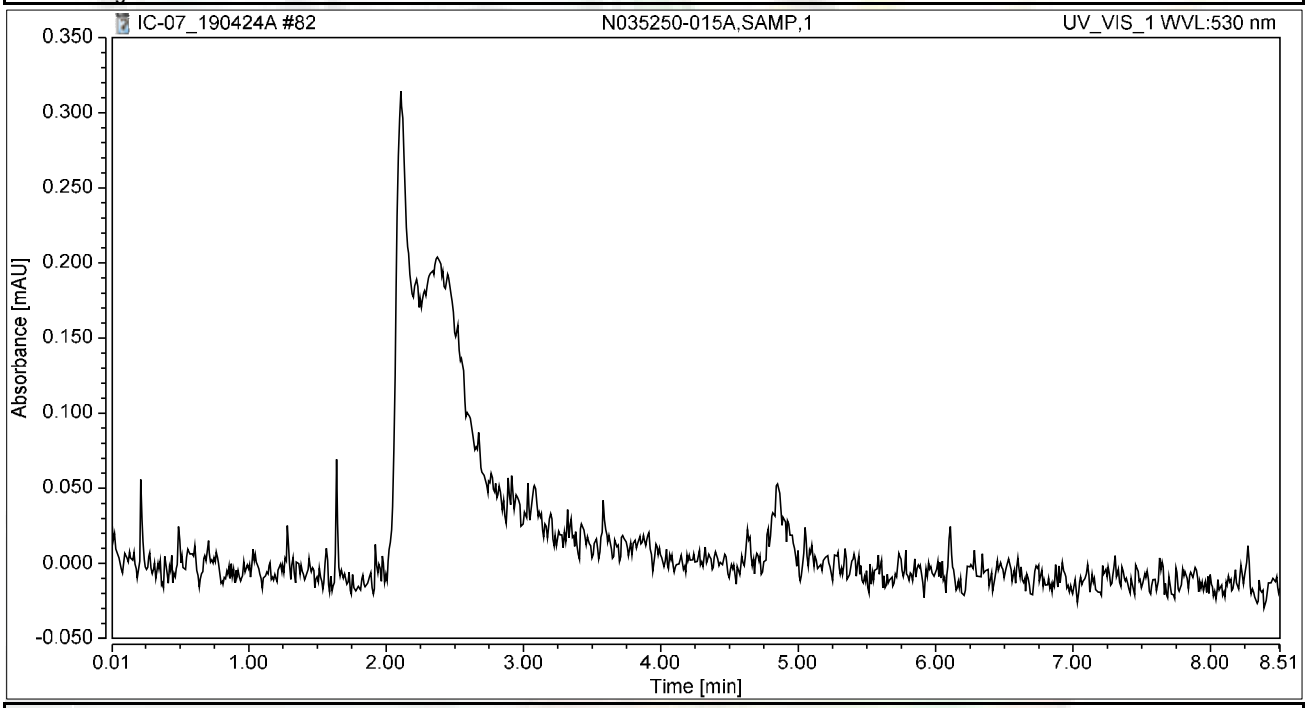
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	0.253	1.835	100.00	100.00	1.0170
Total:			**0.253**	**1.835**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-015A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 20:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

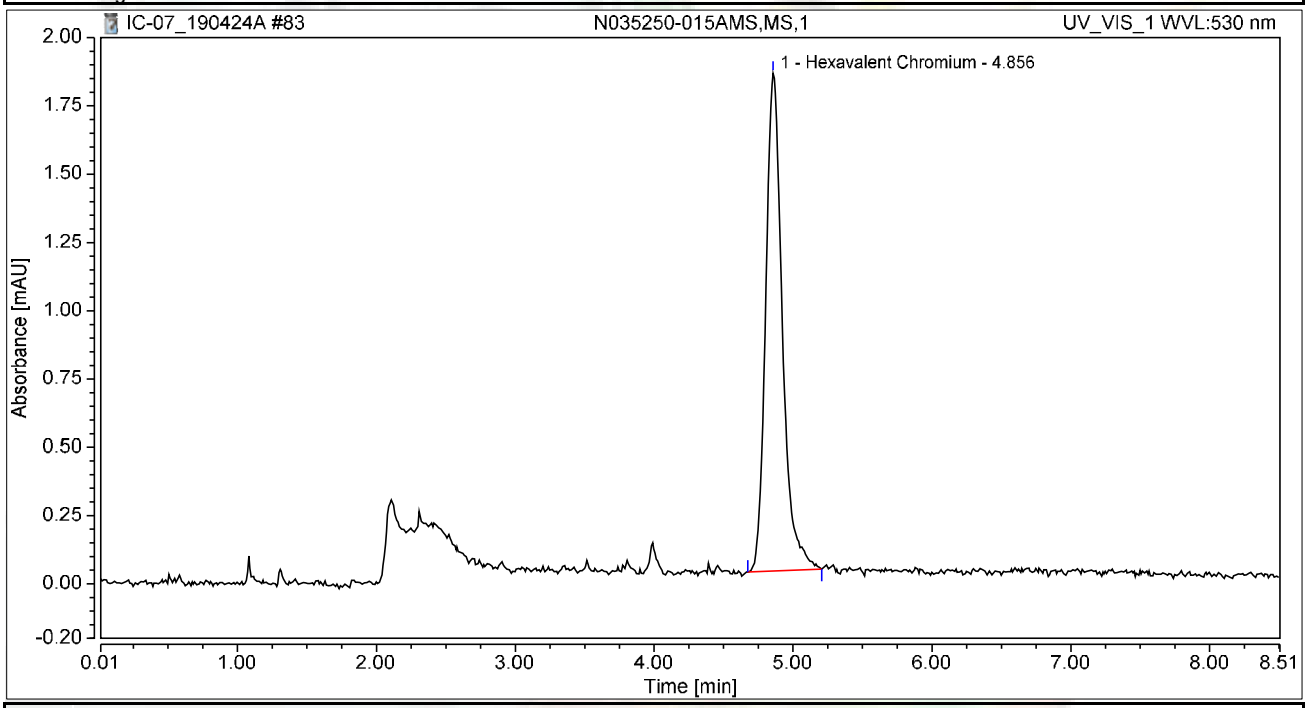
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-015AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

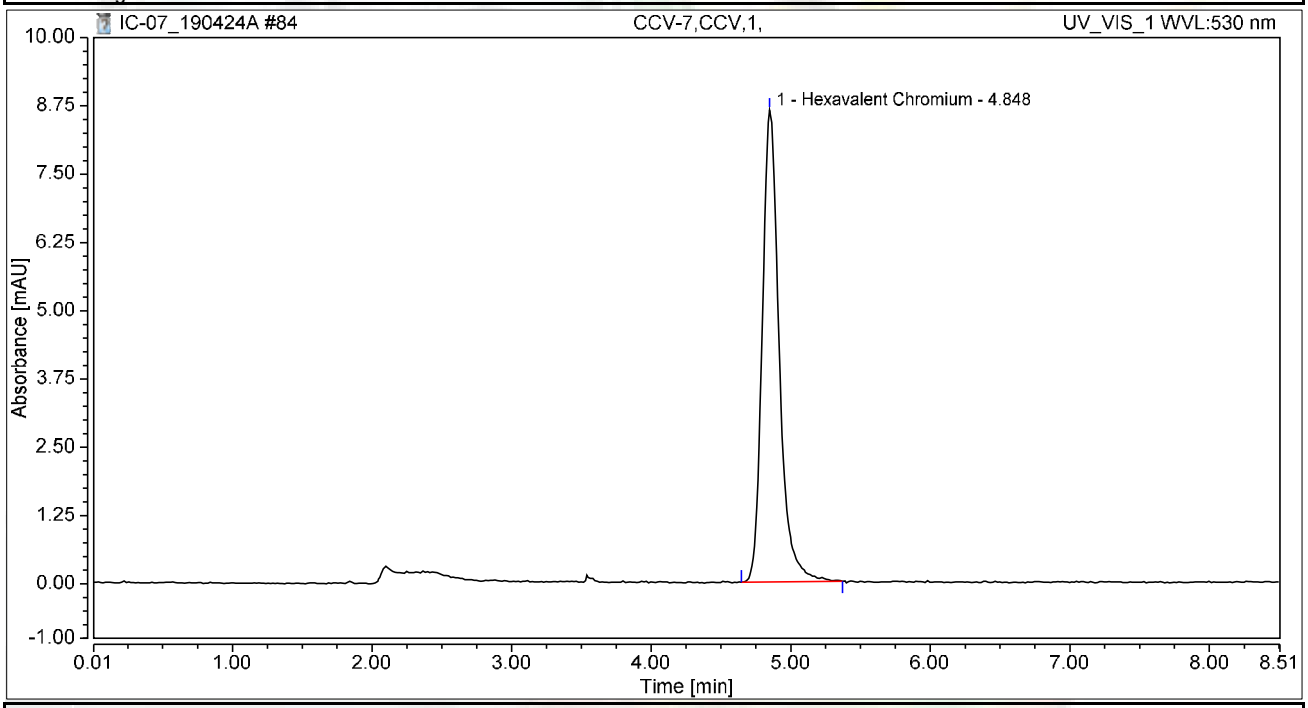
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.253	1.822	100.00	100.00	1.0172
Total:			**0.253**	**1.822**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-7,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

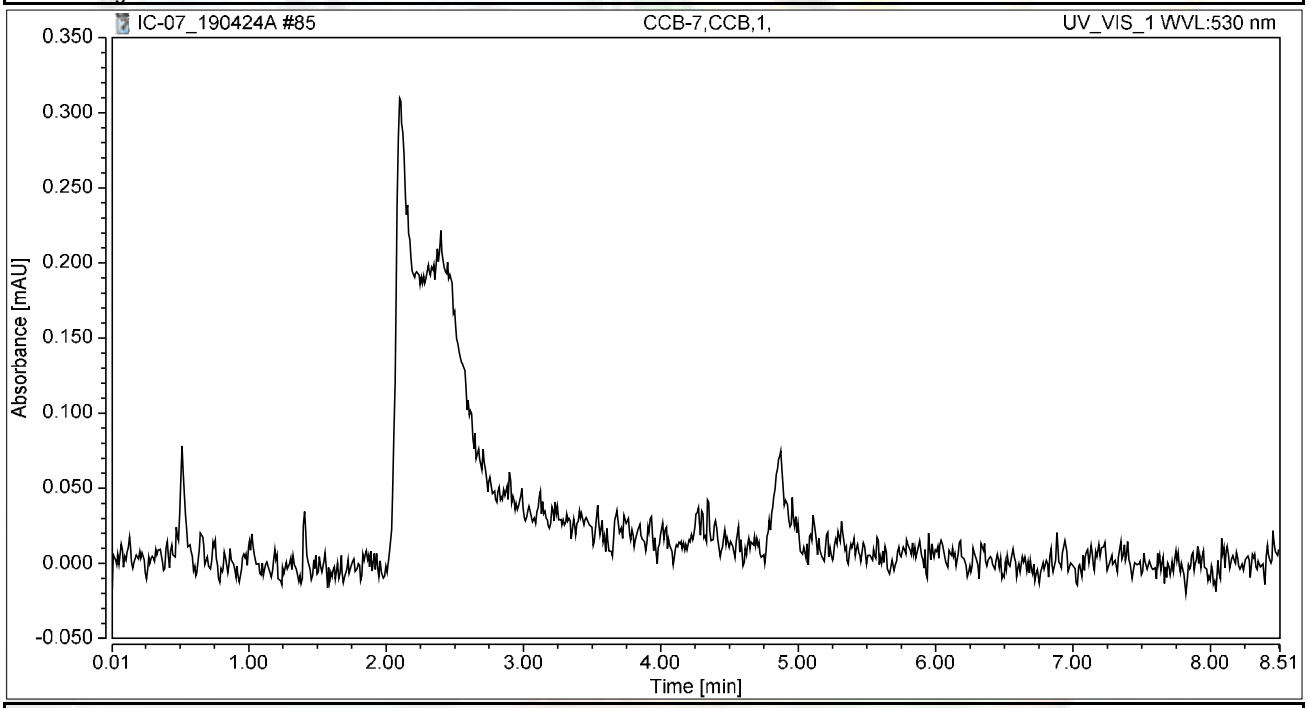
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	1.219	8.637	100.00	100.00	4.8964
Total:			**1.219**	**8.637**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-7,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

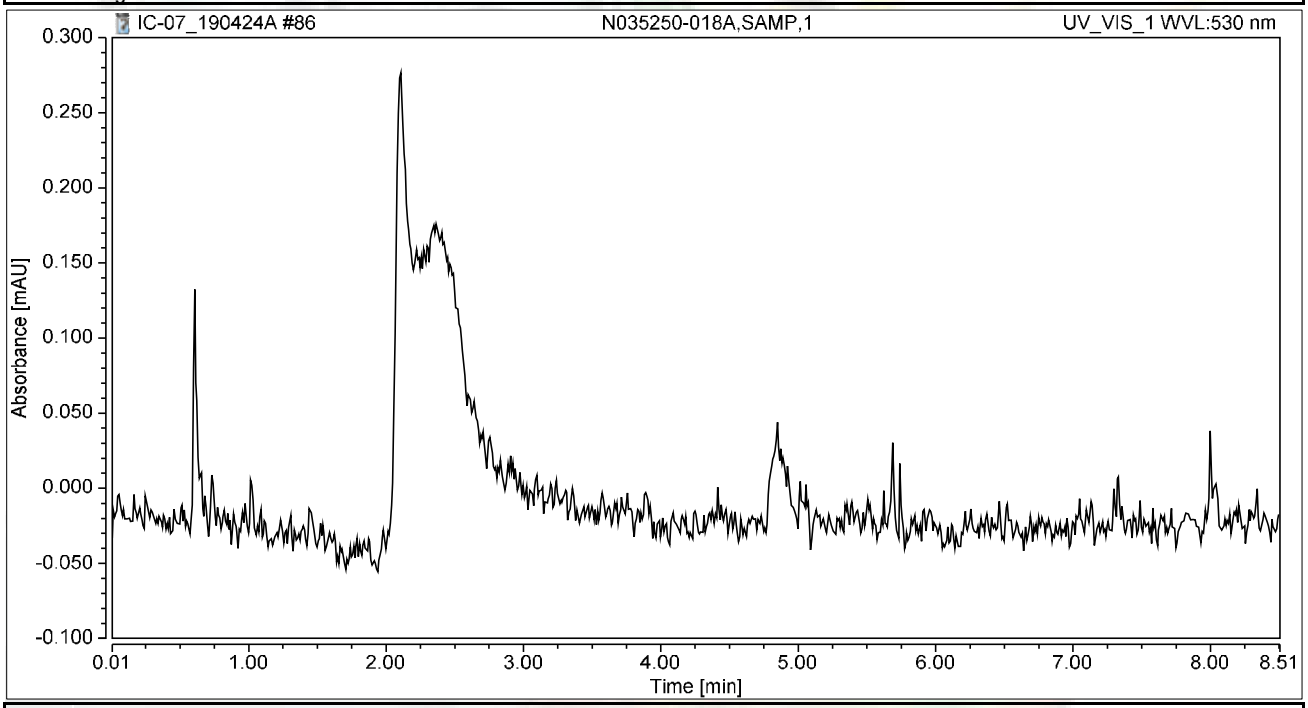
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-018A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

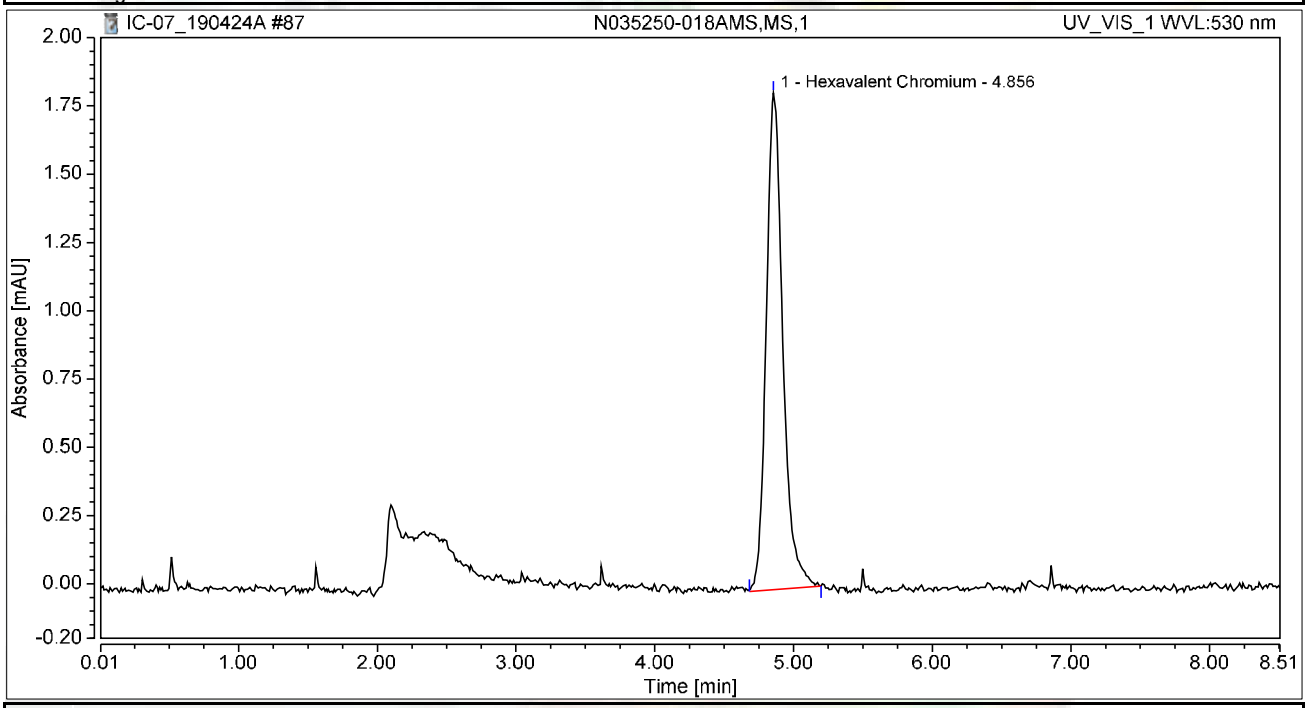
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035250-018AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

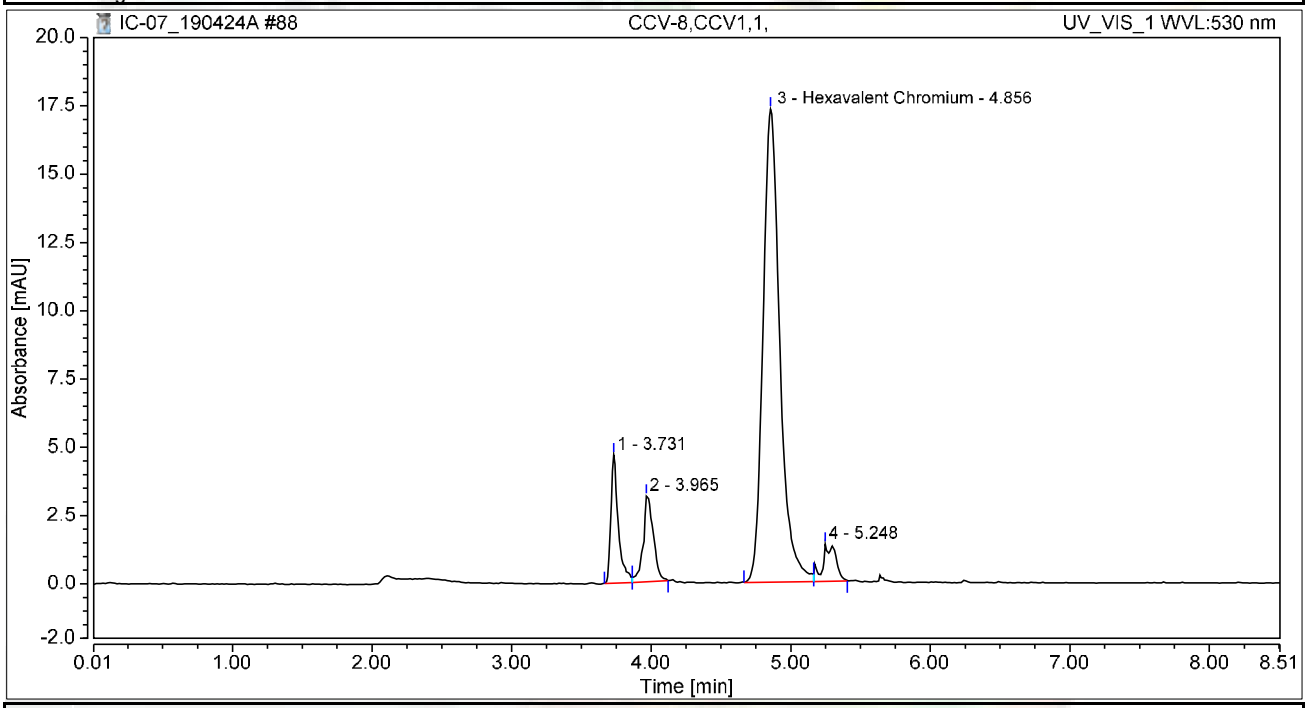
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.252	1.818	100.00	100.00	1.0140
Total:			**0.252**	**1.818**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-8,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 21:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

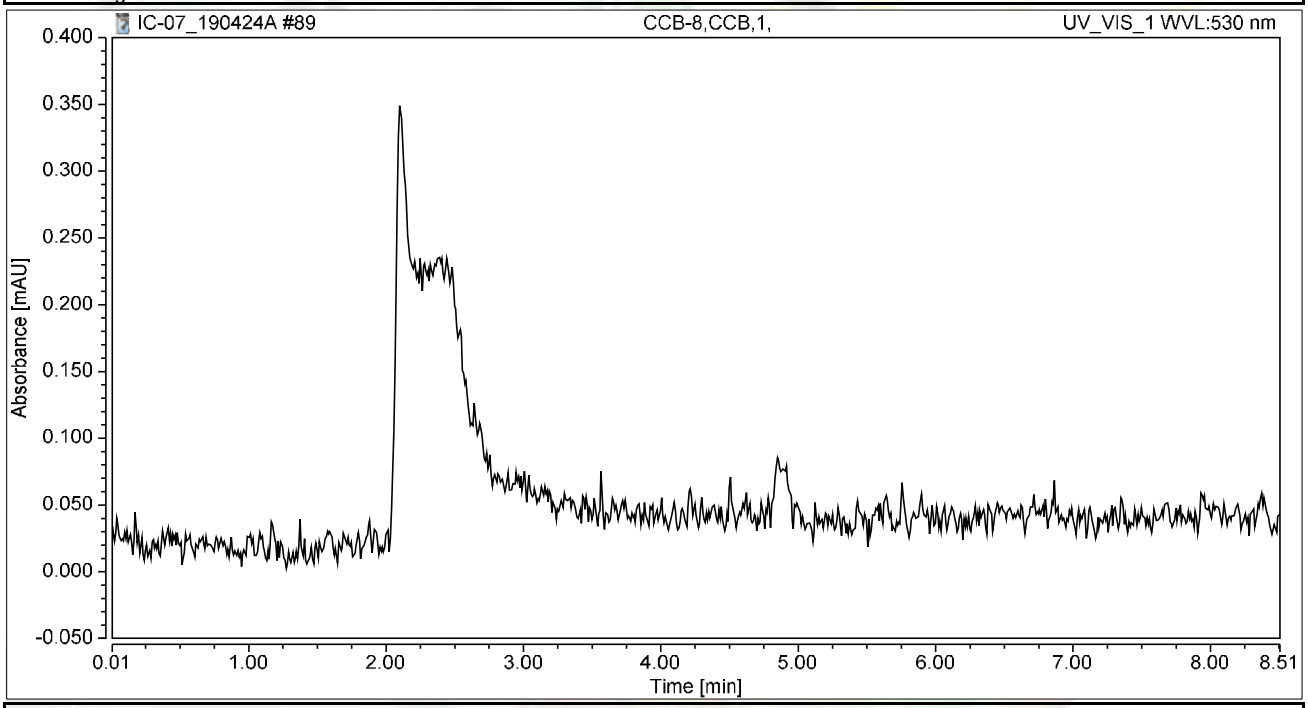
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.731	0.292	4.699	9.34	17.73	n.a.
2		3.965	0.264	3.127	8.45	11.80	n.a.
3	Hexavalent Chromium	4.856	2.424	17.316	77.52	65.33	9.7349
4		5.248	0.146	1.365	4.68	5.15	n.a.
Total:			**3.127**	**26.507**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-8,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 22:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

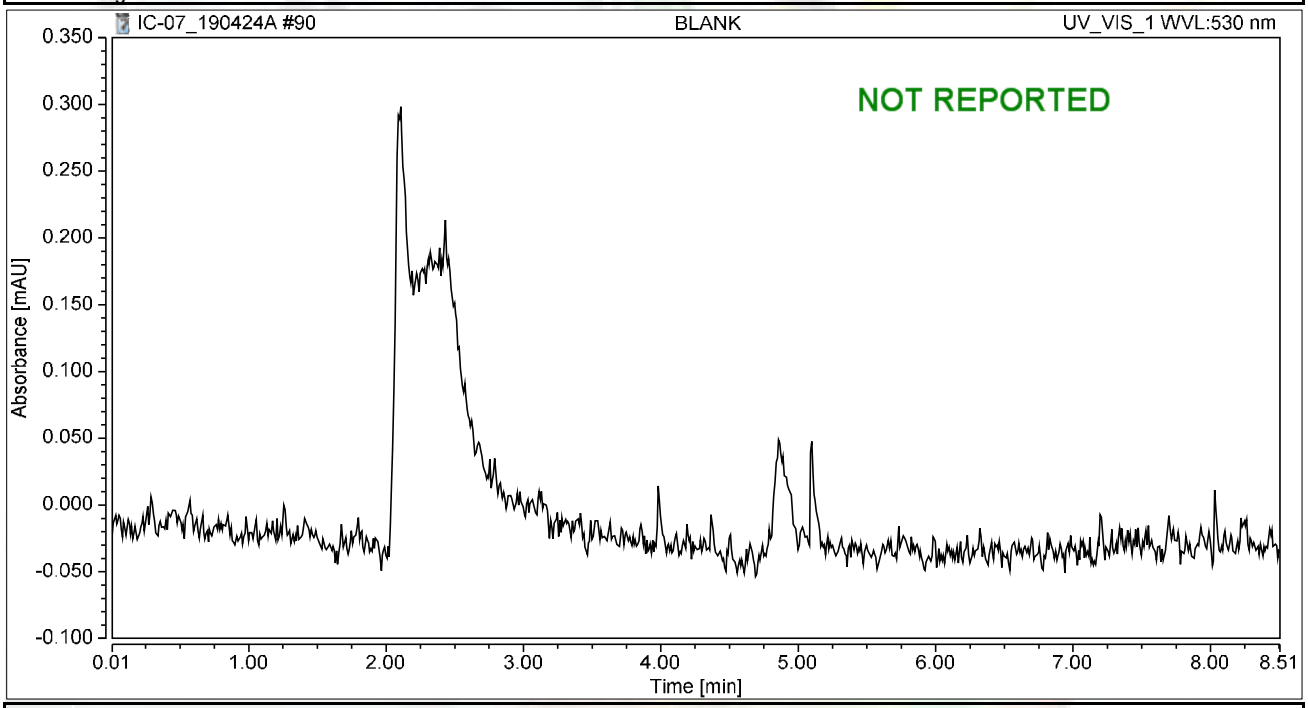
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/Apr/19 22:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 2320B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133470 **Analyst:** LSR

ASSET #: N035251 **Date Analyzed:** 25-Apr

Method: EPA 2320

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			x
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			x
3. ICV within ± 15% of expected value.			X			x
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			x
5. CCV within ± 15% of expected value.			X			x
6. Calibration blanks run after ICV and CCV?			X			x
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			x
Sample Information						
8. All samples are within linear range.			X			x
9. Are all samples analyzed within hold time.	X			x		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			x		
11. LCS compounds within control limits.	X			x		
12. MS/MSD, RPD's are within control limits	X			x		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			x
14. Runlog complete and included in package.	X			x		
15. Spectrophotometer tape included (Spec work only)			X			x
16. Digestion log complete and included in package (if applicable)			X			x
Preliminary Report						
17. Does the raw data match the preliminary report?	X			x		
18. Are analytical results correct?	X			x		
19. Is the QC summary report present and complete?	X			x		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer Julia Ramit Date: 4/29/2019

2nd Level Reviewer 5/7/2019 Date:

SAMPLE CALCULATION

Sample ID: **N035251-001C @ pH 7.93**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.50 mL)

= **0.02174 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (9.55) (0.02174 N) (1) * 1000

= 207.6170 mg**/L**

Reporting results in two significant figures,

= 210 as CaCO3

Julia Ramit 4/29/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0.00) (0.02174 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (9.55 mL) (0.02174) (1) * 1000

= 207.6170 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 207.6170 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **210 mg/L**

Julia Ramit 4/29/2019

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.48	50	0.00	0.050	MBLK
LCS-1	8.65	50	0.05	4.80	LCS
N035250-014B	7.85	50	0.00	8.20	SAMP
N035251-001C	7.93	50	0.00	9.55	SAMP
N035251-002C	7.88	50	0.00	7.65	SAMP
N035251-002CDUP	7.92	50	0.00	7.80	DUP
N035251-002CMS	7.82	50	0.00	12.30	MS
N035251-002CMSD	7.81	50	0.00	12.20	MSD

Standardization:		
Spike amt:	**5**	ml
Titrant used:	**11.500**	ml
N H2SO4	**0.02174**	Normal
Date Analyzed:	**4/25/19**	
Time:	**9:20 AM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-180510A**	
Sulfuric Acid:	**R190419B**	

Silvia Ramit 4/29/2019

Date Analyzed:	4/25/19		Reagents:					Standardization:					P = 0
Time Started:	9:20 AM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.5	mL		P = 1/2 T
				Sulfuric Acid:		R190419B							P > 1/2 T
									N H2SO4	0.02174	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.48				0.02174	0.00	0.05	0.05	1	0.00	1.09	
LCS-1	50	8.65				0.02174	0.05	4.75	4.80	1	1.09	104.35	
N035250-014B	50	7.85				0.02174	0.00	8.20	8.20	1	0.00	178.26	
N035251-001C	50	7.93				0.02174	0.00	9.55	9.55	1	0.00	207.61	
N035251-002C	50	7.88				0.02174	0.00	7.65	7.65	1	0.00	166.30	
N035251-002CDU	50	7.92				0.02174	0.00	7.80	7.80	1	0.00	169.57	
N035251-002CMS	50	7.82				0.02174	0.00	12.30	12.30	1	0.00	267.39	
N035251-002CMS	50	7.81				0.02174	0.00	12.20	12.20	1	0.00	265.22	

Julia Ramit 4/29/2019

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	4/25/19
Time:	9:20 AM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.09	1.09	1.09		P = 0
LCS-1	0.00	2.17	102.17	104.35	104.35		P < 1/2 T
N035250-014B	0.00	0.00	178.26	178.26	178.26		P = 0
N035251-001C	0.00	0.00	207.61	207.61	207.61		P = 0
N035251-002C	0.00	0.00	166.30	166.30	166.30		P = 0
N035251-002CDUP	0.00	0.00	169.57	169.57	169.57		P = 0
N035251-002CMS	0.00	0.00	267.39	267.39	267.39		P = 0
N035251-002CMSD	0.00	0.00	265.22	265.22	265.22		P = 0

Julia Ramit 4/29/2019

Alkalinity Preparation and Runlog

Matrix: H2O

Date Extracted: 4/25/19
Time Extracted: 1130
Extracted By: LSR

Date Analyzed: 4/25/19
Time Analyzed: 920
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV-161205A
Hydrochloric Acid: -
Sulfuric Acid: R190419B
Sodium Bicarbonate: CINV-180510A

pH Meter Calibration:
SLOPE: 96.2%
pH 7 - 7.00 - CINV190107A
4 - 4.02 - 1 B
10 - 10.00 - CINV190111G

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARDIZATION											
	#1	50 mL	10.85	IWST190419AA	5 mL	0.05N	-	-	11.55	50/50	$N_{H_2SO_4} = \frac{(2.65\,g/L)(5\,mL)}{(53)(V\ titrant)}$	= 0.021645021
	#2	1	10.80	1	1	1	-	-	11.45	1		= 0.021834061
1)	MBLC	50mL	5.48	-	-	-	0.02174	0	0.05	50/50		Ave: 0.021739541
2)	LCS		8.65	IWST190419AB	1mL	0.05N		0.05	4.80			
3)	NBS250-1LB		7.85					0	8.20			
4)	NBS25I-1C		7.99					0	9.55			
5)	2C		7.88					0	7.65			
6)	2CDUP		7.92					0	7.80			
7)	2CMS		7.82	IWST190419AB	1mL	0.05N		0	12.30			
8)	2CMSD		7.81	1	1	1		0	12.20	1		
9)												
10)												
11)												
12)												
13)												
14)												
15)				$P = (V_{pH\,8.3})(N_{H_2SO_4})(50{,}000)$ / V_{SX}								
16)												
17)												
18)												
19)				$F = (V_{pH\,4.5})(N_{H_2SO_4})(50{,}000)$ / V_{SX}								
20)												
	MS											
	MSD											
	LCS											

Julia Ramit 4/29/2019

ASSET LABORATORIES
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11110 Artesia Blvd., Ste B, Cerritos, CA 90703
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133486
ASSET #: N035250 / N035251

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 4/25/2019

Method:

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			x		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			x		
3. ICV within ± 10% of expected value.	X			x		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			x		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			x		
6. Calibration blanks run after ICV and CCV?	X			x		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)			X			
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)		X		x		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?			X			
Sample Information						
10. All samples are within linear range.	X			x		
11. All samples pH within 9.3-9.7 when analyzed?			X			x
12. Duplicate sample injections for every sample. (7199 only)			X			x
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)			X			x
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			x
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			x
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			x
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			x
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)			X			x
19. EPA 3060A digestion performed on solid samples (7199 only)			X			x
20. Are all peaks within RT window, ± 0.2 min?	X			x		
21. Are all samples analyzed within hold time?	X			x		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			x
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			x		
24. LCS compounds are within control limits.	X			x		
25. MS/MSD, RPD's are within control limits.	X			x		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			x
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			x		
28. Extraction log complete and included in package (if applicable)			X			x
29. All manual integrations initialed, date and reasons included.	X			x		
30. Before and after manual integration chromatogram included in the package	X			x		
31. All samples and QC raw data present in package.	X			x		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			x		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			x		
34 Is the QC summary report present and complete?	X			x		

Comments:

~~Detection of Sulfate in CCB-3 was >1/2 PQL criteria. However, N035250 and N025251 samples affected are >10X the CCB detection. Thus, samples are reported.~~

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Is QC present and complete?	x		
4. Are analytical results correct? (dilutions,calculations)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer rba Date: 5/7/2019

2nd Level Reviewer 5/7/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the orignal sample as follows:

Sulfate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N035251-001C** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 4.8316 * 50

= 241.58

Reporting result in two significant values,

Sulfate, mg/L = 240

rba 5/7/2019

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 40
Created: 4/1/2019 10:47:46 AM by IC-05
Last Update: 4/1/2019 11:05:52 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
2	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
3	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
4	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
5	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
6	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
7	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
8	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
9	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
10	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
11	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
12	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
13	N034871-001A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
14	N034871-002A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
15	N034871-003A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
16	N034871-004A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
17	N034871-005A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
18	N034871-006A,SAMP,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
19	N034871-006ADUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
20	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
21	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
22	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
23	N034871-001AMS,MS,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
24	N034871-001AMSD,MSD,5	Unknown	1000.0	Anions Default2	EPA 300_0_190401	Finished
25	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
26	N034880-001B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
27	N034880-001BMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
28	N034880-001BMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
29	N034880-002B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
30	N034880-002BDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
31	N034880-003A,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
32	N034880-001B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
33	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
34	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
35	N034880-001BMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
36	N034880-001BMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
37	N034880-002B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
38	N034880-002BDUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
39	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
40	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished

jrba 4/7/2019

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 40
Created: 4/1/2019 10:47:46 AM by IC-05
Last Update: 4/1/2019 11:05:52 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK	4/1/2019 10:52:34 AM	BLANK
2	BLANK,BLANK	4/1/2019 11:07:22 AM	BLANK
3	Std - 0	4/1/2019 11:38:53 AM	IBLANK
4	Std - 1	4/1/2019 11:58:48 AM	STD-LOW
5	Std - 2	4/1/2019 12:19:52 PM	STD
6	Std - 3	4/1/2019 12:34:40 PM	STD
7	Std - 4	4/1/2019 12:49:28 PM	STD
8	Std - 5	4/1/2019 1:04:16 PM	STD-HIGH
9	ICV,ICV,1	4/1/2019 1:34:22 PM	ICV
10	ICB,ICB,1	4/1/2019 1:49:10 PM	CCB
11	MB-H2O,MBLK,1	4/1/2019 2:03:58 PM	METHOD BLANK
12	LCS-H2O,LCS,1	4/1/2019 2:18:46 PM	LCS
13	N034871-001A,SAMP,5	4/1/2019 2:56:40 PM	SAMP,2>10mL
14	N034871-002A,SAMP,5	4/1/2019 3:18:59 PM	SAMP,2>10mL
15	N034871-003A,SAMP,5	4/1/2019 3:41:17 PM	SAMP,2>10mL
16	N034871-004A,SAMP,5	4/1/2019 4:03:35 PM	SAMP,2>10mL
17	N034871-005A,SAMP,5	4/1/2019 4:25:53 PM	SAMP,2>10mL
18	N034871-006A,SAMP,5	4/1/2019 4:48:10 PM	SAMP,2>10mL
19	N034871-006ADUP,DUP,5	4/1/2019 5:10:28 PM	DUP,2>10mL
20	BLANK	4/1/2019 5:25:16 PM	BLANK
21	CCV-1,CCV,1	4/1/2019 5:40:04 PM	CCV
22	CCB-1,CCB,1	4/1/2019 5:54:52 PM	CCB
23	N034871-001AMS,MS,5	4/1/2019 6:09:40 PM	MS,2>10mL
24	N034871-001AMSD,MSD,5	4/1/2019 6:31:57 PM	MSD,2>10mL
25	BLANK	4/1/2019 6:54:15 PM	BLANK
26	N034880-001B,SAMP,5	4/1/2019 7:09:03 PM	SAMP,2>10mL
27	N034880-001BMS,MS,5	4/1/2019 7:23:51 PM	MS,2>10mL
28	N034880-001BMSD,MSD,5	4/1/2019 7:38:39 PM	MSD,2>10mL
29	N034880-002B,SAMP,5	4/1/2019 7:53:26 PM	SAMP,2>10mL
30	N034880-002BDUP,DUP,5	4/1/2019 8:08:14 PM	DUP,2>10mL
31	N034880-003A,SAMP,20	4/1/2019 8:23:02 PM	SAMP,0.5>10mL
32	N034880-001B,SAMP,50	4/1/2019 8:37:50 PM	SAMP,0.2>10mL
33	CCV-2,CCV,1	4/1/2019 8:52:38 PM	CCV
34	CCB-2,CCB,1	4/1/2019 9:07:25 PM	CCB
35	N034880-001BMS,MS,50	4/1/2019 9:22:14 PM	MS,0.2>10mL
36	N034880-001BMSD,MSD,50	4/1/2019 9:37:02 PM	MSD,0.2>10mL
37	N034880-002B,SAMP,50	4/1/2019 9:51:50 PM	SAMP,0.2>10mL
38	N034880-002BDUP,DUP,50	4/1/2019 10:06:38 PM	DUP,0.2>10mL
39	CCV-3,CCV,1	4/1/2019 10:21:26 PM	CCV
40	CCB-3,CCB,1	4/1/2019 10:36:14 PM	CCB

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 45
Created: 4/25/2019 8:07:44 AM by IC-05
Last Update: 4/25/2019 3:54:22 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
2	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
3	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
4	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
5	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
6	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
7	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
8	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190401	Finished
9	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
10	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
11	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
12	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
13	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
14	N035189-008B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
15	N035189-010B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
16	N035189-011B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
17	N035189-015B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
18	N035189-016B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
19	N035189-018B,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
20	N035189-017B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
21	N035189-008B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
22	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
23	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
24	N035251-001C,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
25	N035251-001C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
26	N035251-002C,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
27	N035251-002C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
28	N035250-014B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
29	N035250-014B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
30	N035230-004B,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
31	N035251-001CDUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
32	N035251-002CMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
33	N035251-002CMSD,MSD,500	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
34	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
35	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
36	N035251-002CMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
37	N035251-002CMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
38	N035250-014BMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
39	N035250-014BMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
40	N035250-014B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
41	N035250-014BDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 45
Created: 4/25/2019 8:07:44 AM by IC-05
Last Update: 4/25/2019 3:54:22 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK	4/1/2019 10:52:34 AM	BLANK
2	BLANK,BLANK	4/1/2019 11:07:22 AM	BLANK
3	Std - 0	4/1/2019 11:38:53 AM	IBLANK
4	Std - 1	4/1/2019 11:58:48 AM	STD-LOW
5	Std - 2	4/1/2019 12:19:52 PM	STD
6	Std - 3	4/1/2019 12:34:40 PM	STD
7	Std - 4	4/1/2019 12:49:28 PM	STD
8	Std - 5	4/1/2019 1:04:16 PM	STD-HIGH
9	BLANK,BLANK	4/25/2019 8:08:06 AM	BLANK
10	CCV-1,CCV,1	4/25/2019 8:22:54 AM	CCV
11	CCB-1,CCB,1	4/25/2019 8:37:42 AM	CCB
12	MB-H2O,MBLK,1	4/25/2019 8:52:30 AM	METHOD BLANK
13	LCS-H2O,LCS,1	4/25/2019 9:07:18 AM	LCS
14	N035189-008B,SAMP,100	4/25/2019 9:49:59 AM	SAMP,0.1>10mL
15	N035189-010B,SAMP,50	4/25/2019 10:06:31 AM	SAMP,0.2>10mL
16	N035189-011B,SAMP,50	4/25/2019 10:21:19 AM	SAMP,0.2>10mL
17	N035189-015B,SAMP,50	4/25/2019 10:36:07 AM	SAMP,0.2>10mL
18	N035189-016B,SAMP,50	4/25/2019 10:50:54 AM	SAMP,0.2>10mL
19	N035189-018B,SAMP,100	4/25/2019 11:05:42 AM	SAMP,0.1>10mL
20	N035189-017B,SAMP,5	4/25/2019 11:20:30 AM	SAMP,0.2>10mL
21	N035189-008B,SAMP,20	4/25/2019 11:35:19 AM	SAMP,0.5>10mL
22	CCV-2,CCV,1	4/25/2019 11:50:07 AM	CCV
23	CCB-2,CCB,1	4/25/2019 12:04:54 PM	CCB
24	N035251-001C,SAMP,200	4/25/2019 12:19:42 PM	SAMP,0.05>10mL
25	N035251-001C,SAMP,50	4/25/2019 12:34:30 PM	SAMP,0.2>10mL
26	N035251-002C,SAMP,500	4/25/2019 12:49:18 PM	SAMP,0.02>10mL
27	N035251-002C,SAMP,50	4/25/2019 1:04:05 PM	SAMP,0.2>10mL
28	N035250-014B,SAMP,500	4/25/2019 1:18:53 PM	SAMP,0.02>10mL
29	N035250-014B,SAMP,50	4/25/2019 1:33:41 PM	SAMP,0.2>10mL
30	N035230-004B,SAMP,200	4/25/2019 1:48:29 PM	SAMP,0.05>10mL
31	N035251-001CDUP,DUP,50	4/25/2019 2:03:17 PM	DUP,0.2>10mL
32	N035251-002CMS,MS,500	4/25/2019 2:18:05 PM	MS,0.02>10mL
33	N035251-002CMSD,MSD,500	4/25/2019 2:32:53 PM	MSD,0.02>10mL
34	CCV-3,CCV,1	4/25/2019 2:47:40 PM	CCV
35	CCB-3,CCB,1	4/25/2019 3:02:28 PM	CCB
36	N035251-002CMS,MS,50	4/25/2019 3:17:16 PM	MS,0.2>10mL
37	N035251-002CMSD,MSD,50	4/25/2019 3:32:04 PM	MSD,0.2>10mL
38	N035250-014BMS,MS,500	4/25/2019 3:46:52 PM	MS,0.02>10mL
39	N035250-014BMS,MS,50	4/25/2019 4:01:40 PM	MS,0.2>10mL
40	N035250-014B,SAMP,5	4/25/2019 4:16:28 PM	SAMP,2>10mL
41	N035250-014BDUP,DUP,5	4/25/2019 4:31:16 PM	DUP,2>10mL

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 45
Created: 4/25/2019 8:07:44 AM by IC-05
Last Update: 4/25/2019 3:54:22 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N035250-014BMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
43	N035250-014BMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
44	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished
45	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190401	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 45
Created: 4/25/2019 8:07:44 AM by IC-05
Last Update: 4/25/2019 3:54:22 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N035250-014BMS,MS,5	4/25/2019 4:46:03 PM	MS,2>10mL
43	N035250-014BMSD,MSD,5	4/25/2019 5:00:51 PM	MSD,2>10mL
44	CCV-4,CCV,1	4/25/2019 5:15:39 PM	CCV
45	CCB-4,CCB,1	4/25/2019 5:30:27 PM	CCB

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INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 4/1/2019

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0786	0.1524	0.3053	0.7863	1.6656	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 4/1/2019

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0563	0.2257	0.4523	1.1738	2.4649	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914G

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ICV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/1/2019**	SeqNo: **3364542**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.008	0.50	2.000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364544**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.934	0.50	2.000	0	96.7	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.939	0.50	2.000	0	96.9	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.893	0.50	2.000	0	94.6	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.945	0.50	2.000	0	97.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ICV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/1/2019**	SeqNo: **3364569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.043	0.50	4.000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.929	0.50	4.000	0	98.2	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.919	0.50	4.000	0	98.0	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364589**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.925	0.50	4.000	0	98.1	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCV**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364594**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.950	0.50	4.000	0	98.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ICB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/1/2019**	SeqNo: **3364543**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364545**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364568**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **ICB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/1/2019**	SeqNo: **3364570**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364572**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.249	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133486**
Client ID: **CCB**	Batch ID: **R133486**	TestNo: **EPA 300.0**		Analysis Date: **4/25/2019**	SeqNo: **3364595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 4/25/2019

Sample Name		Retention Time	Evaluation
ICV	Sulfate	9.303	
CCV-1	Sulfate	9.040	
CCV-2	Sulfate	9.037	
CCV-3	Sulfate	9.037	
CCV-4	Sulfate	9.077	
	Average	9.048	
	Applied RT Window	8.848 - 9.248	
MB-R133486_SO4	Sulfate	N.A.	N.A.
LCS-R133486_SO4	Sulfate	9.037	PASS
N035251-001C	Sulfate	9.033	PASS
N035251-002C	Sulfate	9.043	PASS
N035251-001CDUP	Sulfate	9.037	PASS
N035251-002CMS	Sulfate	9.043	PASS
N035251-002CMSD	Sulfate	9.043	PASS
N035250-014BMS	Sulfate	9.040	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 4/25/2019

Sample Name		Retention Time	Evaluation
ICV	Chloride	4.130	
CCV-1	Chloride	4.097	
CCV-2	Chloride	4.097	
CCV-3	Chloride	4.097	
CCV-4	Chloride	4.103	
	Average	4.099	
	Applied RT Window	3.899 - 4.299	
MB-R133486_CL	Chloride	N.A.	N.A.
LCS-R133486_CL	Chloride	4.097	PASS
N035251-001C	Chloride	4.097	PASS
N035251-002C	Chloride	4.097	PASS
N035251-001CDUP	Chloride	4.100	PASS
N035251-002CMS	Chloride	4.097	PASS
N035251-002CMSD	Chloride	4.100	PASS
N035250-014BMS	Chloride	4.097	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	170523A D36	170523A D37	170523A D38	170524A D17	170524A D18	170525A D45	170525A D46					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.020	0.022	0.021	0.020	0.023	0.026	0.024	0.020	0.0021	**0.0065**	0.020	0.10
Chloride	0.133	0.136	0.136	0.133	0.141	0.133	0.136	0.025	0.0029	**0.0091**	0.020	0.50
Nitrite	0.030	0.028	0.027	0.028	0.028	0.027	0.027	0.020	0.0010	**0.0030**	0.010	0.05
Bromide	0.037	0.042	0.043	0.038	0.040	0.032	0.025	0.040	0.0062	**0.0196**	0.040	0.20
Nitrate	0.035	0.034	0.033	0.033	0.033	0.031	0.030	0.020	0.0016	**0.0050**	0.010	0.05
Phosphate	0.047	0.051	0.049	0.046	0.052	0.047	0.059	0.040	0.0043	**0.0135**	0.030	0.10
Sulfate	0.213	0.199	0.208	0.216	0.199	0.201	0.198	0.050	0.0073	**0.0229**	0.050	0.50

MDL/LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 3/29-30/2018
Analyst: Ria B. Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD Actual Conc., mg/L	PQL Spike Conc., mg/L	PQL Actual Conc., mg/L	%Recovery
Fluoride	**0.0065**	0.020	0.0252	0.10	0.087	**87**
Chloride	**0.0091**	0.020	0.1193	0.50	0.5757	**115**
Nitrite	**0.0030**	0.010	0.0237	0.05	0.0638	**128**
Bromide	**0.0196**	0.040	0.0405	0.20	0.1993	**100**
Nitrate	**0.0050**	0.010	0.0191	0.05	0.0561	**112**
Phosphate	**0.0135**	0.030	0.0415	0.10	0.1216	**122**
Sulfate	**0.0229**	0.050	0.3682	0.50	0.6549	**131**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133477 **Analyst:** QBM

ASSET #: N035180, 250, 251 **Date Analyzed:** 4/25/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 5/15/2019

2nd Level Reviewer NS Date: 5/15/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor ~~BGLE~~

For: **N035251-002D**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.5023	*	5
	=	2.5115	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 2.5 mg/L

NS 5/15/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

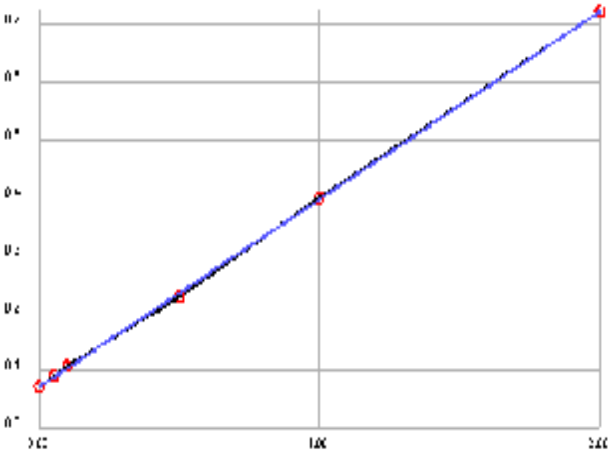
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3253x + 0.0712
Correlation	.999905

Calibrant	Energy	Set	Conc
1	0.0706	0.0000	-0.0018
2	0.0892	0.0500	0.0553
3	0.1059	0.1000	0.1067
4	0.2274	0.5000	0.4801
5	0.3999	1.0000	1.0104
6	0.7216	2.0000	1.9993

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ICV**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.508	0.050	0.5000	0	102	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **CCV**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.466	0.050	0.5000	0	93.1	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **CCV**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.483	0.050	0.5000	0	96.6	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035251
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **ICB**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **CCB**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133477**
Client ID: **CCB**	Batch ID: **R133477**	TestNo: **SM4500-NO3**		Analysis Date: **4/25/2019**	SeqNo: **3363880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 04-25-2019 14:48
Time end: 04-25-2019 16:47

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	16:21:18	0.0037		0.0724
2	<BLANK>	16:22:13	0.0046		0.0727
3	<CAL1>	16:23:13	-0.0018	[0]	0.0706
4	<CAL2>	16:24:09	0.0553	[0.05]	0.0892
5	<CAL3>	16:25:04	0.1067	[0.1]	0.1059
6	<CAL4>	16:26:05	0.4801	[0.5]	0.2274
7	<CAL5>	16:26:59	1.0104	[1]	0.3999
8	<CAL6>	16:27:55	1.9993	[2]	0.7216
9	,BLANK,BLANK,1, NOT REPORTED	16:28:56	0.0578		0.0900
10	,ICV,ICV,1,	16:29:50	0.5081		0.2365
11	,ICB,ICB,1,	16:30:45	0.0058		0.0731
12	,MB-H2O,MBLK,1,	16:31:35	0.0009		0.0715
13	,LCS-H2O,LCS,1,	16:32:17	0.4715		0.2246
14	,N035180-001B,SAMP,10,	16:33:07	0.8656		0.3528
15	,N035180-002B,SAMP,20,	16:33:49	0.5917		0.2637
16	,N035180-003B,SAMP,10,	16:34:32	0.8542		0.3491
17	,N035180-003BDUP,DUP,10,	16:35:21	0.9148		0.3688
18	,N035180-004B,SAMP,5,	16:36:03	0.7980		0.3308
19	,N035180-004BMS,MS,5,	16:36:47	1.2806		0.4878
20	,N035180-004BMSD,MSD,5,	16:37:35	1.2619		0.4817
21	,BLANK, NOT REPORTED	16:38:18	0.0077		0.0737
22	,CCV-1,CCV,1,	16:39:00	0.4657		0.2227
23	,CCB-1,CCB,1,	16:39:43	-0.0003		0.0711
24	,N035251-001D,SAMP,1,	16:40:31	0.0243		0.0791
25	,N035250-007D,SAMP,1,	16:41:15	0.0347		0.0825
26	,N035180-005B,SAMP,1,	16:41:58	1.2188		0.4677

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035251-002D,SAMP,5,	16:42:46	0.5023		0.2346
28	,BLANK, NOT REPORTED	16:43:29	0.0031		0.0722
29	,CCV-2,CCV,1,	16:44:11	0.4829		0.2283
30	,CCB-2,CCB,1,	16:45:01	-0.0028		0.0703

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 4/25/2019
Time Analyzed: 2:48 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190424E
Color reagent: R190424F
2% Copper Sulfate: R190424D
Ammonium Hydroxide: CINV-190402B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035180-001B		8.91							
N035180-002B		7.82							
N035180-003B		7.74							
N035180-004B		8.08							
N035180-005B		8.41							
N035250-007D		7.55							
N035251-001D		7.60							
N035251-002D		7.75							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

May 16, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035274

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on April 24, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (10 ug/L) and hexavalent chromium (1.9 ug/L) for sample N035274-003 (MW-44-125-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Because the results for total dissolved chromium (11 ug/L) and hexavalent chromium (7.4 ug/L) for sample N035274-013 (MW-36-100-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Because the results for total dissolved chromium (11 ug/L) and hexavalent chromium (7.1 ug/L) for sample N035274-014 (MW-905-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese and Molybdenum in QC samples N035273-001AMS, N035273-001AMSD, N035273-003BMS and N035273-003BMSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Because the results for total dissolved chromium (10 ug/L) and hexavalent chromium (1.9 ug/L) for sample N035274-003 (MW-44-125-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 9.0 and 4.7 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (11 ug/L) and hexavalent chromium (7.4 ug/L) for sample N035274-013 (MW-36-100-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 9.3 and 7.8 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (11 ug/L) and hexavalent chromium (7.1 ug/L) for sample N035274-014 (MW-905-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 9.5 and 7.6 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035274
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035274-001A	MW-44-070-Q219	Groundwater	4/24/2019 12:00:00 PM	4/24/2019	5/16/2019
N035274-001B	MW-44-070-Q219	Groundwater	4/24/2019 12:00:00 PM	4/24/2019	5/16/2019
N035274-001C	MW-44-070-Q219	Groundwater	4/24/2019 12:00:00 PM	4/24/2019	5/16/2019
N035274-002A	MW-44-115-Q219	Groundwater	4/24/2019 12:59:00 PM	4/24/2019	5/16/2019
N035274-002B	MW-44-115-Q219	Groundwater	4/24/2019 12:59:00 PM	4/24/2019	5/16/2019
N035274-002C	MW-44-115-Q219	Groundwater	4/24/2019 12:59:00 PM	4/24/2019	5/16/2019
N035274-002D	MW-44-115-Q219	Groundwater	4/24/2019 12:59:00 PM	4/24/2019	5/16/2019
N035274-003A	MW-44-125-Q219	Groundwater	4/24/2019 11:54:00 AM	4/24/2019	5/16/2019
N035274-003B	MW-44-125-Q219	Groundwater	4/24/2019 11:54:00 AM	4/24/2019	5/16/2019
N035274-003C	MW-44-125-Q219	Groundwater	4/24/2019 11:54:00 AM	4/24/2019	5/16/2019
N035274-003D	MW-44-125-Q219	Groundwater	4/24/2019 11:54:00 AM	4/24/2019	5/16/2019
N035274-004A	MW-44-125-EB-Q219	Groundwater	4/24/2019 12:04:00 PM	4/24/2019	5/16/2019
N035274-005A	MW-44-070-EB-Q219	Groundwater	4/24/2019 12:10:00 PM	4/24/2019	5/16/2019
N035274-006A	MW-34-080-Q219	Groundwater	4/24/2019 10:16:00 AM	4/24/2019	5/16/2019
N035274-006B	MW-34-080-Q219	Groundwater	4/24/2019 10:16:00 AM	4/24/2019	5/16/2019
N035274-006C	MW-34-080-Q219	Groundwater	4/24/2019 10:16:00 AM	4/24/2019	5/16/2019
N035274-006D	MW-34-080-Q219	Groundwater	4/24/2019 10:16:00 AM	4/24/2019	5/16/2019
N035274-007A	MW-34-080-EB-Q219	Groundwater	4/24/2019 10:20:00 AM	4/24/2019	5/16/2019
N035274-008A	MW-34-100-Q219	Groundwater	4/24/2019 10:17:00 AM	4/24/2019	5/16/2019
N035274-008B	MW-34-100-Q219	Groundwater	4/24/2019 10:17:00 AM	4/24/2019	5/16/2019
N035274-008C	MW-34-100-Q219	Groundwater	4/24/2019 10:17:00 AM	4/24/2019	5/16/2019
N035274-008D	MW-34-100-Q219	Groundwater	4/24/2019 10:17:00 AM	4/24/2019	5/16/2019
N035274-009A	MW-39-100-Q219	Groundwater	4/24/2019 2:33:00 PM	4/24/2019	5/16/2019
N035274-009B	MW-39-100-Q219	Groundwater	4/24/2019 2:33:00 PM	4/24/2019	5/16/2019
N035274-009C	MW-39-100-Q219	Groundwater	4/24/2019 2:33:00 PM	4/24/2019	5/16/2019
N035274-009D	MW-39-100-Q219	Groundwater	4/24/2019 2:33:00 PM	4/24/2019	5/16/2019
N035274-010A	MW-703-Q219	Groundwater	4/24/2019 2:45:00 PM	4/24/2019	5/16/2019
N035274-011A	MW-36-090-Q219	Groundwater	4/24/2019 8:51:00 AM	4/24/2019	5/16/2019
N035274-011B	MW-36-090-Q219	Groundwater	4/24/2019 8:51:00 AM	4/24/2019	5/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035274
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035274-011C	MW-36-090-Q219	Groundwater	4/24/2019 8:51:00 AM	4/24/2019	5/16/2019
N035274-012A	MW-704-Q219	Groundwater	4/24/2019 2:30:00 PM	4/24/2019	5/16/2019
N035274-013A	MW-36-100-Q219	Groundwater	4/24/2019 8:59:00 AM	4/24/2019	5/16/2019
N035274-013B	MW-36-100-Q219	Groundwater	4/24/2019 8:59:00 AM	4/24/2019	5/16/2019
N035274-013C	MW-36-100-Q219	Groundwater	4/24/2019 8:59:00 AM	4/24/2019	5/16/2019
N035274-013D	MW-36-100-Q219	Groundwater	4/24/2019 8:59:00 AM	4/24/2019	5/16/2019
N035274-014A	MW-905-Q219	Groundwater	4/24/2019 9:09:00 AM	4/24/2019	5/16/2019
N035274-014B	MW-905-Q219	Groundwater	4/24/2019 9:09:00 AM	4/24/2019	5/16/2019
N035274-014C	MW-905-Q219	Groundwater	4/24/2019 9:09:00 AM	4/24/2019	5/16/2019
N035274-014D	MW-905-Q219	Groundwater	4/24/2019 9:09:00 AM	4/24/2019	5/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-070-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	1800	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:59:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-125-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 11:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	5700	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-080-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:16:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	7900	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	9700	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-39-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-090-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:51:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	4800	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	6600	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 9:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	6600	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035274-014BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133465**
Client ID: **ZZZZZZ** Batch ID: **R133465** TestNo: **EPA 120.1** Analysis Date: **4/25/2019** SeqNo: **3363512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6640.000	0.10						6650	0.150	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-070-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 03:43 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/11/2019 12:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:59:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	6.0	0.033	0.20		µg/L	1	4/25/2019 06:44 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	6.1	0.13	1.0		µg/L	1	5/11/2019 12:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-125-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 11:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	1.9	0.033	0.20		µg/L	1	4/25/2019 07:03 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	10	0.13	1.0		µg/L	1	5/11/2019 12:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-125-EB-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:04:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 04:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-070-EB-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 05:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-080-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:16:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 07:22 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/11/2019 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-080-EB-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:20:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 05:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 07:41 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/11/2019 01:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-39-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A** QC Batch: **R133466**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	88	0.33	2.0		µg/L	10	4/25/2019 10:12 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190511A** QC Batch: **73665**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	89	0.13	1.0		µg/L	1	5/11/2019 01:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-703-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 05:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-090-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:51:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 04:03 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/11/2019 01:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-704-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 05:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190426A** QC Batch: **R133502**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	7.4	0.033	0.20		µg/L	1	4/26/2019 11:35 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190511A** QC Batch: **73665**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	11	0.13	1.0		µg/L	1	5/11/2019 01:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 9:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190426A**	QC Batch: **R133502**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	7.1	0.033	0.20		µg/L	1	4/26/2019 12:18 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	11	0.13	1.0		µg/L	1	5/11/2019 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133466**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **PBW**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R133466**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **LCSW**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.061	0.20	5.000	0	101	90	110				

Sample ID: **N035272-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.103	1.0	5.000	0	102	90	110				

Sample ID: **N035273-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363524**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.182	1.0	5.000	0	104	90	110				

Sample ID: **N035272-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363525**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.973	1.0	5.000	0	99.5	90	110	5.102	2.57	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035274-009ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3363527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	86.173	2.0						87.73	1.79	20	

Sample ID: **N035274-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3363528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	137.156	2.0	50.00	87.73	98.9	90	110				

Sample ID: **N035273-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3363531**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.212	0.20	1.000	0.2211	99.1	90	110				

Sample ID: **N035274-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.053	0.20	1.000	0	105	90	110				

Sample ID: **N035274-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365348**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.045	0.20	1.000	0	104	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035274-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365350**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.988	0.20	1.000	0	98.8	90	110				

Sample ID: **N035274-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Sample ID: **N035274-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365356**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.003	0.20	1.000	0	100	90	110				

Sample ID: **N035274-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365358**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.024	0.20	1.000	0	102	90	110				

Sample ID: **N035274-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.033	0.20	1.000	0	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035274-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365365**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.294	0.20	5.000	6.009	106	90	110				

Sample ID: **N035274-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.934	0.20	1.000	1.881	105	90	110				

Sample ID: **N035274-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365369**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.097	0.20	1.000	0	110	90	110				

Sample ID: **N035274-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.097	0.20	1.000	0	110	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133502** SampType: **MBLK** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **PBW** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R133502** SampType: **LCS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **LCSW** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.078	0.20	5.000	0	102	90	110				

Sample ID: **N035274-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **ZZZZZZ** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.520	0.20	5.000	7.360	103	90	110				

Sample ID: **N035274-013AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **ZZZZZZ** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.617	0.20	5.000	7.360	105	90	110	12.52	0.772	20	

Sample ID: **N035274-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **ZZZZZZ** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.315	0.20	5.000	7.079	105	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035274-014ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133502**
Client ID: **ZZZZZZ**	Batch ID: **R133502**	TestNo: **EPA 218.6**		Analysis Date: **4/26/2019**	SeqNo: **3365387**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	7.152	0.20						7.079	1.02	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-73665**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **PBW**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-73665**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **LCSW**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.088	1.0	10.00	0	101	85	115				

Sample ID: **N035273-001A-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.392	1.0	10.00	0	83.9	75	125				

Sample ID: **N035273-001A-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.436	1.0	10.00	0	84.4	75	125	8.392	0.527	20	

Sample ID: **N035273-003B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.579	1.0	10.00	0	85.8	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **N035273-003B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.369	1.0	10.00	0	83.7	75	125	8.579	2.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:59:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-125-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 11:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-080-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:16:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-39-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.10	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 9:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R133595**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **PBW**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R133595**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **LCSW**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.486	0.050	0.5000	0	97.1	85	115				

Sample ID: **N035274-006CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **ZZZZZZ**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0	0	20	

Sample ID: **N035274-008CMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **ZZZZZZ**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.521	0.050	0.5000	0	104	75	125				

Sample ID: **N035274-008CMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **ZZZZZZ**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370436**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.515	0.050	0.5000	0	103	75	125	0.5214	1.25	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-070-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	2.7	0.081	0.10		µg/L	1	5/11/2019 12:47 PM
Manganese	230	1.3	2.5		µg/L	5	5/11/2019 03:32 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:59:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	5.2	0.081	0.10		µg/L	1	5/11/2019 12:52 PM
Manganese	6.1	0.26	0.50		µg/L	1	5/11/2019 12:52 PM
Molybdenum	68	0.21	0.50		µg/L	1	5/11/2019 12:52 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 12:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-125-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 11:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	5.9	0.081	0.10		µg/L	1	5/11/2019 12:57 PM
Manganese	270	1.3	2.5		µg/L	5	5/11/2019 03:47 PM
Molybdenum	120	0.21	0.50		µg/L	1	5/11/2019 12:57 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 12:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-080-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:16:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	1.4	0.081	0.10		µg/L	1	5/11/2019 01:02 PM
Manganese	55	0.26	0.50		µg/L	1	5/11/2019 01:02 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	1.6	0.081	0.10		µg/L	1	5/11/2019 01:07 PM
Manganese	140	0.26	0.50		µg/L	1	5/11/2019 01:07 PM
Molybdenum	56	0.21	0.50		µg/L	1	5/11/2019 01:07 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 01:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035274
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035274-009

Client Sample ID: MW-39-100-Q219
Collection Date: 4/24/2019 2:33:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	5/11/2019 01:12 PM
Manganese	11	0.26	0.50		µg/L	1	5/11/2019 01:12 PM
Molybdenum	7.1	0.21	0.50		µg/L	1	5/11/2019 01:12 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 01:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-090-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:51:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	3.3	0.081	0.10		µg/L	1	5/11/2019 01:17 PM
Manganese	65	0.26	0.50		µg/L	1	5/11/2019 01:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035274
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035274-013

Client Sample ID: MW-36-100-Q219
Collection Date: 4/24/2019 8:59:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	3.2	0.081	0.10		µg/L	1	5/11/2019 01:22 PM
Manganese	340	1.3	2.5		µg/L	5	5/11/2019 03:52 PM
Molybdenum	19	0.21	0.50		µg/L	1	5/11/2019 01:22 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 01:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035274
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035274-014

Client Sample ID: MW-905-Q219
Collection Date: 4/24/2019 9:09:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	3.2	0.081	0.10		µg/L	1	5/11/2019 01:36 PM
Manganese	330	1.3	2.5		µg/L	5	5/11/2019 03:57 PM
Molybdenum	20	0.21	0.50		µg/L	1	5/11/2019 01:36 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-73665**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **PBW**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-73665**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **LCSW**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.617	0.10	10.00	0	96.2	85	115				
Manganese	103.118	0.50	100.0	0	103	85	115				
Molybdenum	9.397	0.50	10.00	0	94.0	85	115				
Selenium	9.414	0.50	10.00	0	94.1	85	115				

Sample ID: **N035273-001AMS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383886**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.325	0.10	10.00	0.1396	102	75	125				
Selenium	9.704	0.50	10.00	0	97.0	75	125				

Sample ID: **N035273-001AMSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383887**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.278	0.10	10.00	0.1396	101	75	125	10.33	0.459	20	
Selenium	10.196	0.50	10.00	0	102	75	125	9.704	4.94	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035273-003BMS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.209	0.10	10.00	0.1419	101	75	125				

Sample ID: **N035273-003BMSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.342	0.10	10.00	0.1419	102	75	125	10.21	1.30	20	

Sample ID: **N035273-001AMS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383921**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	981.640	5.0	100.0	891.4	90.2	75	125				
Molybdenum	183.144	5.0	10.00	182.1	10.2	75	125				S

Sample ID: **N035273-001AMSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383922**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	960.990	5.0	100.0	891.4	69.6	75	125	981.6	2.13	20	S
Molybdenum	179.900	5.0	10.00	182.1	-22.2	75	125	183.1	1.79	20	S

Sample ID: **N035273-003BMS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383926**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	973.905	5.0	100.0	900.9	73.0	75	125				S
Molybdenum	182.670	5.0	10.00	176.7	59.8	75	125				S

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035273-003BMSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/2/2019** RunNo: **133852**
Client ID: **ZZZZZZ** Batch ID: **73665** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **5/11/2019** SeqNo: **3383927**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	982.471	5.0	100.0	900.9	81.6	75	125	973.9	0.876	20	
Molybdenum	182.686	5.0	10.00	176.7	60.0	75	125	182.7	0.00866	20	S

Sample ID: **N035273-003BMSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/2/2019** RunNo: **133852**
Client ID: **ZZZZZZ** Batch ID: **73665** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **5/11/2019** SeqNo: **3384161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.283	5.0	10.00	0	113	75	125	9.653	15.6	20	

Sample ID: **N035273-003BMS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/2/2019** RunNo: **133886**
Client ID: **ZZZZZZ** Batch ID: **73665** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **5/13/2019** SeqNo: **3385288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.653	5.0	10.00	0	96.5	75	125				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035273-001APS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383885**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.301	0.10	10.00	0.1396	102	80	120				
Selenium	9.746	0.50	10.00	0	97.5	80	120				

Sample ID: **N035273-003BPS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.438	0.10	10.00	0.1419	103	80	120				

Sample ID: **N035273-001APS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1009.235	5.0	100.0	891.4	118	80	120				
Molybdenum	182.202	5.0	10.00	182.1	0.802	80	120				S

Sample ID: **N035273-003BPS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	984.385	5.0	100.0	900.9	83.5	80	120				
Molybdenum	182.425	5.0	10.00	176.7	57.4	80	120				S
Selenium	9.799	5.0	10.00	0	98.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 2

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec	CalTrans	2. Headspace
Submitted By: Jason Markus		P.O.# SWA-ASSET-C9817-057	Others ✓	LEVEL III	3. Container Intact ✓
Title: Project Manager	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present ✓
Signature: Date: 4/24/19	Sampled By: Jason Markus		Global ID:	Regulatory	5. IR number 2
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.			Specify State:	6. Method of Cooling: ICE
Project Name: PG&E Topock - GMP	Signature: Date: 4/24/19				Sample Temp: 1.6 / 1.9
Project Number: RC000753.801D					Courier: Tracking No.:

Matrix: Ground x | Sediment; Potable | Soil; NPDES | Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Fluoride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly)	Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 As, Cr, Mn (500 mL poly)	Metals Dissolved (EPA7470A FF) Hg; HNO3 (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly)	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 (500 mL poly)	Dissolved metals (SW 6020), HNO3 Cr, Mg, Mn, Mo, Se (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035274-01	MW-44-070-Q219	4/24/2019	1200				X				X							X					E	4	P	BN	
2	-02	MW-44-115-Q219	4/24/2019	1259		X						X		X		X								E	4	P	BNS	
3	-03	MW-44-125-Q219	4/24/2019	1154				X				X		X		X								E	5	P	BNS	
4	-04	MW-44-125-EB-Q219	4/24/2019	1204		X																		E	1	P	B	
5	-05	MW-44-070-EB-Q219	4/24/2019	1210		X																		E	1	P	B	
6	-06	MW-34-080-Q219	4/24/2019	1016				X				X		X					X					E	5	P	BNS	
7	-07	MW-34-080-EB-Q219	4/24/2019	1020		X																		E	1	P	B	
8	-08	MW-34-100-Q219	4/24/2019	1017		X						X		X		X								E	4	P	BNS	
9	-09	MW-39-100-Q219	4/24/2019	1433		X						X		X		X								E	4	P	BNS	
10	-10	MW-703-Q219	4/24/2019	1445		X																		E	1	P	B	
11	-11	MW-36-090-Q219	4/24/2019	0851		X						X							X					E	3	P	BNS	
12	-12	MW-704-Q219	4/24/2019	1430		X																		E	1	P	B	

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Jason Markus	4/24/19 1615	Jordan LGC	4-24-19 1615
Jordan LGC	4-24-19 1800	Jordan LGC	4-24-19 1800

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 5% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B (NH4)2SO4/NH4OH		

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement		QA/QC		Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD		RTNE		Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker		RWQCB	✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec		CalTrans		2. Headspace
Submitted By: Jason Mahn		P.O.# SWA-ASSET-C9817-057	Others	✓	LEVEL III		3. Container Intact
Title: Project Manager	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB		LEVEL IV		4. Seal Present
Signature: Date: 4/24/19	Sampled By: Jason Mahn		Global ID:		Regulatory		5. IR number
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*				Specify State:		6. Method of Cooling: Ice
Project Name: PG&E Topock - GMP	Signature: Date: 4/24/19						Sample Temp: 6.6 / 1.5
Project Number: RC000753.801D							Courier: Tracking No.:

Matrix: Ground x | Sediment; Potable | Soil; NPDES | Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Fluoride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly)	Disolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, (500 mL poly)	Metals Dissolved (EPA7470A FF) Hg; HNO3 (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly)	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035274-13	MW-36-100-Q219	4/24/2019	0859		X						X		X		X								E	4	P	BNS	
2	-14	MW-905-Q219	4/24/2019	0909		X						X		X		X								E	4	P	BNS	
3																												
4																												
5																												
6																												
7																												
8																												

Relinquished by (Signature and Printed Name): Jason Mahn	Date/Time: 4/24/19 1615	Received by (Signature and Printed Name): Jordan Lee	Date/Time: 4-24-19 1615
Relinquished by (Signature and Printed Name): Jordan Lee	Date/Time: 4-24-19 1800	Received by (Signature and Printed Name): Jordan Lee	Date/Time: 4-24-19
Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	4/24/2019	Workorder:	N035274
Rep sample Temp (Deg C):	1.6/1.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 4/26/2019

Reviewed By: LG 050619

ASSET Laboratories

WORK ORDER Summary

25-Apr-19

WorkOrder: N035274

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035274-001A	MW-44-070-Q219	4/24/2019 12:00:00 PM	5/8/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-001B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-001C			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-002A	MW-44-115-Q219	4/24/2019 12:59:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-002B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-002C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-002D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-003A	MW-44-125-Q219	4/24/2019 11:54:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-003B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-003C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-003D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-004A	MW-44-125-EB-Q219	4/24/2019 12:04:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-005A	MW-44-070-EB-Q219	4/24/2019 12:10:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-006A	MW-34-080-Q219	4/24/2019 10:16:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-006B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

25-Apr-19

WorkOrder: N035274

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035274-006C	MW-34-080-Q219	4/24/2019 10:16:00 AM	5/8/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-006D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-007A	MW-34-080-EB-Q219	4/24/2019 10:20:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-008A	MW-34-100-Q219	4/24/2019 10:17:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-008B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-008C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-008D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-009A	MW-39-100-Q219	4/24/2019 2:33:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-009B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-009C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-009D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-010A	MW-703-Q219	4/24/2019 2:45:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-011A	MW-36-090-Q219	4/24/2019 8:51:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-011B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-011C			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

25-Apr-19

WorkOrder: N035274

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035274-011C	MW-36-090-Q219	4/24/2019 8:51:00 AM	5/8/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-012A	MW-704-Q219	4/24/2019 2:30:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-013A	MW-36-100-Q219	4/24/2019 8:59:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-013B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-013C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-013D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-014A	MW-905-Q219	4/24/2019 9:09:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-014B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-014C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-014D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-015A	FOLDER	5/8/2019	5/8/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/8/2019		Folder	Folder	☐	☐	☐	LAB
			5/8/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035274

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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May 16, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035274

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on April 24, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035274

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (10 ug/L) and hexavalent chromium (1.9 ug/L) for sample N035274-003 (MW-44-125-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Because the results for total dissolved chromium (11 ug/L) and hexavalent chromium (7.4 ug/L) for sample N035274-013 (MW-36-100-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Because the results for total dissolved chromium (11 ug/L) and hexavalent chromium (7.1 ug/L) for sample N035274-014 (MW-905-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Manganese and Molybdenum in QC samples N035273-001AMS, N035273-001AMSD, N035273-003BMS and N035273-003BMSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Because the results for total dissolved chromium (10 ug/L) and hexavalent chromium (1.9 ug/L) for sample N035274-003 (MW-44-125-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 9.0 and 4.7 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (11 ug/L) and hexavalent chromium (7.4 ug/L) for sample N035274-013 (MW-36-100-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 9.3 and 7.8 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (11 ug/L) and hexavalent chromium (7.1 ug/L) for sample N035274-014 (MW-905-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 9.5 and 7.6 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

ASSET Laboratories

Date: *16-May-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035274
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035274-001A	MW-44-070-Q219	Groundwater	4/24/2019 12:00:00 PM	4/24/2019	5/16/2019
N035274-001B	MW-44-070-Q219	Groundwater	4/24/2019 12:00:00 PM	4/24/2019	5/16/2019
N035274-001C	MW-44-070-Q219	Groundwater	4/24/2019 12:00:00 PM	4/24/2019	5/16/2019
N035274-002A	MW-44-115-Q219	Groundwater	4/24/2019 12:59:00 PM	4/24/2019	5/16/2019
N035274-002B	MW-44-115-Q219	Groundwater	4/24/2019 12:59:00 PM	4/24/2019	5/16/2019
N035274-002C	MW-44-115-Q219	Groundwater	4/24/2019 12:59:00 PM	4/24/2019	5/16/2019
N035274-002D	MW-44-115-Q219	Groundwater	4/24/2019 12:59:00 PM	4/24/2019	5/16/2019
N035274-003A	MW-44-125-Q219	Groundwater	4/24/2019 11:54:00 AM	4/24/2019	5/16/2019
N035274-003B	MW-44-125-Q219	Groundwater	4/24/2019 11:54:00 AM	4/24/2019	5/16/2019
N035274-003C	MW-44-125-Q219	Groundwater	4/24/2019 11:54:00 AM	4/24/2019	5/16/2019
N035274-003D	MW-44-125-Q219	Groundwater	4/24/2019 11:54:00 AM	4/24/2019	5/16/2019
N035274-004A	MW-44-125-EB-Q219	Groundwater	4/24/2019 12:04:00 PM	4/24/2019	5/16/2019
N035274-005A	MW-44-070-EB-Q219	Groundwater	4/24/2019 12:10:00 PM	4/24/2019	5/16/2019
N035274-006A	MW-34-080-Q219	Groundwater	4/24/2019 10:16:00 AM	4/24/2019	5/16/2019
N035274-006B	MW-34-080-Q219	Groundwater	4/24/2019 10:16:00 AM	4/24/2019	5/16/2019
N035274-006C	MW-34-080-Q219	Groundwater	4/24/2019 10:16:00 AM	4/24/2019	5/16/2019
N035274-006D	MW-34-080-Q219	Groundwater	4/24/2019 10:16:00 AM	4/24/2019	5/16/2019
N035274-007A	MW-34-080-EB-Q219	Groundwater	4/24/2019 10:20:00 AM	4/24/2019	5/16/2019
N035274-008A	MW-34-100-Q219	Groundwater	4/24/2019 10:17:00 AM	4/24/2019	5/16/2019
N035274-008B	MW-34-100-Q219	Groundwater	4/24/2019 10:17:00 AM	4/24/2019	5/16/2019
N035274-008C	MW-34-100-Q219	Groundwater	4/24/2019 10:17:00 AM	4/24/2019	5/16/2019
N035274-008D	MW-34-100-Q219	Groundwater	4/24/2019 10:17:00 AM	4/24/2019	5/16/2019
N035274-009A	MW-39-100-Q219	Groundwater	4/24/2019 2:33:00 PM	4/24/2019	5/16/2019
N035274-009B	MW-39-100-Q219	Groundwater	4/24/2019 2:33:00 PM	4/24/2019	5/16/2019
N035274-009C	MW-39-100-Q219	Groundwater	4/24/2019 2:33:00 PM	4/24/2019	5/16/2019
N035274-009D	MW-39-100-Q219	Groundwater	4/24/2019 2:33:00 PM	4/24/2019	5/16/2019
N035274-010A	MW-703-Q219	Groundwater	4/24/2019 2:45:00 PM	4/24/2019	5/16/2019
N035274-011A	MW-36-090-Q219	Groundwater	4/24/2019 8:51:00 AM	4/24/2019	5/16/2019
N035274-011B	MW-36-090-Q219	Groundwater	4/24/2019 8:51:00 AM	4/24/2019	5/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035274
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035274-011C	MW-36-090-Q219	Groundwater	4/24/2019 8:51:00 AM	4/24/2019	5/16/2019
N035274-012A	MW-704-Q219	Groundwater	4/24/2019 2:30:00 PM	4/24/2019	5/16/2019
N035274-013A	MW-36-100-Q219	Groundwater	4/24/2019 8:59:00 AM	4/24/2019	5/16/2019
N035274-013B	MW-36-100-Q219	Groundwater	4/24/2019 8:59:00 AM	4/24/2019	5/16/2019
N035274-013C	MW-36-100-Q219	Groundwater	4/24/2019 8:59:00 AM	4/24/2019	5/16/2019
N035274-013D	MW-36-100-Q219	Groundwater	4/24/2019 8:59:00 AM	4/24/2019	5/16/2019
N035274-014A	MW-905-Q219	Groundwater	4/24/2019 9:09:00 AM	4/24/2019	5/16/2019
N035274-014B	MW-905-Q219	Groundwater	4/24/2019 9:09:00 AM	4/24/2019	5/16/2019
N035274-014C	MW-905-Q219	Groundwater	4/24/2019 9:09:00 AM	4/24/2019	5/16/2019
N035274-014D	MW-905-Q219	Groundwater	4/24/2019 9:09:00 AM	4/24/2019	5/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-070-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	1800	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:59:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-125-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 11:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	5700	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-080-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:16:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	7900	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	9700	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-39-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-090-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:51:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	4800	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	6600	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 9:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190425B**	QC Batch: **R133465**			PrepDate:			Analyst: **LR**
Specific Conductance	6600	0.10	0.10		umhos/cm	1	4/25/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035274-014BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133465**
Client ID: **ZZZZZZ** Batch ID: **R133465** TestNo: **EPA 120.1** Analysis Date: **4/25/2019** SeqNo: **3363512**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6640.000	0.10						6650	0.150	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-070-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 03:43 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/11/2019 12:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:59:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A** QC Batch: **R133466**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	6.0	0.033	0.20		µg/L	1	4/25/2019 06:44 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190511A** QC Batch: **73665**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	6.1	0.13	1.0		µg/L	1	5/11/2019 12:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035274
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035274-003

Client Sample ID: MW-44-125-Q219
Collection Date: 4/24/2019 11:54:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A** QC Batch: **R133466**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	1.9	0.033	0.20		µg/L	1	4/25/2019 07:03 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190511A** QC Batch: **73665**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	10	0.13	1.0		µg/L	1	5/11/2019 12:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-125-EB-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:04:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 04:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-070-EB-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 05:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035274
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035274-006

Client Sample ID: MW-34-080-Q219
Collection Date: 4/24/2019 10:16:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A** QC Batch: **R133466**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 07:22 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190511A** QC Batch: **73665**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/11/2019 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-080-EB-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:20:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 05:19 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A** QC Batch: **R133466**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 07:41 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190511A** QC Batch: **73665**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/11/2019 01:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-39-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A** QC Batch: **R133466**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	88	0.33	2.0		µg/L	10	4/25/2019 10:12 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190511A** QC Batch: **73665**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	89	0.13	1.0		µg/L	1	5/11/2019 01:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-703-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 05:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-090-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:51:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A** QC Batch: **R133466**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 04:03 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190511A** QC Batch: **73665**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/11/2019 01:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-704-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190425A**	QC Batch: **R133466**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	4/25/2019 05:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190426A** QC Batch: **R133502**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	7.4	0.033	0.20		µg/L	1	4/26/2019 11:35 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190511A** QC Batch: **73665**				PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	11	0.13	1.0		µg/L	1	5/11/2019 01:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 9:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190426A**	QC Batch: **R133502**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	7.1	0.033	0.20		µg/L	1	4/26/2019 12:18 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Chromium	11	0.13	1.0		µg/L	1	5/11/2019 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133466**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **PBW**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363519**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R133466**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **LCSW**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363520**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.061	0.20	5.000	0	101	90	110				

Sample ID: **N035272-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363522**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.103	1.0	5.000	0	102	90	110				

Sample ID: **N035273-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363524**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.182	1.0	5.000	0	104	90	110				

Sample ID: **N035272-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363525**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.973	1.0	5.000	0	99.5	90	110	5.102	2.57	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035274-009ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3363527**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	86.173	2.0						87.73	1.79	20	

Sample ID: **N035274-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3363528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	137.156	2.0	50.00	87.73	98.9	90	110				

Sample ID: **N035273-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3363531**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.212	0.20	1.000	0.2211	99.1	90	110				

Sample ID: **N035274-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.053	0.20	1.000	0	105	90	110				

Sample ID: **N035274-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365348**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.045	0.20	1.000	0	104	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035274-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365350**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.988	0.20	1.000	0	98.8	90	110				

Sample ID: **N035274-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Sample ID: **N035274-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365356**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.003	0.20	1.000	0	100	90	110				

Sample ID: **N035274-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365358**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.024	0.20	1.000	0	102	90	110				

Sample ID: **N035274-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.033	0.20	1.000	0	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035274-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365365**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.294	0.20	5.000	6.009	106	90	110				

Sample ID: **N035274-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.934	0.20	1.000	1.881	105	90	110				

Sample ID: **N035274-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365369**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.097	0.20	1.000	0	110	90	110				

Sample ID: **N035274-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133466**
Client ID: **ZZZZZZ** Batch ID: **R133466** TestNo: **EPA 218.6** Analysis Date: **4/25/2019** SeqNo: **3365371**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.097	0.20	1.000	0	110	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133502** SampType: **MBLK** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **PBW** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365380**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R133502** SampType: **LCS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **LCSW** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.078	0.20	5.000	0	102	90	110				

Sample ID: **N035274-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **ZZZZZZ** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.520	0.20	5.000	7.360	103	90	110				

Sample ID: **N035274-013AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **ZZZZZZ** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.617	0.20	5.000	7.360	105	90	110	12.52	0.772	20	

Sample ID: **N035274-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **ZZZZZZ** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.315	0.20	5.000	7.079	105	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035274-014ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133502**
Client ID: **ZZZZZZ** Batch ID: **R133502** TestNo: **EPA 218.6** Analysis Date: **4/26/2019** SeqNo: **3365387**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	7.152	0.20						7.079	1.02	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-73665**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **PBW**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383814**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-73665**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **LCSW**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.088	1.0	10.00	0	101	85	115				

Sample ID: **N035273-001A-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383819**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.392	1.0	10.00	0	83.9	75	125				

Sample ID: **N035273-001A-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.436	1.0	10.00	0	84.4	75	125	8.392	0.527	20	

Sample ID: **N035273-003B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.579	1.0	10.00	0	85.8	75	125				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **N035273-003B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.369	1.0	10.00	0	83.7	75	125	8.579	2.48	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:59:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-125-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 11:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-080-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:16:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-39-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.10	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 9:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190501D**	QC Batch: **R133595**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/1/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R133595**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **PBW**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370428**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R133595**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **LCSW**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370429**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.486	0.050	0.5000	0	97.1	85	115				

Sample ID: **N035274-006CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **ZZZZZZ**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370433**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0	0	20	

Sample ID: **N035274-008CMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **ZZZZZZ**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370435**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.521	0.050	0.5000	0	104	75	125				

Sample ID: **N035274-008CMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **ZZZZZZ**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370436**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.515	0.050	0.5000	0	103	75	125	0.5214	1.25	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-070-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	2.7	0.081	0.10		µg/L	1	5/11/2019 12:47 PM
Manganese	230	1.3	2.5		µg/L	5	5/11/2019 03:32 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-44-115-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 12:59:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	5.2	0.081	0.10		µg/L	1	5/11/2019 12:52 PM
Manganese	6.1	0.26	0.50		µg/L	1	5/11/2019 12:52 PM
Molybdenum	68	0.21	0.50		µg/L	1	5/11/2019 12:52 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 12:52 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035274
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035274-003

Client Sample ID: MW-44-125-Q219
Collection Date: 4/24/2019 11:54:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:		**5/2/2019**	Analyst: **CEI**
Arsenic	5.9	0.081	0.10		µg/L	1	5/11/2019 12:57 PM
Manganese	270	1.3	2.5		µg/L	5	5/11/2019 03:47 PM
Molybdenum	120	0.21	0.50		µg/L	1	5/11/2019 12:57 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 12:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-34-080-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 10:16:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	1.4	0.081	0.10		µg/L	1	5/11/2019 01:02 PM
Manganese	55	0.26	0.50		µg/L	1	5/11/2019 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035274
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035274-008

Client Sample ID: MW-34-100-Q219
Collection Date: 4/24/2019 10:17:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**			PrepDate:	**5/2/2019**		Analyst: **CEI**
Arsenic	1.6	0.081	0.10		µg/L	1	5/11/2019 01:07 PM
Manganese	140	0.26	0.50		µg/L	1	5/11/2019 01:07 PM
Molybdenum	56	0.21	0.50		µg/L	1	5/11/2019 01:07 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 01:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-39-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	5/11/2019 01:12 PM
Manganese	11	0.26	0.50		µg/L	1	5/11/2019 01:12 PM
Molybdenum	7.1	0.21	0.50		µg/L	1	5/11/2019 01:12 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 01:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-090-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:51:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	3.3	0.081	0.10		µg/L	1	5/11/2019 01:17 PM
Manganese	65	0.26	0.50		µg/L	1	5/11/2019 01:17 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-36-100-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 8:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	3.2	0.081	0.10		µg/L	1	5/11/2019 01:22 PM
Manganese	340	1.3	2.5		µg/L	5	5/11/2019 03:52 PM
Molybdenum	19	0.21	0.50		µg/L	1	5/11/2019 01:22 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 01:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-905-Q219
Lab Order:	N035274	**Collection Date:**	4/24/2019 9:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035274-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190511A**	QC Batch: **73665**				PrepDate:	**5/2/2019**	Analyst: **CEI**
Arsenic	3.2	0.081	0.10		µg/L	1	5/11/2019 01:36 PM
Manganese	330	1.3	2.5		µg/L	5	5/11/2019 03:57 PM
Molybdenum	20	0.21	0.50		µg/L	1	5/11/2019 01:36 PM
Selenium	ND	0.36	0.50		µg/L	1	5/11/2019 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-73665**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **PBW**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-73665**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **LCSW**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.617	0.10	10.00	0	96.2	85	115				
Manganese	103.118	0.50	100.0	0	103	85	115				
Molybdenum	9.397	0.50	10.00	0	94.0	85	115				
Selenium	9.414	0.50	10.00	0	94.1	85	115				

Sample ID: **N035273-001AMS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383886**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.325	0.10	10.00	0.1396	102	75	125				
Selenium	9.704	0.50	10.00	0	97.0	75	125				

Sample ID: **N035273-001AMSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383887**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.278	0.10	10.00	0.1396	101	75	125	10.33	0.459	20	
Selenium	10.196	0.50	10.00	0	102	75	125	9.704	4.94	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035273-003BMS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.209	0.10	10.00	0.1419	101	75	125				

Sample ID: **N035273-003BMSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.342	0.10	10.00	0.1419	102	75	125	10.21	1.30	20	

Sample ID: **N035273-001AMS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383921**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	981.640	5.0	100.0	891.4	90.2	75	125				
Molybdenum	183.144	5.0	10.00	182.1	10.2	75	125				S

Sample ID: **N035273-001AMSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383922**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	960.990	5.0	100.0	891.4	69.6	75	125	981.6	2.13	20	S
Molybdenum	179.900	5.0	10.00	182.1	-22.2	75	125	183.1	1.79	20	S

Sample ID: **N035273-003BMS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/2/2019**	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383926**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	973.905	5.0	100.0	900.9	73.0	75	125				S
Molybdenum	182.670	5.0	10.00	176.7	59.8	75	125				S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035273-003BMSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/2/2019** RunNo: **133852**
Client ID: **ZZZZZZ** Batch ID: **73665** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **5/11/2019** SeqNo: **3383927**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	982.471	5.0	100.0	900.9	81.6	75	125	973.9	0.876	20	
Molybdenum	182.686	5.0	10.00	176.7	60.0	75	125	182.7	0.00866	20	S

Sample ID: **N035273-003BMSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/2/2019** RunNo: **133852**
Client ID: **ZZZZZZ** Batch ID: **73665** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **5/11/2019** SeqNo: **3384161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.283	5.0	10.00	0	113	75	125	9.653	15.6	20	

Sample ID: **N035273-003BMS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/2/2019** RunNo: **133886**
Client ID: **ZZZZZZ** Batch ID: **73665** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **5/13/2019** SeqNo: **3385288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.653	5.0	10.00	0	96.5	75	125				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035273-001APS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **133852**			
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**			SeqNo: **3383885**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.301	0.10	10.00	0.1396	102	80	120				
Selenium	9.746	0.50	10.00	0	97.5	80	120				

Sample ID: **N035273-003BPS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **133852**			
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**			SeqNo: **3383890**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.438	0.10	10.00	0.1419	103	80	120				

Sample ID: **N035273-001APS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **133852**			
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**			SeqNo: **3383920**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1009.235	5.0	100.0	891.4	118	80	120				
Molybdenum	182.202	5.0	10.00	182.1	0.802	80	120				S

Sample ID: **N035273-003BPS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:			RunNo: **133852**			
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**			SeqNo: **3383925**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	984.385	5.0	100.0	900.9	83.5	80	120				
Molybdenum	182.425	5.0	10.00	176.7	57.4	80	120				S
Selenium	9.799	5.0	10.00	0	98.0	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Specify: RWQCB
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-057
Submitted By: Jason Markus	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: Project Manager			Global ID:
Signature: Date: 4/24/19	Sampled By: Jason Markus		Specify State:

Sample Receipt Condition

	Y	N
1. Chilled		
2. Headspace		✓
3. Container Intact	✓	
4. Seal Present		
5. IR number	2	
6. Method of Cooling:	ICE	
Sample Temp:	1.9	

I hereby authorize ASSET Labs to perform the tests indicated below.

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.

Project Name: PG&E Topock - GMP
Project Number: RC000753.801D
Signature: Date: 4/24/19

Courier:
Tracking No.:

Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Oxygen and Deuterium Isotopes (CFIRM), Ice 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Fluoride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se 500 mL poly	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na 500 mL poly	Dissolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn 500 mL poly	Dissolved Metals (SW 6010B); HNO3 As, Cr, Mn 500 mL poly	Metals Dissolved (EPA7470A FF) Hg; HNO3 500 mL poly	Dissolved Metals (SW 6010B); HNO3 Potassium 500 mL poly	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 500 mL poly	Dissolved metals (SW 6020), HNO3 Cr, Mg, Mn, Mo, Se 500 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035274-01	MW-44-070-Q219	4/24/2019	1200				X				X							X					E	4	P	BN	
2	-02	MW-44-115-Q219	4/24/2019	1259		X						X		X		X								E	4	P	BNS	
3	-03	MW-44-125-Q219	4/24/2019	1154				X				X		X		X								E	5	P	BNS	
4	-04	MW-44-125-EB-Q219	4/24/2019	1204		X																		E	1	P	B	
5	-05	MW-44-070-EB-Q219	4/24/2019	1210		X																		E	1	P	B	
6	-06	MW-34-080-Q219	4/24/2019	1016				X				X		X					X					E	5	P	BNS	
7	-07	MW-34-080-EB-Q219	4/24/2019	1020		X																		E	1	P	B	
8	-08	MW-34-100-Q219	4/24/2019	1017		X						X		X		X								E	4	P	BNS	
9	-09	MW-39-100-Q219	4/24/2019	1433		X						X		X		X								E	4	P	BNS	
10	-10	MW-703-Q219	4/24/2019	1445		X																		E	1	P	B	
11	-11	MW-36-090-Q219	4/24/2019	0851		X						X							X					E	3	P	BNS	
12	-12	MW-704-Q219	4/24/2019	1430		X																		E	1	P	B	

Relinquished by (Signature and Printed Name)	Date/Time	Received by (Signature and Printed Name)	Date/Time
Jason Markus	4/24/19 1615	Jordan LGC	4-24-19 1615
Jordan LGC	4-24-19 1800	Jordan LGC	4-24-19 1800

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 5% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement		QA/QC		Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD		RTNE		Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker		RWQCB	✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec		CalTrans		2. Headspace
Submitted By: Jason Mahn		P.O.# SWA-ASSET-C9817-057	Others	✓	LEVEL III		3. Container Intact
Title: Project Manager	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB		LEVEL IV		4. Seal Present
Signature: Date: 4/24/19	Sampled By: Jason Mahn		Global ID:		Regulatory		5. IR number
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for legal action.*				Specify State:		6. Method of Cooling: Ice
Project Name: PG&E Topock - GMP	Signature: Date: 4/24/19						Sample Temp: 6.6 / 1.9
Project Number: RC000753.801D							Courier: Tracking No.:

Matrix: Ground x | Sediment; Potable | Soil; NPDES | Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Oxygen and Deuterium Isotopes (CFIRM), Ice (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Fluoride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Dissolved metals (SW 6020), HNO3 As, Cr, Mn, Mo, Se (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Fe, Na (500 mL poly)	Disolved metals (SW 6020), HNO3 Ag, As, Ba, Be, Cd, Co, Cr, Mg, Mn, Mo, Pb, Sb, Se, Tl, V, Zn (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 B, Ca, Cu, Fe, Na, Ni, (500 mL poly)	Metals Dissolved (EPA7470A FF) Hg; HNO3 (500 mL poly)	Dissolved Metals (SW 6010B); HNO3 Potassium (500 mL poly)	Total metals, Chromium (non-filter) (EPA 200.8), HNO3 (500 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035274-13	MW-36-100-Q219	4/24/2019	0859		X						X		X		X							E	4	P	BNS	
2	-14	MW-905-Q219	4/24/2019	0909		X						X		X		X							E	4	P	BNS	
3																											
4																											
5																											
6																											
7																											
8																											

Relinquished by (Signature and Printed Name): Jason Mahn	Date/Time: 4/24/19 1615	Received by (Signature and Printed Name): Jordan Lee	Date/Time: 4-24-19 1615
Relinquished by (Signature and Printed Name): Jordan Lee	Date/Time: 4-24-19 1800	Received by (Signature and Printed Name): Jordan Lee	Date/Time: 4-24-19 1800
Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
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Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	4/24/2019	Workorder:	N035274
Rep sample Temp (Deg C):	1.6/1.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR 4/26/2019

Reviewed By: LG 050619

ASSET Laboratories

WORK ORDER Summary

25-Apr-19

WorkOrder: N035274

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035274-001A	MW-44-070-Q219	4/24/2019 12:00:00 PM	5/8/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-001B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-001C			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-002A	MW-44-115-Q219	4/24/2019 12:59:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-002B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-002C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-002D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-003A	MW-44-125-Q219	4/24/2019 11:54:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-003B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-003C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-003D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-004A	MW-44-125-EB-Q219	4/24/2019 12:04:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-005A	MW-44-070-EB-Q219	4/24/2019 12:10:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-006A	MW-34-080-Q219	4/24/2019 10:16:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-006B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

WORK ORDER Summary

25-Apr-19

WorkOrder: N035274

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035274-006C	MW-34-080-Q219	4/24/2019 10:16:00 AM	5/8/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-006D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-007A	MW-34-080-EB-Q219	4/24/2019 10:20:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-008A	MW-34-100-Q219	4/24/2019 10:17:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-008B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-008C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-008D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-009A	MW-39-100-Q219	4/24/2019 2:33:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-009B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-009C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-009D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-010A	MW-703-Q219	4/24/2019 2:45:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-011A	MW-36-090-Q219	4/24/2019 8:51:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-011B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-011C			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

25-Apr-19

WorkOrder: N035274

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 4/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035274-011C	MW-36-090-Q219	4/24/2019 8:51:00 AM	5/8/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-012A	MW-704-Q219	4/24/2019 2:30:00 PM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-013A	MW-36-100-Q219	4/24/2019 8:59:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-013B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-013C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-013D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-014A	MW-905-Q219	4/24/2019 9:09:00 AM	5/8/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035274-014B			5/8/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035274-014C			5/8/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035274-014D			5/8/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/8/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035274-015A	FOLDER	5/8/2019	5/8/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/8/2019		Folder	Folder	☐	☐	☐	LAB
			5/8/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035274

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133465 **Analyst:** LSR

ASSET #: N035274 **Date Analyzed:** 25-Apr

Method: EPA 120.1

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer Silvia Ramit Date: 4/29/2019

2nd Level Reviewer 5/9/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 4/24/19 1045 KR

Analyst: LSR

CONTD

Standard	Std ID	Reading	Comments
~~1413~~ 11.26 µS/cm	GNV-181011A	11.42 @19.5°C	% Rec: (90-110%)
1410	190107D	1412 @19.4°C	
9965	190218B	9910 @19.2°C	
100390	190218C	100200 @19.2°C	

	Sample ID	Matrix	Reading	Comments
1	N035250-16B	H_2O	24400 @20.2°C	
2	16BDUP		24500 @19.9°C	
3	17B		18470 @19.5°C	
4	N035251-1C		1867 @20.1°C	
5	2C		7430 @20.0°C	
6				
7				
8	1413 µS/cm	GNV-181022A	1405 @21.5°C	
9	10000	B	9680 @21.5°C	
10	99922	GNV-190111H	95100 @21.6°C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 4/25/19 1110

Analyst: KR

Julia Ramit 4/29/2019

Standard	Std ID	Reading	Comments
11.26 µS/cm	GNV-181011A	11.45 @21.4°C	% Rec: (90-110%)
1410	190107D	1422 @21.4°C	
9965	190218B	10040 @21.5°C	
100390	190218C	101100 @21.5°C	

	Sample ID	Matrix	Reading	Comments
1	N035274-1B	H_2O	1805 @20.9°C	STD CHECK
2	2B		10140 @20.0°C	1413 GNV 181022A
3	3B		5720 @19.8°C	= 1462 @23.0°C
4	6B		7910 @19.7°C	10000 GNV 181022B
5	8B		9690 @20.1°C	= 9820 @22.8°C
6	9B		11870 @19.9°C	99922 GNV 190111H
7	11B		4810 @20.1°C	= 95900 @22.7°C
8	13B		6630 @20.2°C	
9	14B		6650 @19.7°C KR 4/25	
10	14BDUP		6640 @19.8°C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133466
ASSET #: N035274

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 4/25/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			x		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			x		
6. Calibration blanks run after ICV and CCV?	X			x		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			x		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			x		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			x		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X	X	
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X	X		X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer rba Date: 5/4/2019

2nd Level Reviewer 5/9/2019 Date: _____

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133502
ASSET #: N035274

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 4/26/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X	X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X	X	
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X	X		X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: rba Date: 5/4/2019

2nd Level Reviewer: 5/9/2019 Date: _____

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035274-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 6.0086 * 1$$

$$Cr^{+6}, \mu g/L = 6.0086$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 6.0}$$

NS 5/16/2019

ANALYSIS RUN LOG

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	04/23/19 10:30 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/23/19 10:41 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	04/23/19 10:51 AM	Reported
13	MB-R133438	MBLK	1	Hexavalent Chromium	04/23/19 11:00 AM	Reported
14	LCS-R133438	LCS	1	Hexavalent Chromium	04/23/19 11:10 AM	Reported
15	N035240-001A	SAMP	5	Hexavalent Chromium	04/23/19 11:19 AM	Not Reported
16	N035240-001AMS	MS	5	Hexavalent Chromium	04/23/19 11:29 AM	Not Reported
17	N035240-003A	SAMP	5	Hexavalent Chromium	04/23/19 11:38 AM	Not Reported
18	N035240-003AMS	MS	5	Hexavalent Chromium	04/23/19 11:48 AM	Not Reported
19	N035240-004A	SAMP	5	Hexavalent Chromium	04/23/19 11:57 AM	Reported
20	N035240-004AMS	MS	5	Hexavalent Chromium	04/23/19 12:07 PM	Reported
21	N035240-002A	SAMP	1	Hexavalent Chromium	04/23/19 12:16 PM	Reported
22	N035240-002AMS	MS	1	Hexavalent Chromium	04/23/19 12:25 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	04/23/19 12:35 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	04/23/19 12:44 PM	Reported
25	N035240-005A	SAMP	1	Hexavalent Chromium	04/23/19 12:54 PM	Reported
26	N035240-005AMS	MS	1	Hexavalent Chromium	04/23/19 1:03 PM	Reported
27	N035240-001A	SAMP	1	Hexavalent Chromium	04/23/19 1:13 PM	Reported
28	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 1:22 PM	Not Reported
29	N035240-003A	SAMP	1	Hexavalent Chromium	04/23/19 1:32 PM	Reported
30	N035240-003AMS	MS	1	Hexavalent Chromium	04/23/19 1:41 PM	Reported
31	N035240-004A	SAMP	1	Hexavalent Chromium	04/23/19 1:51 PM	Not Reported
32	N035240-004AMS	MS	1	Hexavalent Chromium	04/23/19 2:00 PM	Not Reported
33	N035240-004ADUP	DUP	5	Hexavalent Chromium	04/23/19 2:11 PM	Reported
34	N035240-004AMSD	MSD	5	Hexavalent Chromium	04/23/19 2:22 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	04/23/19 2:32 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	04/23/19 2:41 PM	Reported
37	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 2:51 PM	Reported
38	N035039-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:00 PM	Not Reported
39	N035039-009AMS	MS	1	Hexavalent Chromium	04/23/19 3:10 PM	Not Reported
40	N035065-002A	SAMP	1	Hexavalent Chromium	04/23/19 3:19 PM	Not Reported
41	N035065-002AMS	MS	1	Hexavalent Chromium	04/23/19 3:28 PM	Not Reported
42	N035023-012A	SAMP	1	Hexavalent Chromium	04/23/19 3:38 PM	Not Reported

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035023-012AMS	MS	1	Hexavalent Chromium	04/23/19 3:47 PM	Not Reported
44	N035065-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:57 PM	Not Reported
45	N035065-009AMS	MS	1	Hexavalent Chromium	04/23/19 4:06 PM	Not Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	04/23/19 4:16 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	04/23/19 4:25 PM	Reported
48	N035065-012A	SAMP	1	Hexavalent Chromium	04/23/19 4:35 PM	Not Reported
49	N035065-012AMS	MS	1	Hexavalent Chromium	04/23/19 4:44 PM	Not Reported
50	N035065-005A	SAMP	1	Hexavalent Chromium	04/23/19 4:54 PM	Not Reported
51	N035065-005AMS	MS	1	Hexavalent Chromium	04/23/19 5:03 PM	Not Reported
52	N035074-001A	SAMP	1	Hexavalent Chromium	04/23/19 5:13 PM	Not Reported
53	N035074-001AMS	MS	1	Hexavalent Chromium	04/23/19 5:22 PM	Not Reported
54	CCV-4	CCV	1	Hexavalent Chromium	04/23/19 5:31 PM	Reported
55	CCB-4	CCB	1	Hexavalent Chromium	04/23/19 5:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190423A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 09:17:37**
No. of Injections:	**58**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	12	1000	Unknown		04/23/2019 10:30	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	13	1000	Unknown		04/23/2019 10:41	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		04/23/2019 10:51	Finished	ICB R190411C
13	MB-H2O,MBLK,1,	15	1000	Unknown		04/23/2019 11:00	Finished	MB R190411C
14	LCS-H2O,LCS,1,	16	1000	Unknown		04/23/2019 11:10	Finished	LCS @5ppb, IWST-190423B
15	N035240-001A,SAMF	17	1000	Unknown		04/23/2019 11:19	Finished	SAMP,2>10mL
16	N035240-001AMS,MS	18	1000	Unknown		04/23/2019 11:29	Finished	MS (1ppb), IWST-190423B,2>
17	N035240-003A,SAMF	19	1000	Unknown		04/23/2019 11:38	Finished	SAMP,2>10mL
18	N035240-003AMS,MS	20	1000	Unknown		04/23/2019 11:48	Finished	MS (1ppb), IWST-190423B,2>
19	N035240-004A,SAMF	21	1000	Unknown		04/23/2019 11:57	Finished	SAMP,2>10mL
20	N035240-004AMS,MS	22	1000	Unknown		04/23/2019 12:07	Finished	MS (1ppb), IWST-190423B,2>
21	N035240-002A,SAMF	23	1000	Unknown		04/23/2019 12:16	Finished	SAMP,10mL
22	N035240-002AMS,MS	24	1000	Unknown		04/23/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>
23	CCV-1,CCV1,1,	25	1000	Unknown		04/23/2019 12:35	Finished	CCV @10ppb, IWST-190423A
24	CCB-1,CCB,1,	26	1000	Unknown		04/23/2019 12:44	Finished	CCB R190411C
25	N035240-005A,SAMF	27	1000	Unknown		04/23/2019 12:54	Finished	SAMP,10mL
26	N035240-005AMS,MS	28	1000	Unknown		04/23/2019 13:03	Finished	MS (1ppb), IWST-190423B,10
27	N035240-001A,SAMF	29	1000	Unknown		04/23/2019 13:13	Finished	SAMP,10mL
28	N035240-001AMS,MS	30	1000	Unknown		04/23/2019 13:22	Finished	MS (1ppb), IWST-190423B,10
29	N035240-003A,SAMF	31	1000	Unknown		04/23/2019 13:32	Finished	SAMP,10mL
30	N035240-003AMS,MS	32	1000	Unknown		04/23/2019 13:41	Finished	MS (1ppb), IWST-190423B,10
31	N035240-004A,SAMF	33	1000	Unknown		04/23/2019 13:51	Finished	SAMP,10mL
32	N035240-004AMS,MS	34	1000	Unknown		04/23/2019 14:00	Finished	MS (1ppb), IWST-190423B,2>
33	N035240-004ADUP,D	1	1000	Unknown		04/23/2019 14:11	Finished	DUP,2>10mL
34	N035240-004AMSD,M	2	1000	Unknown		04/23/2019 14:22	Finished	MSD (1ppb), IWST-190423B,2
35	CCV-2,CCV,1,	3	1000	Unknown		04/23/2019 14:32	Finished	CCV @5ppb, IWST-190423A
36	CCB-2,CCB,1,	4	1000	Unknown		04/23/2019 14:41	Finished	CCB R190411C
37	N035240-001AMS,MS	5	1000	Unknown		04/23/2019 14:51	Finished	MS (1ppb), IWST-190423B,10
38	N035039-009A,SAMF	6	1000	Unknown		04/23/2019 15:00	Finished	SAMP,10mL
39	N035039-009AMS,MS	7	1000	Unknown		04/23/2019 15:10	Finished	MS (5ppb), IWST-190423B,10
40	N035065-002A,SAMF	8	1000	Unknown		04/23/2019 15:19	Finished	SAMP,10mL
41	N035065-002AMS,MS	9	1000	Unknown		04/23/2019 15:28	Finished	MS (5ppb), IWST-190423B,10
42	N035023-012A,SAMF	10	1000	Unknown		04/23/2019 15:38	Finished	SAMP,10mL
43	N035023-012AMS,MS	11	1000	Unknown		04/23/2019 15:47	Finished	MS (1ppb), IWST-190423B,10
44	N035065-009A,SAMF	12	1000	Unknown		04/23/2019 15:57	Finished	SAMP,10mL
45	N035065-009AMS,MS	13	1000	Unknown		04/23/2019 16:06	Finished	MS (1ppb), IWST-190423B,10
46	CCV-3,CCV1,1,	14	1000	Unknown		04/23/2019 16:16	Finished	CCV @10ppb, IWST-190423A
47	CCB-3,CCB,1,	15	1000	Unknown		04/23/2019 16:25	Finished	CCB R190411C
48	N035065-012A,SAMF	16	1000	Unknown		04/23/2019 16:35	Finished	SAMP,10mL
49	N035065-012AMS,MS	17	1000	Unknown		04/23/2019 16:44	Finished	MS (1ppb), IWST-190423B,10
50	N035065-005A,SAMF	18	1000	Unknown		04/23/2019 16:54	Finished	SAMP,10mL
51	N035065-005AMS,MS	19	1000	Unknown		04/23/2019 17:03	Finished	MS (1ppb), IWST-190423B,10
52	N035074-001A,SAMF	20	1000	Unknown		04/23/2019 17:13	Finished	SAMP,10mL
53	N035074-001AMS,MS	21	1000	Unknown		04/23/2019 17:22	Finished	MS (1ppb), IWST-190423B,10
54	CCV-4,CCV,1,	22	1000	Unknown		04/23/2019 17:31	Finished	CCV @5ppb, IWST-190423A
55	CCB-4,CCB,1,	23	1000	Unknown		04/23/2019 17:41	Finished	CCB R190411C
56	SHUTDOWN	24	1000	Unknown		04/23/2019 17:50	Finished	
57	Eluent: R190422A	25	1000	Unknown		n.a.	Finished	Eluent
58	PCR: R190422B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190425A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	04/25/19 8:23 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	04/25/19 8:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/25/19 8:43 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	04/25/19 8:53 AM	Reported
14	MB-R133466	MBLK	1	Hexavalent Chromium	04/25/19 9:02 AM	Reported
15	LCS-R133466	LCS	1	Hexavalent Chromium	04/25/19 9:12 AM	Reported
16	N035272-001A	SAMP	5	Hexavalent Chromium	04/25/19 9:24 AM	Reported
17	N035272-001AMS	MS	5	Hexavalent Chromium	04/25/19 9:34 AM	Reported
18	N035273-003A	SAMP	5	Hexavalent Chromium	04/25/19 9:44 AM	Reported
19	N035273-003AMS	MS	5	Hexavalent Chromium	04/25/19 9:53 AM	Reported
20	N035272-001AMSD	MSD	5	Hexavalent Chromium	04/25/19 10:03 AM	Reported
21	N035274-009A	SAMP	10	Hexavalent Chromium	04/25/19 10:12 AM	Reported
22	N035274-009ADUP	DUP	10	Hexavalent Chromium	04/25/19 10:22 AM	Reported
23	N035274-009AMS	MS	10	Hexavalent Chromium	04/25/19 10:31 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	04/25/19 10:41 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	04/25/19 10:50 AM	Reported
26	N035272-001A	SAMP	1	Hexavalent Chromium	04/25/19 11:00 AM	Not Reported
27	N035272-001AMS	MS	1	Hexavalent Chromium	04/25/19 11:09 AM	Not Reported
28	N035273-003A	SAMP	1	Hexavalent Chromium	04/25/19 11:19 AM	Not Reported
29	N035273-003AMS	MS	1	Hexavalent Chromium	04/25/19 11:28 AM	Not Reported
30	N035273-002A	SAMP	1	Hexavalent Chromium	04/25/19 11:37 AM	Not Reported
31	N035273-002AMS	MS	1	Hexavalent Chromium	04/25/19 11:47 AM	Reported
32	N035066-006A	SAMP	1	Hexavalent Chromium	04/25/19 11:56 AM	Not Reported
33	N035066-006AMS	MS	1	Hexavalent Chromium	04/25/19 12:06 PM	Not Reported
34	N035066-011A	SAMP	1	Hexavalent Chromium	04/25/19 12:15 PM	Not Reported
35	N035066-011AMS	MS	1	Hexavalent Chromium	04/25/19 12:25 PM	Not Reported
36	CCV-3	CCV	1	Hexavalent Chromium	04/25/19 12:34 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	04/25/19 12:44 PM	Reported
38	N035066-013A	SAMP	1	Hexavalent Chromium	04/25/19 12:53 PM	Not Reported
39	N035066-013AMS	MS	1	Hexavalent Chromium	04/25/19 1:03 PM	Not Reported
40	N035066-014A	SAMP	1	Hexavalent Chromium	04/25/19 1:12 PM	Not Reported
41	N035066-014AMS	MS	1	Hexavalent Chromium	04/25/19 1:22 PM	Not Reported
42	N035066-015A	SAMP	1	Hexavalent Chromium	04/25/19 1:31 PM	Not Reported

INJECTION LOG: 190425A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035066-015AMS	MS	1	Hexavalent Chromium	04/25/19 1:40 PM	Not Reported
44	N035274-002A	SAMP	5	Hexavalent Chromium	04/25/19 1:50 PM	Not Reported
45	N035274-002AMS	MS	5	Hexavalent Chromium	04/25/19 1:59 PM	Not Reported
46	N035274-003A	SAMP	5	Hexavalent Chromium	04/25/19 2:09 PM	Not Reported
47	N035274-003AMS	MS	5	Hexavalent Chromium	04/25/19 2:18 PM	Not Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	04/25/19 2:28 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	04/25/19 2:37 PM	Reported
50	N035274-006A	SAMP	5	Hexavalent Chromium	04/25/19 2:47 PM	Not Reported
51	N035274-006AMS	MS	5	Hexavalent Chromium	04/25/19 2:56 PM	Not Reported
52	N035274-008A	SAMP	5	Hexavalent Chromium	04/25/19 3:06 PM	Not Reported
53	N035274-008AMS	MS	5	Hexavalent Chromium	04/25/19 3:15 PM	Not Reported
54	N035274-001A	SAMP	1	Hexavalent Chromium	04/25/19 3:43 PM	Reported
55	N035274-001AMS	MS	1	Hexavalent Chromium	04/25/19 3:54 PM	Reported
56	N035274-011A	SAMP	1	Hexavalent Chromium	04/25/19 4:03 PM	Reported
57	N035274-011AMS	MS	1	Hexavalent Chromium	04/25/19 4:13 PM	Reported
58	N035274-004A	SAMP	1	Hexavalent Chromium	04/25/19 4:22 PM	Reported
59	N035274-004AMS	MS	1	Hexavalent Chromium	04/25/19 4:31 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	04/25/19 4:41 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	04/25/19 4:50 PM	Reported
62	N035274-005A	SAMP	1	Hexavalent Chromium	04/25/19 5:00 PM	Reported
63	N035274-005AMS	MS	1	Hexavalent Chromium	04/25/19 5:09 PM	Reported
64	N035274-007A	SAMP	1	Hexavalent Chromium	04/25/19 5:19 PM	Reported
65	N035274-007AMS	MS	1	Hexavalent Chromium	04/25/19 5:28 PM	Reported
66	N035274-010A	SAMP	1	Hexavalent Chromium	04/25/19 5:38 PM	Reported
67	N035274-010AMS	MS	1	Hexavalent Chromium	04/25/19 5:47 PM	Reported
68	N035274-012A	SAMP	1	Hexavalent Chromium	04/25/19 5:57 PM	Reported
69	N035274-012AMS	MS	1	Hexavalent Chromium	04/25/19 6:06 PM	Reported
70	N035273-002A	SAMP	1	Hexavalent Chromium	04/25/19 6:16 PM	Reported
71	CCV-6	CCV1	1	Hexavalent Chromium	04/25/19 6:25 PM	Reported
72	CCB-6	CCB	1	Hexavalent Chromium	04/25/19 6:34 PM	Reported
73	N035274-002A	SAMP	1	Hexavalent Chromium	04/25/19 6:44 PM	Reported
74	N035274-002AMS	MS	1	Hexavalent Chromium	04/25/19 6:53 PM	Reported
75	N035274-003A	SAMP	1	Hexavalent Chromium	04/25/19 7:03 PM	Reported
76	N035274-003AMS	MS	1	Hexavalent Chromium	04/25/19 7:12 PM	Reported
77	N035274-006A	SAMP	1	Hexavalent Chromium	04/25/19 7:22 PM	Reported
78	N035274-006AMS	MS	1	Hexavalent Chromium	04/25/19 7:31 PM	Reported
79	N035274-008A	SAMP	1	Hexavalent Chromium	04/25/19 7:41 PM	Reported
80	N035274-008AMS	MS	1	Hexavalent Chromium	04/25/19 7:50 PM	Reported
81	BLANK	BLANK	1	Hexavalent Chromium	04/25/19 8:00 PM	Not Reported
82	CCV-7	CCV	1	Hexavalent Chromium	04/25/19 8:09 PM	Reported
83	CCB-7	CCB	1	Hexavalent Chromium	04/25/19 8:19 PM	Reported
84	BLANK	BLANK	1	Hexavalent Chromium	04/25/19 8:28 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190425A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**25/Apr/19 20:58:50**
No. of Injections:	**87**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		04/25/2019 08:23	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		04/25/2019 08:34	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		04/25/2019 08:43	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		04/25/2019 08:53	Finished	CCB R190411C
14	MB-H2O,MBLK,1,	5	1000	Unknown		04/25/2019 09:02	Finished	MB R190411C
15	LCS-H2O,LCS,1,	6	1000	Unknown		04/25/2019 09:12	Finished	LCS @5ppb, IWST-190423B
16	N035272-001A,SAMF	1	1000	Unknown		04/25/2019 09:24	Finished	SAMP,2>10mL
17	N035272-001AMS,MS	2	1000	Unknown		04/25/2019 09:34	Finished	MS (1ppb), IWST-190423B,2>1
18	N035273-003A,SAMF	3	1000	Unknown		04/25/2019 09:44	Finished	SAMP,2>10mL
19	N035273-003AMS,MS	4	1000	Unknown		04/25/2019 09:53	Finished	MS (1ppb), IWST-190423B,2>1
20	N035272-001AMSD,M	5	1000	Unknown		04/25/2019 10:03	Finished	MSD (1ppb), IWST-190423B,2
21	N035274-009A,SAMF	6	1000	Unknown		04/25/2019 10:12	Finished	SAMP,1>10mL
22	N035274-009ADUP,D	7	1000	Unknown		04/25/2019 10:22	Finished	DUP,1>10mL
23	N035274-009AMS,MS	8	1000	Unknown		04/25/2019 10:31	Finished	MS (5ppb), IWST-190423B,1>1
24	CCV-2,CCV1,1,	9	1000	Unknown		04/25/2019 10:41	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	10	1000	Unknown		04/25/2019 10:50	Finished	CCB R190411C
26	N035272-001A,SAMF	11	1000	Unknown		04/25/2019 11:00	Finished	SAMP,10mL
27	N035272-001AMS,MS	12	1000	Unknown		04/25/2019 11:09	Finished	MS (1ppb), IWST-190423B,10
28	N035273-003A,SAMF	13	1000	Unknown		04/25/2019 11:19	Finished	SAMP,10mL
29	N035273-003AMS,MS	14	1000	Unknown		04/25/2019 11:28	Finished	MS (1ppb), IWST-190423B,10
30	N035273-002A,SAMF	15	1000	Unknown		04/25/2019 11:37	Finished	SAMP,10mL
31	N035273-002AMS,MS	16	1000	Unknown		04/25/2019 11:47	Finished	MS (1ppb), IWST-190423B,10
32	N035066-006A,SAMF	17	1000	Unknown		04/25/2019 11:56	Finished	SAMP,10mL
33	N035066-006AMS,MS	18	1000	Unknown		04/25/2019 12:06	Finished	MS (5ppb), IWST-190423B,10
34	N035066-011A,SAMF	19	1000	Unknown		04/25/2019 12:15	Finished	SAMP,10mL
35	N035066-011AMS,MS	20	1000	Unknown		04/25/2019 12:25	Finished	MS (5ppb), IWST-190423B,10
36	CCV-3,CCV,1,	21	1000	Unknown		04/25/2019 12:34	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	22	1000	Unknown		04/25/2019 12:44	Finished	CCB R190411C
38	N035066-013A,SAMF	23	1000	Unknown		04/25/2019 12:53	Finished	SAMP,10mL
39	N035066-013AMS,MS	24	1000	Unknown		04/25/2019 13:03	Finished	MS (5ppb), IWST-190423B,10
40	N035066-014A,SAMF	25	1000	Unknown		04/25/2019 13:12	Finished	SAMP,10mL
41	N035066-014AMS,MS	26	1000	Unknown		04/25/2019 13:22	Finished	MS (5ppb), IWST-190423B,10
42	N035066-015A,SAMF	27	1000	Unknown		04/25/2019 13:31	Finished	SAMP,10mL
43	N035066-015AMS,MS	28	1000	Unknown		04/25/2019 13:40	Finished	MS (5ppb), IWST-190423B,10
44	N035274-002A,SAMF	29	1000	Unknown		04/25/2019 13:50	Finished	SAMP,2>10mL
45	N035274-002AMS,MS	30	1000	Unknown		04/25/2019 13:59	Finished	MS (1ppb), IWST-190423B,2>1
46	N035274-003A,SAMF	31	1000	Unknown		04/25/2019 14:09	Finished	SAMP,2>10mL
47	N035274-003AMS,MS	32	1000	Unknown		04/25/2019 14:18	Finished	MS (1ppb), IWST-190423B,2>1
48	CCV-4,CCV1,1,	33	1000	Unknown		04/25/2019 14:28	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	34	1000	Unknown		04/25/2019 14:37	Finished	CCB R190411C
50	N035274-006A,SAMF	35	1000	Unknown		04/25/2019 14:47	Finished	SAMP,2>10mL
51	N035274-006AMS,MS	36	1000	Unknown		04/25/2019 14:56	Finished	MS (1ppb), IWST-190423B,2>1
52	N035274-008A,SAMF	37	1000	Unknown		04/25/2019 15:06	Finished	SAMP,2>10mL
53	N035274-008AMS,MS	38	1000	Unknown		04/25/2019 15:15	Finished	MS (1ppb), IWST-190423B,2>1
54	N035274-001A,SAMF	1	1000	Unknown		04/25/2019 15:43	Finished	SAMP,10mL
55	N035274-001AMS,MS	2	1000	Unknown		04/25/2019 15:54	Finished	MS (1ppb), IWST-190423B,10
56	N035274-011A,SAMF	3	1000	Unknown		04/25/2019 16:03	Finished	SAMP,10mL
57	N035274-011AMS,MS	4	1000	Unknown		04/25/2019 16:13	Finished	MS (1ppb), IWST-190423B,10
58	N035274-004A,SAMF	5	1000	Unknown		04/25/2019 16:22	Finished	SAMP,10mL
59	N035274-004AMS,MS	6	1000	Unknown		04/25/2019 16:31	Finished	MS (1ppb), IWST-190423B,10
60	CCV-5,CCV,1,	7	1000	Unknown		04/25/2019 16:41	Finished	CCV @5ppb, IWST-190423A

61	CCB-5,CCB,1,	8	1000	Unknown		04/25/2019 16:50	Finished	CCB R190411C
62	N035274-005A,SAMF	9	1000	Unknown		04/25/2019 17:00	Finished	SAMP,10mL
63	N035274-005AMS,MS	10	1000	Unknown		04/25/2019 17:09	Finished	MS (1ppb), IWST-190423B,10
64	N035274-007A,SAMF	11	1000	Unknown		04/25/2019 17:19	Finished	SAMP,10mL
65	N035274-007AMS,MS	12	1000	Unknown		04/25/2019 17:28	Finished	MS (1ppb), IWST-190423B,10
66	N035274-010A,SAMF	13	1000	Unknown		04/25/2019 17:38	Finished	SAMP,10mL
67	N035274-010AMS,MS	14	1000	Unknown		04/25/2019 17:47	Finished	MS (1ppb), IWST-190423B,10
68	N035274-012A,SAMF	15	1000	Unknown		04/25/2019 17:57	Finished	SAMP,10mL
69	N035274-012AMS,MS	16	1000	Unknown		04/25/2019 18:06	Finished	MS (1ppb), IWST-190423B,10
70	N035273-002A,SAMF	17	1000	Unknown		04/25/2019 18:16	Finished	SAMP,10mL
71	CCV-6,CCV1,1,	18	1000	Unknown		04/25/2019 18:25	Finished	CCV @10ppb, IWST-190423A
72	CCB-6,CCB,1,	19	1000	Unknown		04/25/2019 18:34	Finished	CCB R190411C
73	N035274-002A,SAMF	20	1000	Unknown		04/25/2019 18:44	Finished	SAMP,10mL
74	N035274-002AMS,MS	21	1000	Unknown		04/25/2019 18:53	Finished	MS (5ppb), IWST-190423B,10
75	N035274-003A,SAMF	22	1000	Unknown		04/25/2019 19:03	Finished	SAMP,10mL
76	N035274-003AMS,MS	23	1000	Unknown		04/25/2019 19:12	Finished	MS (1ppb), IWST-190423B,10
77	N035274-006A,SAMF	24	1000	Unknown		04/25/2019 19:22	Finished	SAMP,10mL
78	N035274-006AMS,MS	25	1000	Unknown		04/25/2019 19:31	Finished	MS (1ppb), IWST-190423B,10
79	N035274-008A,SAMF	26	1000	Unknown		04/25/2019 19:41	Finished	SAMP,10mL
80	N035274-008AMS,MS	27	1000	Unknown		04/25/2019 19:50	Finished	MS (1ppb), IWST-190423B,10
81	BLANK	28	1000	Unknown		04/25/2019 20:00	Finished	SAMP,10mL
82	CCV-7,CCV,1,	29	1000	Unknown		04/25/2019 20:09	Finished	CCV @5ppb, IWST-190423A
83	CCB-7,CCB,1,	30	1000	Unknown		04/25/2019 20:19	Finished	CCB R190411C
84	BLANK	31	1000	Unknown		04/25/2019 20:28	Finished	BLANK
85	SHUTDOWN	32	1000	Unknown		04/25/2019 20:37	Finished	
86	Eluent: R190424A	33	1000	Unknown		n.a.	Finished	Eluent
87	PCR: R190424B	34	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190426A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	04/26/19 10:37 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	04/26/19 10:48 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/26/19 10:57 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	04/26/19 11:07 AM	Reported
14	MB-R133502	MBLK	1	Hexavalent Chromium	04/26/19 11:16 AM	Reported
15	LCS-R133502	LCS	1	Hexavalent Chromium	04/26/19 11:26 AM	Reported
16	N035274-013A	SAMP	1	Hexavalent Chromium	04/26/19 11:35 AM	Reported
17	N035274-014A	SAMP	1	Hexavalent Chromium	04/26/19 12:18 PM	Reported
18	N035274-013AMS	MS	1	Hexavalent Chromium	04/26/19 12:30 PM	Reported
19	N035274-013AMSD	MSD	1	Hexavalent Chromium	04/26/19 12:39 PM	Reported
20	N035274-014AMS	MS	1	Hexavalent Chromium	04/26/19 12:49 PM	Reported
21	N035274-014ADUP	DUP	1	Hexavalent Chromium	04/26/19 12:58 PM	Reported
22	N035076-002A	SAMP	1	Hexavalent Chromium	04/26/19 1:08 PM	Not Reported
23	N035076-002AMS	MS	1	Hexavalent Chromium	04/26/19 1:17 PM	Not Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	04/26/19 1:26 PM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	04/26/19 1:36 PM	Reported
26	N035076-010A	SAMP	1	Hexavalent Chromium	04/26/19 1:45 PM	Not Reported
27	N035076-010AMS	MS	1	Hexavalent Chromium	04/26/19 1:55 PM	Not Reported
28	CCV-3	CCV	1	Hexavalent Chromium	04/26/19 2:04 PM	Not Reported
29	CCB-3	CCB	1	Hexavalent Chromium	04/26/19 2:14 PM	Not Reported
30	BLANK	BLANK	1	Hexavalent Chromium	04/26/19 2:23 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190426A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**26/Apr/19 14:54:03**
No. of Injections:	**33**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		04/26/2019 10:37	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		04/26/2019 10:48	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		04/26/2019 10:57	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		04/26/2019 11:07	Finished	CCB R190411C
14	MB-H2O,MBLK,1,	5	1000	Unknown		04/26/2019 11:16	Finished	MB R190411C
15	LCS-H2O,LCS,1,	6	1000	Unknown		04/26/2019 11:26	Finished	LCS @5ppb, IWST-190423B
16	N035274-013A,SAMP	7	1000	Unknown		04/26/2019 11:35	Finished	SAMP,10mL
17	N035274-014A,SAMP	9	1000	Unknown		04/26/2019 12:18	Finished	SAMP,10mL
18	N035274-013AMS,MS	10	1000	Unknown		04/26/2019 12:30	Finished	MS (5ppb), IWST-190423B,10
19	N035274-013AMSD,M	11	1000	Unknown		04/26/2019 12:39	Finished	MSD (5ppb), IWST-190423B,1(
20	N035274-014AMS,MS	12	1000	Unknown		04/26/2019 12:49	Finished	MS (5ppb), IWST-190423B,10
21	N035274-014ADUP,D	13	1000	Unknown		04/26/2019 12:58	Finished	DUP,10mL
22	N035076-002A,SAMP	14	1000	Unknown		04/26/2019 13:08	Finished	SAMP,10mL
23	N035076-002AMS,MS	15	1000	Unknown		04/26/2019 13:17	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	16	1000	Unknown		04/26/2019 13:26	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	17	1000	Unknown		04/26/2019 13:36	Finished	CCB R190411C
26	N035076-010A,SAMP	18	1000	Unknown		04/26/2019 13:45	Finished	SAMP,10mL
27	N035076-010AMS,MS	19	1000	Unknown		04/26/2019 13:55	Finished	MS (1ppb), IWST-190423B,10
28	CCV-3,CCV,1,	20	1000	Unknown		04/26/2019 14:04	Finished	CCV @5ppb, IWST-190423A
29	CCB-3,CCB,1,	21	1000	Unknown		04/26/2019 14:14	Finished	CCB R190411C
30	BLANK	22	1000	Unknown		04/26/2019 14:23	Finished	BLANK
31	SHUTDOWN	23	1000	Unknown		04/26/2019 14:33	Finished	
32	Eluent: R190426A	24	1000	Unknown		n.a.	Finished	Eluent
33	PCR: R190424B	25	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 4/25/19
Time Prepared: 0855H
Prepared By: MA

Slope: 96.22
pH4: 4.02
7: 7.00
10:

Reagent ID:
Sulfuric Acid: 0501
Diphenylcarbazide: CLNN-190328A
NH4OH + NH4SO4 eluent: M9UH2UA
NH4OH + NH4SO4 buffer: M9UH1C

6N NaOH: A190329A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N035272-01A	9.38	-	~250 mL	~250mL		
2)	N035273-2A	9.65	-				
3)	L 3A	9.58	-				
4)	N035274-1A	9.49	-				1/2
5)	1A	9.49	-				2/2
6)	2A	9.53	-				1/1
7)	3A	9.53	-				1/2
8)	3A	9.54	-				2/2
9)	4A	9.71	-				1/1
10)	5A	9.73	-				1/1
11)	6A	9.35	-				1/2
12)	6A	9.26	9.33			+2 drops NaOH	2/2
13)	7A	9.74	-				1/1
14)	8A	9.50	-				1/1
15)	9A	9.34	9.35			+1 " "	1/1

Sample Preparation

Date Prepared: 4/25/19
Time Prepared: 0855H
Prepared By: MA

Reagent ID:
Sulfuric Acid: 0501
Diphenylcarbazide: CLNN-190328A
NH4OH + NH4SO4 eluent: M9UH2UA
NH4OH + NH4SO4 buffer: M9UH1C

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N035274-10A	9.70	-	~25mL	~250mL		1/1
2)	11A	9.42	-				1/1
3)	12A	9.68	-				1/1
4)	13A	9.34	-				1/1
5)	14A	9.73	-				1/1
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 4/23/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0538	0.2527	1.2462	2.4794	3.7395	4.9803	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ICV**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3363513**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3363514**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.226	0.20	0.2000	0	113	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCV**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363516**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.992	0.20	5.000	0	99.8	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363517**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.228	0.20	0.2000	0	114	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.815	0.20	10.00	0	98.2	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCV**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363532**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.022	0.20	5.000	0	100	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3365343**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.039	0.20	10.00	0	100	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCV**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3365351**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.909	0.20	5.000	0	98.2	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ZZZZZZ**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3365362**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.966	0.20	10.00	0	99.7	95	105				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCV**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3365372**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.006	0.20	5.000	0	100	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133502**
Client ID: **ICV**	Batch ID: **R133502**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3365374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.054	0.20	5.000	0	101	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133502**
Client ID: **ZZZZZZ**	Batch ID: **R133502**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3365375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.226	0.20	0.2000	0	113	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133502**
Client ID: **CCV**	Batch ID: **R133502**	TestNo: **EPA 218.6**		Analysis Date: **4/26/2019**	SeqNo: **3365377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.021	0.20	5.000	0	100	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133502**
Client ID: **ZZZZZZ**	Batch ID: **R133502**	TestNo: **EPA 218.6**		Analysis Date: **4/26/2019**	SeqNo: **3365378**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.223	0.20	0.2000	0	112	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133502**
Client ID: **ZZZZZZ**	Batch ID: **R133502**	TestNo: **EPA 218.6**		Analysis Date: **4/26/2019**	SeqNo: **3365388**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.140	0.20	10.00	0	101	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **ICB**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3363515**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCB**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363518**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCB**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCB**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3363533**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCB**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3365344**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCB**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3365352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCB**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3365363**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133466**
Client ID: **CCB**	Batch ID: **R133466**	TestNo: **EPA 218.6**		Analysis Date: **4/25/2019**	SeqNo: **3365373**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133502**
Client ID: **ICB**	Batch ID: **R133502**	TestNo: **EPA 218.6**		Analysis Date: **4/23/2019**	SeqNo: **3365376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133502**
Client ID: **CCB**	Batch ID: **R133502**	TestNo: **EPA 218.6**		Analysis Date: **4/26/2019**	SeqNo: **3365379**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133502**
Client ID: **CCB**	Batch ID: **R133502**	TestNo: **EPA 218.6**		Analysis Date: **4/26/2019**	SeqNo: **3365389**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/25/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.840	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.856	

Average	4.854	
Actual RT Window	4.774 -	4.934
Applied RT Window	4.654 -	5.054

MB-R133466	N.A.	N.A.
LCS-R133466	4.856	PASS
N035272-001A	N.A.	N.A.
N035272-001AMS	4.815	PASS
N035273-003A	N.A.	N.A.
N035273-003AMS	4.815	PASS
N035272-001AMSD	4.815	PASS
N035274-009A	4.840	PASS
N035274-009ADUP	4.840	PASS
N035274-009AMS	4.840	PASS
N035272-001A	N.A.	N.A.
N035272-001AMS	4.573	FAIL
N035273-003A	N.A.	N.A.
N035273-003AMS	4.556	FAIL
N035273-002A	4.856	PASS
N035273-002AMS	4.865	PASS
N035066-006A	4.848	PASS
N035066-006AMS	4.848	PASS
N035066-011A	4.848	PASS
N035066-011AMS	4.840	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/25/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.840	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.856	
Average	4.854	
Actual RT Window	4.774 - 4.934	
Applied RT Window	4.654 - 5.054	
N035066-013A	4.790	PASS
N035066-013AMS	4.790	PASS
N035066-014A	4.690	PASS
N035066-014AMS	4.690	PASS
N035066-015A	4.690	PASS
N035066-015AMS	4.690	PASS
N035274-002A	4.823	PASS
N035274-002AMS	4.823	PASS
N035274-003A	4.840	PASS
N035274-003AMS	4.831	PASS
N035274-006A	N.A.	N.A.
N035274-006AMS	4.831	PASS
N035274-008A	N.A.	N.A.
N035274-008AMS	4.831	PASS
N035274-001A	N.A.	N.A.
N035274-001AMS	4.840	PASS
N035274-011A	N.A.	N.A.
N035274-011AMS	4.790	PASS
N035274-004A	N.A.	N.A.
N035274-004AMS	4.856	PASS
N035274-005A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/25/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.840	
CCV-2	4.856	
CCV-3	4.856	
CCV-4	4.856	
CCV-5	4.856	
CCV-6	4.856	
CCV-7	4.856	
Average	4.854	
Actual RT Window	4.774 - 4.934	
Applied RT Window	4.654 - 5.054	
N035274-005AMS	4.856	PASS
N035274-007A	N.A.	N.A.
N035274-007AMS	4.856	PASS
N035274-010A	N.A.	N.A.
N035274-010AMS	4.848	PASS
N035274-012A	N.A.	N.A.
N035274-012AMS	4.856	PASS
N035273-002A	4.856	PASS
N035274-002A	4.673	PASS
N035274-002AMS	4.673	PASS
N035274-003A	4.765	PASS
N035274-003AMS	4.765	PASS
N035274-006A	N.A.	N.A.
N035274-006AMS	4.723	PASS
N035274-008A	N.A.	N.A.
N035274-008AMS	4.673	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 4/26/2019

Sample Name	Retention Time	Evaluation
ICV	4.856	
CCV-1	4.865	
CCV-2	4.865	
Average	4.865	
Actual RT Window	4.785 - 4.945	
Applied RT Window	4.665 - 5.065	
MB-R133502	N.A.	N.A.
LCS-R133502	4.865	PASS
N035274-013A	4.773	PASS
N035274-014A	4.773	PASS
N035274-013AMS	4.756	PASS
N035274-013AMSD	4.781	PASS
N035274-014AMS	4.773	PASS
N035274-014ADUP	4.773	PASS
N035076-002A	4.856	PASS
N035076-002AMS	4.856	PASS
N035076-010A	4.848	PASS
N035076-010AMS	4.856	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	04/23/19 10:30 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/23/19 10:41 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	04/23/19 10:51 AM	Reported
13	MB-R133438	MBLK	1	Hexavalent Chromium	04/23/19 11:00 AM	Reported
14	LCS-R133438	LCS	1	Hexavalent Chromium	04/23/19 11:10 AM	Reported
15	N035240-001A	SAMP	5	Hexavalent Chromium	04/23/19 11:19 AM	Not Reported
16	N035240-001AMS	MS	5	Hexavalent Chromium	04/23/19 11:29 AM	Not Reported
17	N035240-003A	SAMP	5	Hexavalent Chromium	04/23/19 11:38 AM	Not Reported
18	N035240-003AMS	MS	5	Hexavalent Chromium	04/23/19 11:48 AM	Not Reported
19	N035240-004A	SAMP	5	Hexavalent Chromium	04/23/19 11:57 AM	Reported
20	N035240-004AMS	MS	5	Hexavalent Chromium	04/23/19 12:07 PM	Reported
21	N035240-002A	SAMP	1	Hexavalent Chromium	04/23/19 12:16 PM	Reported
22	N035240-002AMS	MS	1	Hexavalent Chromium	04/23/19 12:25 PM	Reported
23	CCV-1	CCV1	1	Hexavalent Chromium	04/23/19 12:35 PM	Reported
24	CCB-1	CCB	1	Hexavalent Chromium	04/23/19 12:44 PM	Reported
25	N035240-005A	SAMP	1	Hexavalent Chromium	04/23/19 12:54 PM	Reported
26	N035240-005AMS	MS	1	Hexavalent Chromium	04/23/19 1:03 PM	Reported
27	N035240-001A	SAMP	1	Hexavalent Chromium	04/23/19 1:13 PM	Reported
28	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 1:22 PM	Not Reported
29	N035240-003A	SAMP	1	Hexavalent Chromium	04/23/19 1:32 PM	Reported
30	N035240-003AMS	MS	1	Hexavalent Chromium	04/23/19 1:41 PM	Reported
31	N035240-004A	SAMP	1	Hexavalent Chromium	04/23/19 1:51 PM	Not Reported
32	N035240-004AMS	MS	1	Hexavalent Chromium	04/23/19 2:00 PM	Not Reported
33	N035240-004ADUP	DUP	5	Hexavalent Chromium	04/23/19 2:11 PM	Reported
34	N035240-004AMSD	MSD	5	Hexavalent Chromium	04/23/19 2:22 PM	Reported
35	CCV-2	CCV	1	Hexavalent Chromium	04/23/19 2:32 PM	Reported
36	CCB-2	CCB	1	Hexavalent Chromium	04/23/19 2:41 PM	Reported
37	N035240-001AMS	MS	1	Hexavalent Chromium	04/23/19 2:51 PM	Reported
38	N035039-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:00 PM	Not Reported
39	N035039-009AMS	MS	1	Hexavalent Chromium	04/23/19 3:10 PM	Not Reported
40	N035065-002A	SAMP	1	Hexavalent Chromium	04/23/19 3:19 PM	Not Reported
41	N035065-002AMS	MS	1	Hexavalent Chromium	04/23/19 3:28 PM	Not Reported
42	N035023-012A	SAMP	1	Hexavalent Chromium	04/23/19 3:38 PM	Not Reported

INJECTION LOG: 190423A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035023-012AMS	MS	1	Hexavalent Chromium	04/23/19 3:47 PM	Not Reported
44	N035065-009A	SAMP	1	Hexavalent Chromium	04/23/19 3:57 PM	Not Reported
45	N035065-009AMS	MS	1	Hexavalent Chromium	04/23/19 4:06 PM	Not Reported
46	CCV-3	CCV1	1	Hexavalent Chromium	04/23/19 4:16 PM	Reported
47	CCB-3	CCB	1	Hexavalent Chromium	04/23/19 4:25 PM	Reported
48	N035065-012A	SAMP	1	Hexavalent Chromium	04/23/19 4:35 PM	Not Reported
49	N035065-012AMS	MS	1	Hexavalent Chromium	04/23/19 4:44 PM	Not Reported
50	N035065-005A	SAMP	1	Hexavalent Chromium	04/23/19 4:54 PM	Not Reported
51	N035065-005AMS	MS	1	Hexavalent Chromium	04/23/19 5:03 PM	Not Reported
52	N035074-001A	SAMP	1	Hexavalent Chromium	04/23/19 5:13 PM	Not Reported
53	N035074-001AMS	MS	1	Hexavalent Chromium	04/23/19 5:22 PM	Not Reported
54	CCV-4	CCV	1	Hexavalent Chromium	04/23/19 5:31 PM	Reported
55	CCB-4	CCB	1	Hexavalent Chromium	04/23/19 5:41 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190423A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**24/Apr/19 09:17:37**
No. of Injections:	**58**	*Updated By:*	**ics 5000**

Injection Details

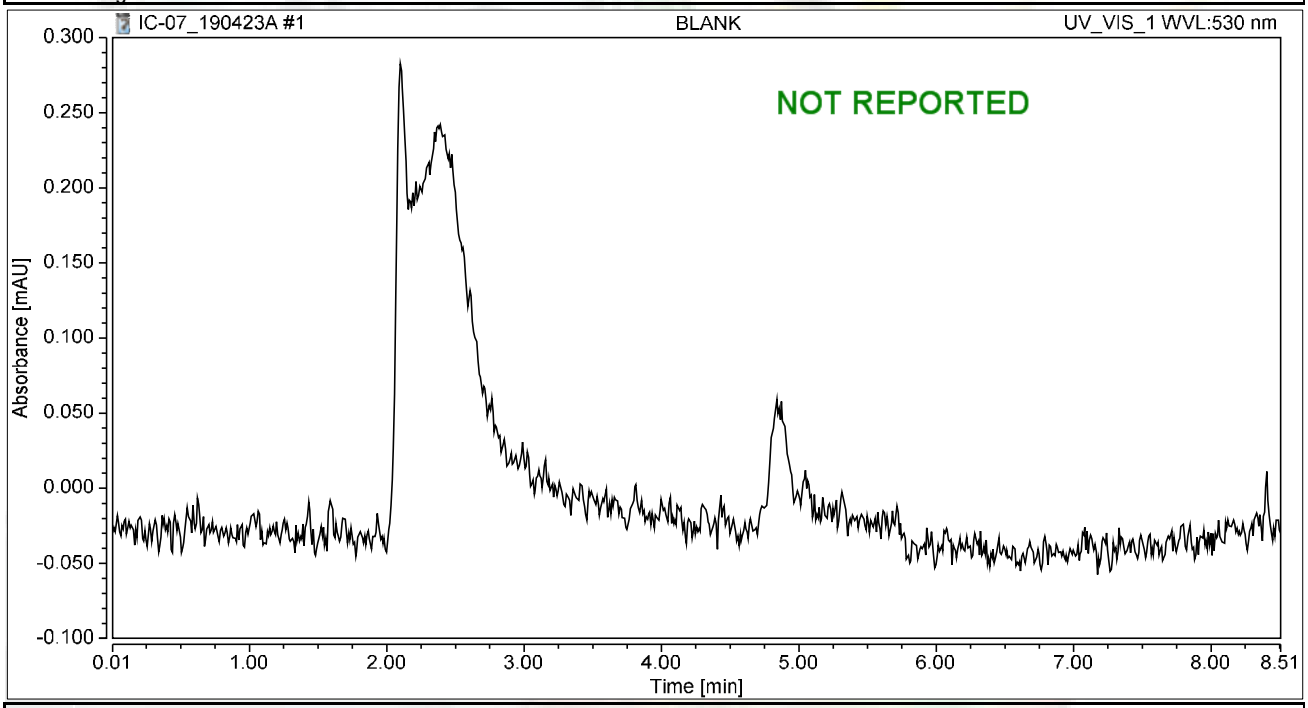
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	12	1000	Unknown		04/23/2019 10:30	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	13	1000	Unknown		04/23/2019 10:41	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	14	1000	Unknown		04/23/2019 10:51	Finished	ICB R190411C
13	MB-H2O,MBLK,1,	15	1000	Unknown		04/23/2019 11:00	Finished	MB R190411C
14	LCS-H2O,LCS,1,	16	1000	Unknown		04/23/2019 11:10	Finished	LCS @5ppb, IWST-190423B
15	N035240-001A,SAMF	17	1000	Unknown		04/23/2019 11:19	Finished	SAMP,2>10mL
16	N035240-001AMS,MS	18	1000	Unknown		04/23/2019 11:29	Finished	MS (1ppb), IWST-190423B,2>1
17	N035240-003A,SAMF	19	1000	Unknown		04/23/2019 11:38	Finished	SAMP,2>10mL
18	N035240-003AMS,MS	20	1000	Unknown		04/23/2019 11:48	Finished	MS (1ppb), IWST-190423B,2>1
19	N035240-004A,SAMF	21	1000	Unknown		04/23/2019 11:57	Finished	SAMP,2>10mL
20	N035240-004AMS,MS	22	1000	Unknown		04/23/2019 12:07	Finished	MS (1ppb), IWST-190423B,2>1
21	N035240-002A,SAMF	23	1000	Unknown		04/23/2019 12:16	Finished	SAMP,10mL
22	N035240-002AMS,MS	24	1000	Unknown		04/23/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>1
23	CCV-1,CCV1,1,	25	1000	Unknown		04/23/2019 12:35	Finished	CCV @10ppb, IWST-190423A
24	CCB-1,CCB,1,	26	1000	Unknown		04/23/2019 12:44	Finished	CCB R190411C
25	N035240-005A,SAMF	27	1000	Unknown		04/23/2019 12:54	Finished	SAMP,10mL
26	N035240-005AMS,MS	28	1000	Unknown		04/23/2019 13:03	Finished	MS (1ppb), IWST-190423B,10
27	N035240-001A,SAMF	29	1000	Unknown		04/23/2019 13:13	Finished	SAMP,10mL
28	N035240-001AMS,MS	30	1000	Unknown		04/23/2019 13:22	Finished	MS (1ppb), IWST-190423B,10
29	N035240-003A,SAMF	31	1000	Unknown		04/23/2019 13:32	Finished	SAMP,10mL
30	N035240-003AMS,MS	32	1000	Unknown		04/23/2019 13:41	Finished	MS (1ppb), IWST-190423B,10
31	N035240-004A,SAMF	33	1000	Unknown		04/23/2019 13:51	Finished	SAMP,10mL
32	N035240-004AMS,MS	34	1000	Unknown		04/23/2019 14:00	Finished	MS (1ppb), IWST-190423B,2>1
33	N035240-004ADUP,D	1	1000	Unknown		04/23/2019 14:11	Finished	DUP,2>10mL
34	N035240-004AMSD,M	2	1000	Unknown		04/23/2019 14:22	Finished	MSD (1ppb), IWST-190423B,2>
35	CCV-2,CCV,1,	3	1000	Unknown		04/23/2019 14:32	Finished	CCV @5ppb, IWST-190423A
36	CCB-2,CCB,1,	4	1000	Unknown		04/23/2019 14:41	Finished	CCB R190411C
37	N035240-001AMS,MS	5	1000	Unknown		04/23/2019 14:51	Finished	MS (1ppb), IWST-190423B,10
38	N035039-009A,SAMF	6	1000	Unknown		04/23/2019 15:00	Finished	SAMP,10mL
39	N035039-009AMS,MS	7	1000	Unknown		04/23/2019 15:10	Finished	MS (5ppb), IWST-190423B,10
40	N035065-002A,SAMF	8	1000	Unknown		04/23/2019 15:19	Finished	SAMP,10mL
41	N035065-002AMS,MS	9	1000	Unknown		04/23/2019 15:28	Finished	MS (5ppb), IWST-190423B,10
42	N035023-012A,SAMF	10	1000	Unknown		04/23/2019 15:38	Finished	SAMP,10mL
43	N035023-012AMS,MS	11	1000	Unknown		04/23/2019 15:47	Finished	MS (1ppb), IWST-190423B,10
44	N035065-009A,SAMF	12	1000	Unknown		04/23/2019 15:57	Finished	SAMP,10mL
45	N035065-009AMS,MS	13	1000	Unknown		04/23/2019 16:06	Finished	MS (1ppb), IWST-190423B,10
46	CCV-3,CCV1,1,	14	1000	Unknown		04/23/2019 16:16	Finished	CCV @10ppb, IWST-190423A
47	CCB-3,CCB,1,	15	1000	Unknown		04/23/2019 16:25	Finished	CCB R190411C
48	N035065-012A,SAMF	16	1000	Unknown		04/23/2019 16:35	Finished	SAMP,10mL
49	N035065-012AMS,MS	17	1000	Unknown		04/23/2019 16:44	Finished	MS (1ppb), IWST-190423B,10
50	N035065-005A,SAMF	18	1000	Unknown		04/23/2019 16:54	Finished	SAMP,10mL
51	N035065-005AMS,MS	19	1000	Unknown		04/23/2019 17:03	Finished	MS (1ppb), IWST-190423B,10
52	N035074-001A,SAMF	20	1000	Unknown		04/23/2019 17:13	Finished	SAMP,10mL
53	N035074-001AMS,MS	21	1000	Unknown		04/23/2019 17:22	Finished	MS (1ppb), IWST-190423B,10
54	CCV-4,CCV,1,	22	1000	Unknown		04/23/2019 17:31	Finished	CCV @5ppb, IWST-190423A
55	CCB-4,CCB,1,	23	1000	Unknown		04/23/2019 17:41	Finished	CCB R190411C
56	SHUTDOWN	24	1000	Unknown		04/23/2019 17:50	Finished	
57	Eluent: R190422A	25	1000	Unknown		n.a.	Finished	Eluent
58	PCR: R190422B	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 08:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

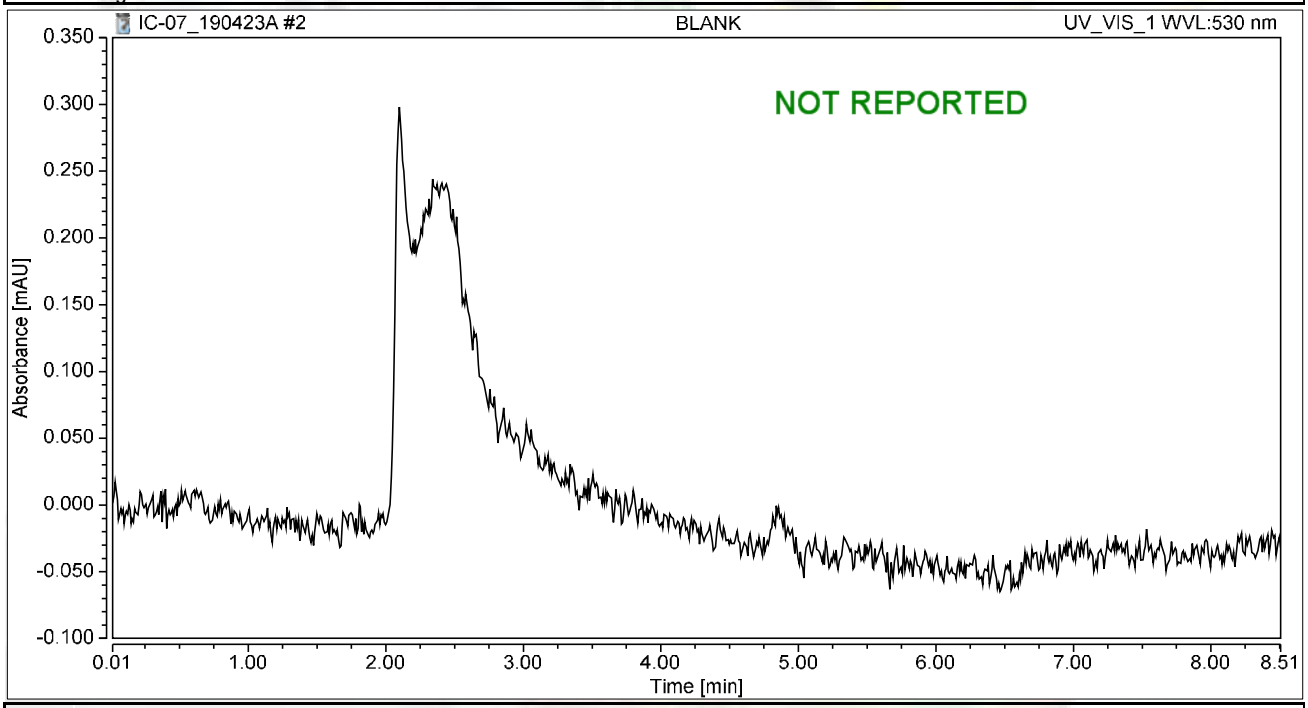
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

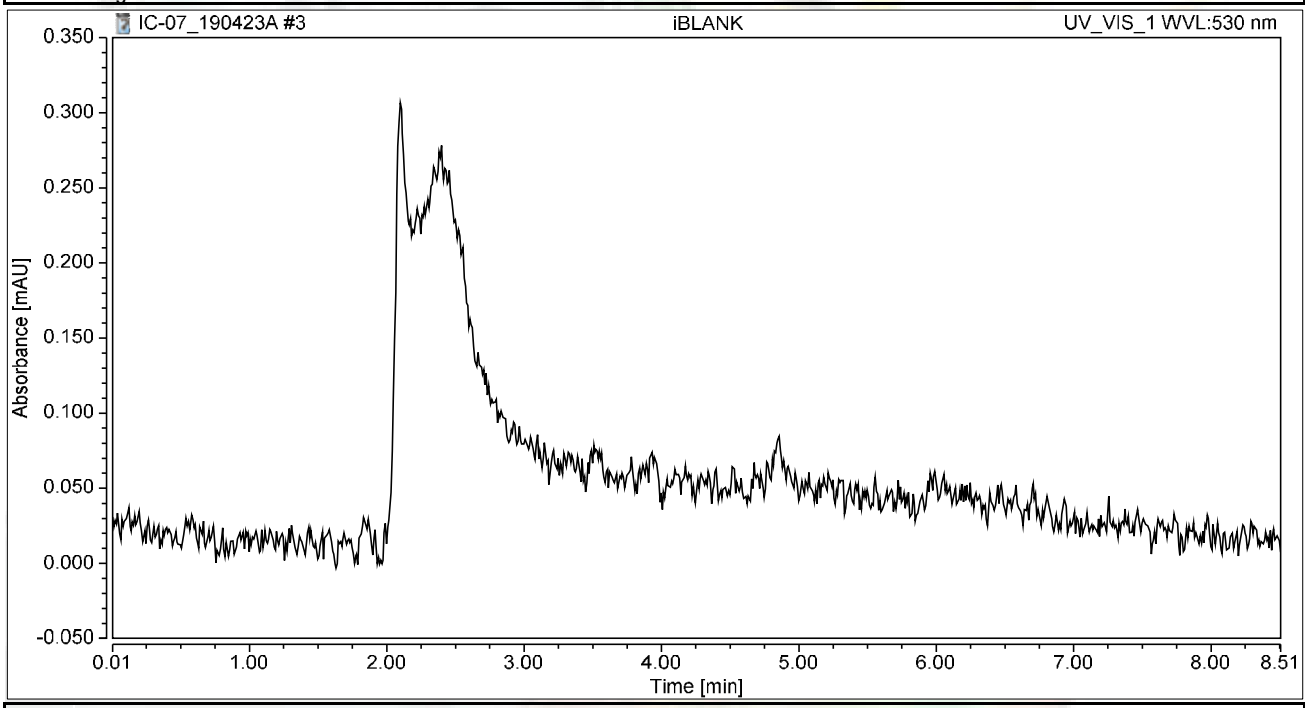
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

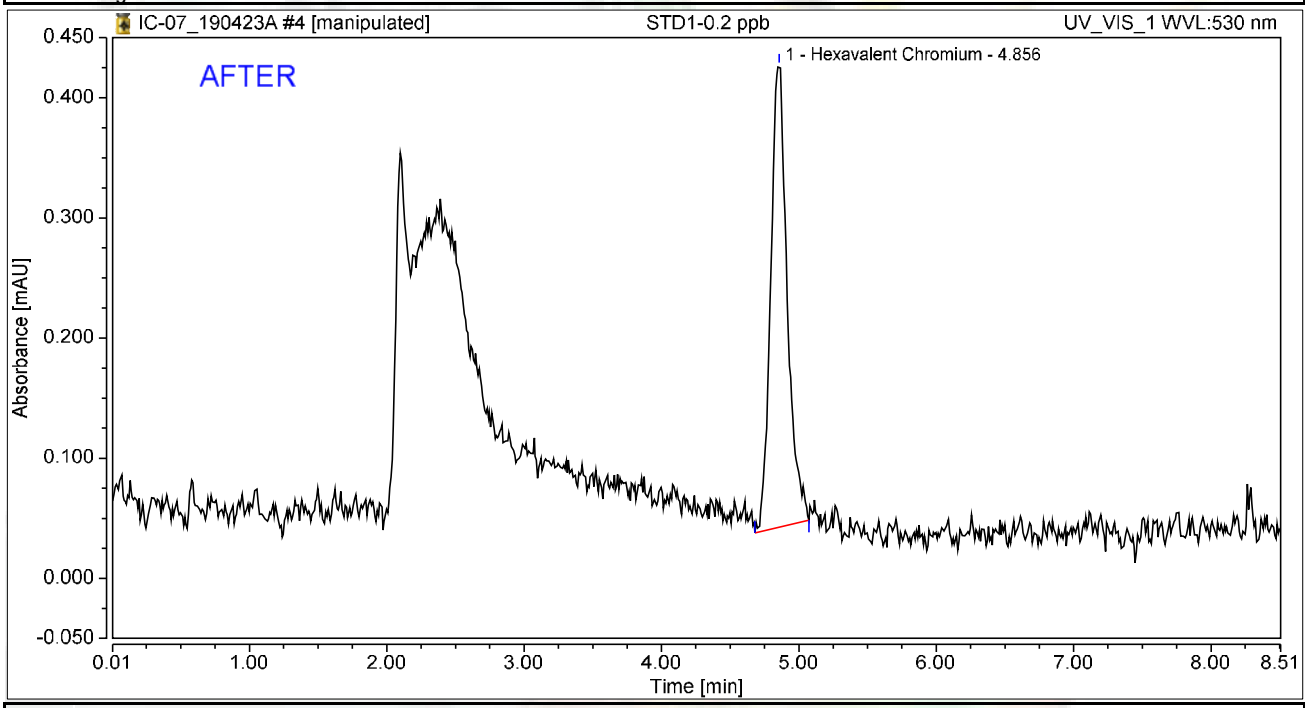
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.054	0.384	100.00	100.00	0.2161
Total:			**0.054**	**0.384**	**100.00**	**100.00**	

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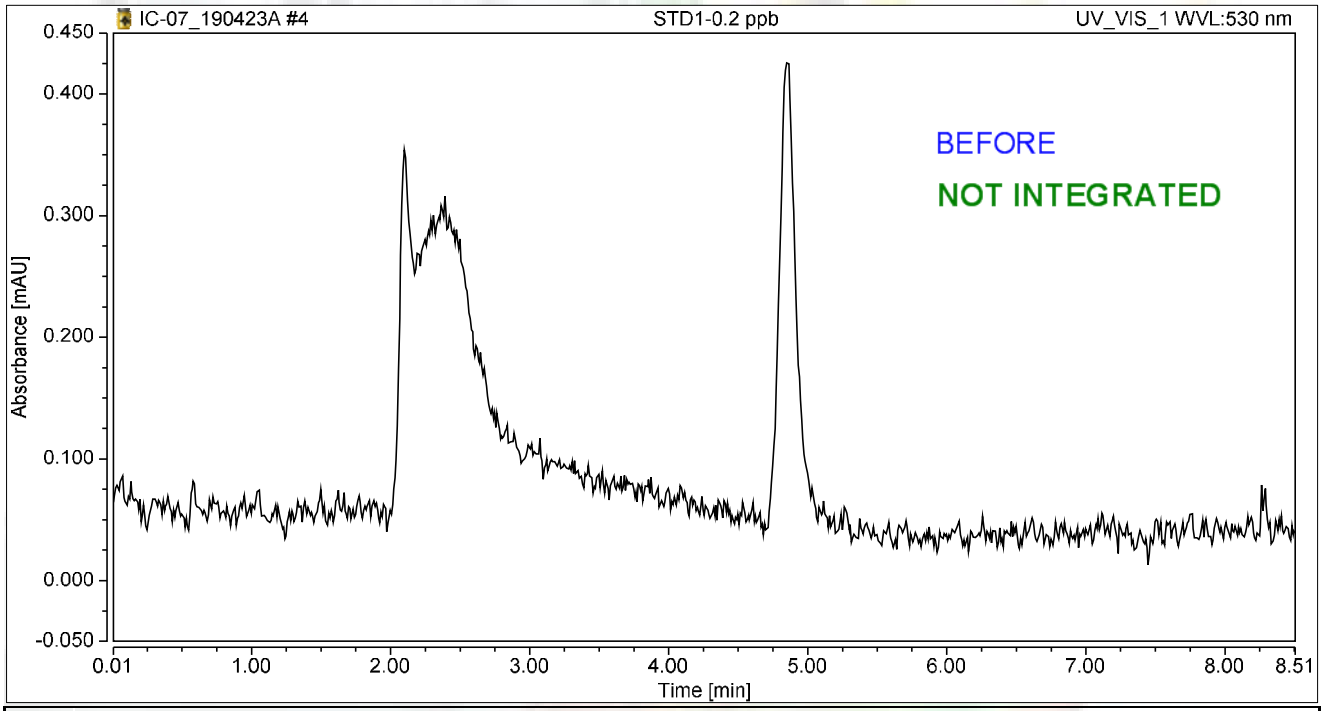
Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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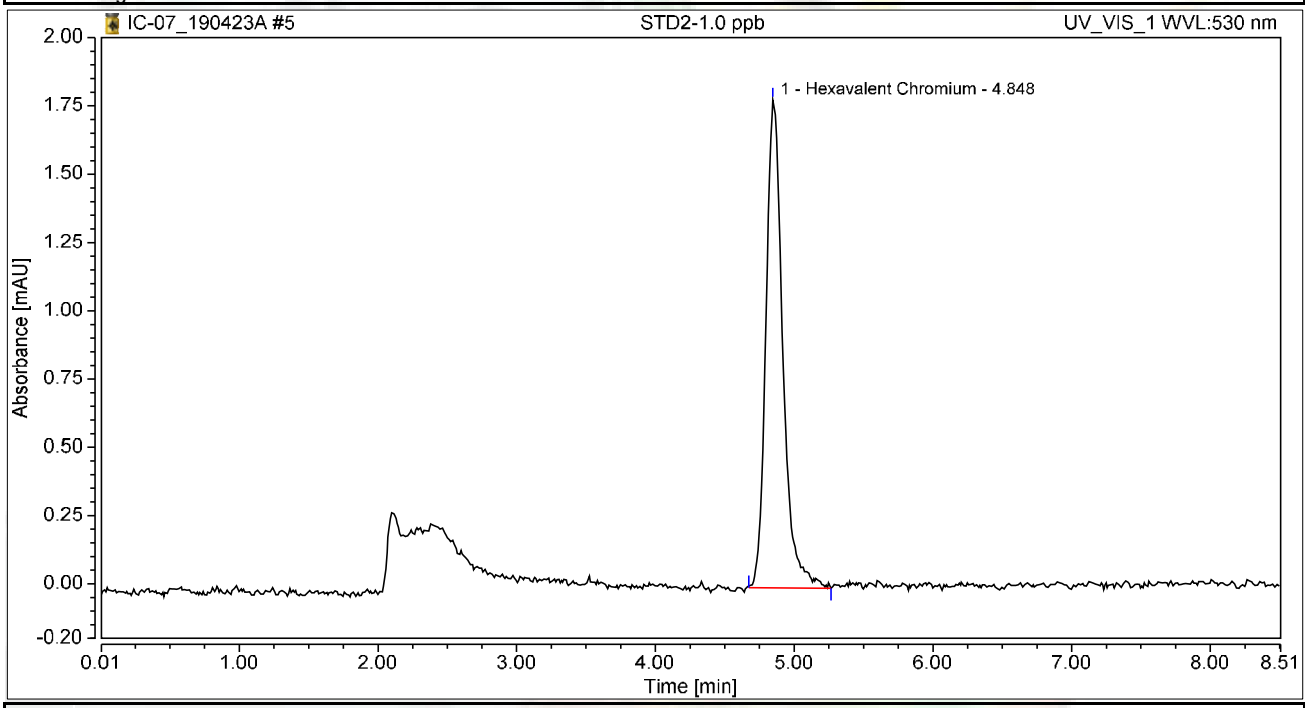
Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

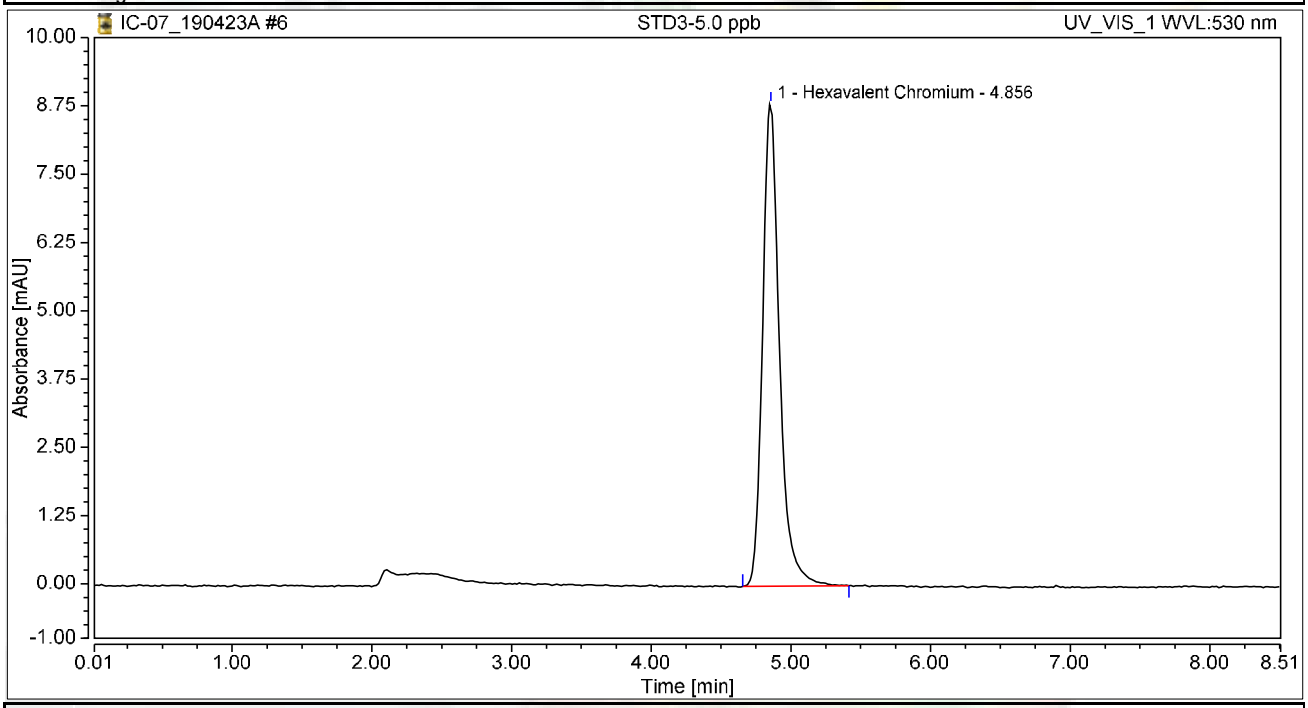
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.253	1.786	100.00	100.00	1.0148
Total:			**0.253**	**1.786**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

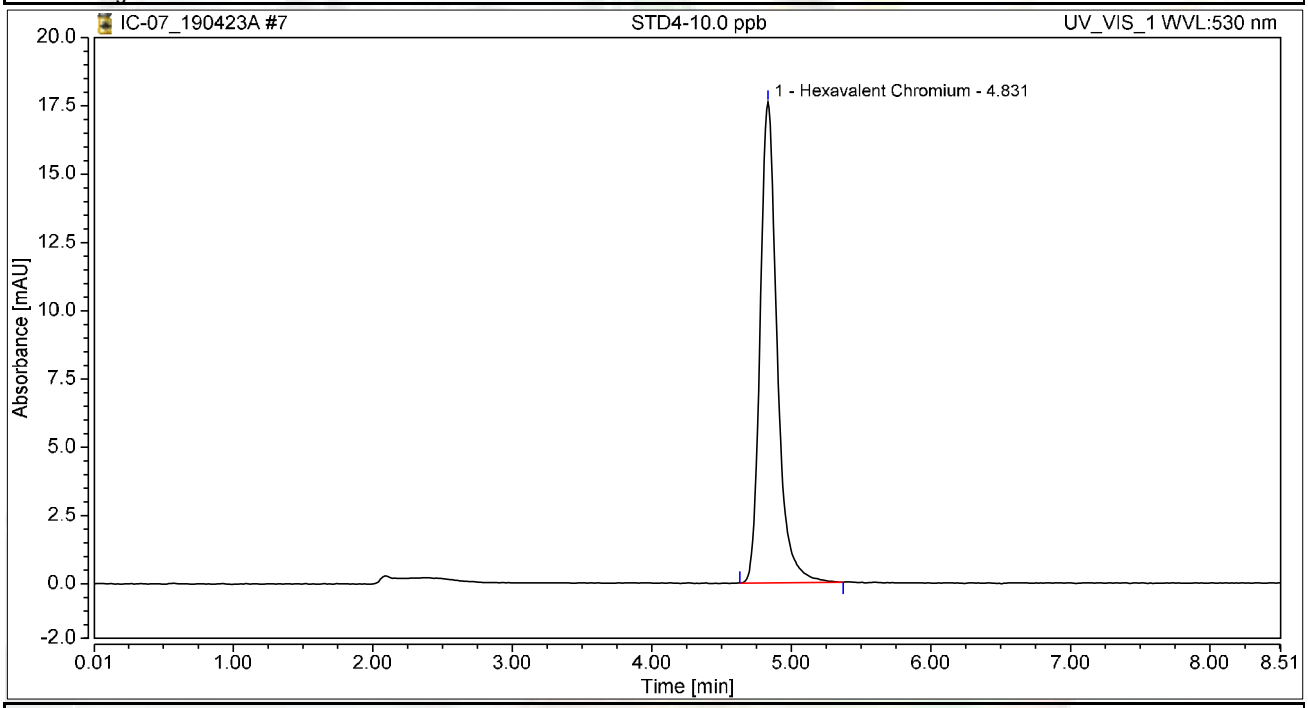
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.246	8.834	100.00	100.00	5.0054
Total:			**1.246**	**8.834**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 09:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

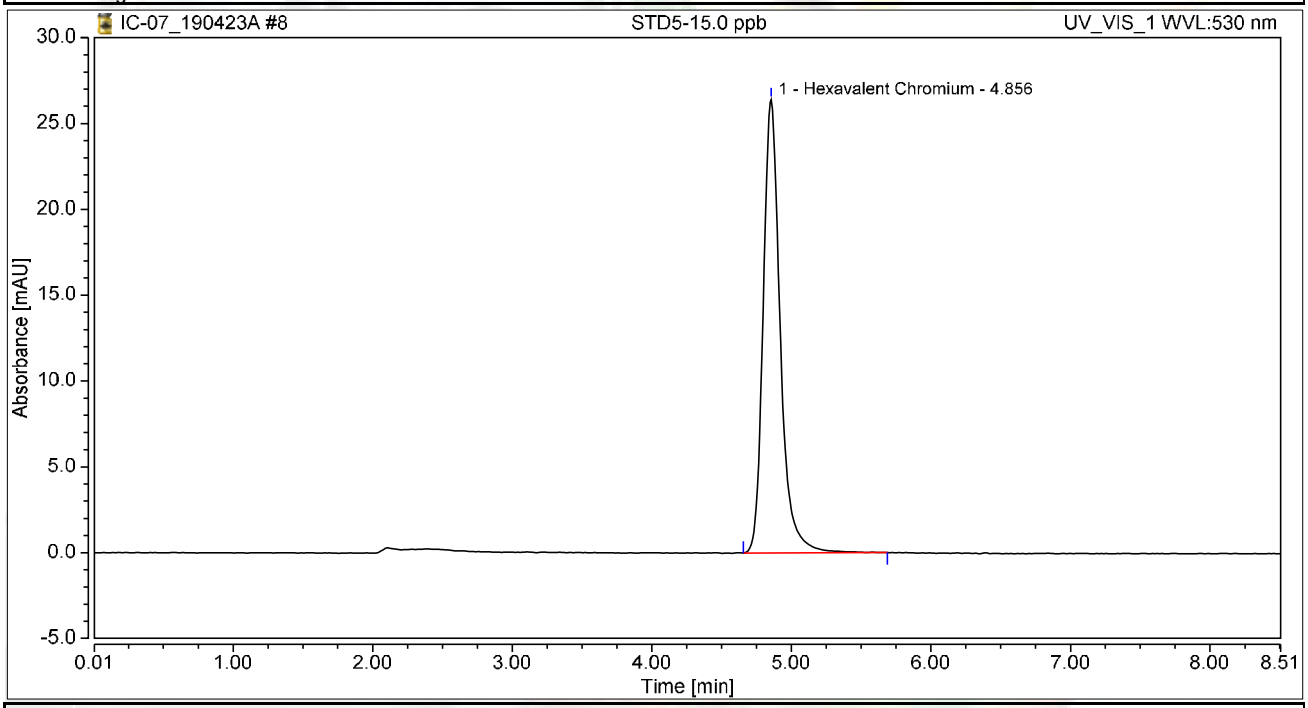
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	2.479	17.604	100.00	100.00	9.9587
Total:			**2.479**	**17.604**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

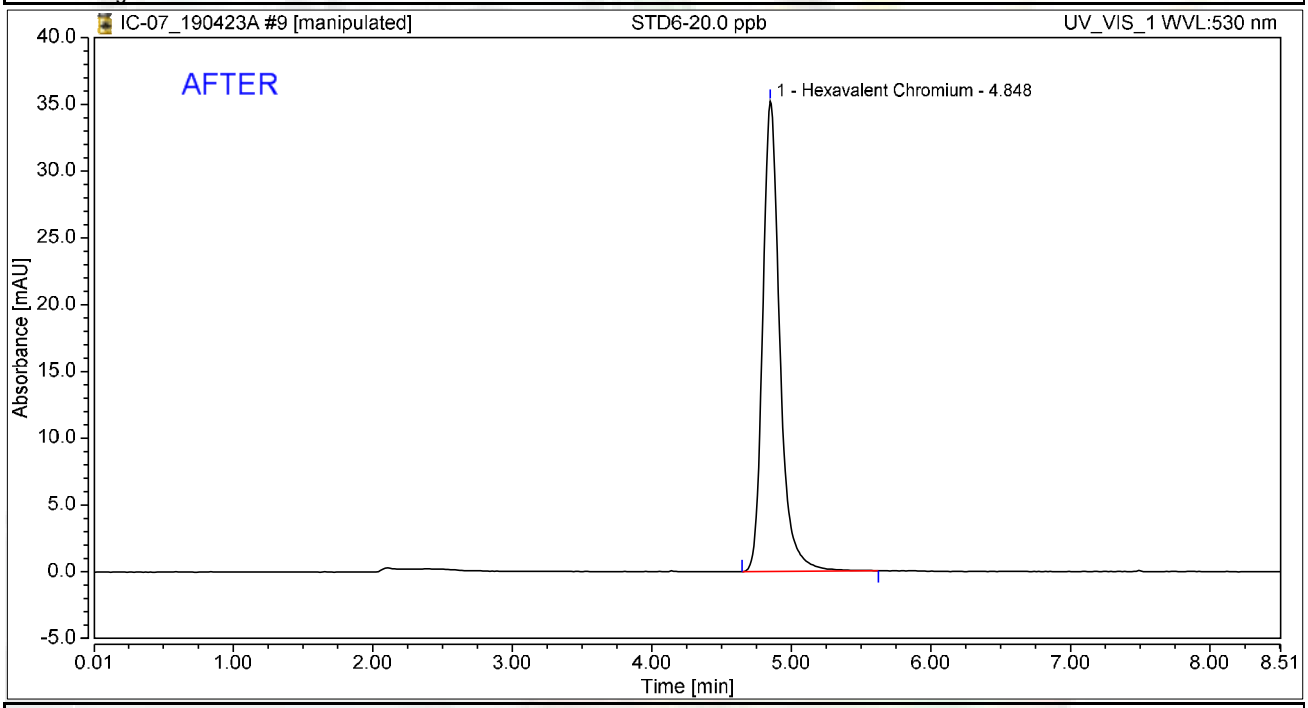
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	3.739	26.398	100.00	100.00	15.0197
Total:			**3.739**	**26.398**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	4.980	35.209	100.00	100.00	20.0036
Total:			**4.980**	**35.209**	**100.00**	**100.00**	

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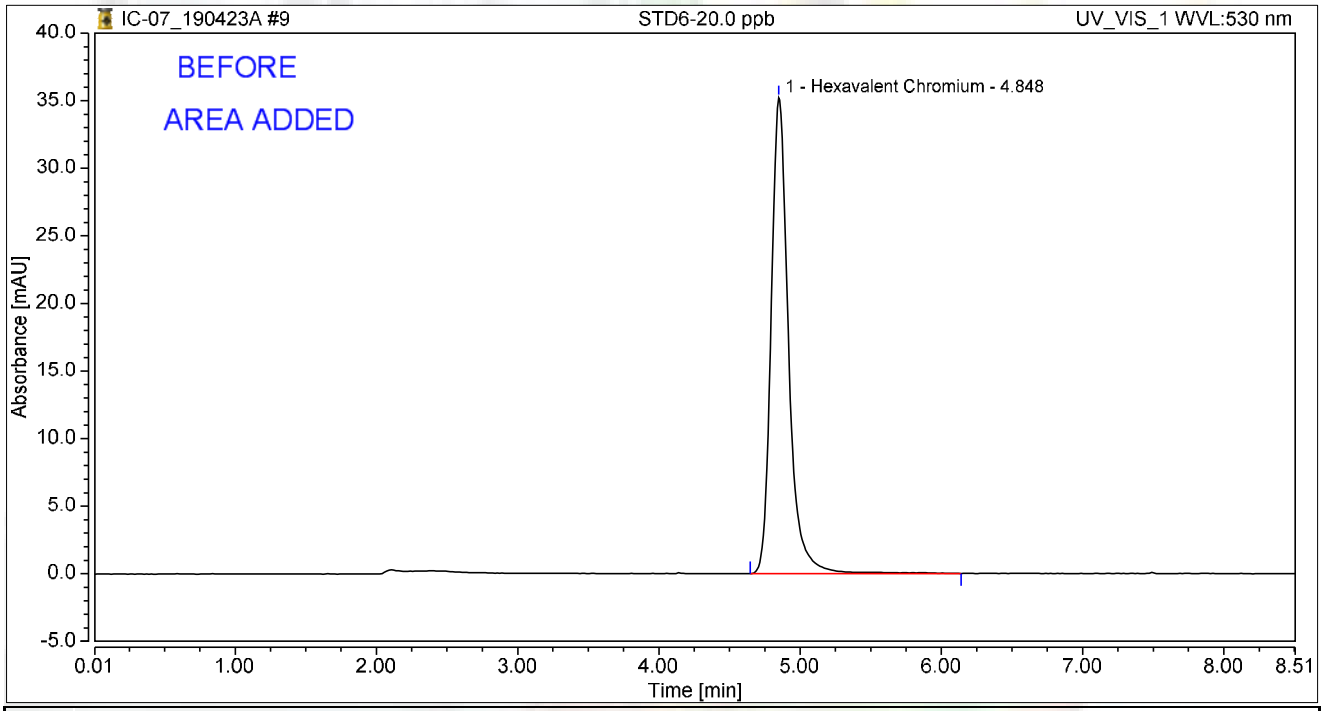
Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	5.038	35.224	100.00	100.00	20.1112
Total:			**5.038**	**35.224**	**100.00**	**100.00**	

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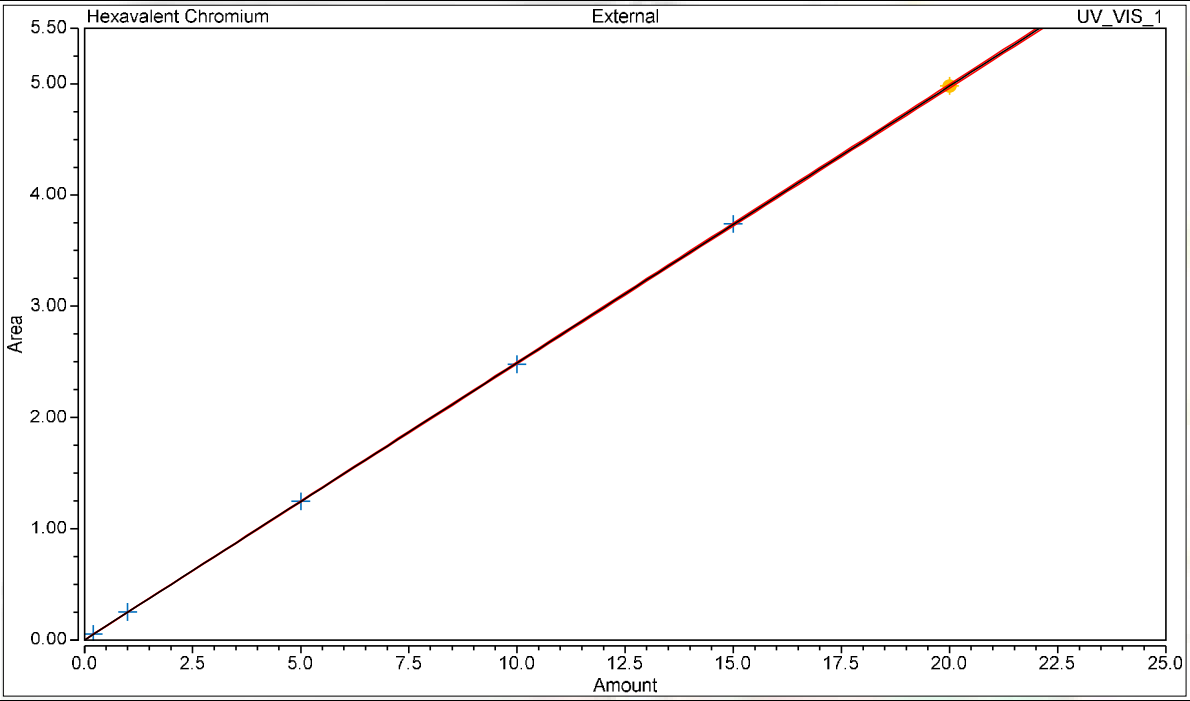
Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2490
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99999

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

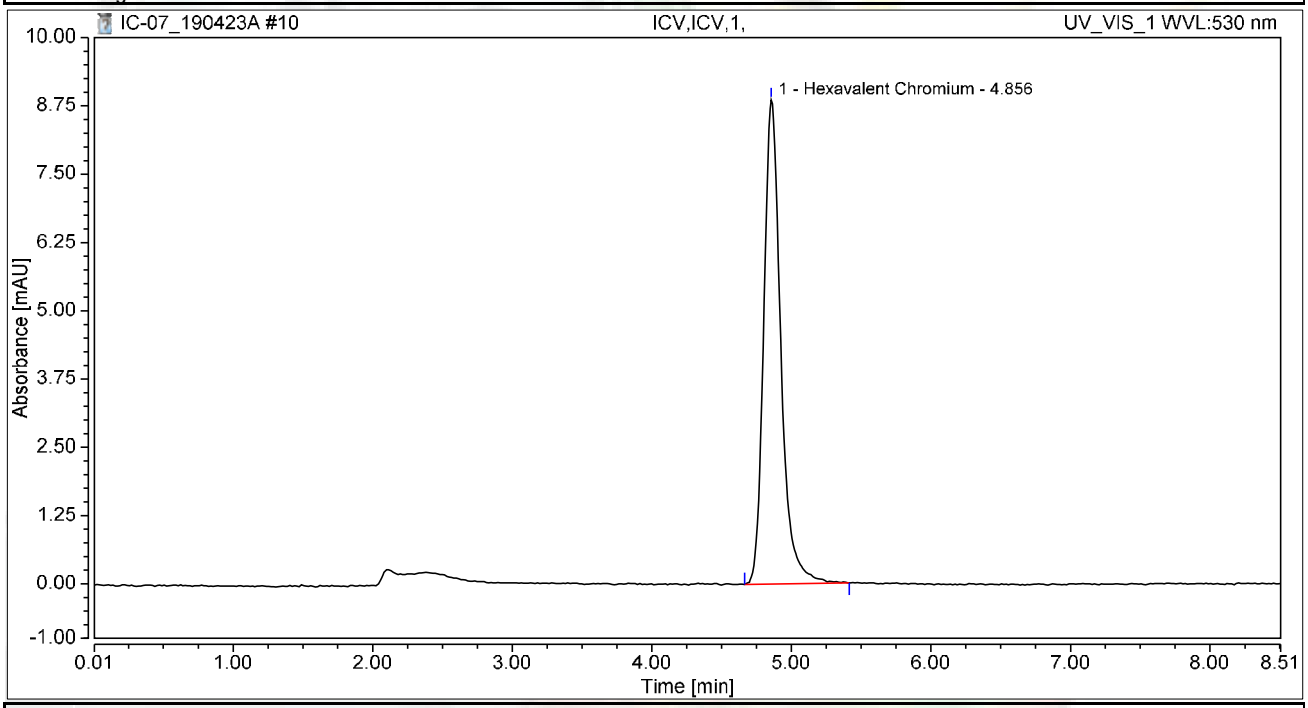
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0538	0.054	0.384
5	STD2-1.0 ppb	02	1.0000	0.2527	0.253	1.786
6	STD3-5.0 ppb	03	5.0000	1.2462	1.246	8.834
7	STD4-10.0 ppb	04	10.0000	2.4794	2.479	17.604
8	STD5-15.0 ppb	05	15.0000	3.7395	3.739	26.398
9	STD6-20.0 ppb	06	20.0000	4.9803	4.980	35.209

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

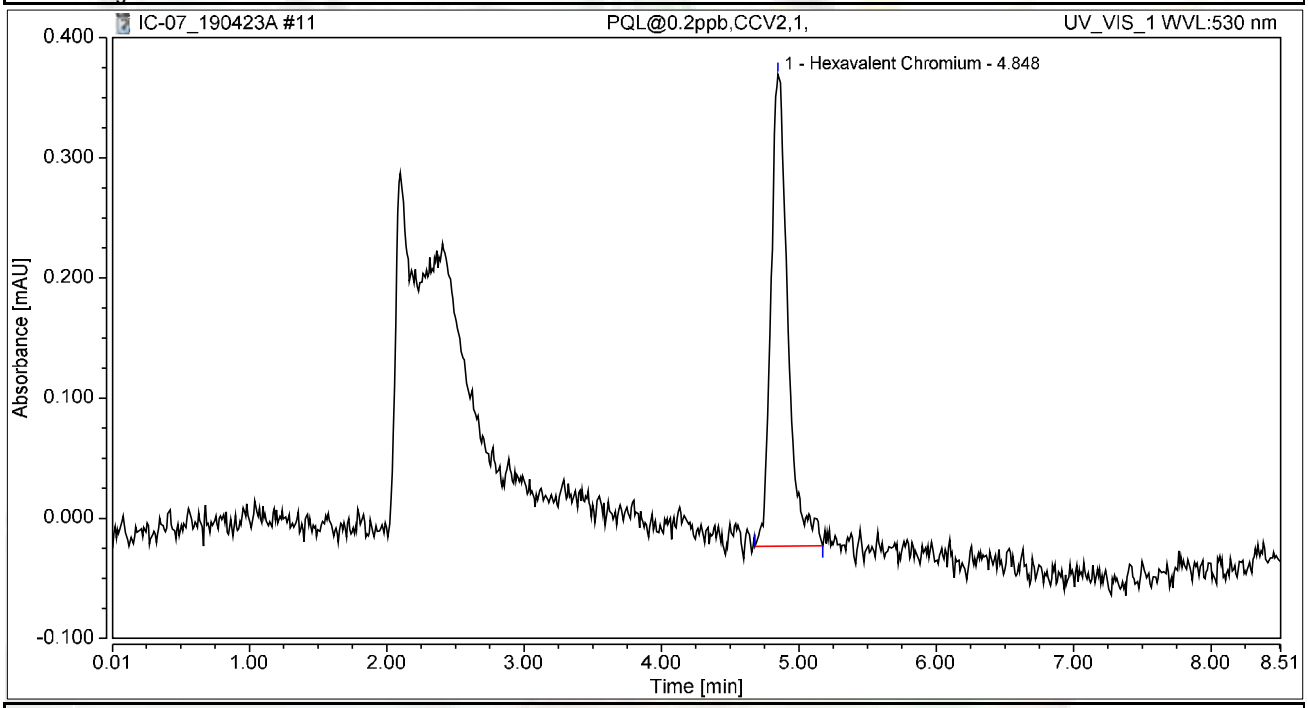
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.258	8.864	100.00	100.00	5.0544
Total:			**1.258**	**8.864**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

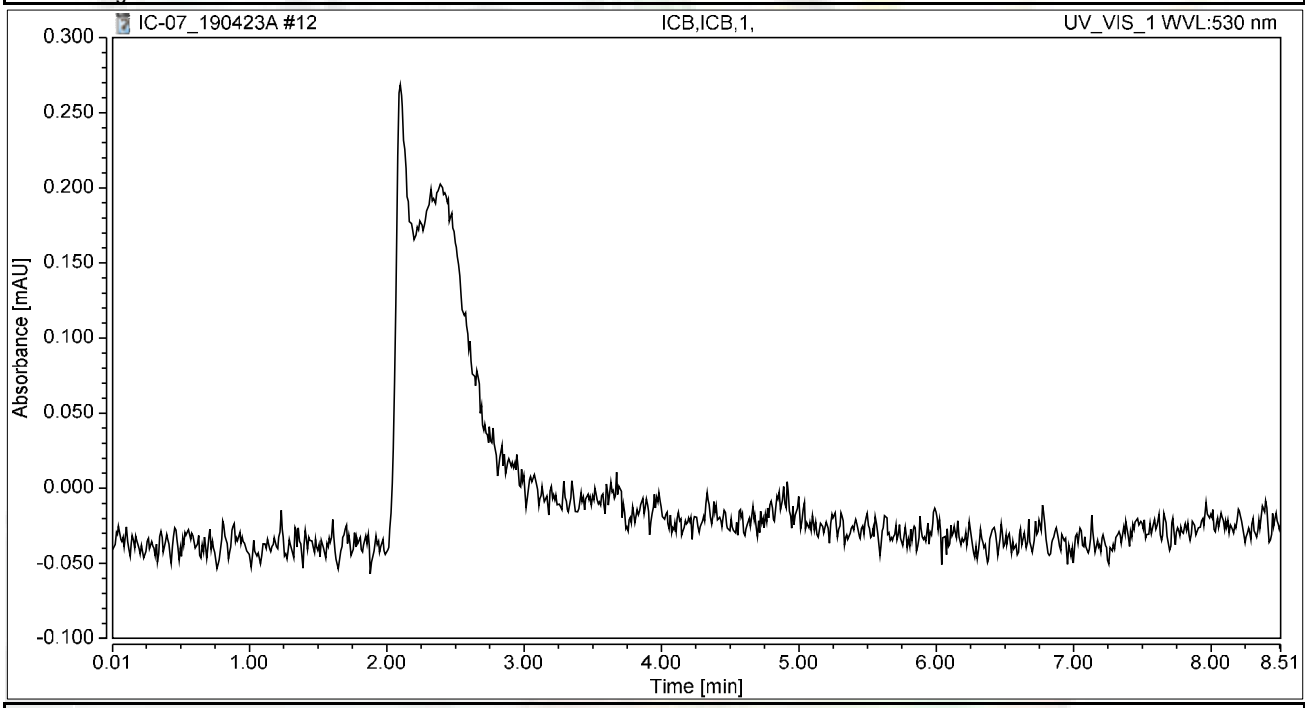
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.056	0.392	100.00	100.00	0.2256
Total:			**0.056**	**0.392**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/Apr/19 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190425A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	04/25/19 8:23 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	04/25/19 8:34 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/25/19 8:43 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	04/25/19 8:53 AM	Reported
14	MB-R133466	MBLK	1	Hexavalent Chromium	04/25/19 9:02 AM	Reported
15	LCS-R133466	LCS	1	Hexavalent Chromium	04/25/19 9:12 AM	Reported
16	N035272-001A	SAMP	5	Hexavalent Chromium	04/25/19 9:24 AM	Reported
17	N035272-001AMS	MS	5	Hexavalent Chromium	04/25/19 9:34 AM	Reported
18	N035273-003A	SAMP	5	Hexavalent Chromium	04/25/19 9:44 AM	Reported
19	N035273-003AMS	MS	5	Hexavalent Chromium	04/25/19 9:53 AM	Reported
20	N035272-001AMSD	MSD	5	Hexavalent Chromium	04/25/19 10:03 AM	Reported
21	N035274-009A	SAMP	10	Hexavalent Chromium	04/25/19 10:12 AM	Reported
22	N035274-009ADUP	DUP	10	Hexavalent Chromium	04/25/19 10:22 AM	Reported
23	N035274-009AMS	MS	10	Hexavalent Chromium	04/25/19 10:31 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	04/25/19 10:41 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	04/25/19 10:50 AM	Reported
26	N035272-001A	SAMP	1	Hexavalent Chromium	04/25/19 11:00 AM	Not Reported
27	N035272-001AMS	MS	1	Hexavalent Chromium	04/25/19 11:09 AM	Not Reported
28	N035273-003A	SAMP	1	Hexavalent Chromium	04/25/19 11:19 AM	Not Reported
29	N035273-003AMS	MS	1	Hexavalent Chromium	04/25/19 11:28 AM	Not Reported
30	N035273-002A	SAMP	1	Hexavalent Chromium	04/25/19 11:37 AM	Not Reported
31	N035273-002AMS	MS	1	Hexavalent Chromium	04/25/19 11:47 AM	Reported
32	N035066-006A	SAMP	1	Hexavalent Chromium	04/25/19 11:56 AM	Not Reported
33	N035066-006AMS	MS	1	Hexavalent Chromium	04/25/19 12:06 PM	Not Reported
34	N035066-011A	SAMP	1	Hexavalent Chromium	04/25/19 12:15 PM	Not Reported
35	N035066-011AMS	MS	1	Hexavalent Chromium	04/25/19 12:25 PM	Not Reported
36	CCV-3	CCV	1	Hexavalent Chromium	04/25/19 12:34 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	04/25/19 12:44 PM	Reported
38	N035066-013A	SAMP	1	Hexavalent Chromium	04/25/19 12:53 PM	Not Reported
39	N035066-013AMS	MS	1	Hexavalent Chromium	04/25/19 1:03 PM	Not Reported
40	N035066-014A	SAMP	1	Hexavalent Chromium	04/25/19 1:12 PM	Not Reported
41	N035066-014AMS	MS	1	Hexavalent Chromium	04/25/19 1:22 PM	Not Reported
42	N035066-015A	SAMP	1	Hexavalent Chromium	04/25/19 1:31 PM	Not Reported

INJECTION LOG: 190425A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035066-015AMS	MS	1	Hexavalent Chromium	04/25/19 1:40 PM	Not Reported
44	N035274-002A	SAMP	5	Hexavalent Chromium	04/25/19 1:50 PM	Not Reported
45	N035274-002AMS	MS	5	Hexavalent Chromium	04/25/19 1:59 PM	Not Reported
46	N035274-003A	SAMP	5	Hexavalent Chromium	04/25/19 2:09 PM	Not Reported
47	N035274-003AMS	MS	5	Hexavalent Chromium	04/25/19 2:18 PM	Not Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	04/25/19 2:28 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	04/25/19 2:37 PM	Reported
50	N035274-006A	SAMP	5	Hexavalent Chromium	04/25/19 2:47 PM	Not Reported
51	N035274-006AMS	MS	5	Hexavalent Chromium	04/25/19 2:56 PM	Not Reported
52	N035274-008A	SAMP	5	Hexavalent Chromium	04/25/19 3:06 PM	Not Reported
53	N035274-008AMS	MS	5	Hexavalent Chromium	04/25/19 3:15 PM	Not Reported
54	N035274-001A	SAMP	1	Hexavalent Chromium	04/25/19 3:43 PM	Reported
55	N035274-001AMS	MS	1	Hexavalent Chromium	04/25/19 3:54 PM	Reported
56	N035274-011A	SAMP	1	Hexavalent Chromium	04/25/19 4:03 PM	Reported
57	N035274-011AMS	MS	1	Hexavalent Chromium	04/25/19 4:13 PM	Reported
58	N035274-004A	SAMP	1	Hexavalent Chromium	04/25/19 4:22 PM	Reported
59	N035274-004AMS	MS	1	Hexavalent Chromium	04/25/19 4:31 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	04/25/19 4:41 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	04/25/19 4:50 PM	Reported
62	N035274-005A	SAMP	1	Hexavalent Chromium	04/25/19 5:00 PM	Reported
63	N035274-005AMS	MS	1	Hexavalent Chromium	04/25/19 5:09 PM	Reported
64	N035274-007A	SAMP	1	Hexavalent Chromium	04/25/19 5:19 PM	Reported
65	N035274-007AMS	MS	1	Hexavalent Chromium	04/25/19 5:28 PM	Reported
66	N035274-010A	SAMP	1	Hexavalent Chromium	04/25/19 5:38 PM	Reported
67	N035274-010AMS	MS	1	Hexavalent Chromium	04/25/19 5:47 PM	Reported
68	N035274-012A	SAMP	1	Hexavalent Chromium	04/25/19 5:57 PM	Reported
69	N035274-012AMS	MS	1	Hexavalent Chromium	04/25/19 6:06 PM	Reported
70	N035273-002A	SAMP	1	Hexavalent Chromium	04/25/19 6:16 PM	Reported
71	CCV-6	CCV1	1	Hexavalent Chromium	04/25/19 6:25 PM	Reported
72	CCB-6	CCB	1	Hexavalent Chromium	04/25/19 6:34 PM	Reported
73	N035274-002A	SAMP	1	Hexavalent Chromium	04/25/19 6:44 PM	Reported
74	N035274-002AMS	MS	1	Hexavalent Chromium	04/25/19 6:53 PM	Reported
75	N035274-003A	SAMP	1	Hexavalent Chromium	04/25/19 7:03 PM	Reported
76	N035274-003AMS	MS	1	Hexavalent Chromium	04/25/19 7:12 PM	Reported
77	N035274-006A	SAMP	1	Hexavalent Chromium	04/25/19 7:22 PM	Reported
78	N035274-006AMS	MS	1	Hexavalent Chromium	04/25/19 7:31 PM	Reported
79	N035274-008A	SAMP	1	Hexavalent Chromium	04/25/19 7:41 PM	Reported
80	N035274-008AMS	MS	1	Hexavalent Chromium	04/25/19 7:50 PM	Reported
81	BLANK	BLANK	1	Hexavalent Chromium	04/25/19 8:00 PM	Not Reported
82	CCV-7	CCV	1	Hexavalent Chromium	04/25/19 8:09 PM	Reported
83	CCB-7	CCB	1	Hexavalent Chromium	04/25/19 8:19 PM	Reported
84	BLANK	BLANK	1	Hexavalent Chromium	04/25/19 8:28 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190425A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**25/Apr/19 20:58:50**
No. of Injections:	**87**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		04/25/2019 08:23	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		04/25/2019 08:34	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		04/25/2019 08:43	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		04/25/2019 08:53	Finished	CCB R190411C
14	MB-H2O,MBLK,1,	5	1000	Unknown		04/25/2019 09:02	Finished	MB R190411C
15	LCS-H2O,LCS,1,	6	1000	Unknown		04/25/2019 09:12	Finished	LCS @5ppb, IWST-190423B
16	N035272-001A,SAMF	1	1000	Unknown		04/25/2019 09:24	Finished	SAMP,2>10mL
17	N035272-001AMS,MS	2	1000	Unknown		04/25/2019 09:34	Finished	MS (1ppb), IWST-190423B,2>1
18	N035273-003A,SAMF	3	1000	Unknown		04/25/2019 09:44	Finished	SAMP,2>10mL
19	N035273-003AMS,MS	4	1000	Unknown		04/25/2019 09:53	Finished	MS (1ppb), IWST-190423B,2>1
20	N035272-001AMSD,M	5	1000	Unknown		04/25/2019 10:03	Finished	MSD (1ppb), IWST-190423B,2>
21	N035274-009A,SAMF	6	1000	Unknown		04/25/2019 10:12	Finished	SAMP,1>10mL
22	N035274-009ADUP,D	7	1000	Unknown		04/25/2019 10:22	Finished	DUP,1>10mL
23	N035274-009AMS,MS	8	1000	Unknown		04/25/2019 10:31	Finished	MS (5ppb), IWST-190423B,1>1
24	CCV-2,CCV1,1,	9	1000	Unknown		04/25/2019 10:41	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	10	1000	Unknown		04/25/2019 10:50	Finished	CCB R190411C
26	N035272-001A,SAMF	11	1000	Unknown		04/25/2019 11:00	Finished	SAMP,10mL
27	N035272-001AMS,MS	12	1000	Unknown		04/25/2019 11:09	Finished	MS (1ppb), IWST-190423B,10
28	N035273-003A,SAMF	13	1000	Unknown		04/25/2019 11:19	Finished	SAMP,10mL
29	N035273-003AMS,MS	14	1000	Unknown		04/25/2019 11:28	Finished	MS (1ppb), IWST-190423B,10
30	N035273-002A,SAMF	15	1000	Unknown		04/25/2019 11:37	Finished	SAMP,10mL
31	N035273-002AMS,MS	16	1000	Unknown		04/25/2019 11:47	Finished	MS (1ppb), IWST-190423B,10
32	N035066-006A,SAMF	17	1000	Unknown		04/25/2019 11:56	Finished	SAMP,10mL
33	N035066-006AMS,MS	18	1000	Unknown		04/25/2019 12:06	Finished	MS (5ppb), IWST-190423B,10
34	N035066-011A,SAMF	19	1000	Unknown		04/25/2019 12:15	Finished	SAMP,10mL
35	N035066-011AMS,MS	20	1000	Unknown		04/25/2019 12:25	Finished	MS (5ppb), IWST-190423B,10
36	CCV-3,CCV,1,	21	1000	Unknown		04/25/2019 12:34	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	22	1000	Unknown		04/25/2019 12:44	Finished	CCB R190411C
38	N035066-013A,SAMF	23	1000	Unknown		04/25/2019 12:53	Finished	SAMP,10mL
39	N035066-013AMS,MS	24	1000	Unknown		04/25/2019 13:03	Finished	MS (5ppb), IWST-190423B,10
40	N035066-014A,SAMF	25	1000	Unknown		04/25/2019 13:12	Finished	SAMP,10mL
41	N035066-014AMS,MS	26	1000	Unknown		04/25/2019 13:22	Finished	MS (5ppb), IWST-190423B,10
42	N035066-015A,SAMF	27	1000	Unknown		04/25/2019 13:31	Finished	SAMP,10mL
43	N035066-015AMS,MS	28	1000	Unknown		04/25/2019 13:40	Finished	MS (5ppb), IWST-190423B,10
44	N035274-002A,SAMF	29	1000	Unknown		04/25/2019 13:50	Finished	SAMP,2>10mL
45	N035274-002AMS,MS	30	1000	Unknown		04/25/2019 13:59	Finished	MS (1ppb), IWST-190423B,2>1
46	N035274-003A,SAMF	31	1000	Unknown		04/25/2019 14:09	Finished	SAMP,2>10mL
47	N035274-003AMS,MS	32	1000	Unknown		04/25/2019 14:18	Finished	MS (1ppb), IWST-190423B,2>1
48	CCV-4,CCV1,1,	33	1000	Unknown		04/25/2019 14:28	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	34	1000	Unknown		04/25/2019 14:37	Finished	CCB R190411C
50	N035274-006A,SAMF	35	1000	Unknown		04/25/2019 14:47	Finished	SAMP,2>10mL
51	N035274-006AMS,MS	36	1000	Unknown		04/25/2019 14:56	Finished	MS (1ppb), IWST-190423B,2>1
52	N035274-008A,SAMF	37	1000	Unknown		04/25/2019 15:06	Finished	SAMP,2>10mL
53	N035274-008AMS,MS	38	1000	Unknown		04/25/2019 15:15	Finished	MS (1ppb), IWST-190423B,2>1
54	N035274-001A,SAMF	1	1000	Unknown		04/25/2019 15:43	Finished	SAMP,10mL
55	N035274-001AMS,MS	2	1000	Unknown		04/25/2019 15:54	Finished	MS (1ppb), IWST-190423B,10
56	N035274-011A,SAMF	3	1000	Unknown		04/25/2019 16:03	Finished	SAMP,10mL
57	N035274-011AMS,MS	4	1000	Unknown		04/25/2019 16:13	Finished	MS (1ppb), IWST-190423B,10
58	N035274-004A,SAMF	5	1000	Unknown		04/25/2019 16:22	Finished	SAMP,10mL
59	N035274-004AMS,MS	6	1000	Unknown		04/25/2019 16:31	Finished	MS (1ppb), IWST-190423B,10
60	CCV-5,CCV,1,	7	1000	Unknown		04/25/2019 16:41	Finished	CCV @5ppb, IWST-190423A

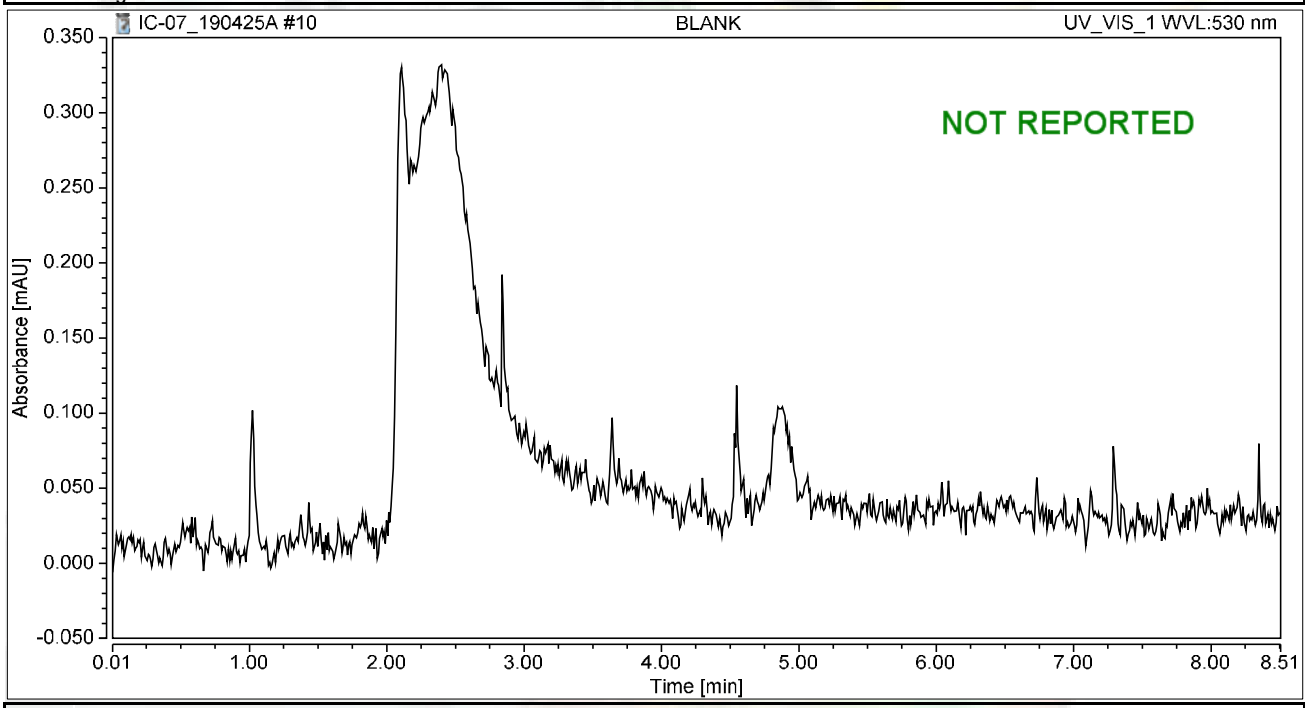
61	CCB-5,CCB,1,	8	1000	Unknown		04/25/2019 16:50	Finished	CCB R190411C
62	N035274-005A,SAMF	9	1000	Unknown		04/25/2019 17:00	Finished	SAMP,10mL
63	N035274-005AMS,MS	10	1000	Unknown		04/25/2019 17:09	Finished	MS (1ppb), IWST-190423B,10
64	N035274-007A,SAMF	11	1000	Unknown		04/25/2019 17:19	Finished	SAMP,10mL
65	N035274-007AMS,MS	12	1000	Unknown		04/25/2019 17:28	Finished	MS (1ppb), IWST-190423B,10
66	N035274-010A,SAMF	13	1000	Unknown		04/25/2019 17:38	Finished	SAMP,10mL
67	N035274-010AMS,MS	14	1000	Unknown		04/25/2019 17:47	Finished	MS (1ppb), IWST-190423B,10
68	N035274-012A,SAMF	15	1000	Unknown		04/25/2019 17:57	Finished	SAMP,10mL
69	N035274-012AMS,MS	16	1000	Unknown		04/25/2019 18:06	Finished	MS (1ppb), IWST-190423B,10
70	N035273-002A,SAMF	17	1000	Unknown		04/25/2019 18:16	Finished	SAMP,10mL
71	CCV-6,CCV1,1,	18	1000	Unknown		04/25/2019 18:25	Finished	CCV @10ppb, IWST-190423A
72	CCB-6,CCB,1,	19	1000	Unknown		04/25/2019 18:34	Finished	CCB R190411C
73	N035274-002A,SAMF	20	1000	Unknown		04/25/2019 18:44	Finished	SAMP,10mL
74	N035274-002AMS,MS	21	1000	Unknown		04/25/2019 18:53	Finished	MS (5ppb), IWST-190423B,10
75	N035274-003A,SAMF	22	1000	Unknown		04/25/2019 19:03	Finished	SAMP,10mL
76	N035274-003AMS,MS	23	1000	Unknown		04/25/2019 19:12	Finished	MS (1ppb), IWST-190423B,10
77	N035274-006A,SAMF	24	1000	Unknown		04/25/2019 19:22	Finished	SAMP,10mL
78	N035274-006AMS,MS	25	1000	Unknown		04/25/2019 19:31	Finished	MS (1ppb), IWST-190423B,10
79	N035274-008A,SAMF	26	1000	Unknown		04/25/2019 19:41	Finished	SAMP,10mL
80	N035274-008AMS,MS	27	1000	Unknown		04/25/2019 19:50	Finished	MS (1ppb), IWST-190423B,10
81	BLANK	28	1000	Unknown		04/25/2019 20:00	Finished	SAMP,10mL
82	CCV-7,CCV,1,	29	1000	Unknown		04/25/2019 20:09	Finished	CCV @5ppb, IWST-190423A
83	CCB-7,CCB,1,	30	1000	Unknown		04/25/2019 20:19	Finished	CCB R190411C
84	BLANK	31	1000	Unknown		04/25/2019 20:28	Finished	BLANK
85	SHUTDOWN	32	1000	Unknown		04/25/2019 20:37	Finished	
86	Eluent: R190424A	33	1000	Unknown		n.a.	Finished	Eluent
87	PCR: R190424B	34	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 08:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

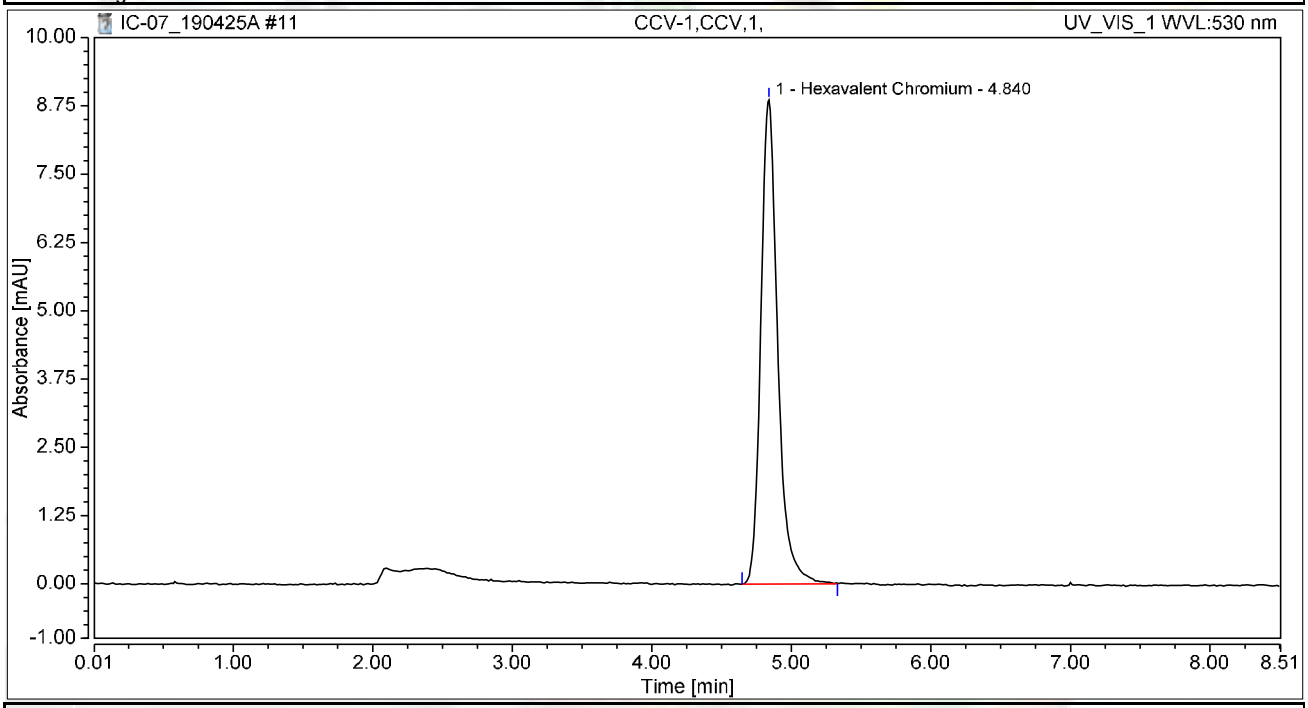
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 08:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

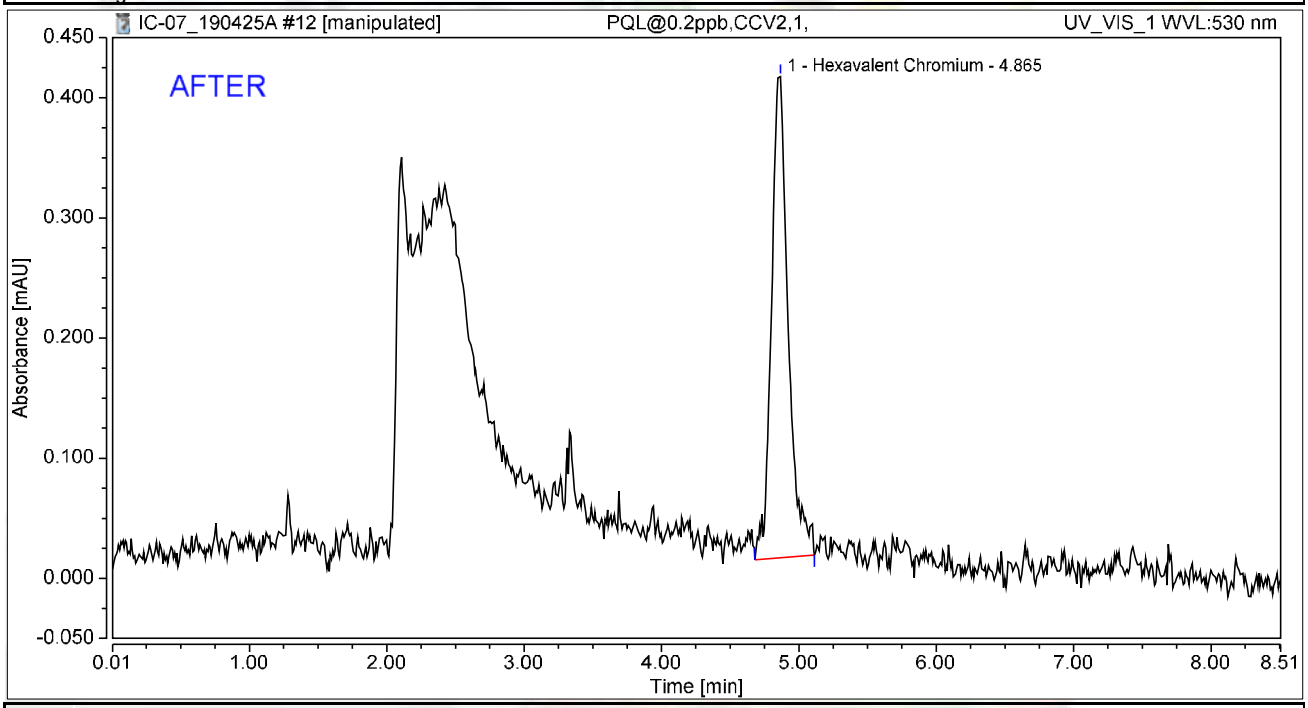
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	1.243	8.863	100.00	100.00	4.9919
Total:			**1.243**	**8.863**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 08:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	0.057	0.400	100.00	100.00	0.2280
Total:			**0.057**	**0.400**	**100.00**	**100.00**	

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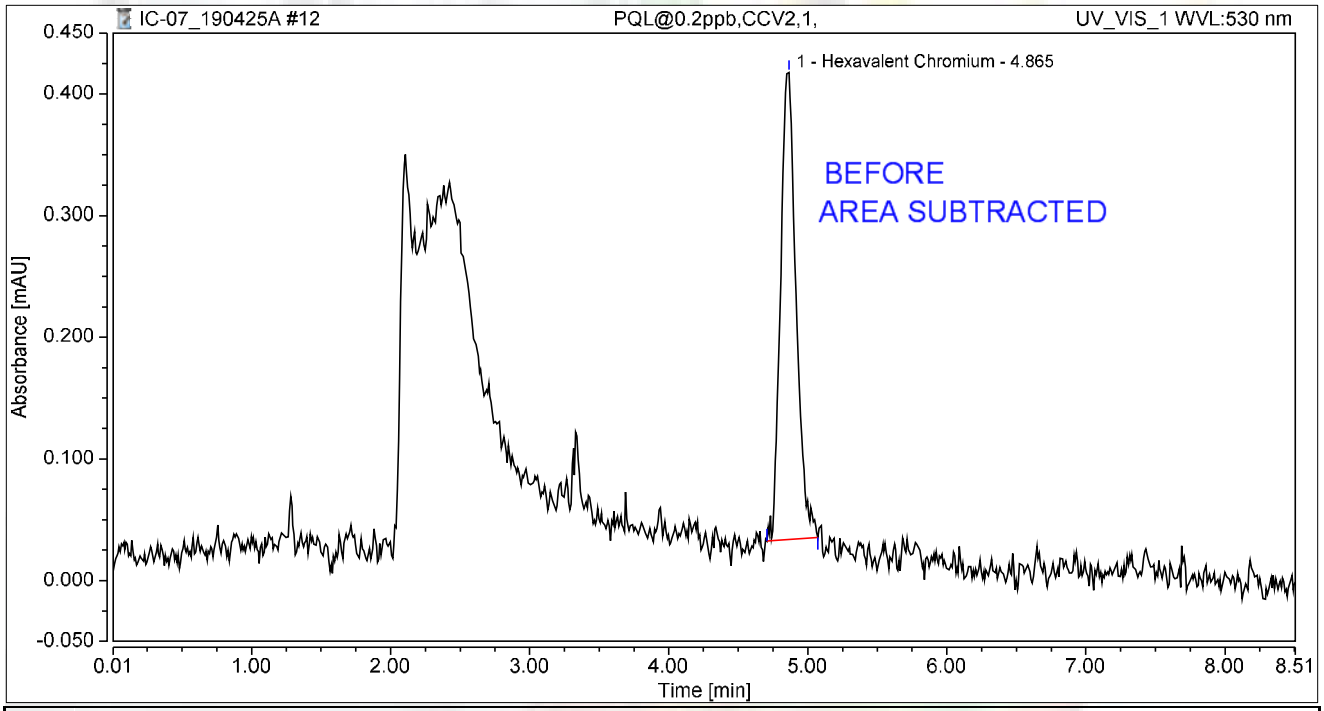
Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 08:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	0.050	0.384	100.00	100.00	0.1999
Total:			**0.050**	**0.384**	**100.00**	**100.00**	

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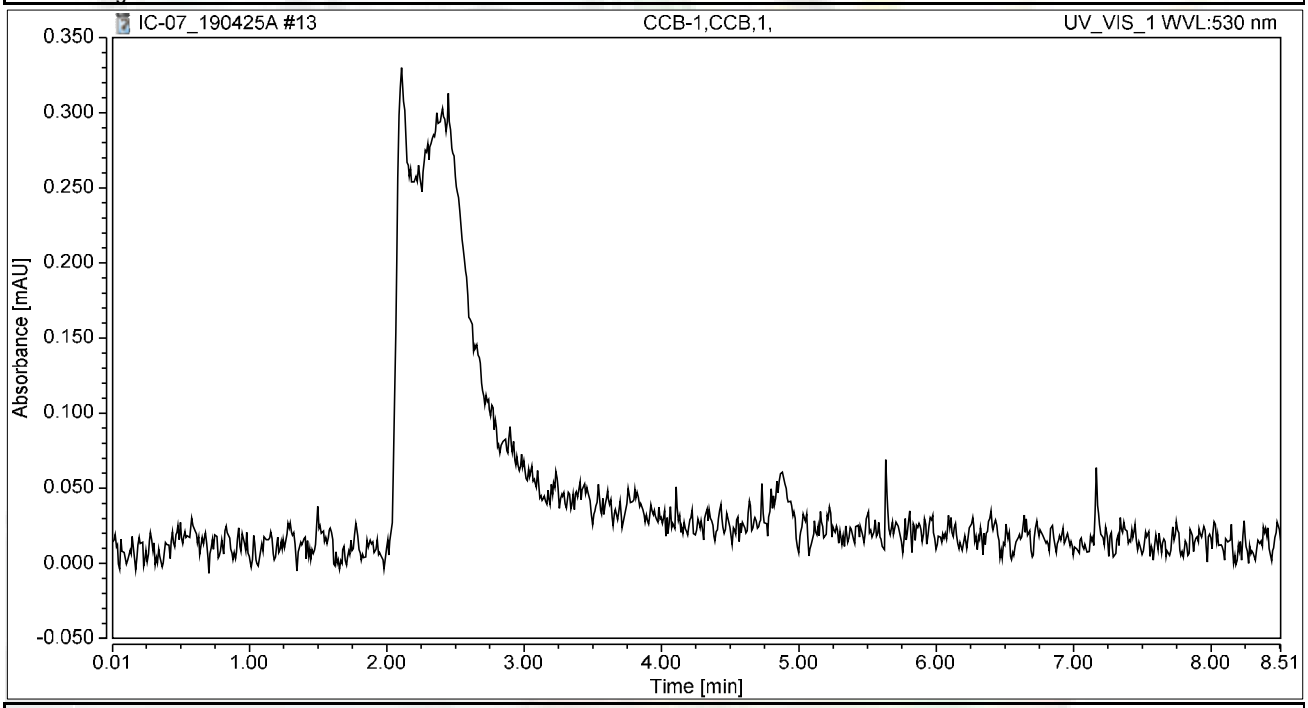
Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 08:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

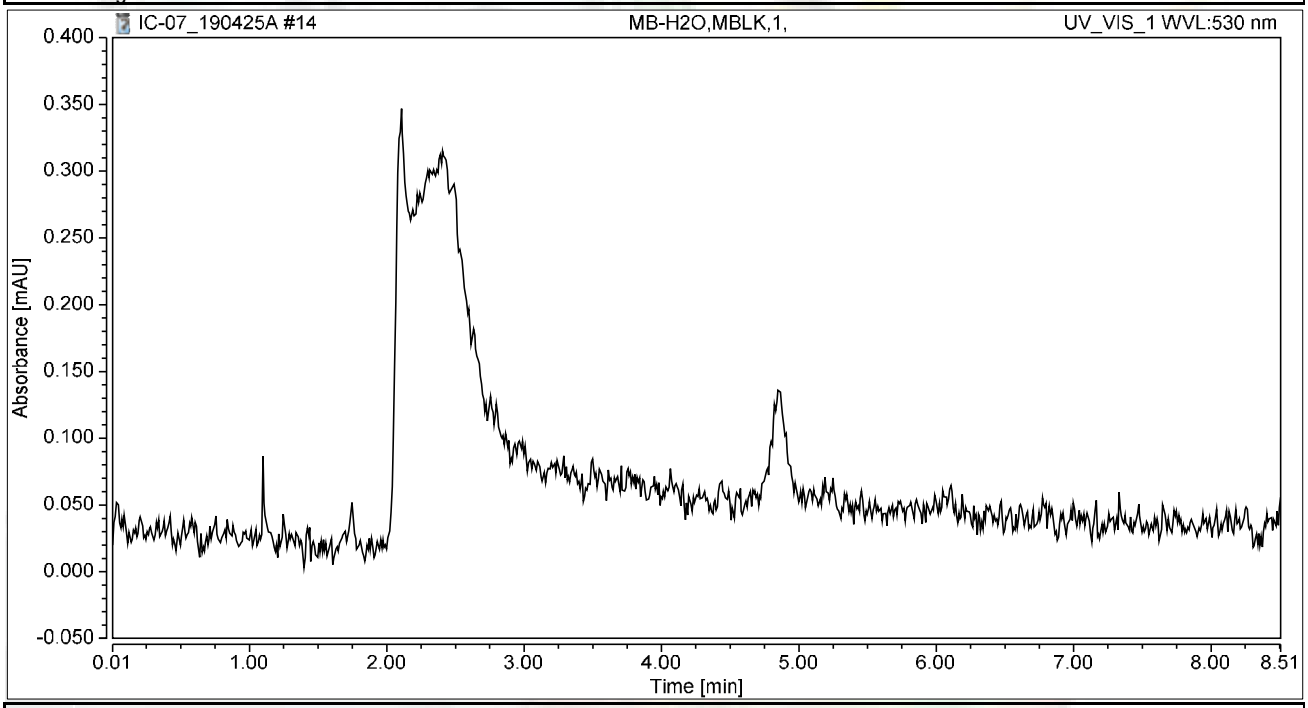
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 09:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

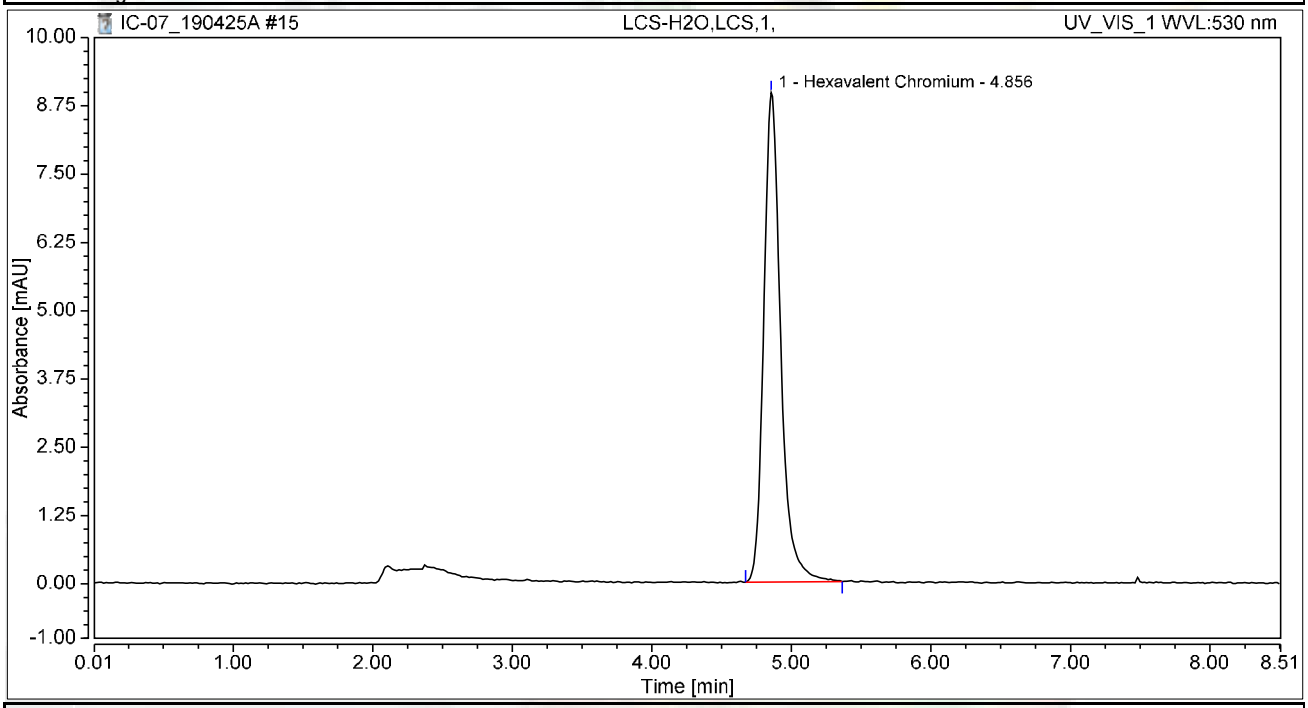
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 09:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

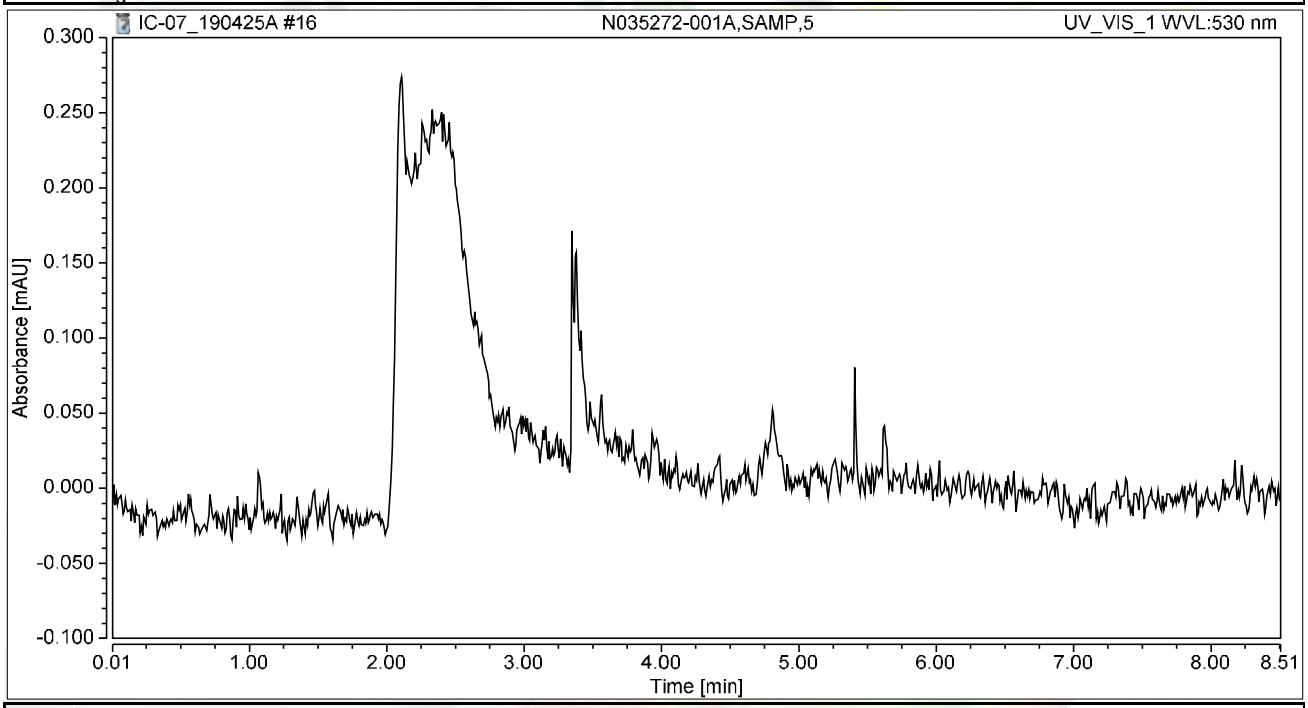
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.260	8.955	100.00	100.00	5.0610
Total:			**1.260**	**8.955**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035272-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 09:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

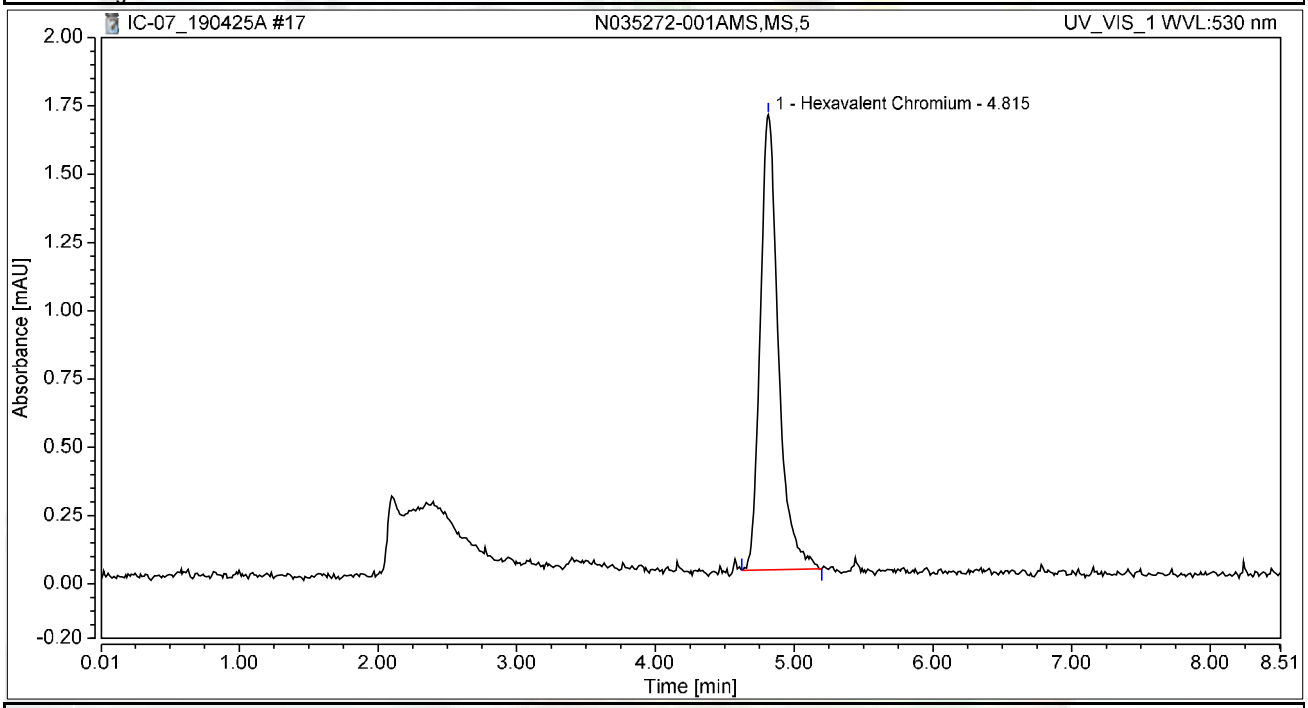
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035272-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 09:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

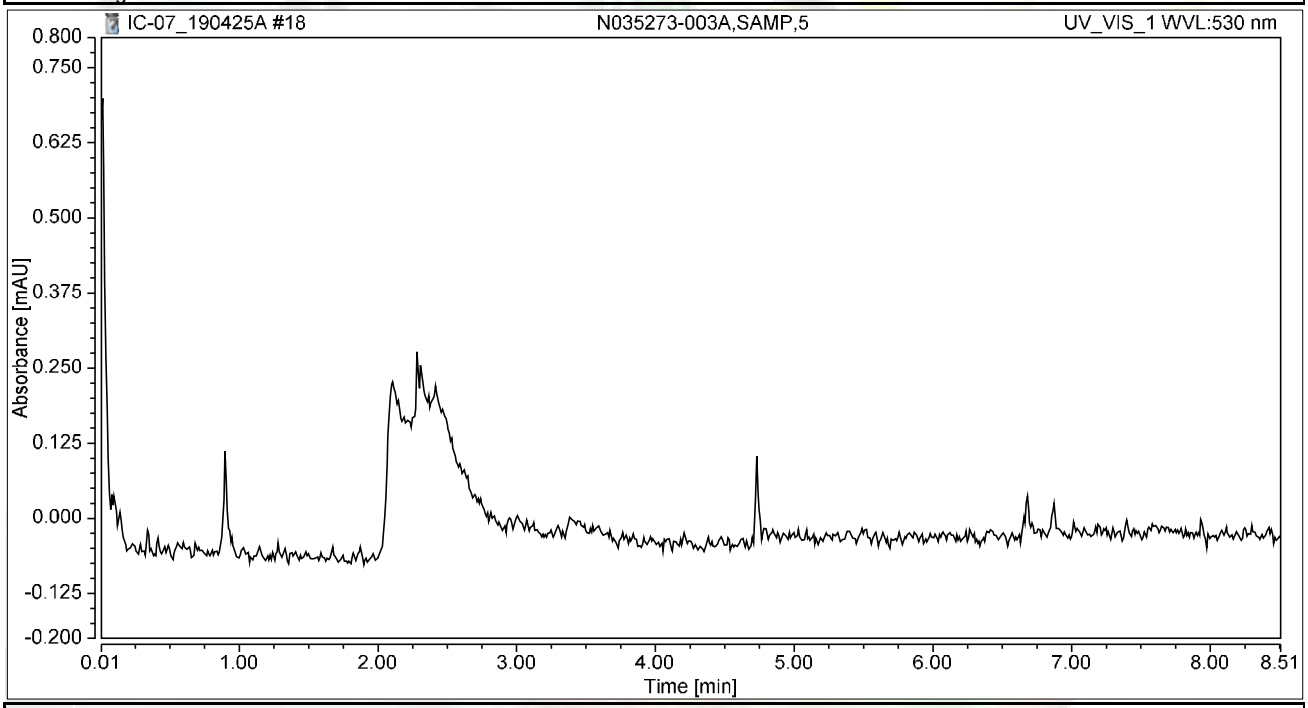
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.815	0.254	1.666	100.00	100.00	1.0205
Total:			**0.254**	**1.666**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035273-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 09:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

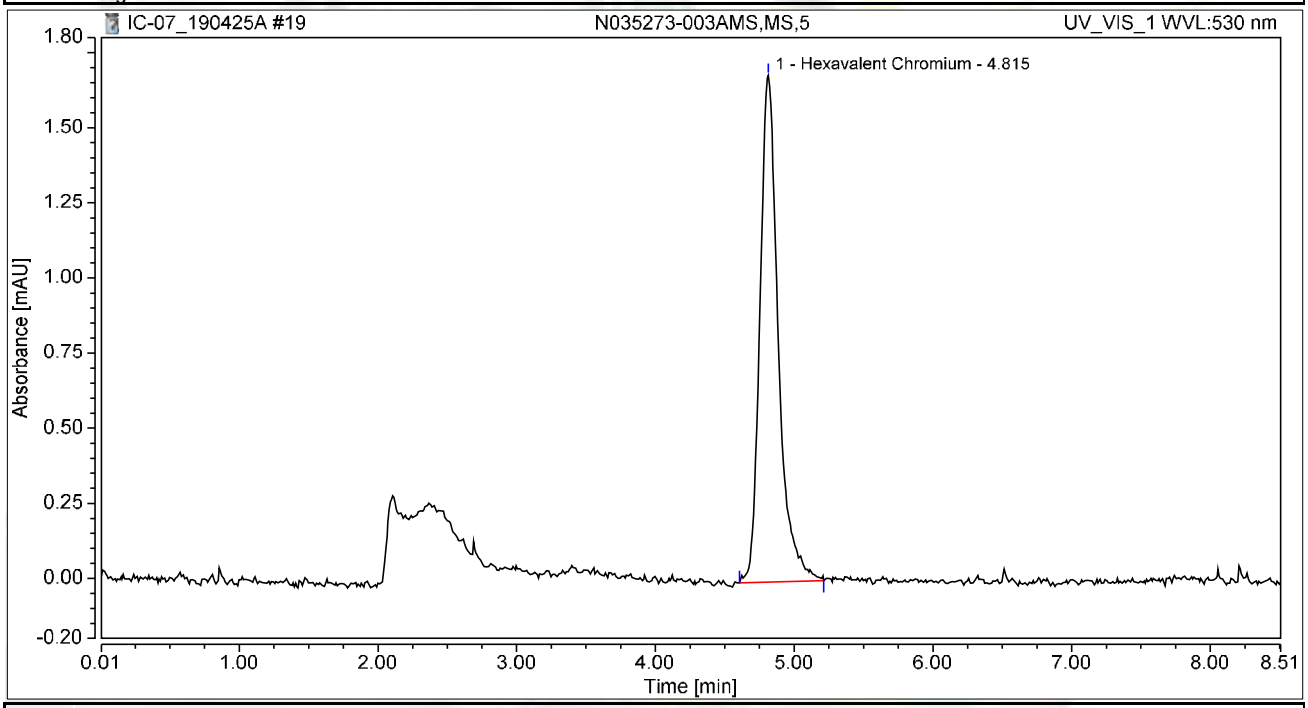
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035273-003AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 09:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

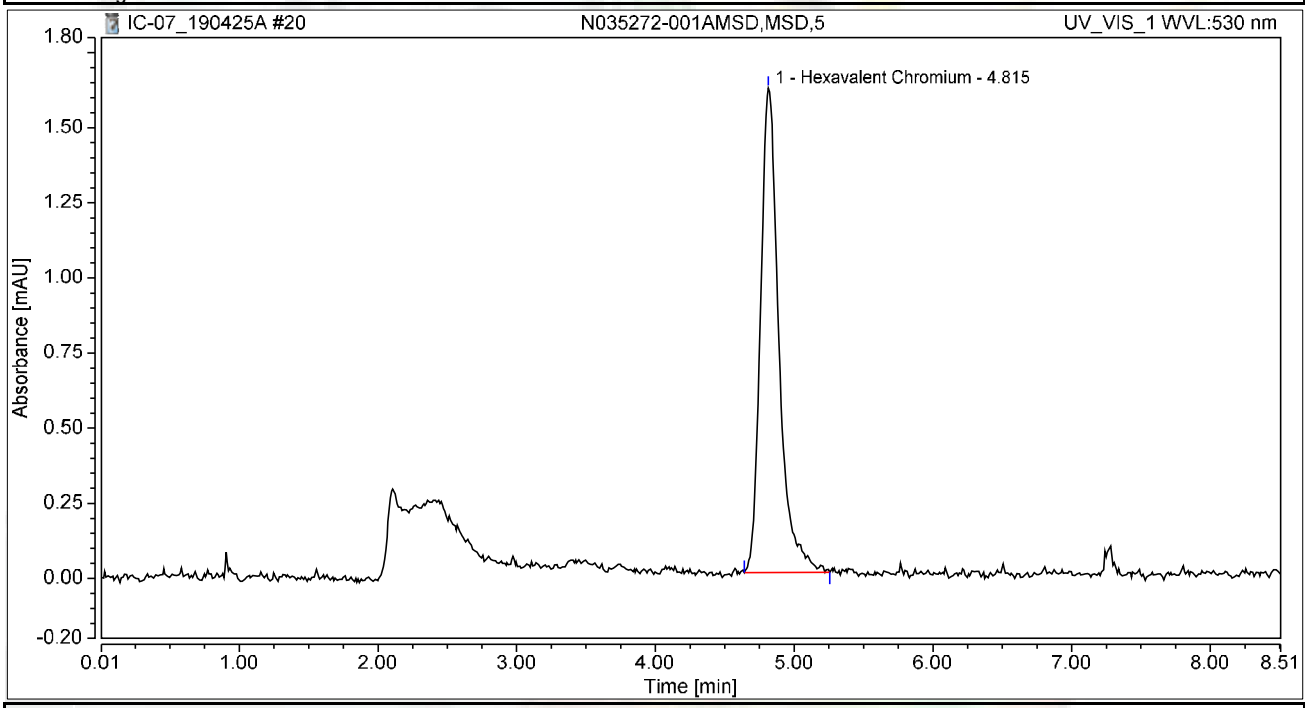
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.815	0.258	1.686	100.00	100.00	1.0364
Total:			**0.258**	**1.686**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035272-001AMSD,MSD,5**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

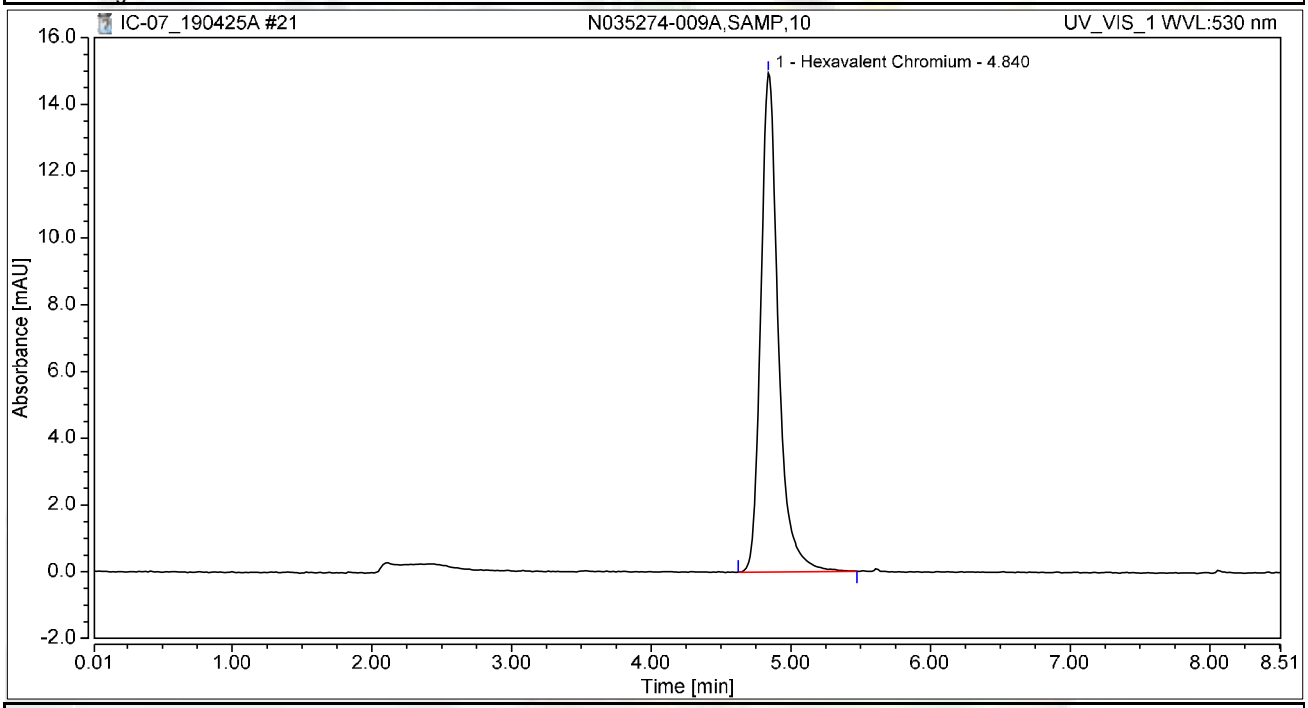
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.815	0.248	1.611	100.00	100.00	0.9946
Total:			**0.248**	**1.611**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-009A,SAMP,10**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 10:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

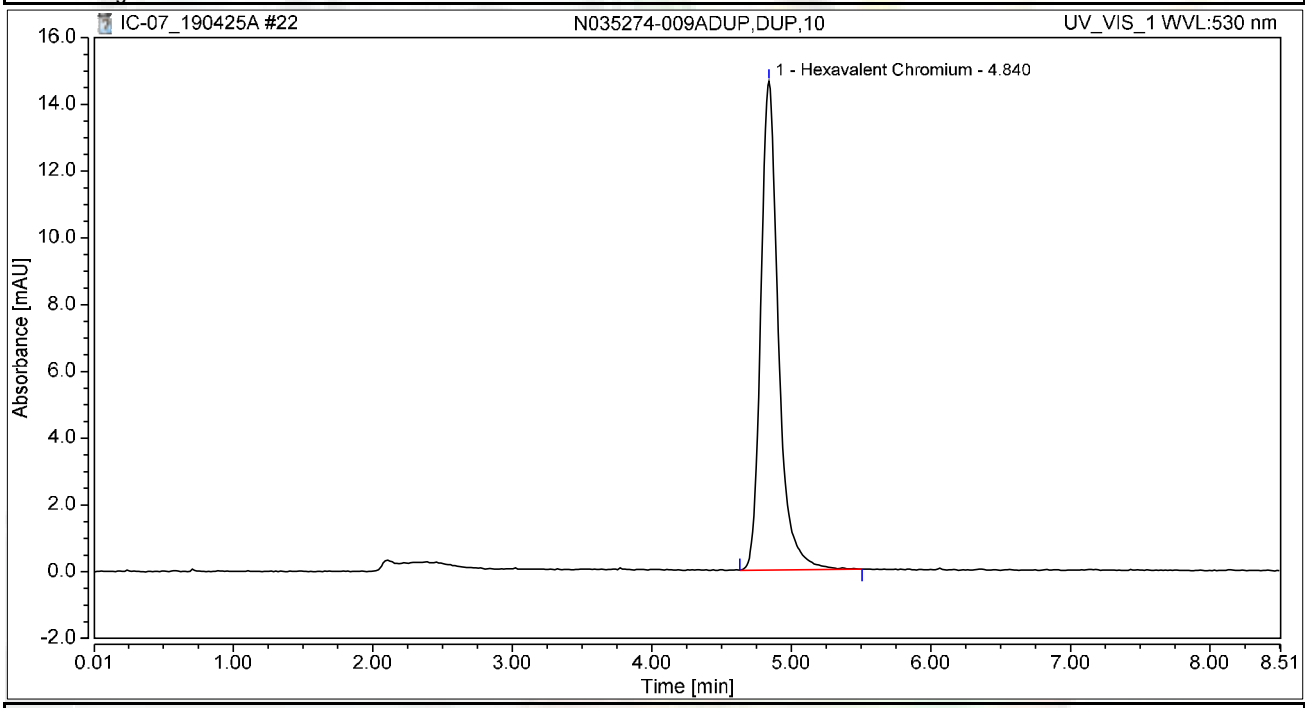
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	2.184	14.947	100.00	100.00	8.7730
Total:			**2.184**	**14.947**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-009ADUP,DUP,10**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

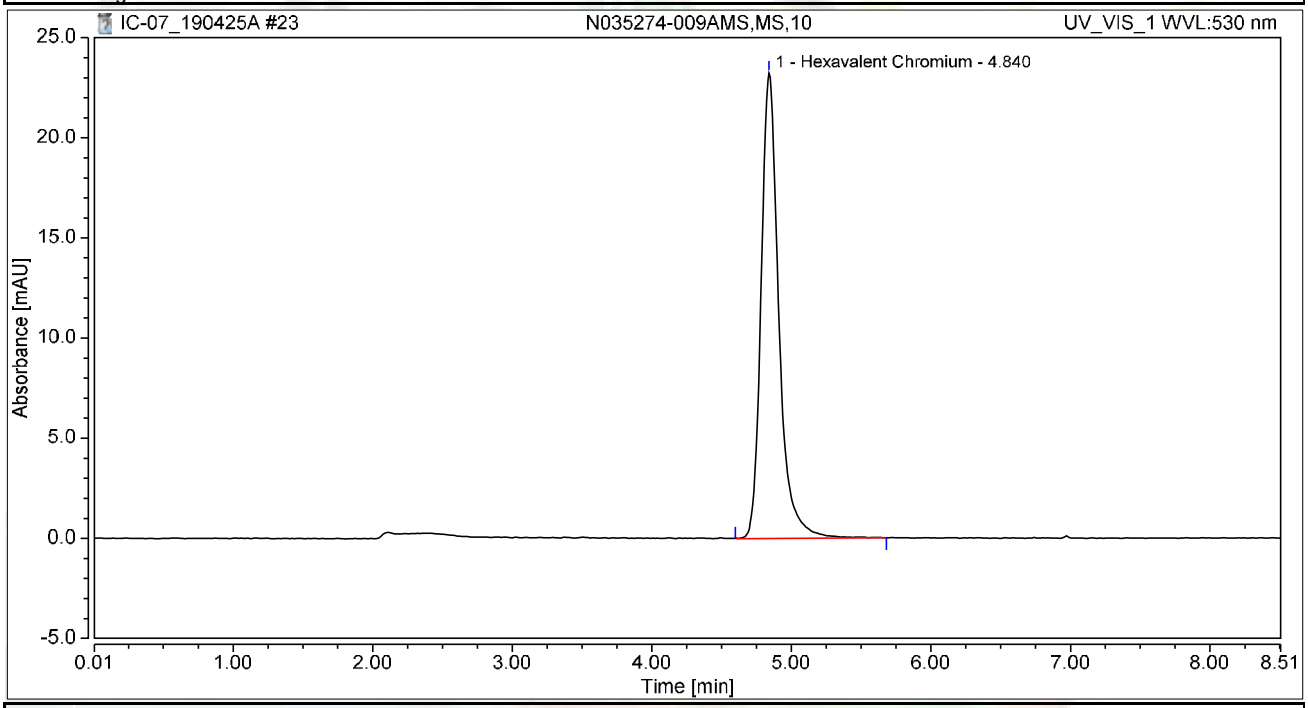
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	2.145	14.646	100.00	100.00	8.6173
Total:			**2.145**	**14.646**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-009AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 10:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

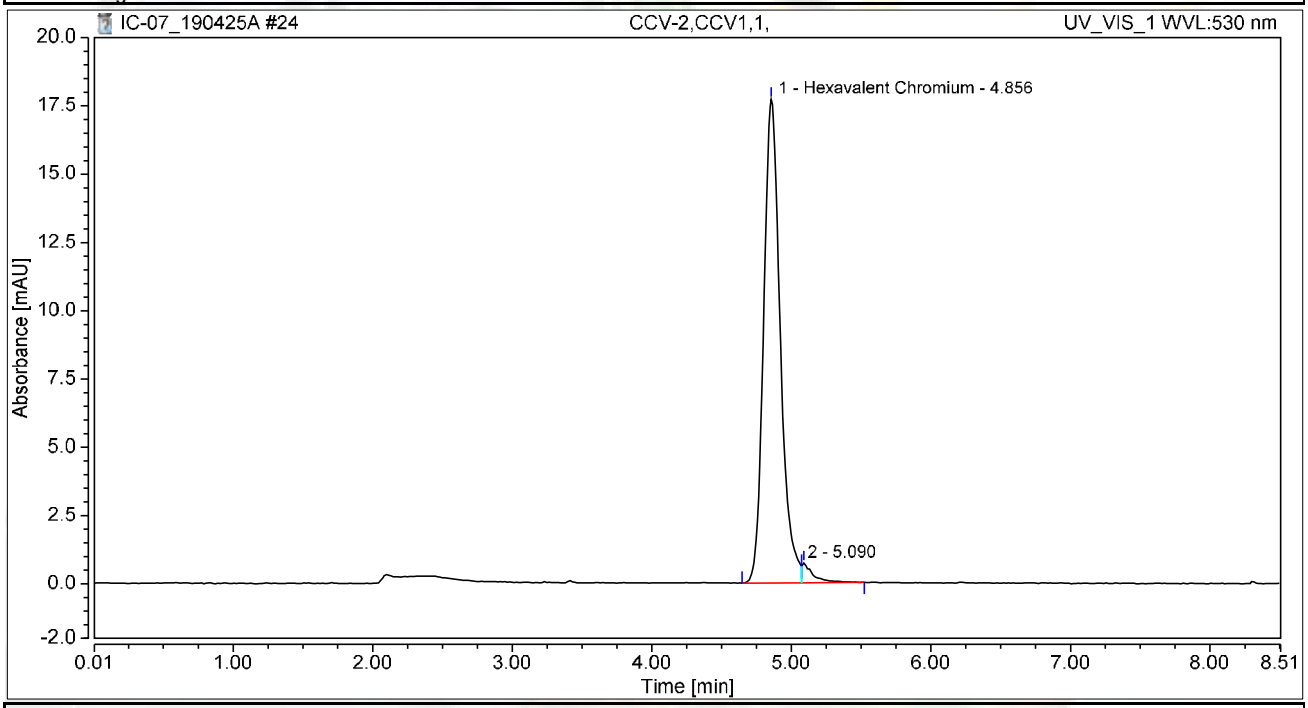
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	3.415	23.245	100.00	100.00	13.7156
Total:			**3.415**	**23.245**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

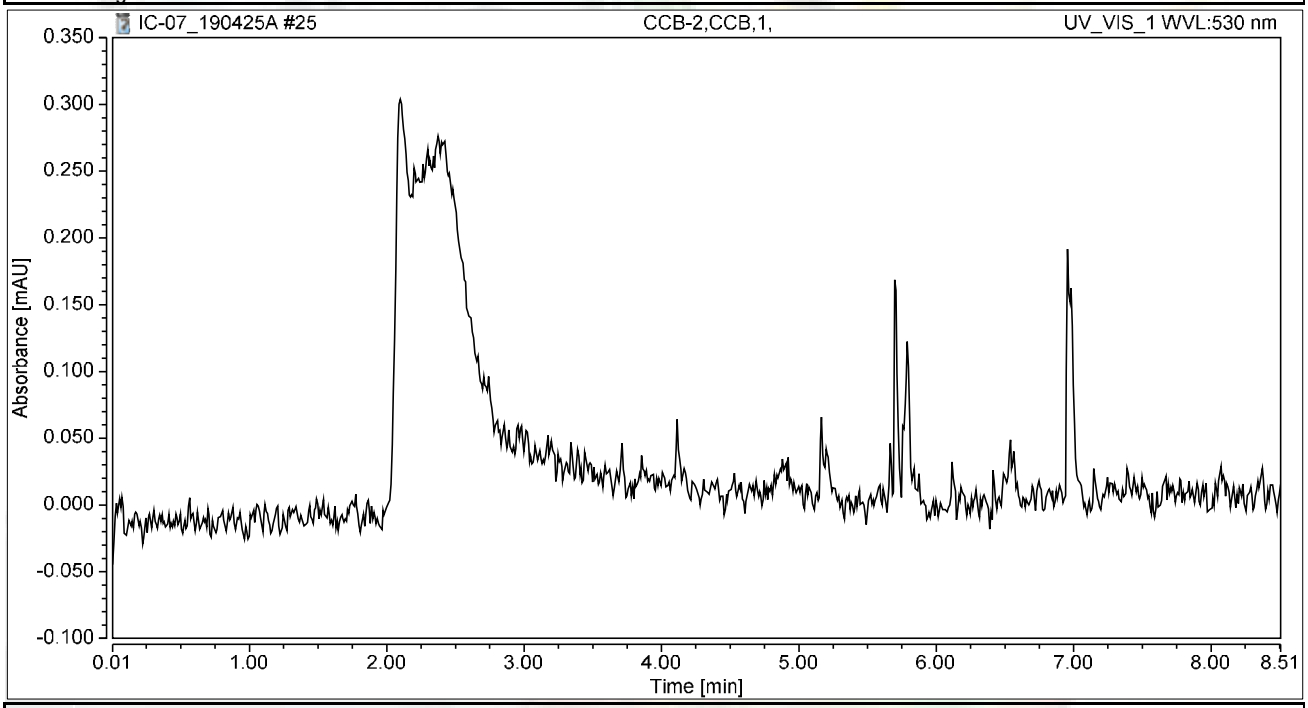
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.444	17.713	97.31	96.06	9.8150
2		5.090	0.068	0.726	2.69	3.94	n.a.
Total:			**2.511**	**18.439**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

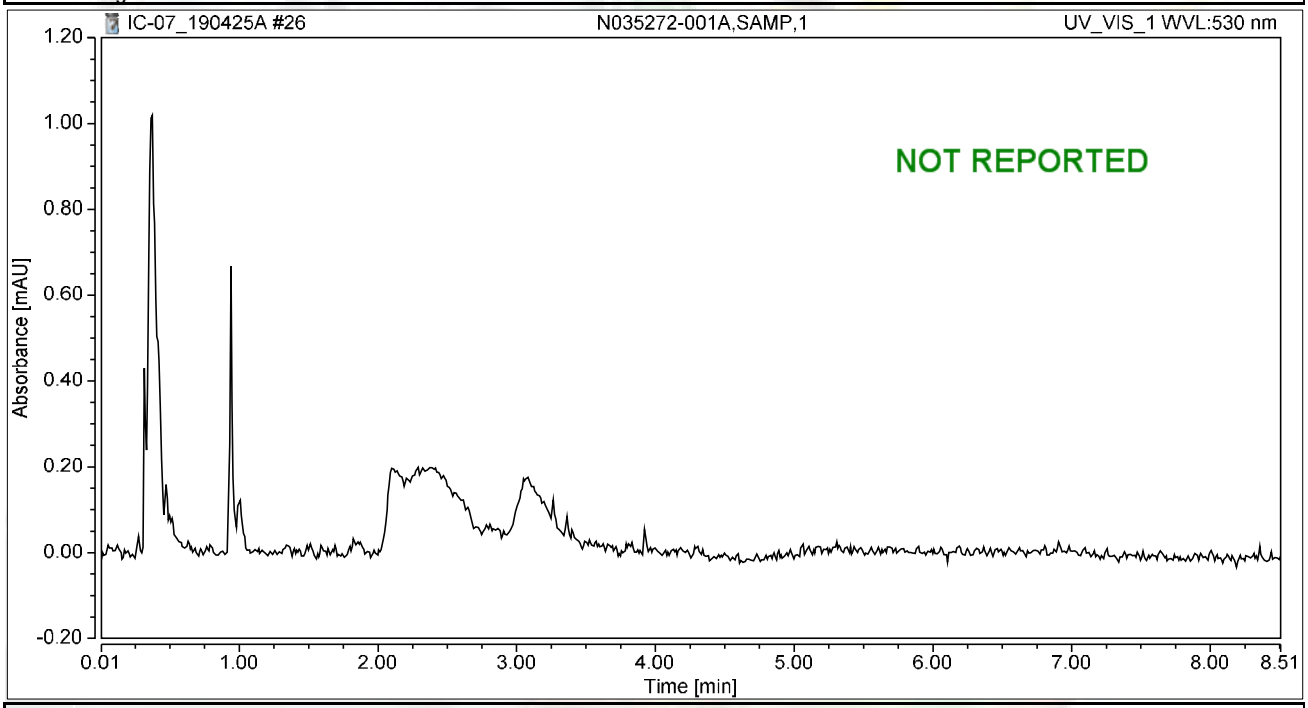
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035272-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

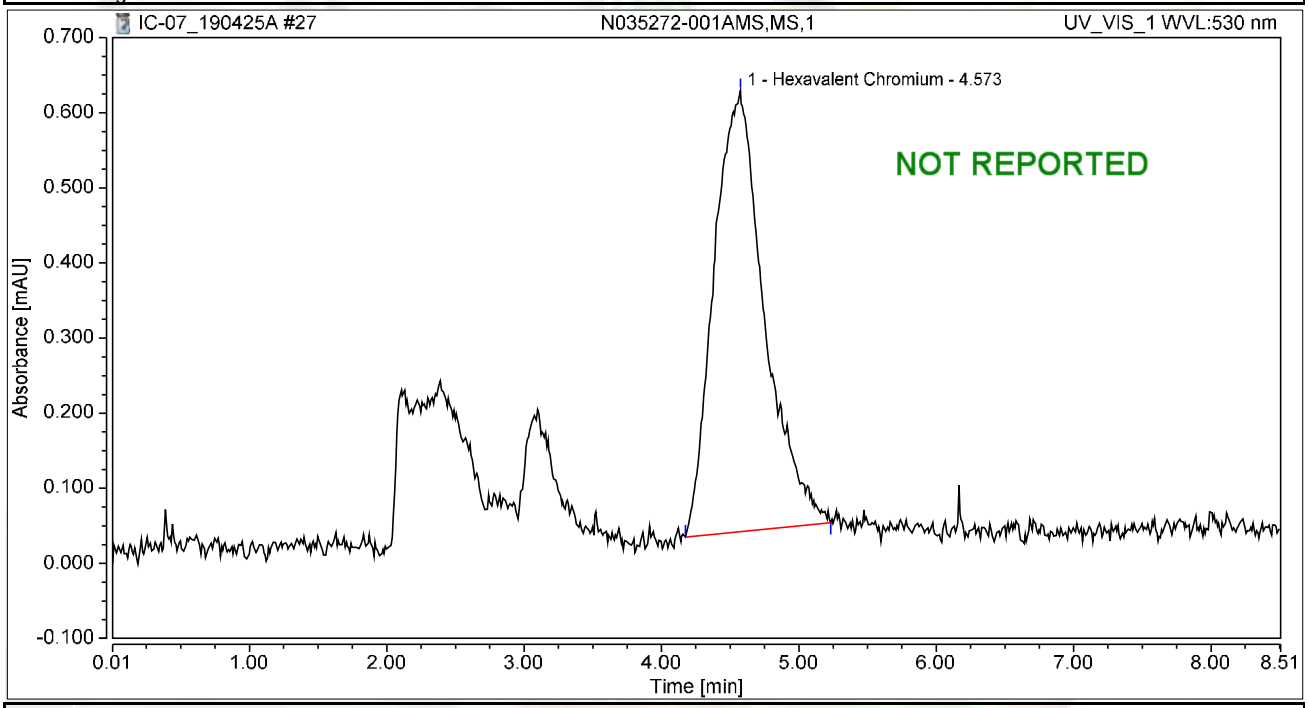
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035272-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

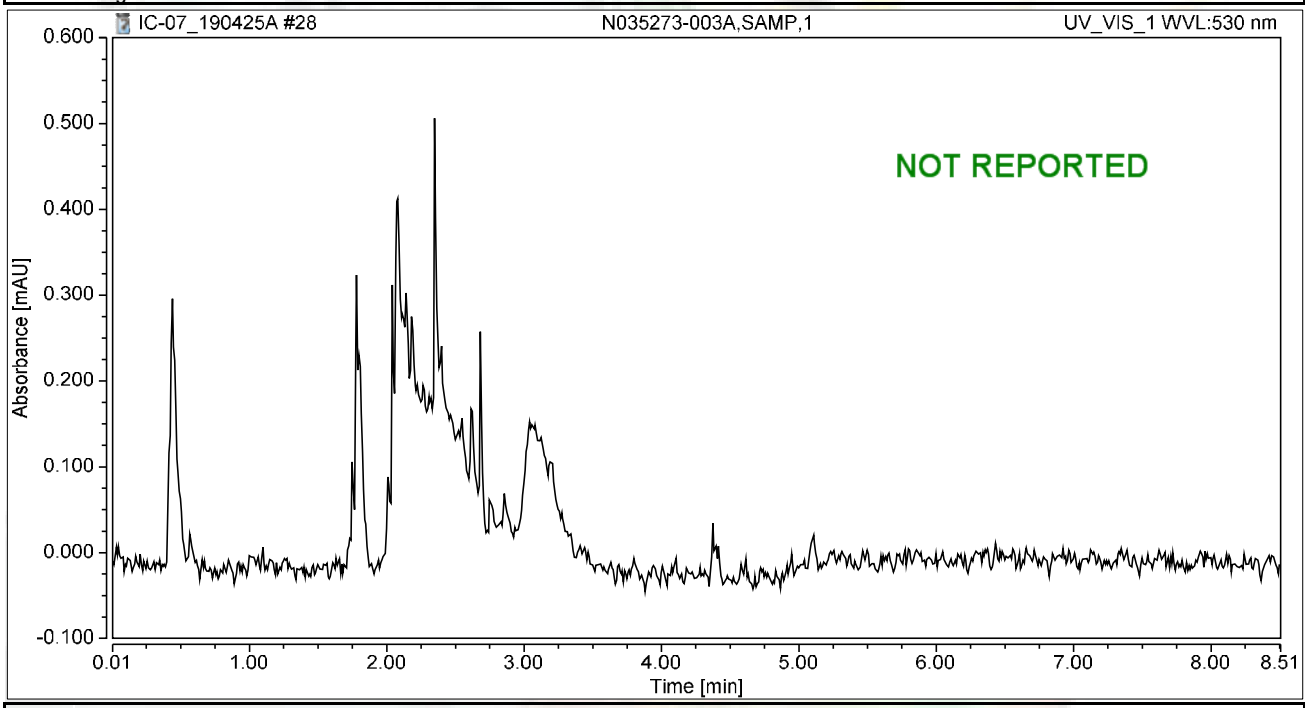
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.573	0.249	0.587	100.00	100.00	1.0013
Total:			**0.249**	**0.587**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035273-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

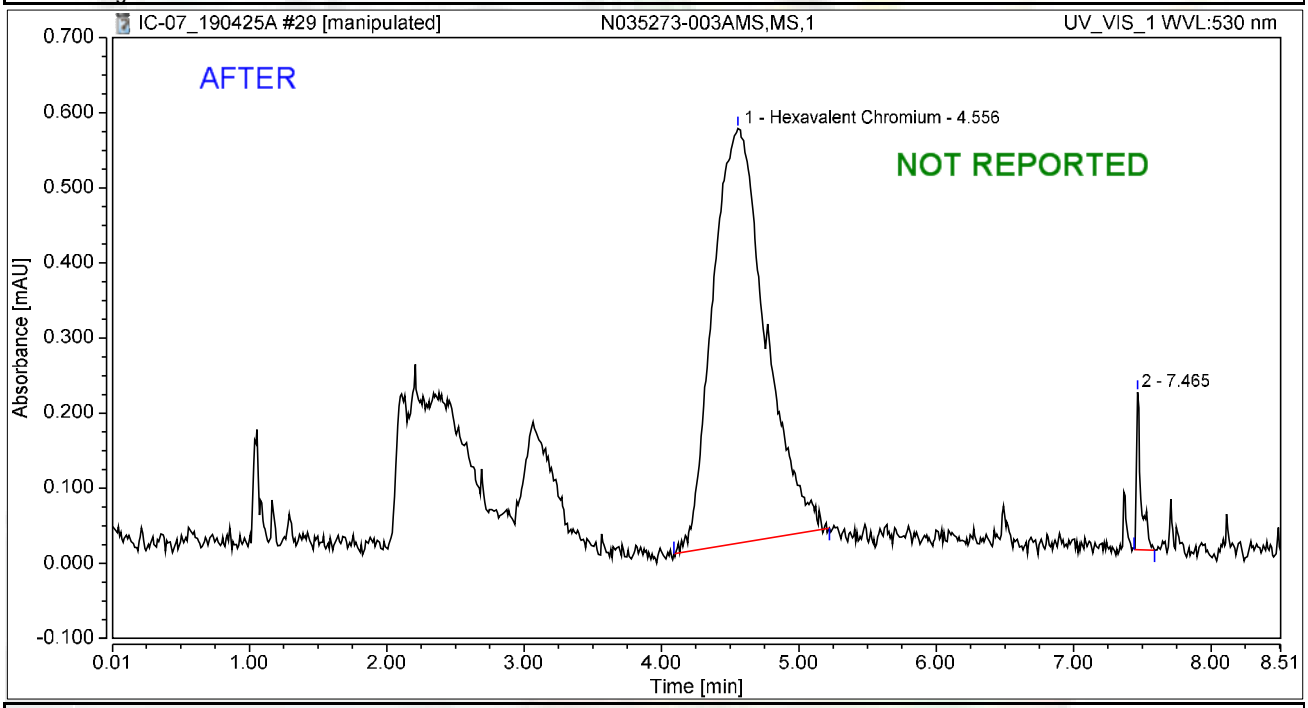
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035273-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 11:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	0.246	0.552	97.11	72.44	0.9867
2		7.465	0.007	0.210	2.89	27.56	n.a.
Total:			**0.253**	**0.762**	**100.00**	**100.00**	

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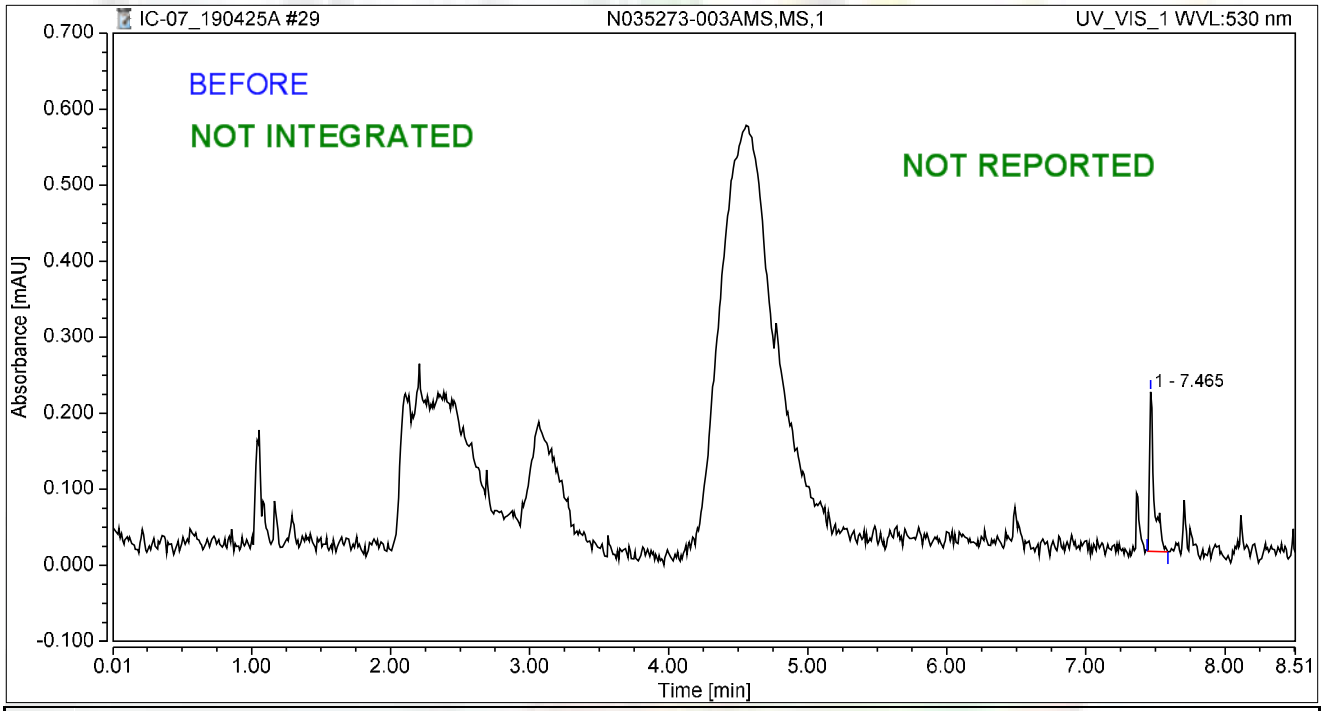
Chromatogram and Results

Injection Details

Injection Name:	**N035273-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 11:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.465	0.007	0.210	100.00	100.00	n.a.
Total:			**0.007**	**0.210**	**100.00**	**100.00**	

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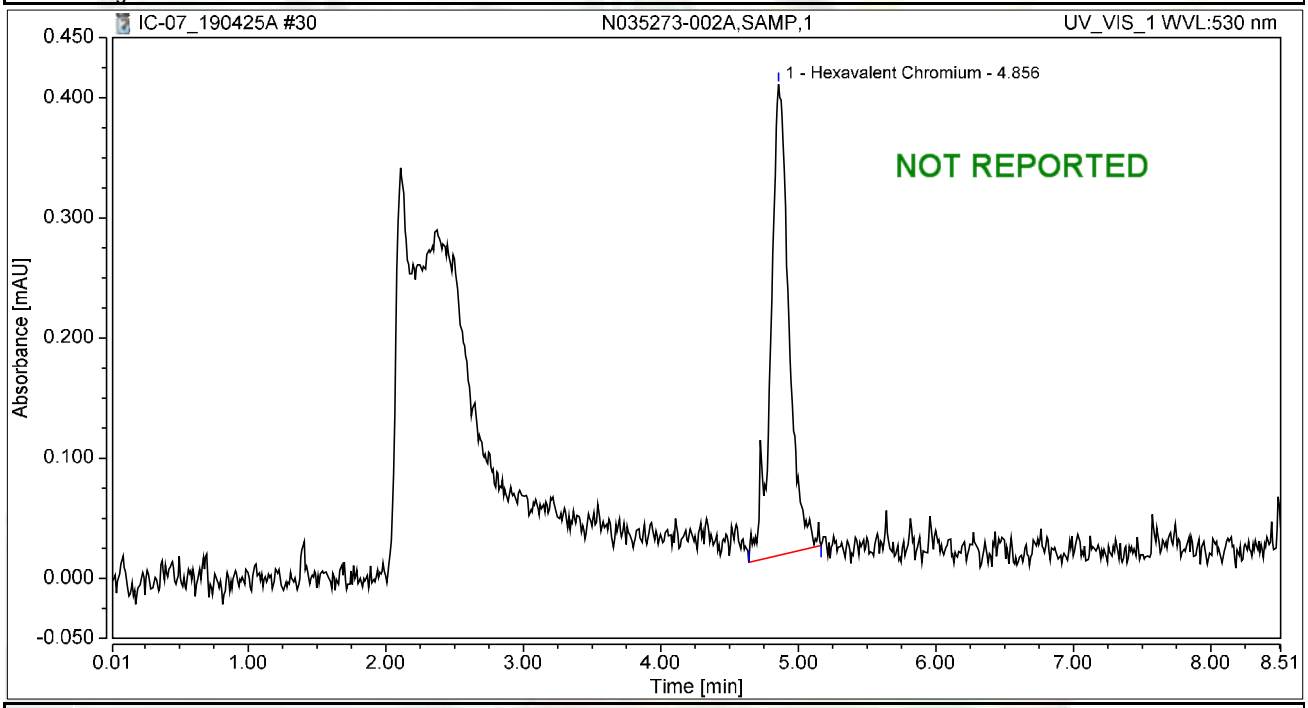
Chromatogram and Results

Injection Details

Injection Name:	**N035273-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 11:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

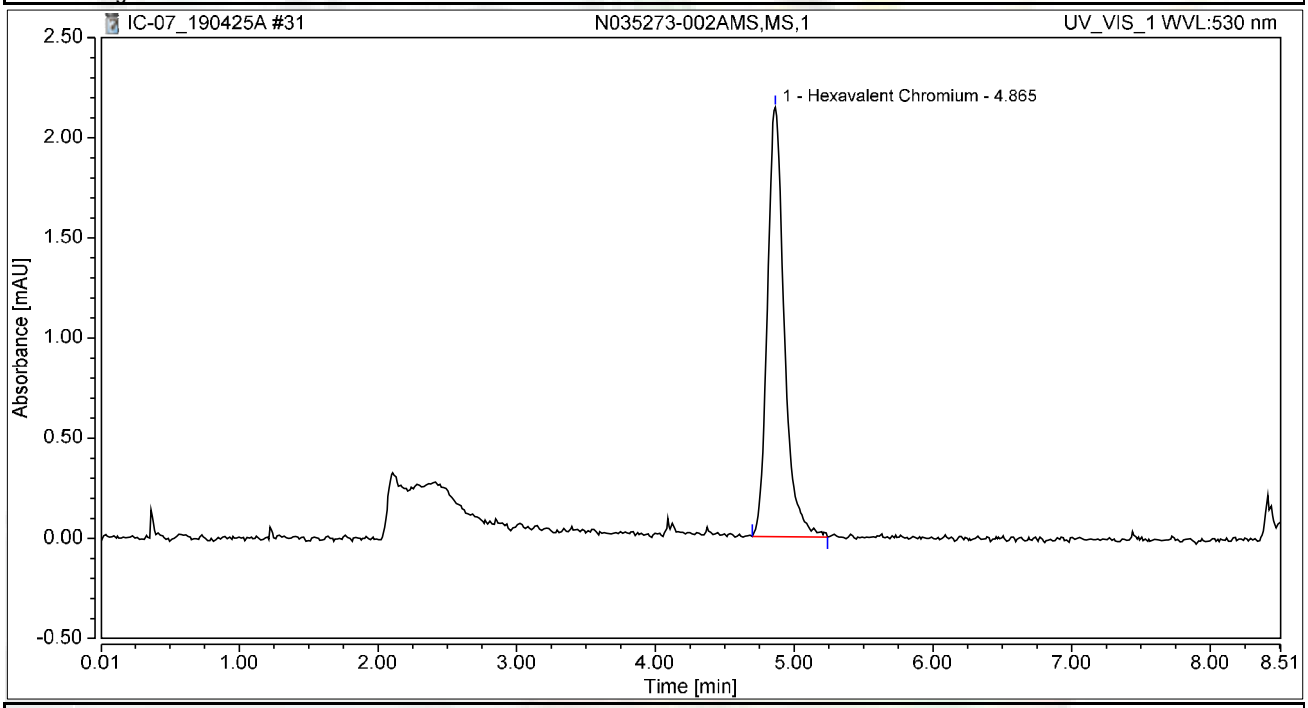
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.060	0.392	100.00	100.00	0.2407
Total:			**0.060**	**0.392**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035273-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 11:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

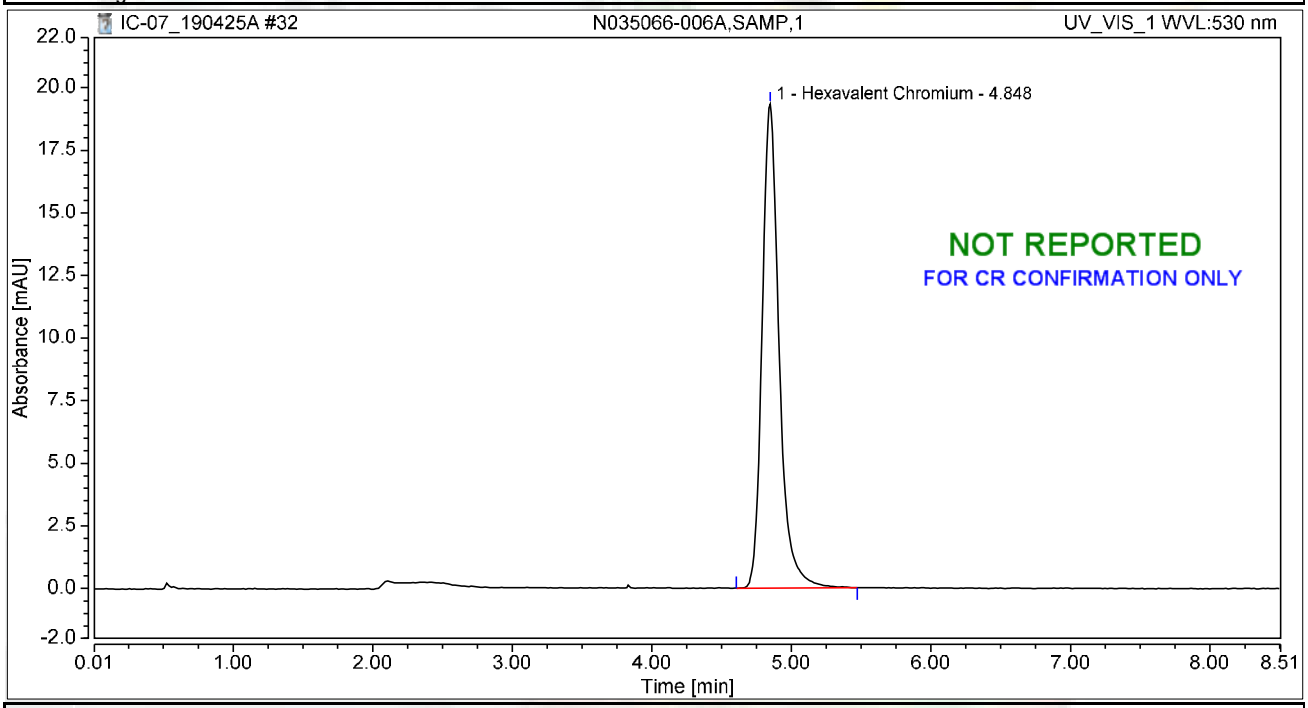
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	0.302	2.143	100.00	100.00	1.2120
Total:			**0.302**	**2.143**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035066-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 11:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

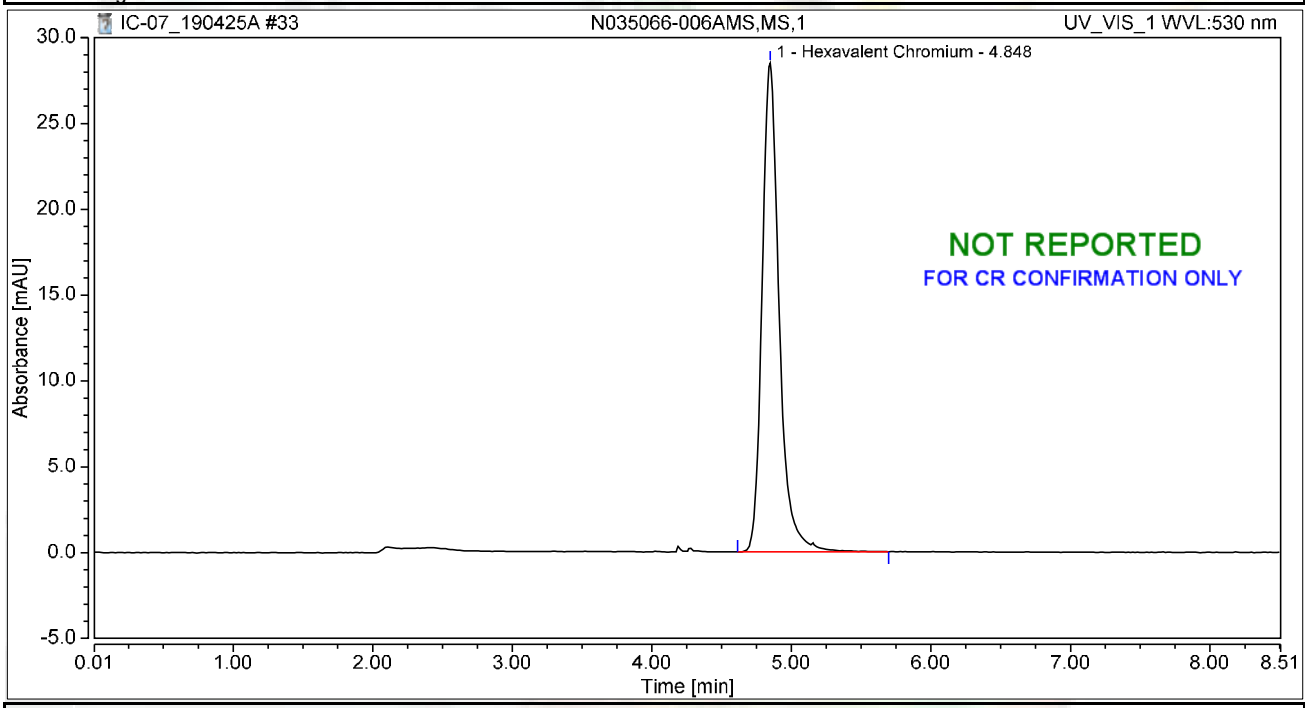
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	2.740	19.336	100.00	100.00	11.0033
Total:			**2.740**	**19.336**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035066-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 12:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

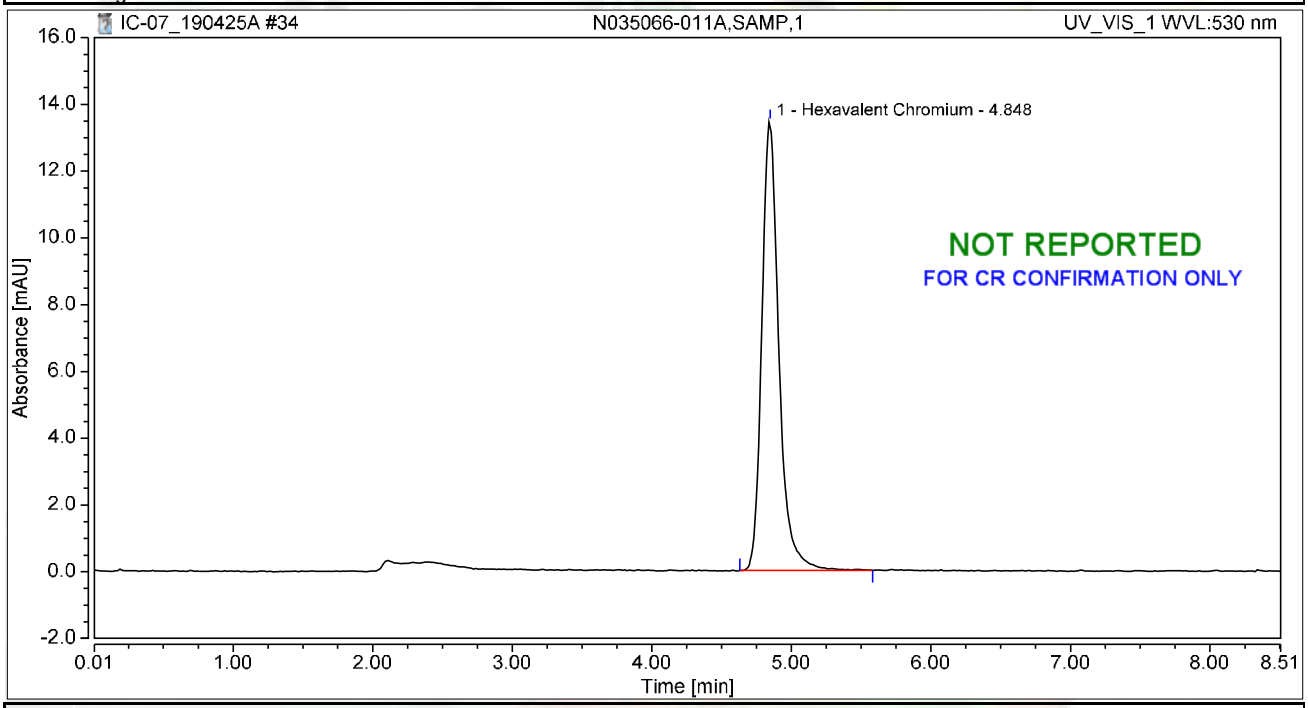
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	4.053	28.487	100.00	100.00	16.2783
Total:			**4.053**	**28.487**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035066-011A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 12:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

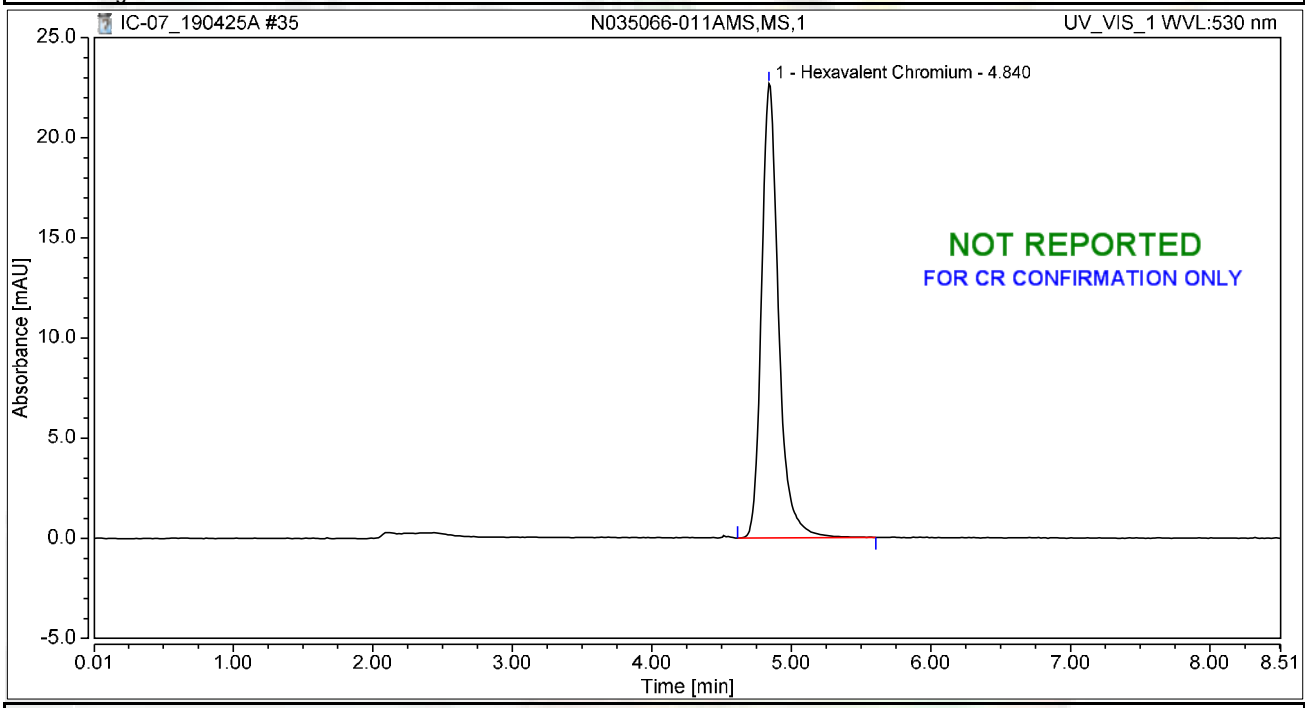
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	1.911	13.456	100.00	100.00	7.6744
Total:			**1.911**	**13.456**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035066-011AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 12:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

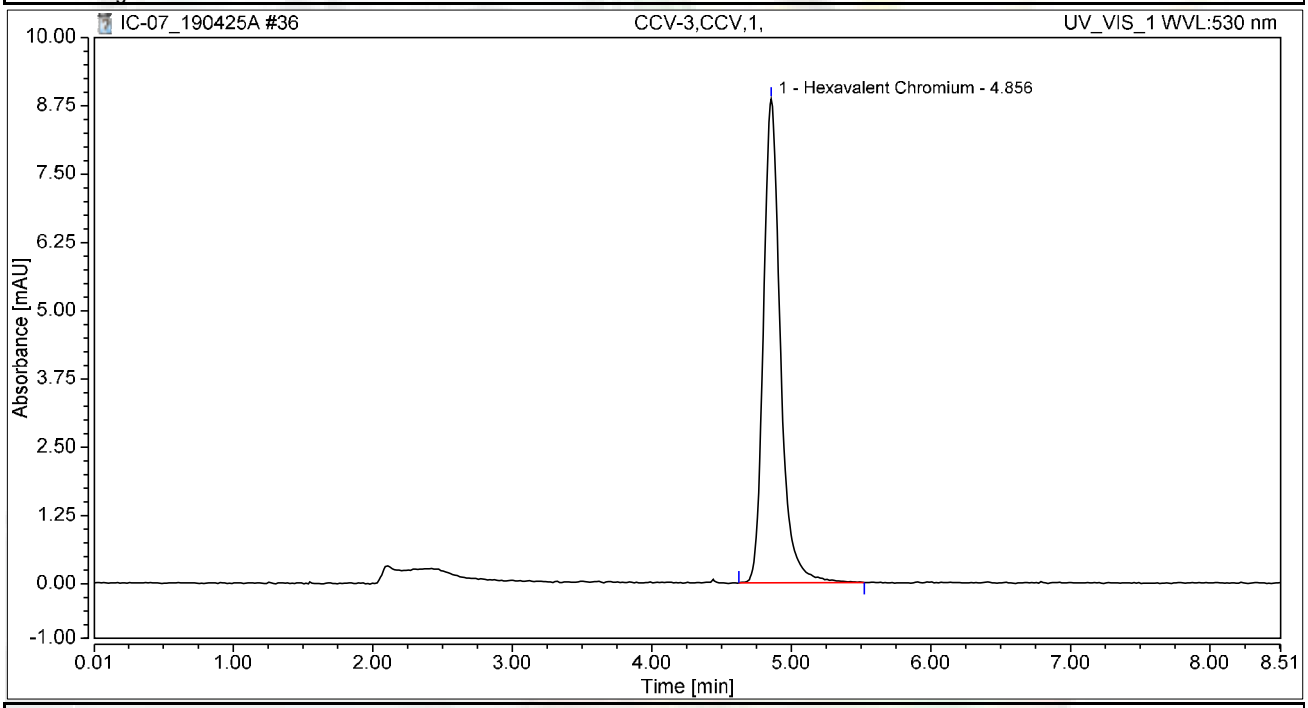
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	3.219	22.682	100.00	100.00	12.9302
Total:			**3.219**	**22.682**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 12:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

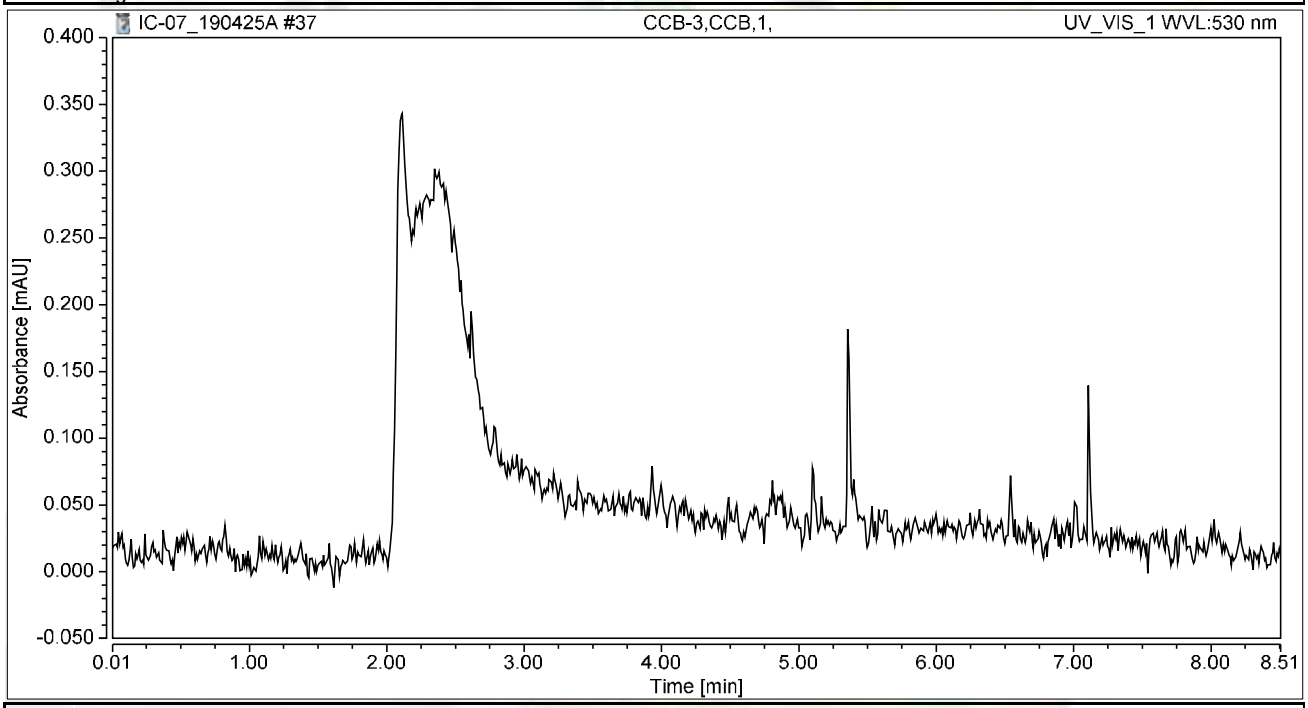
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.250	8.857	100.00	100.00	5.0218
Total:			**1.250**	**8.857**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 12:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

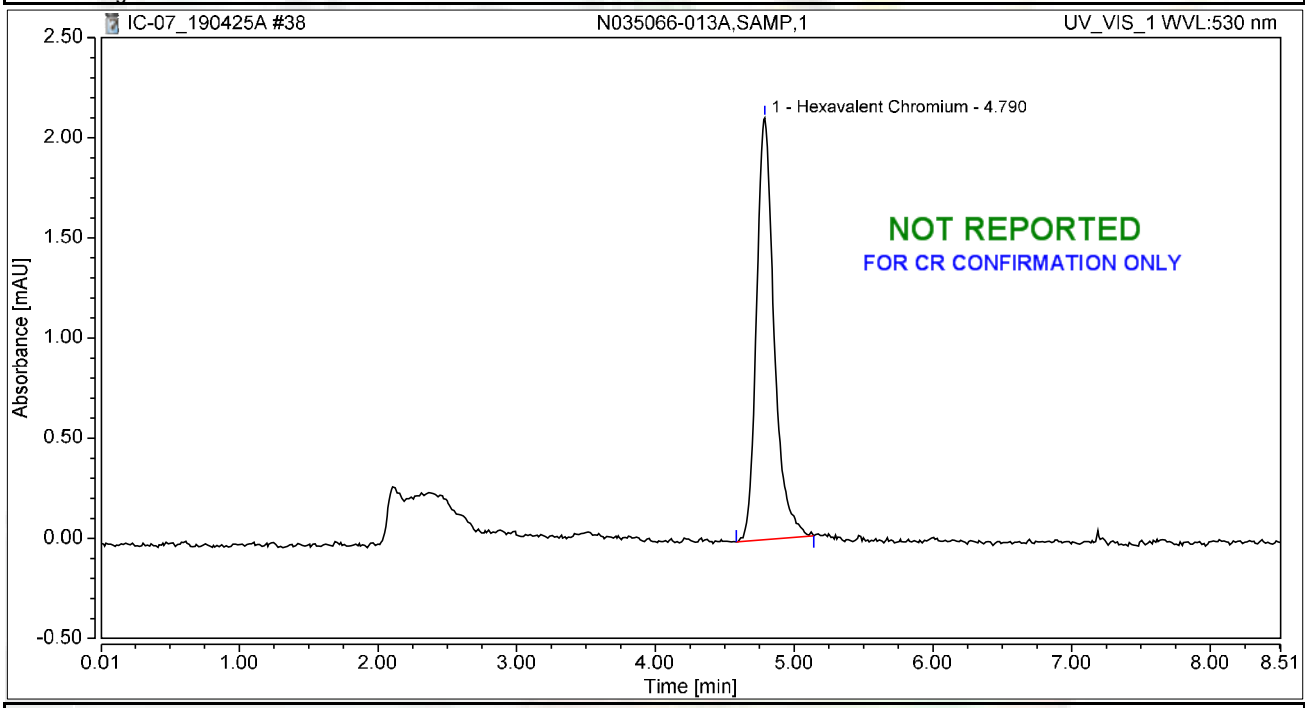
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035066-013A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 12:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

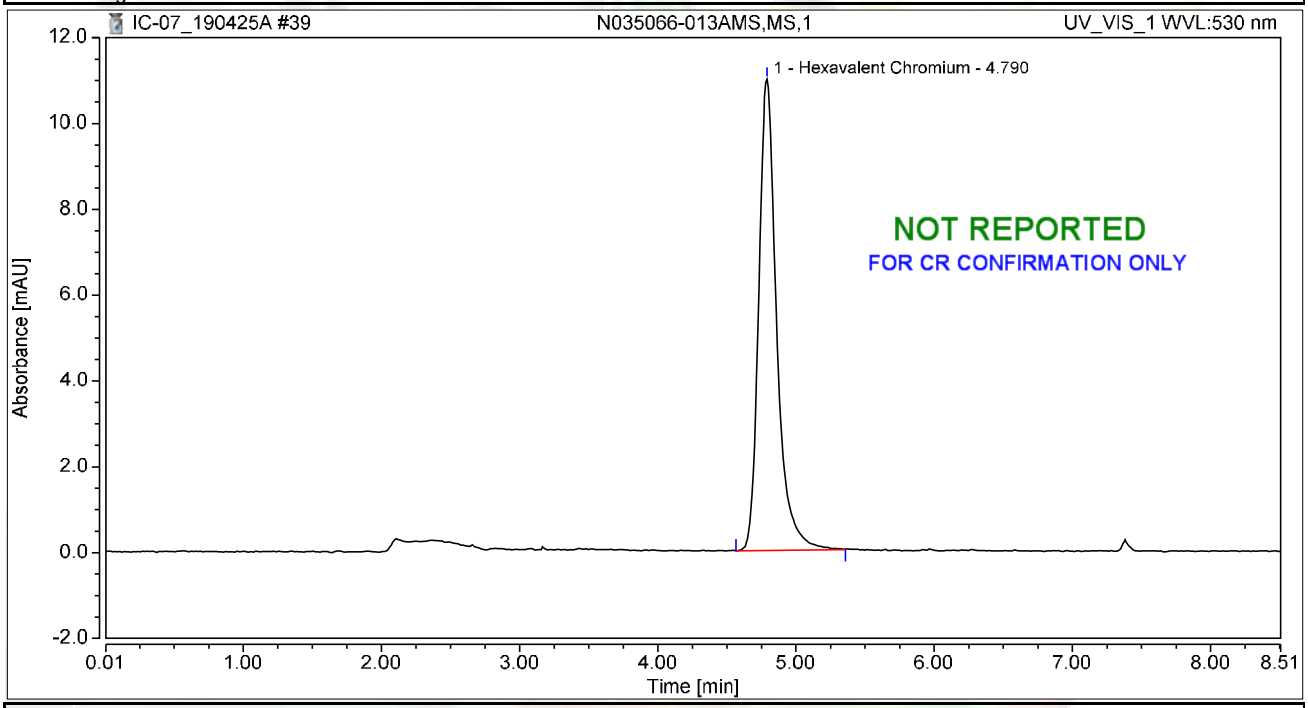
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.790	0.311	2.107	100.00	100.00	1.2475
Total:			**0.311**	**2.107**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035066-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 13:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

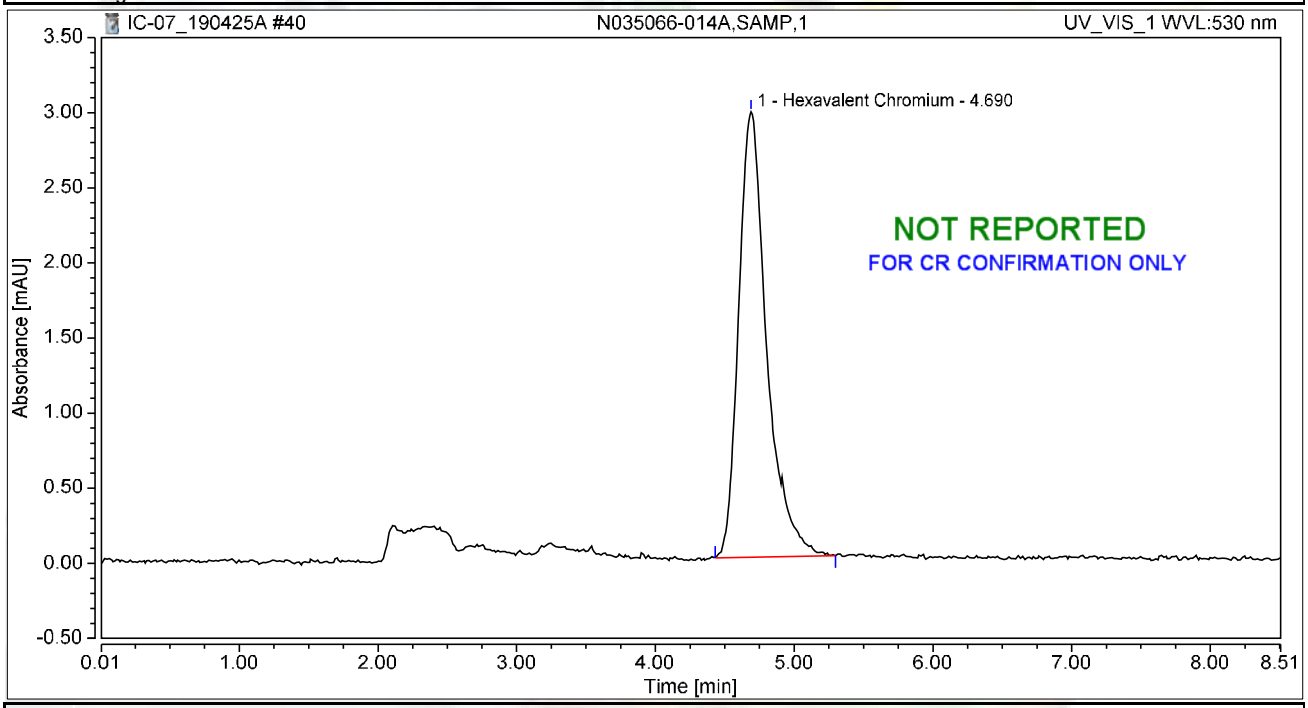
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.790	1.655	10.984	100.00	100.00	6.6482
Total:			**1.655**	**10.984**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035066-014A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 13:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

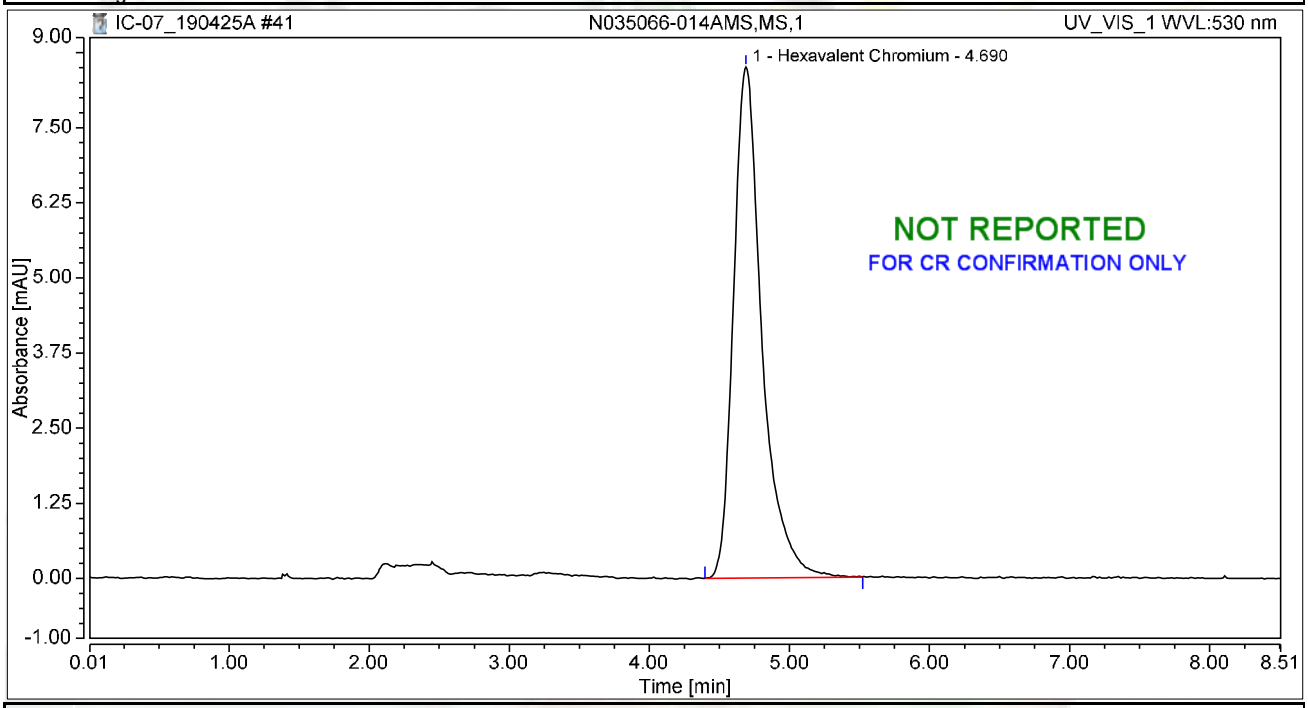
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.694	2.965	100.00	100.00	2.7887
Total:			**0.694**	**2.965**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035066-014AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 13:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

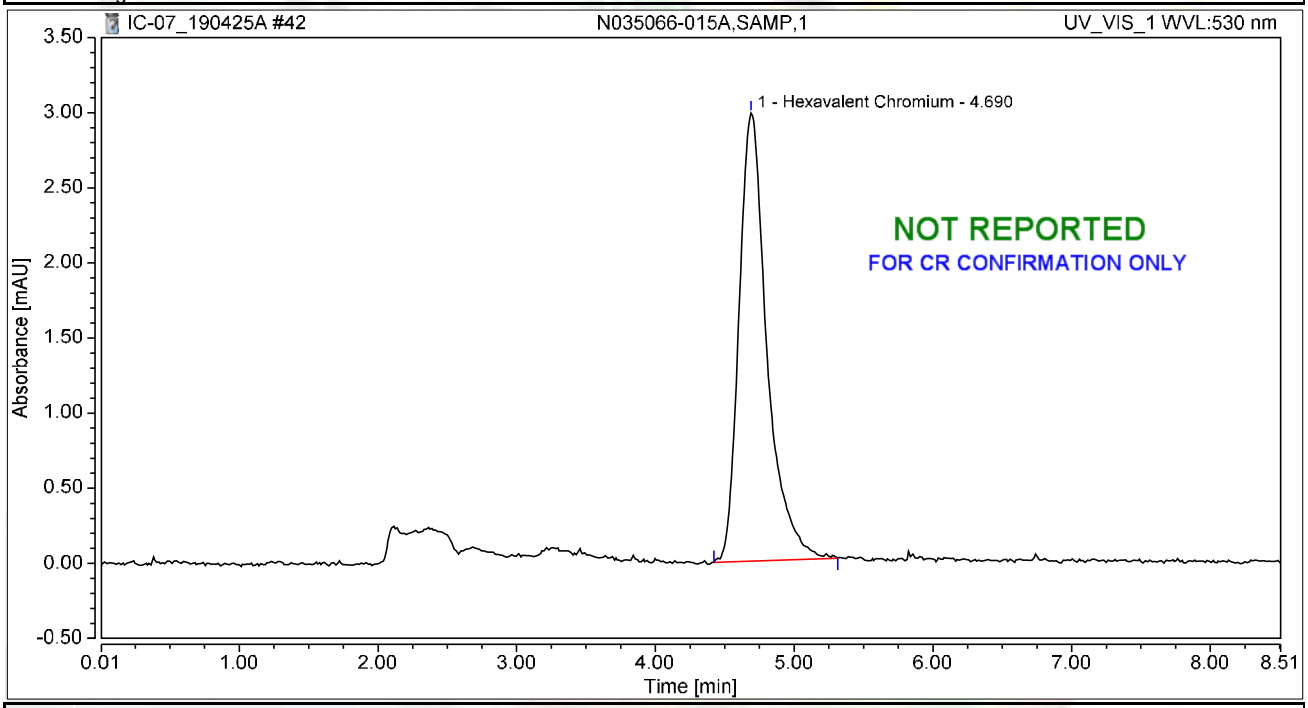
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	2.000	8.507	100.00	100.00	8.0335
Total:			**2.000**	**8.507**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035066-015A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 13:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

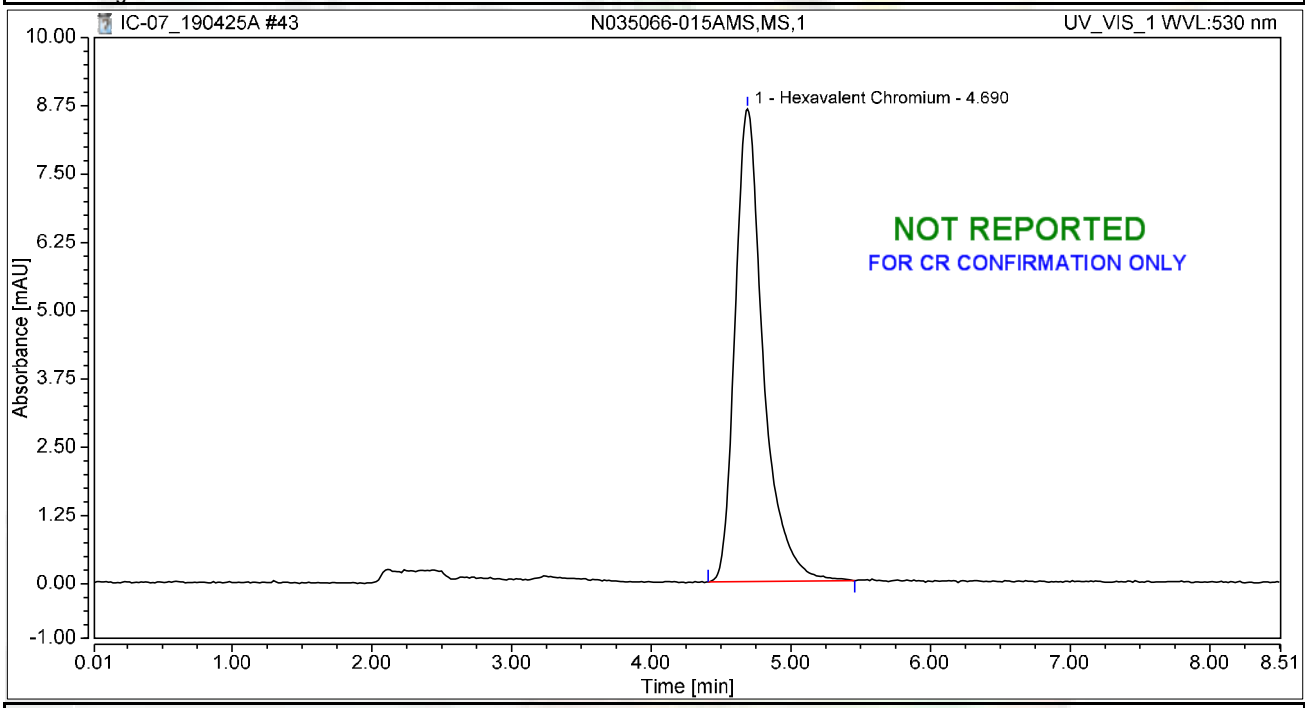
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.698	2.983	100.00	100.00	2.8031
Total:			**0.698**	**2.983**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035066-015AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 13:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

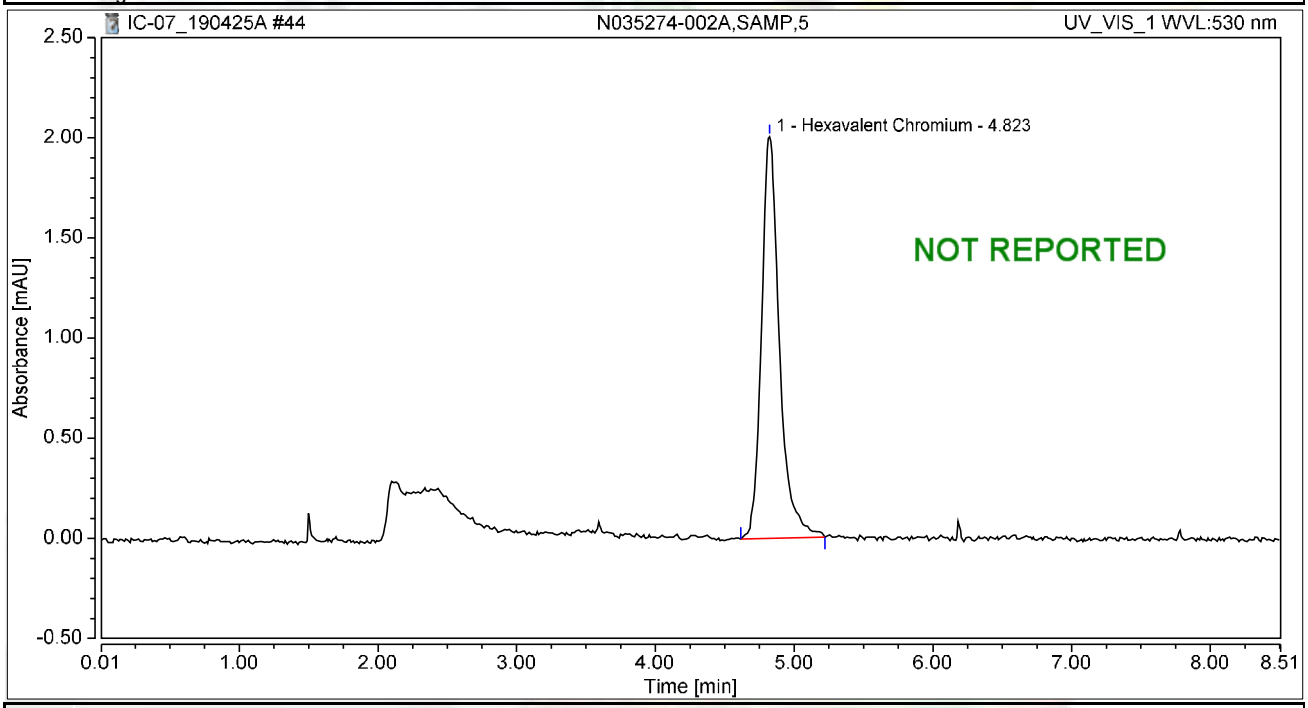
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	2.024	8.655	100.00	100.00	8.1289
Total:			**2.024**	**8.655**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 13:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

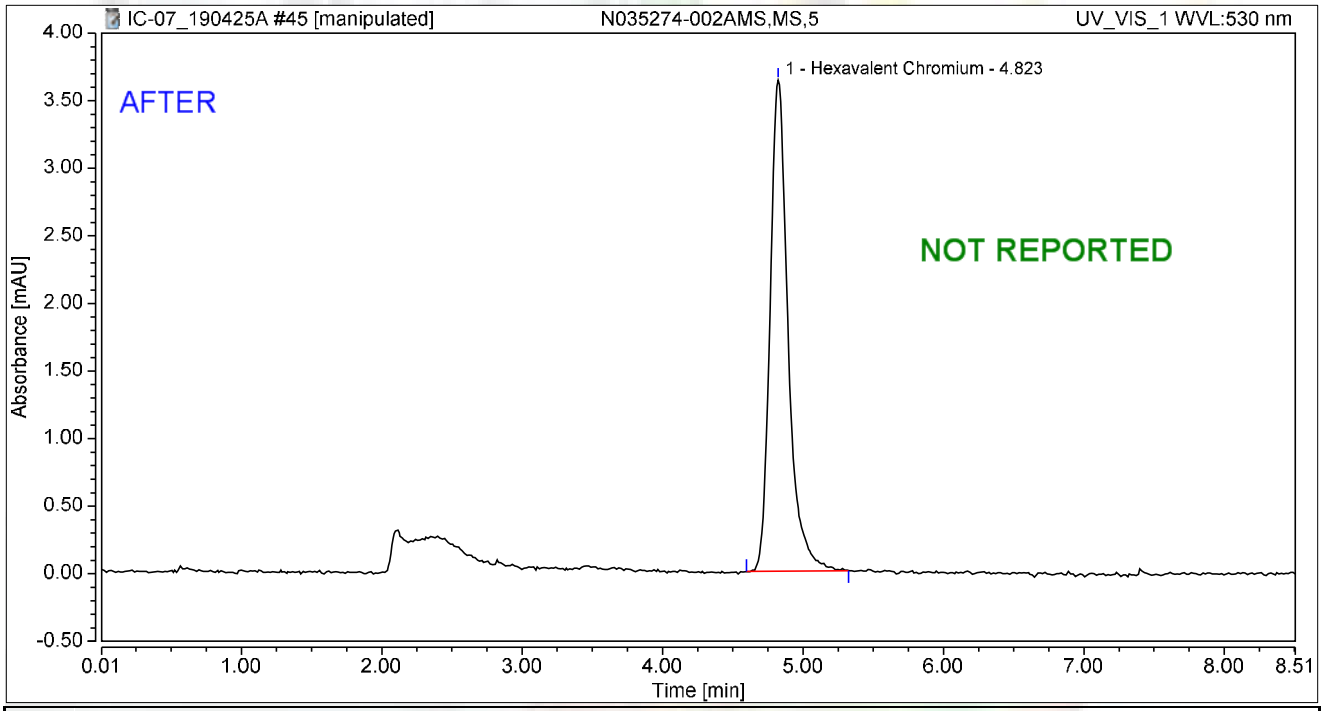
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.823	0.302	2.006	100.00	100.00	1.2138
Total:			**0.302**	**2.006**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 13:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.823	0.541	3.633	100.00	100.00	2.1740
Total:			**0.541**	**3.633**	**100.00**	**100.00**	

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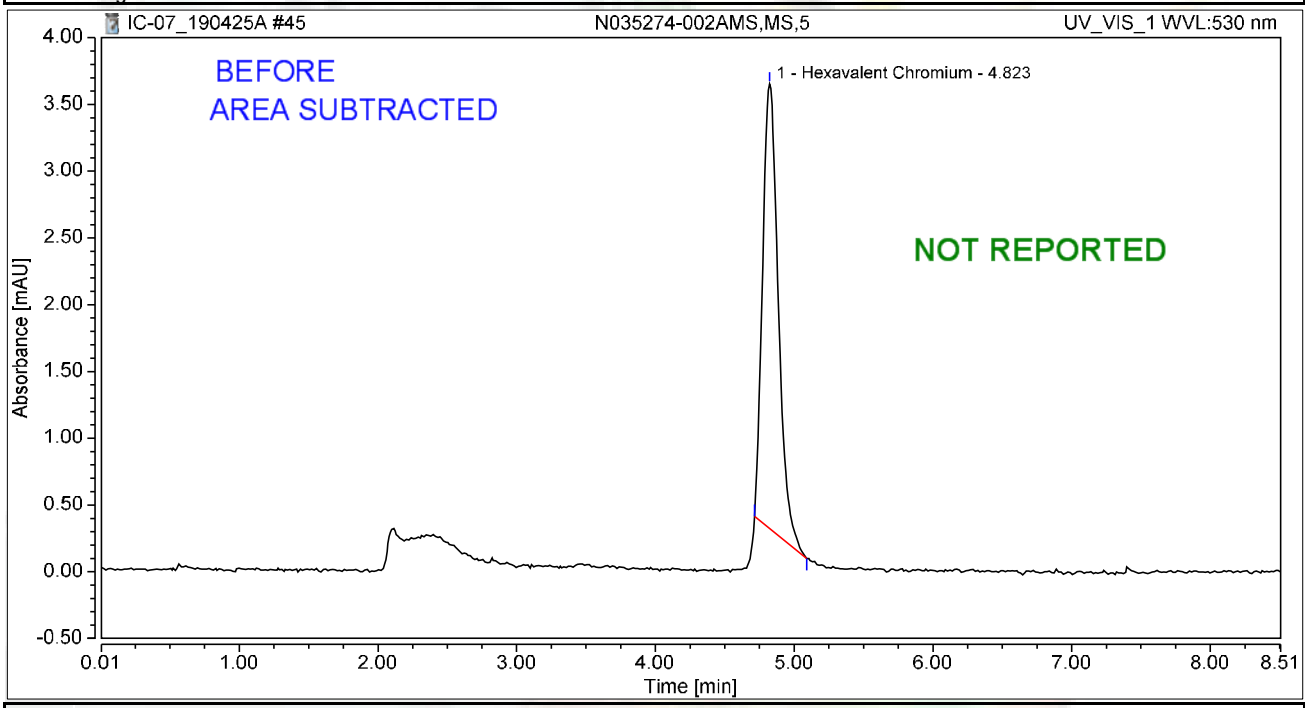
Chromatogram and Results

Injection Details

Injection Name:	**N035274-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 13:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.823	0.438	3.330	100.00	100.00	1.7578
Total:			**0.438**	**3.330**	**100.00**	**100.00**	

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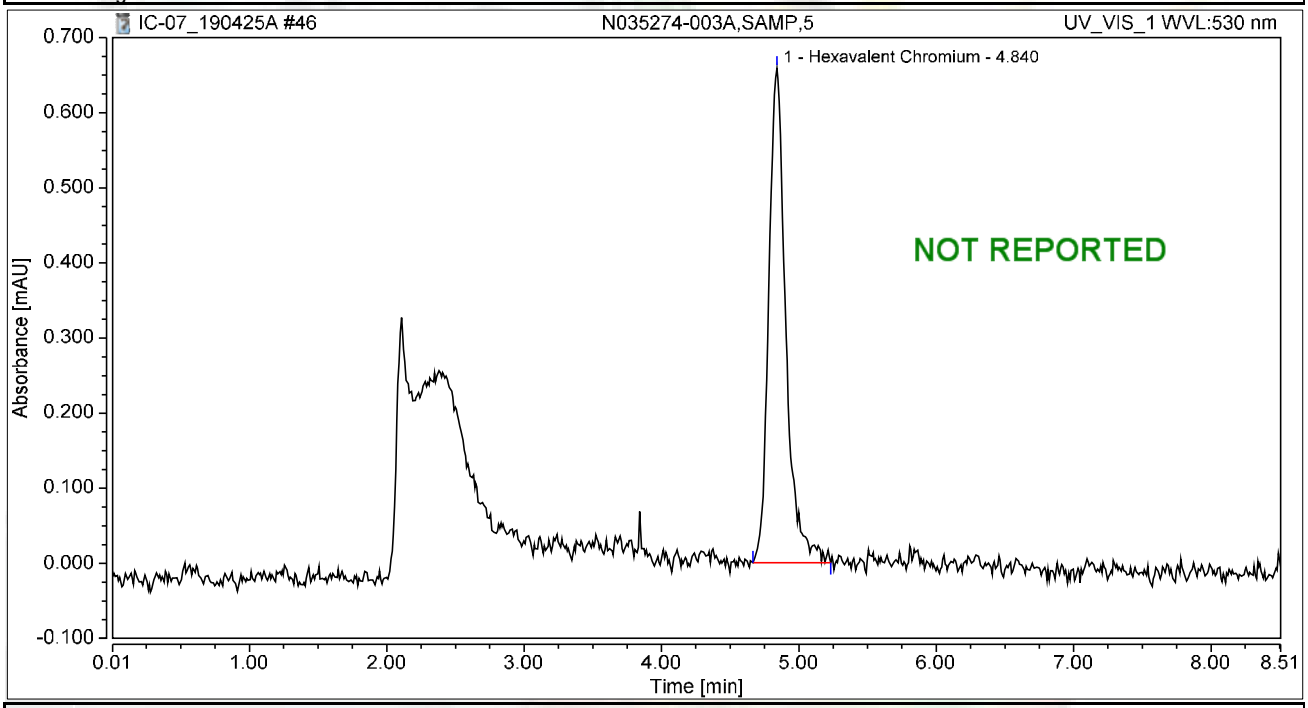
Chromatogram and Results

Injection Details

Injection Name:	**N035274-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 14:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

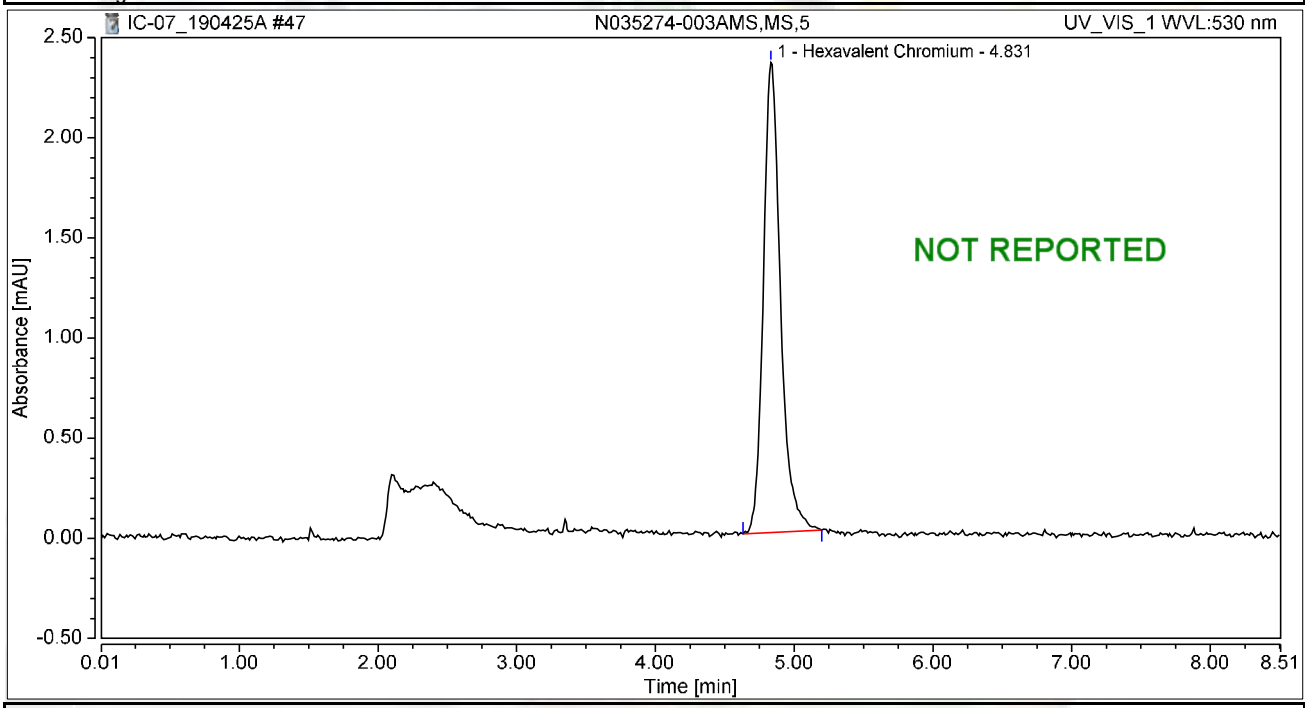
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	0.095	0.659	100.00	100.00	0.3813
Total:			**0.095**	**0.659**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-003AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 14:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

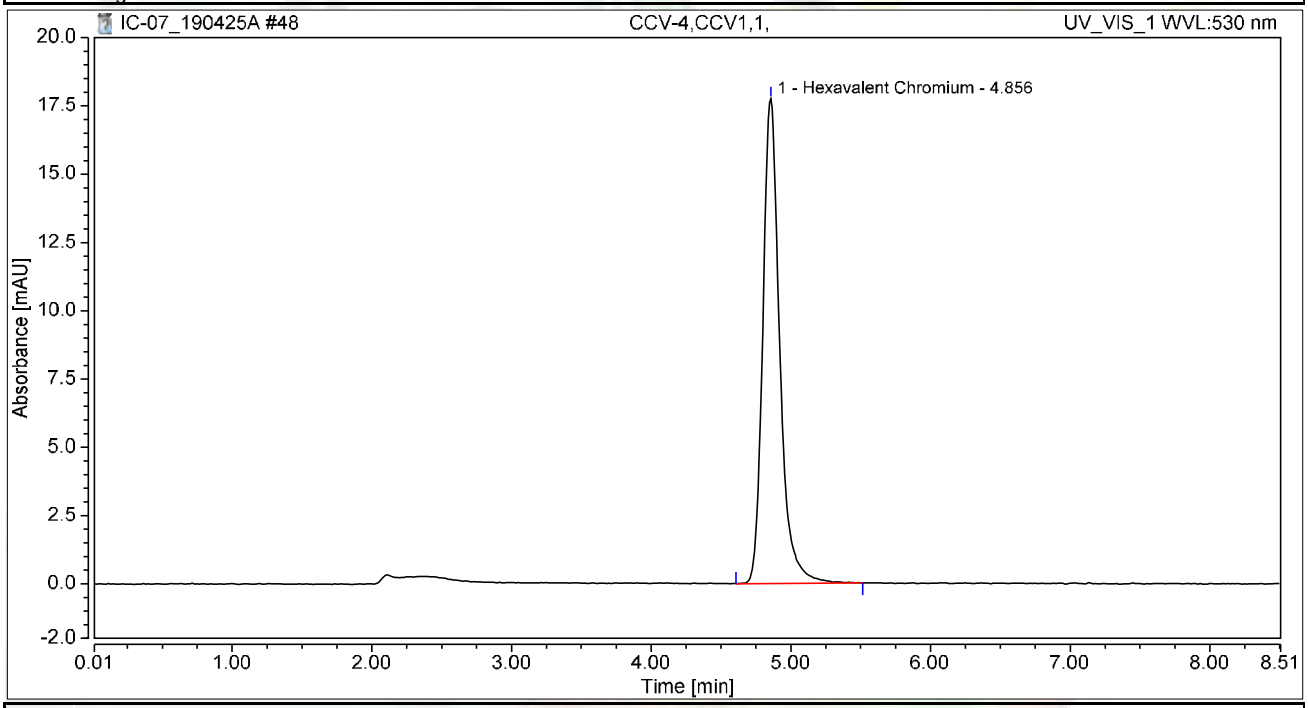
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.337	2.347	100.00	100.00	1.3535
Total:			**0.337**	**2.347**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 14:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

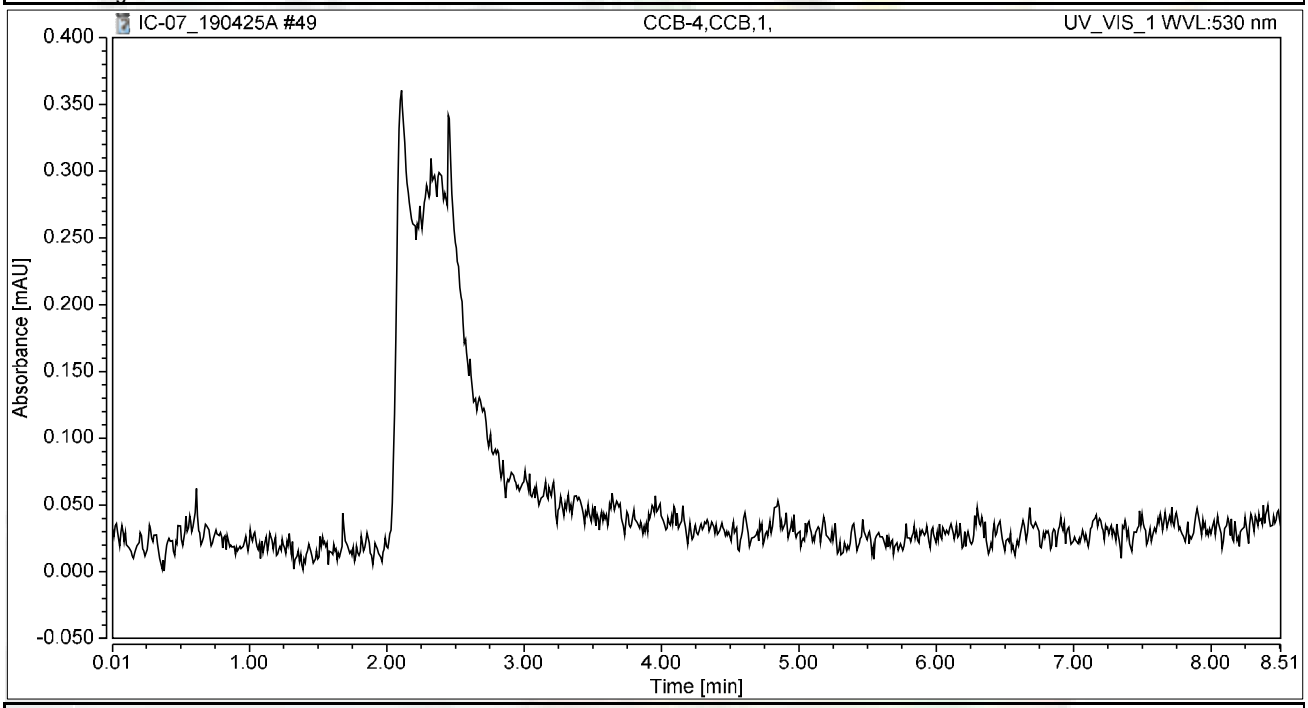
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.500	17.749	100.00	100.00	10.0394
Total:			**2.500**	**17.749**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 14:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

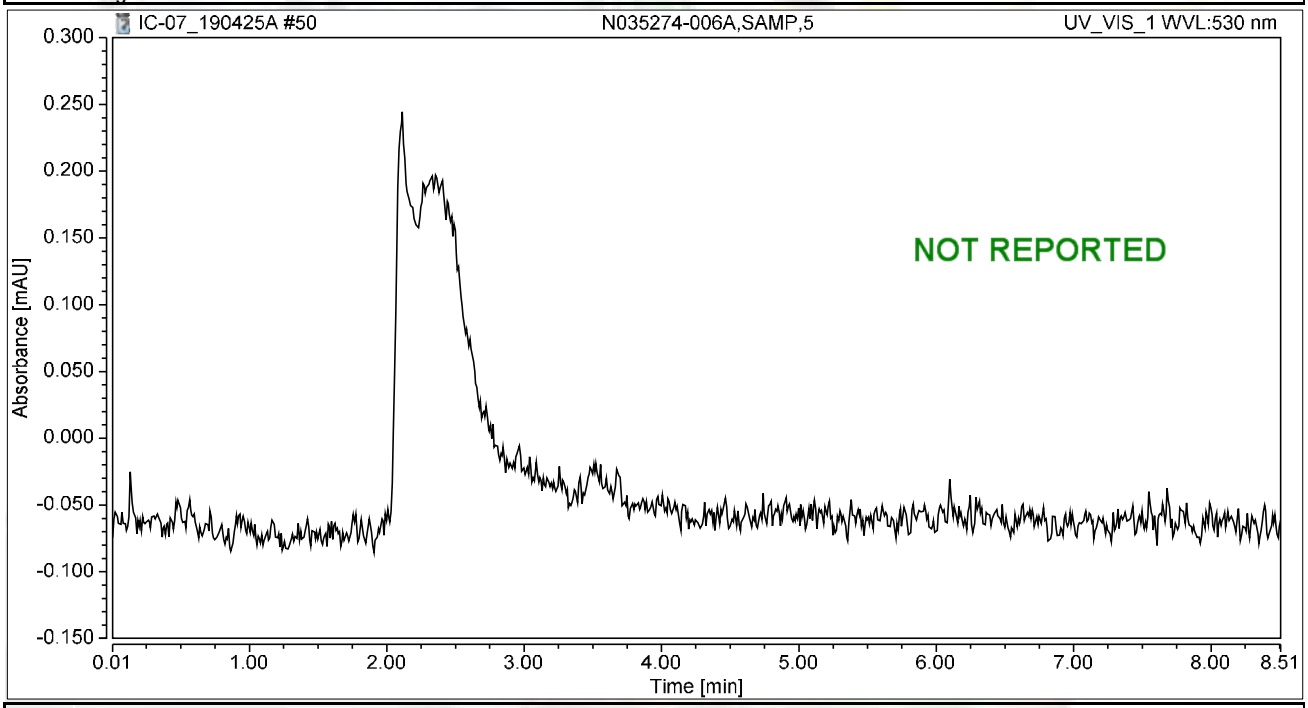
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-006A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 14:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

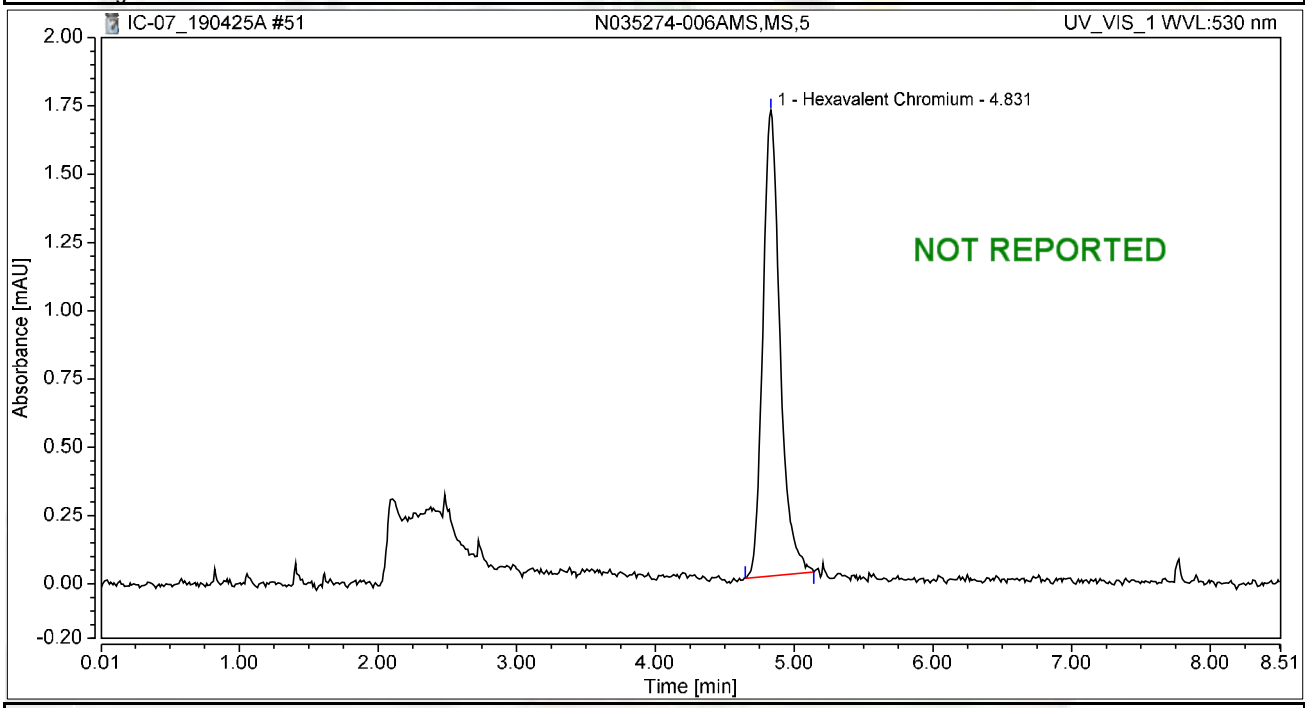
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-006AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 14:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

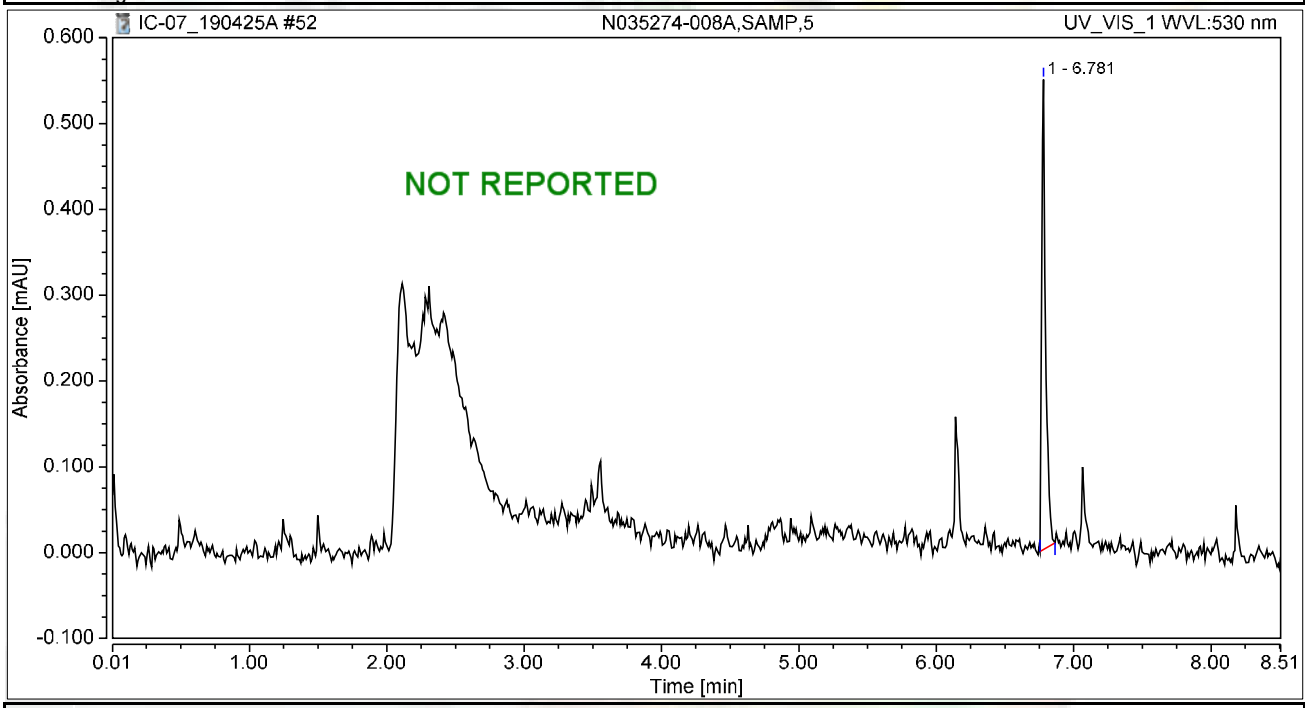
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.244	1.703	100.00	100.00	0.9820
Total:			**0.244**	**1.703**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-008A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 15:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

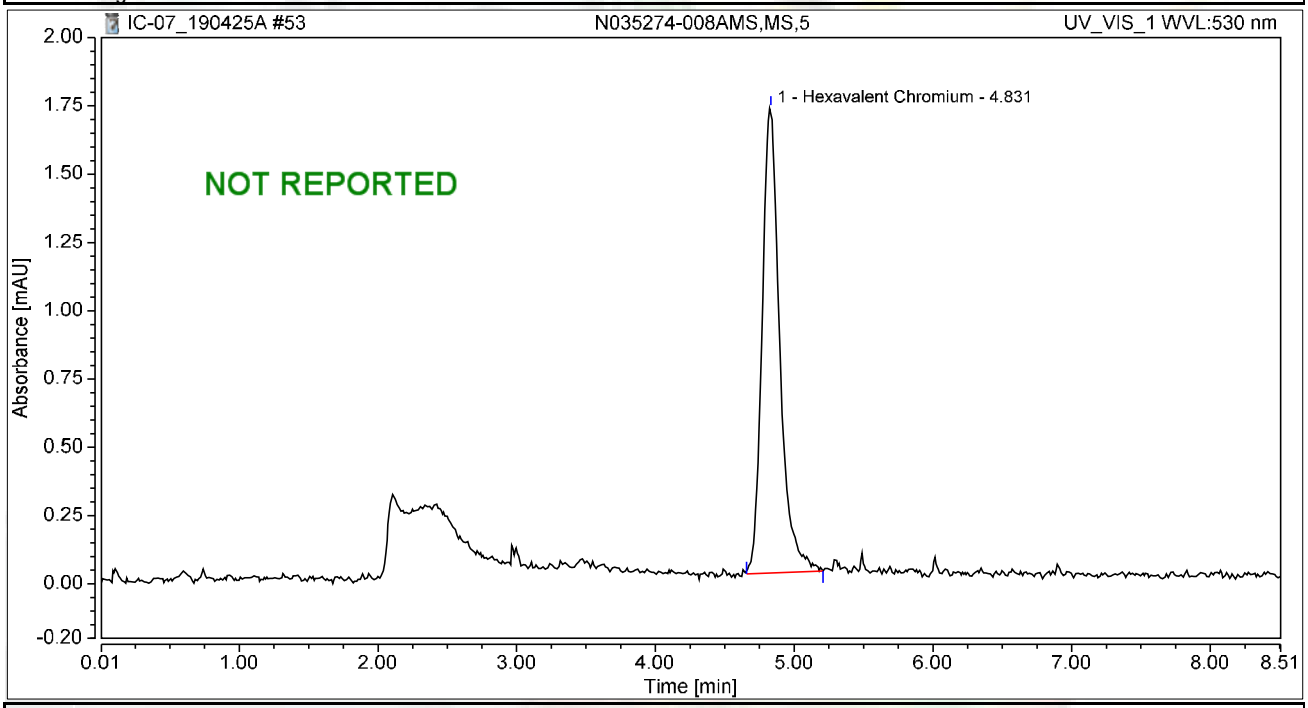
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.781	0.016	0.548	100.00	100.00	n.a.
Total:			**0.016**	**0.548**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-008AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 15:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

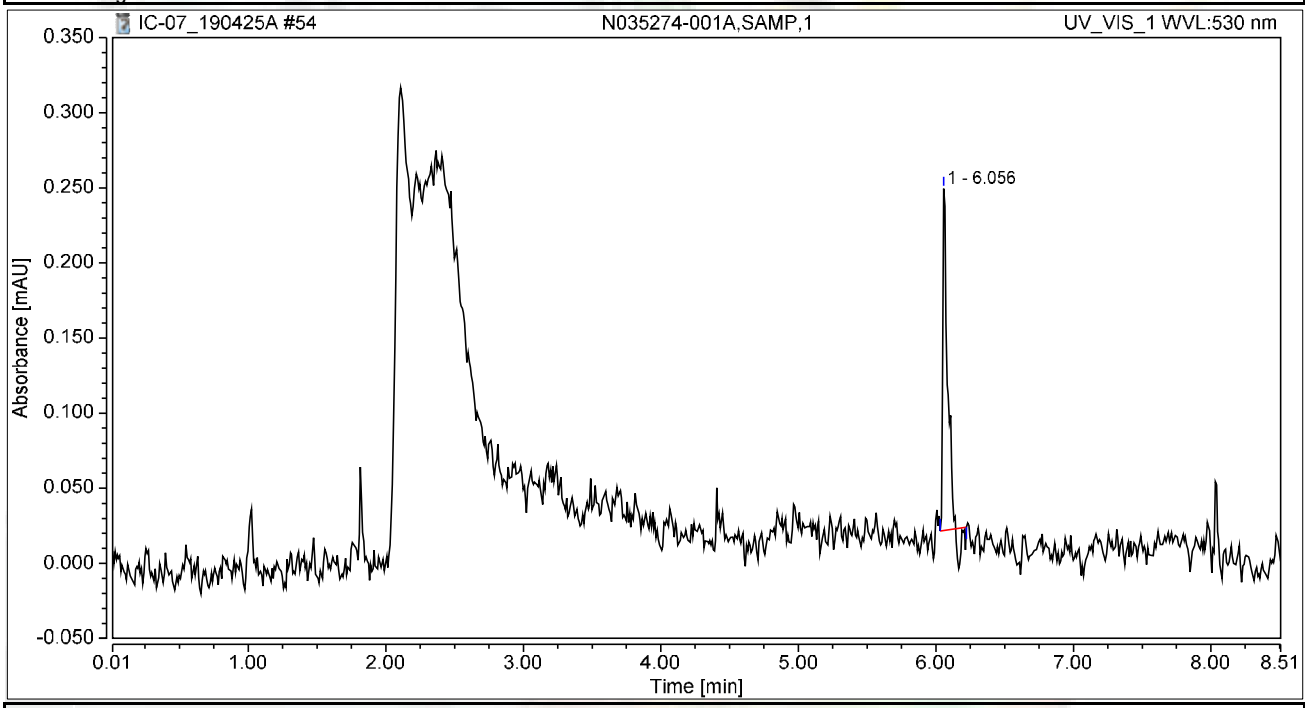
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.831	0.252	1.702	100.00	100.00	1.0116
Total:			**0.252**	**1.702**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 15:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

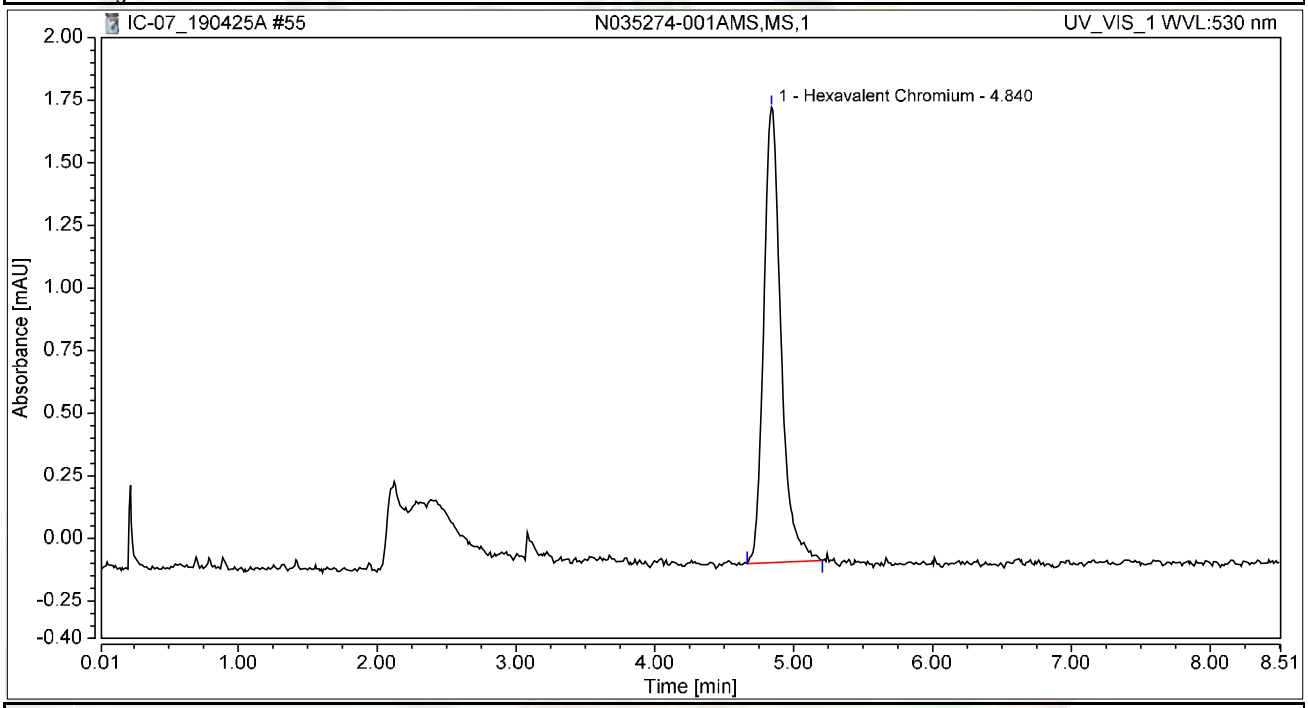
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.056	0.008	0.227	100.00	100.00	n.a.
Total:			**0.008**	**0.227**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 15:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

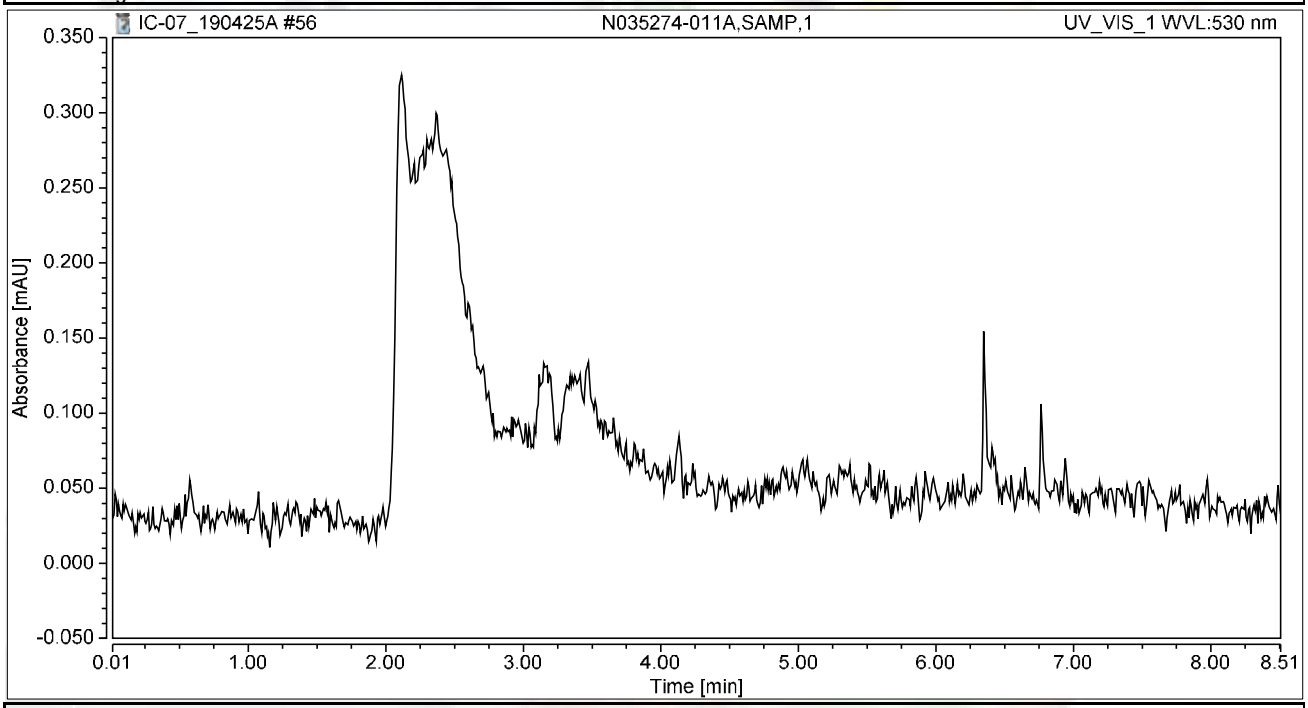
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.840	0.262	1.819	100.00	100.00	1.0533
Total:			**0.262**	**1.819**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-011A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 16:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

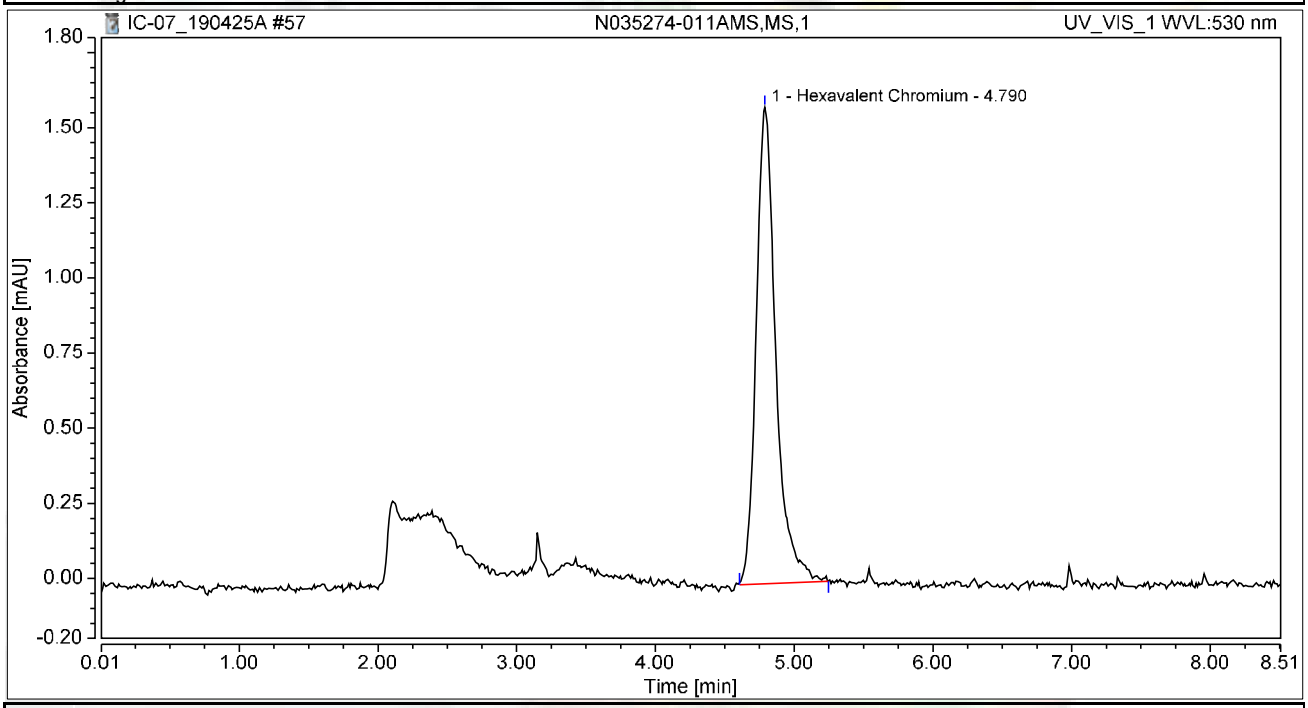
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-011AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 16:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

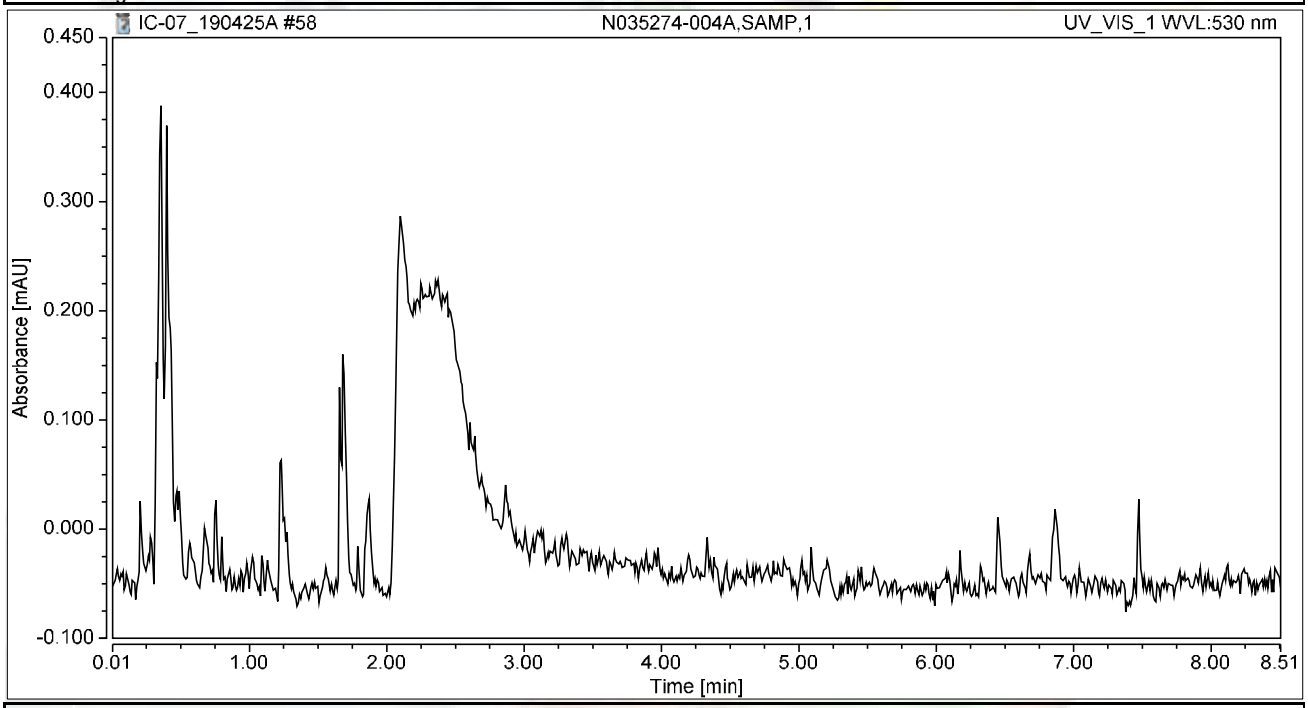
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.790	0.260	1.586	100.00	100.00	1.0445
Total:			**0.260**	**1.586**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 16:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

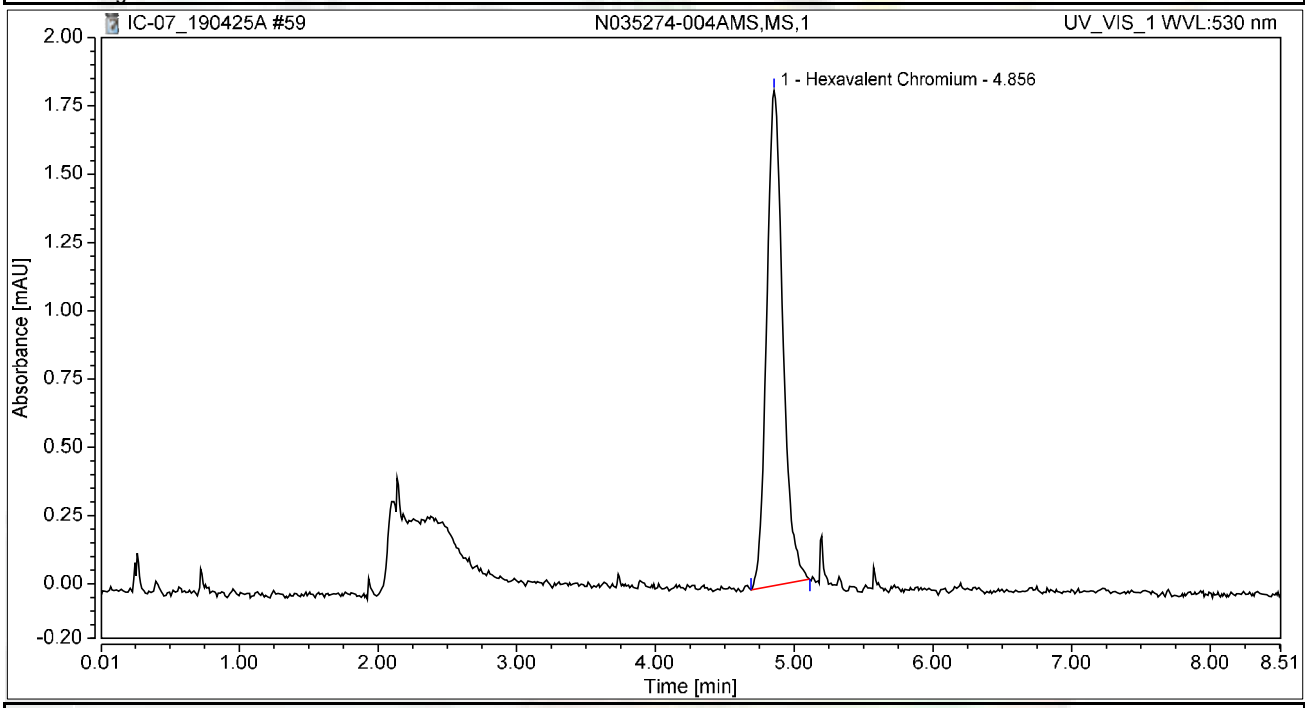
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 16:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

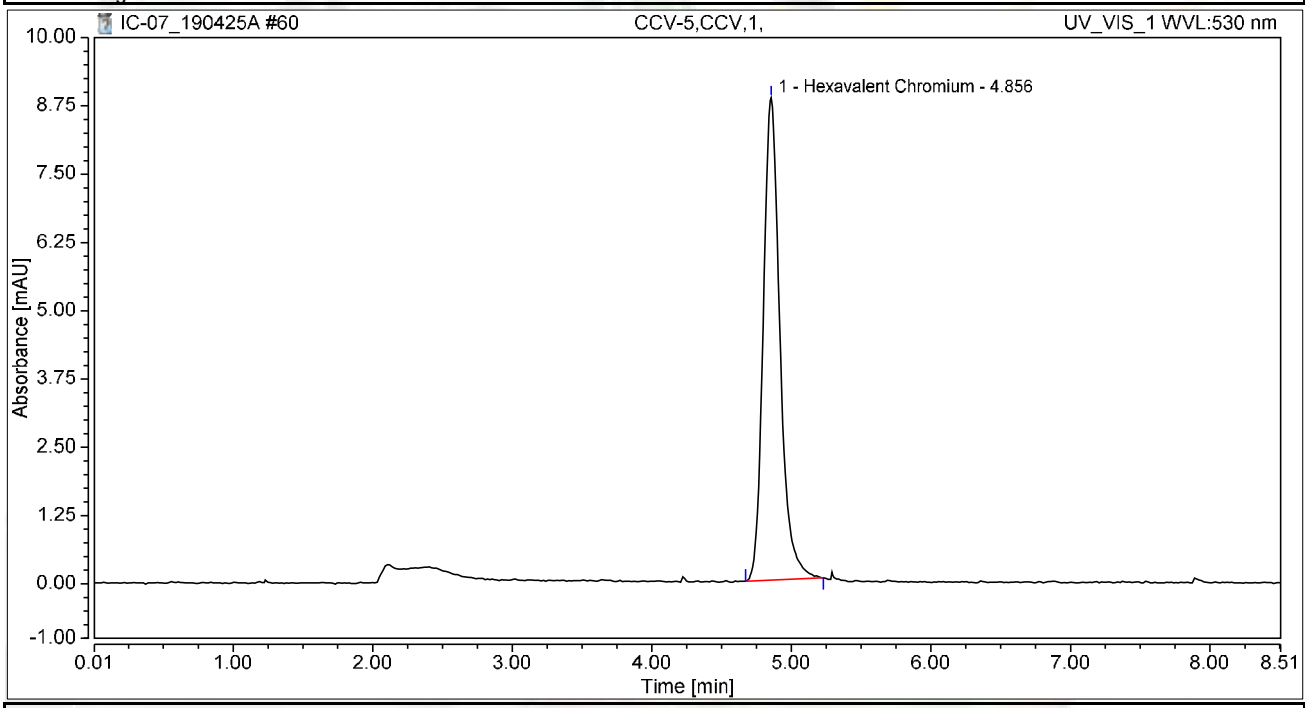
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.246	1.813	100.00	100.00	0.9877
Total:			**0.246**	**1.813**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 16:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

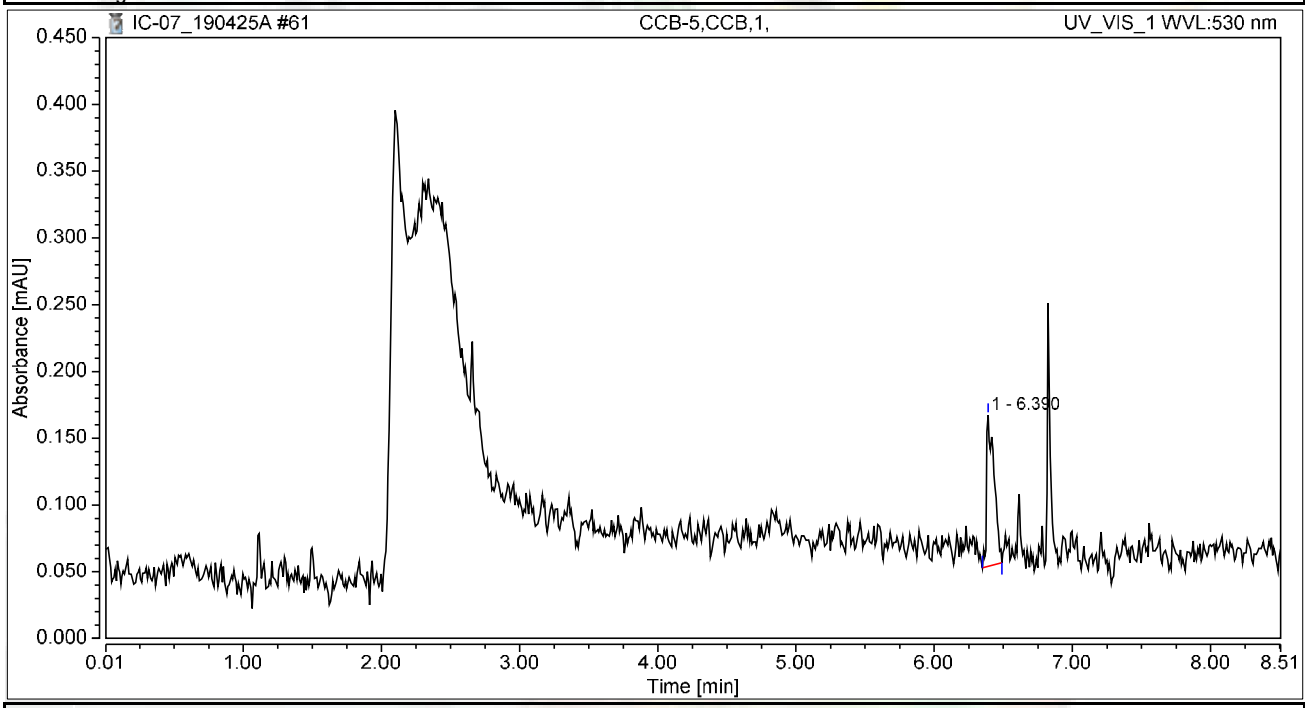
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.222	8.833	100.00	100.00	4.9092
Total:			**1.222**	**8.833**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 16:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

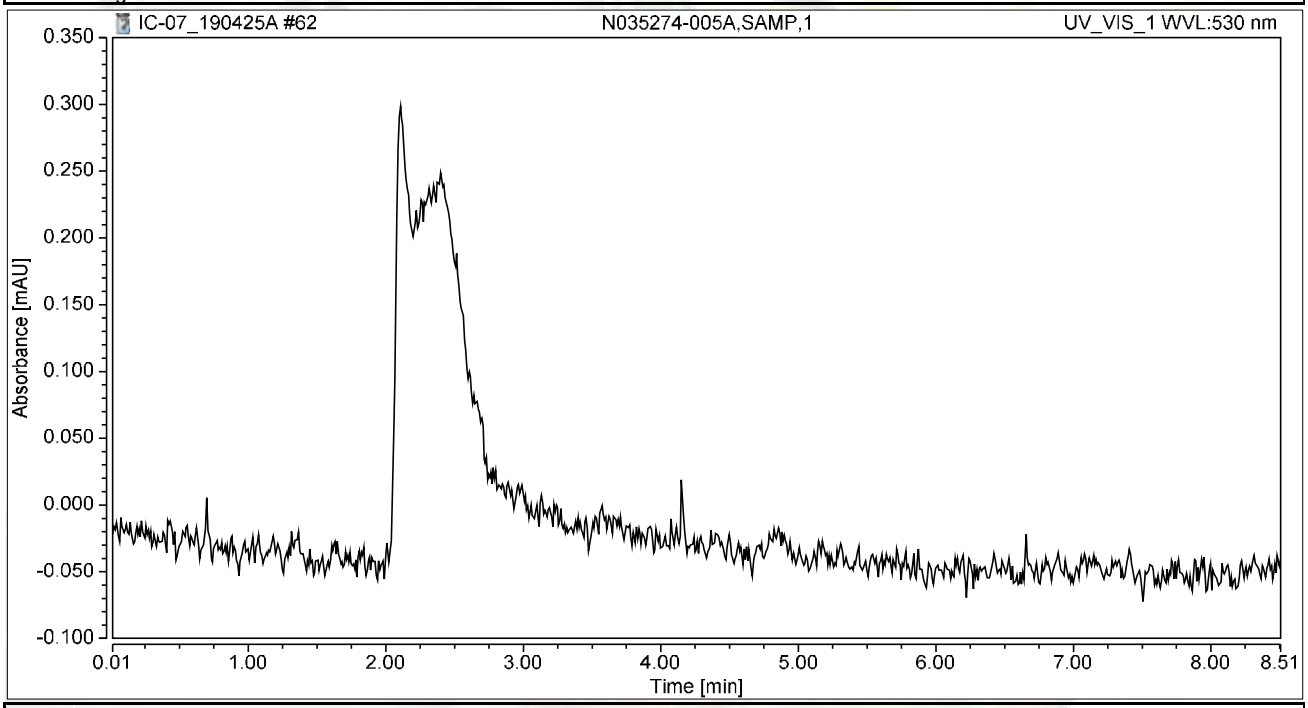
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.390	0.007	0.113	100.00	100.00	n.a.
Total:			**0.007**	**0.113**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-005A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 17:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

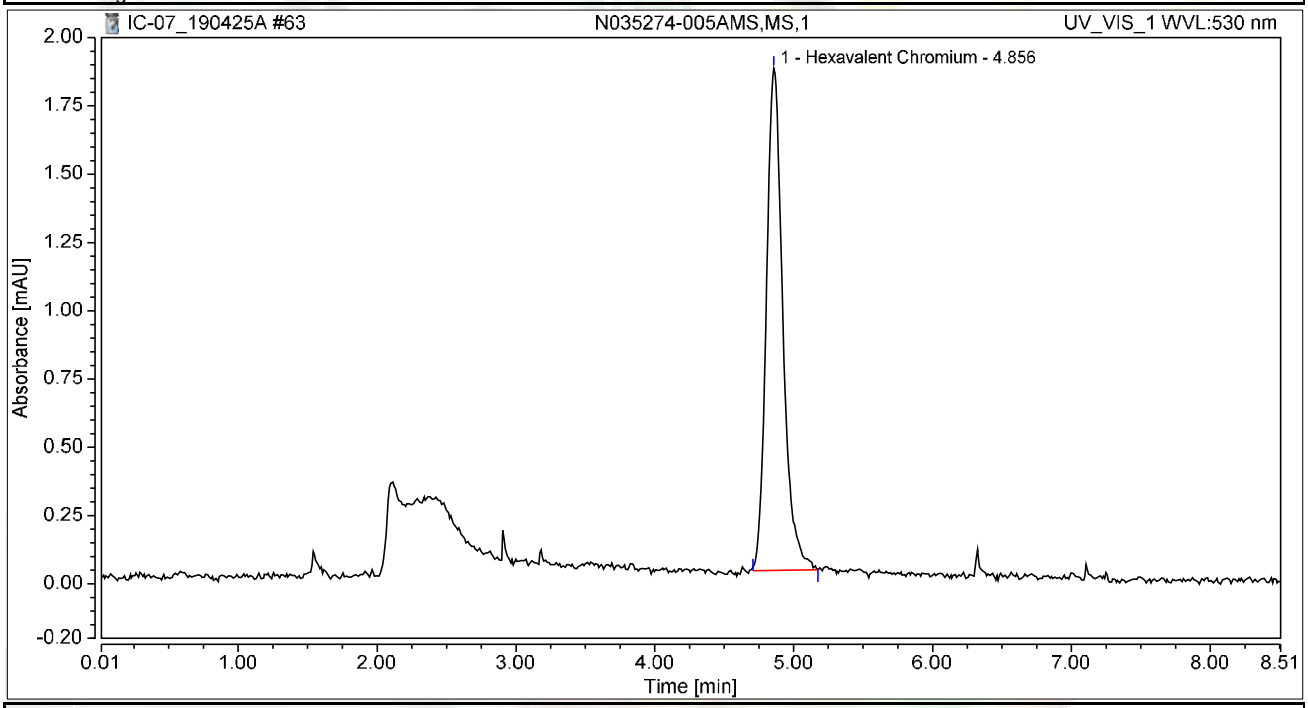
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 17:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

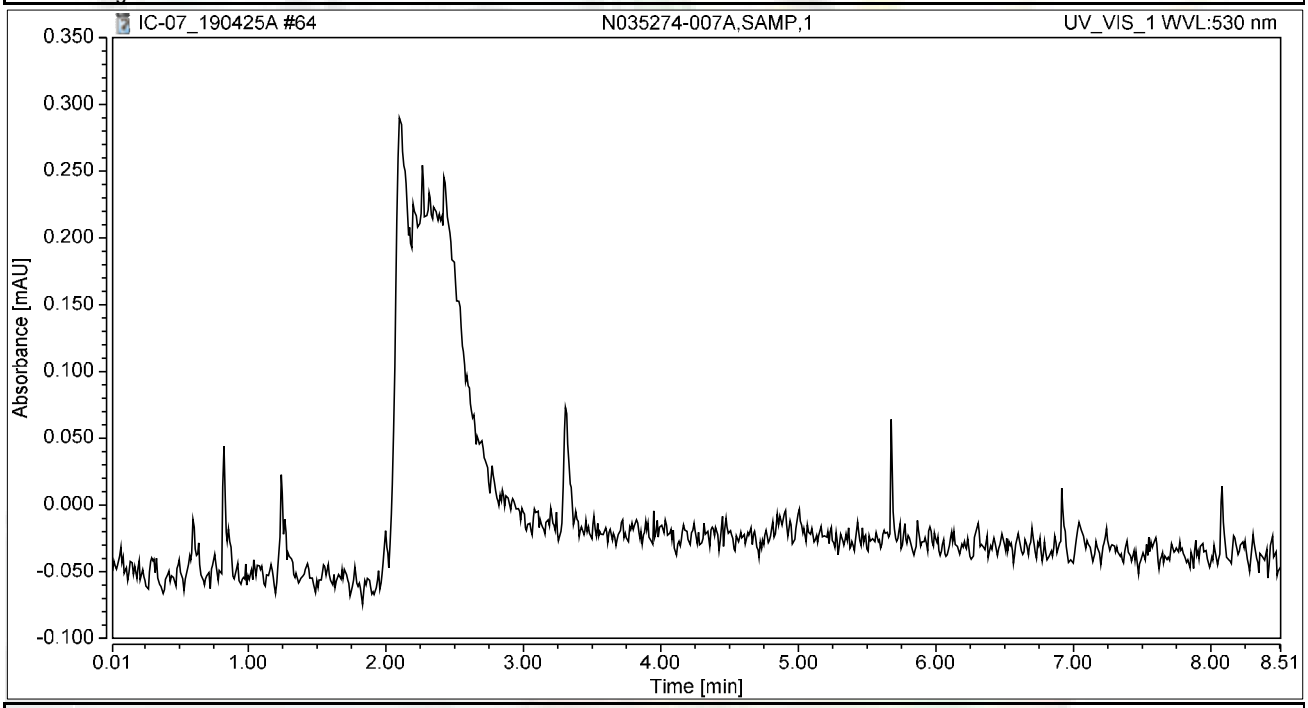
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.253	1.839	100.00	100.00	1.0153
Total:			**0.253**	**1.839**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-007A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 17:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

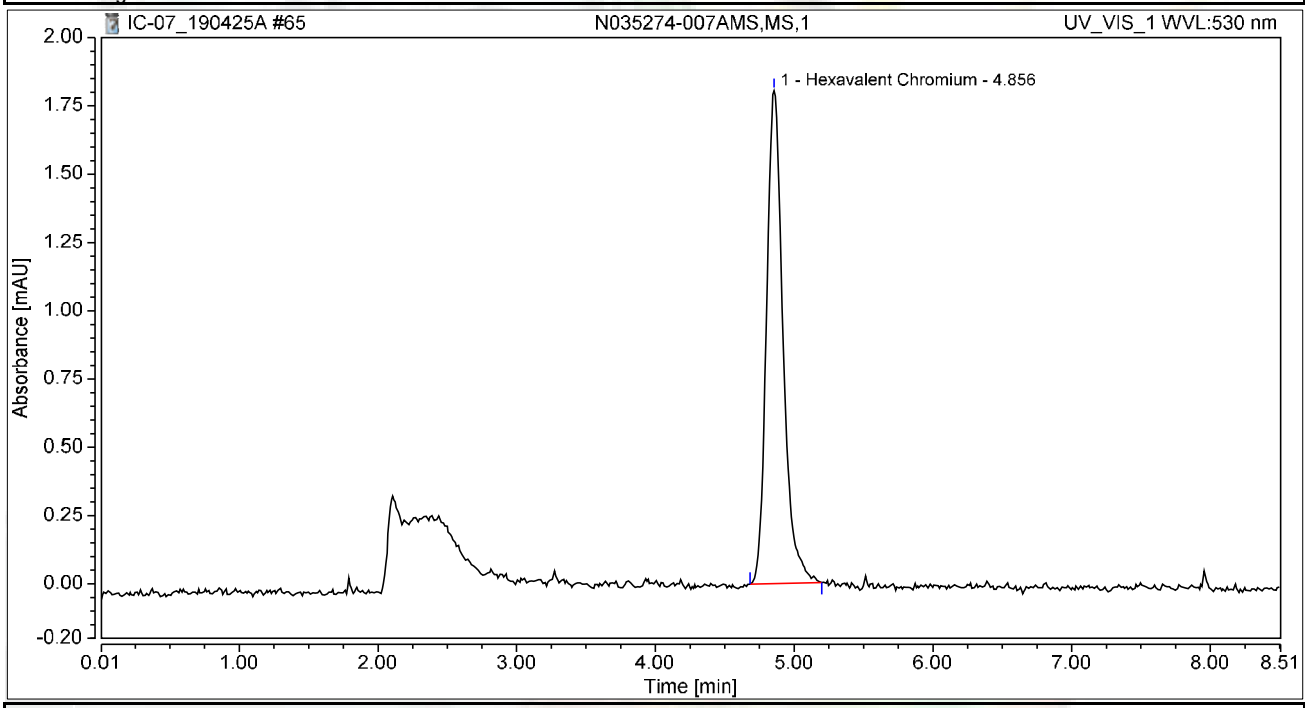
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 17:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

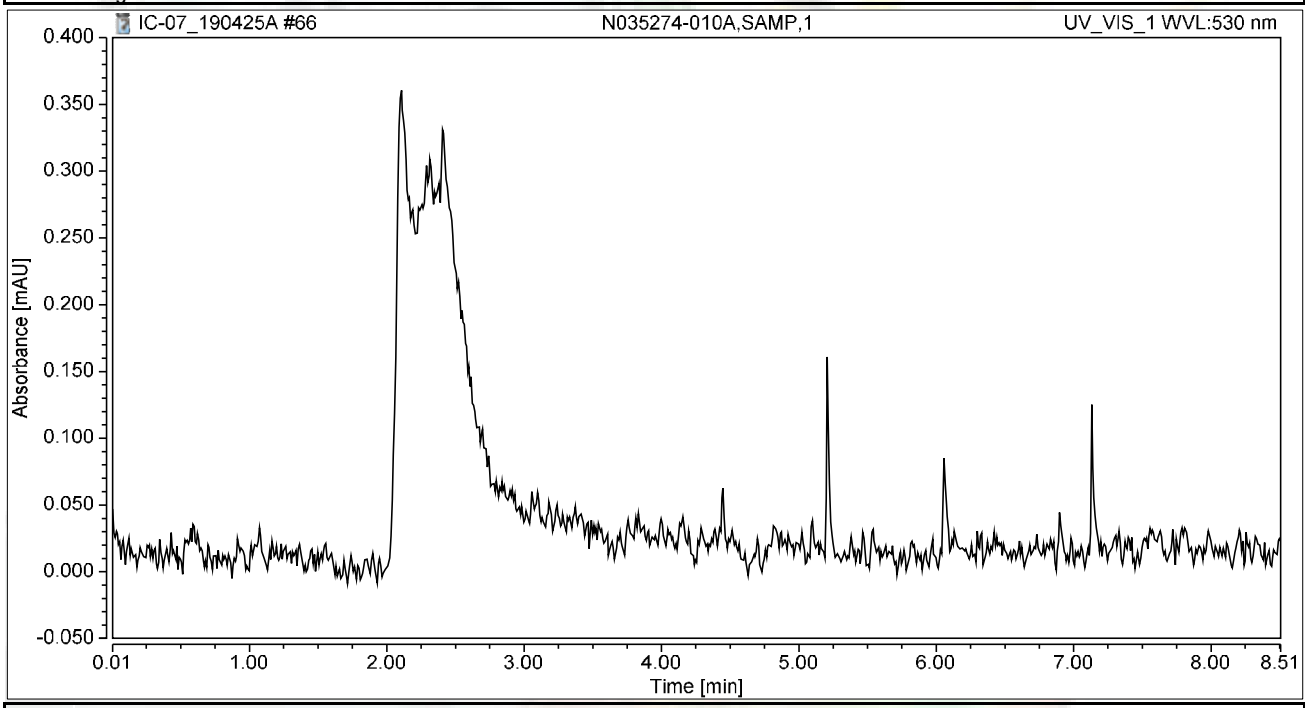
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.250	1.805	100.00	100.00	1.0034
Total:			**0.250**	**1.805**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 17:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

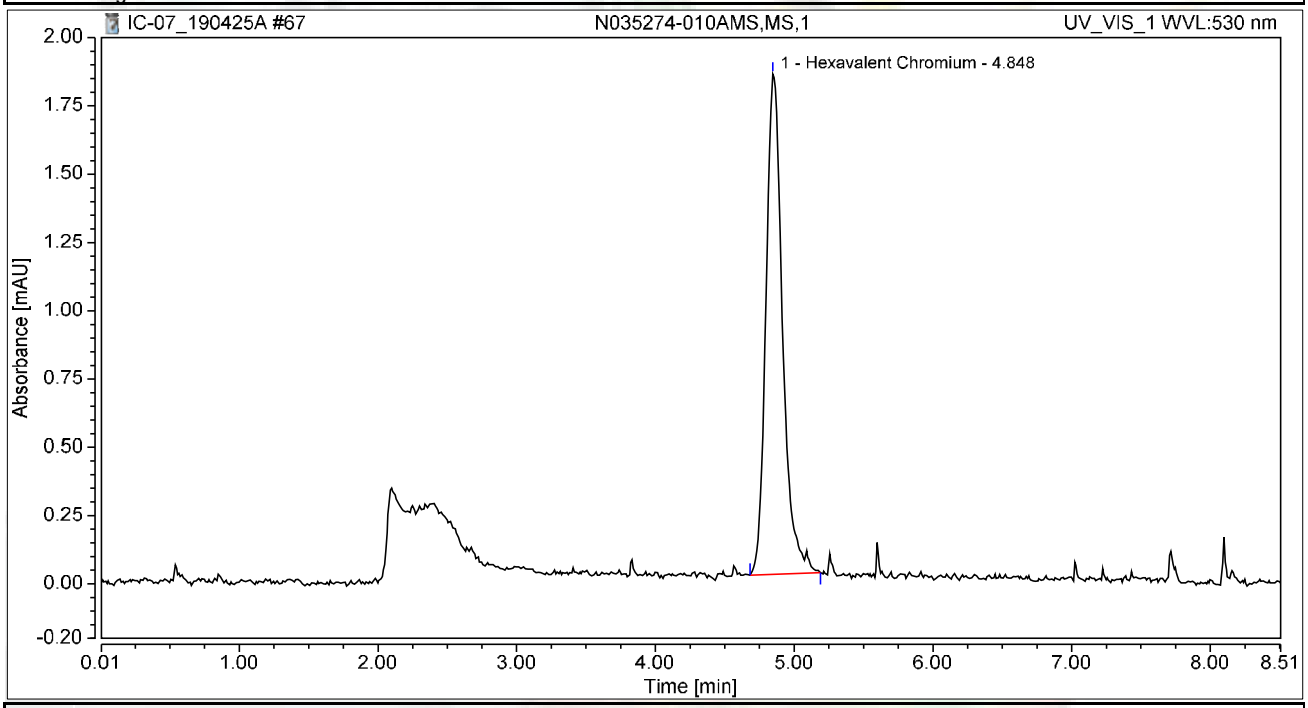
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 17:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

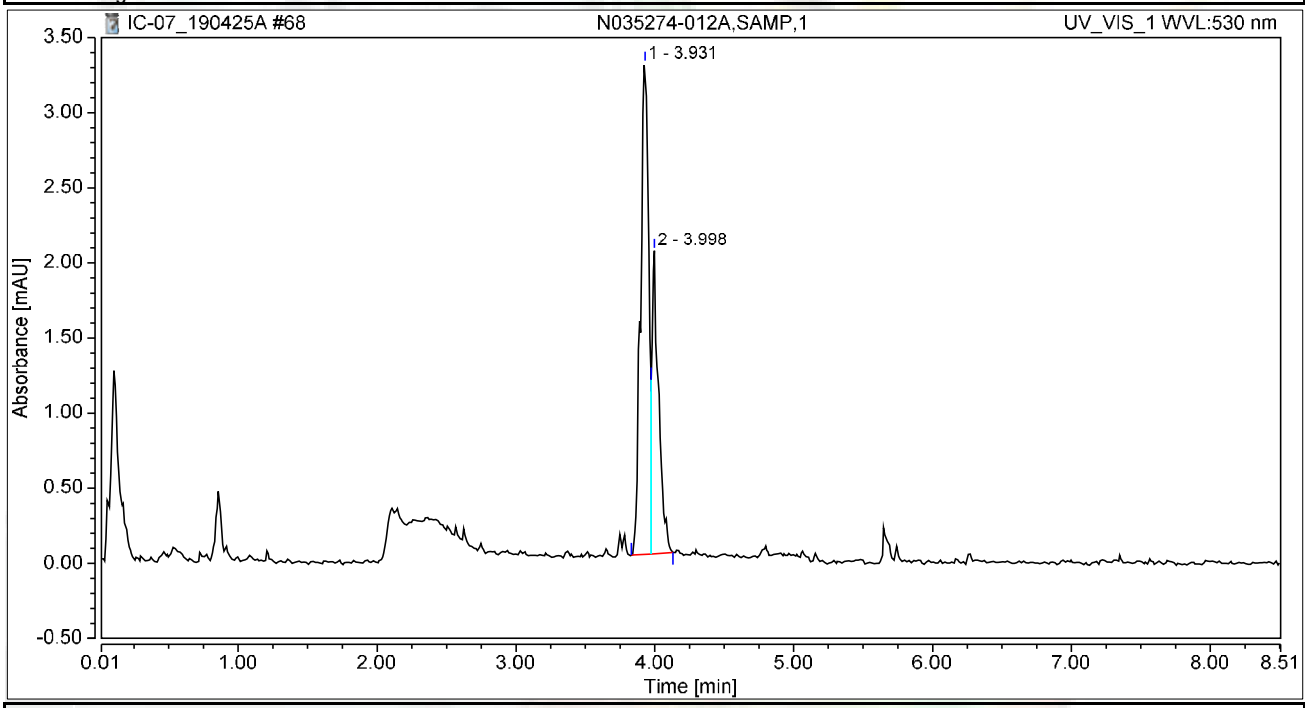
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.255	1.831	100.00	100.00	1.0238
Total:			**0.255**	**1.831**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-012A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 17:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

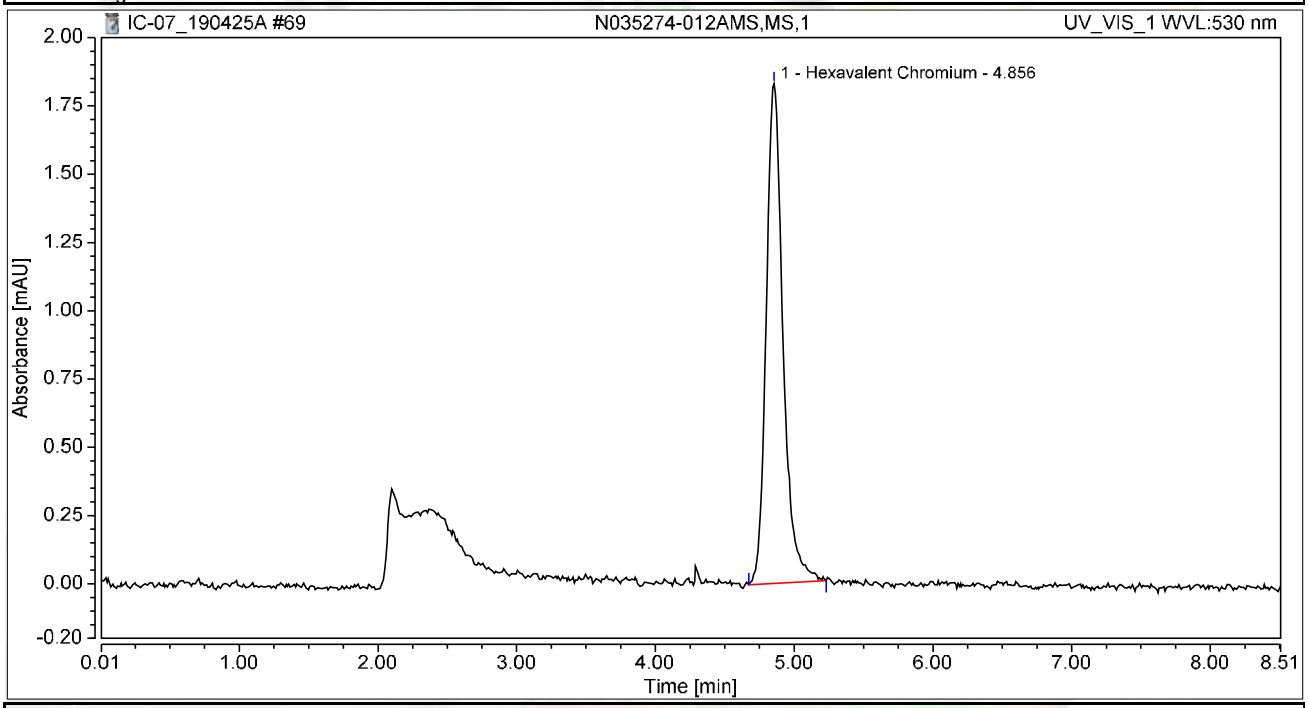
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.931	0.221	3.265	66.36	61.81	n.a.
2		3.998	0.112	2.017	33.64	38.19	n.a.
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.334**	**5.282**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 18:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

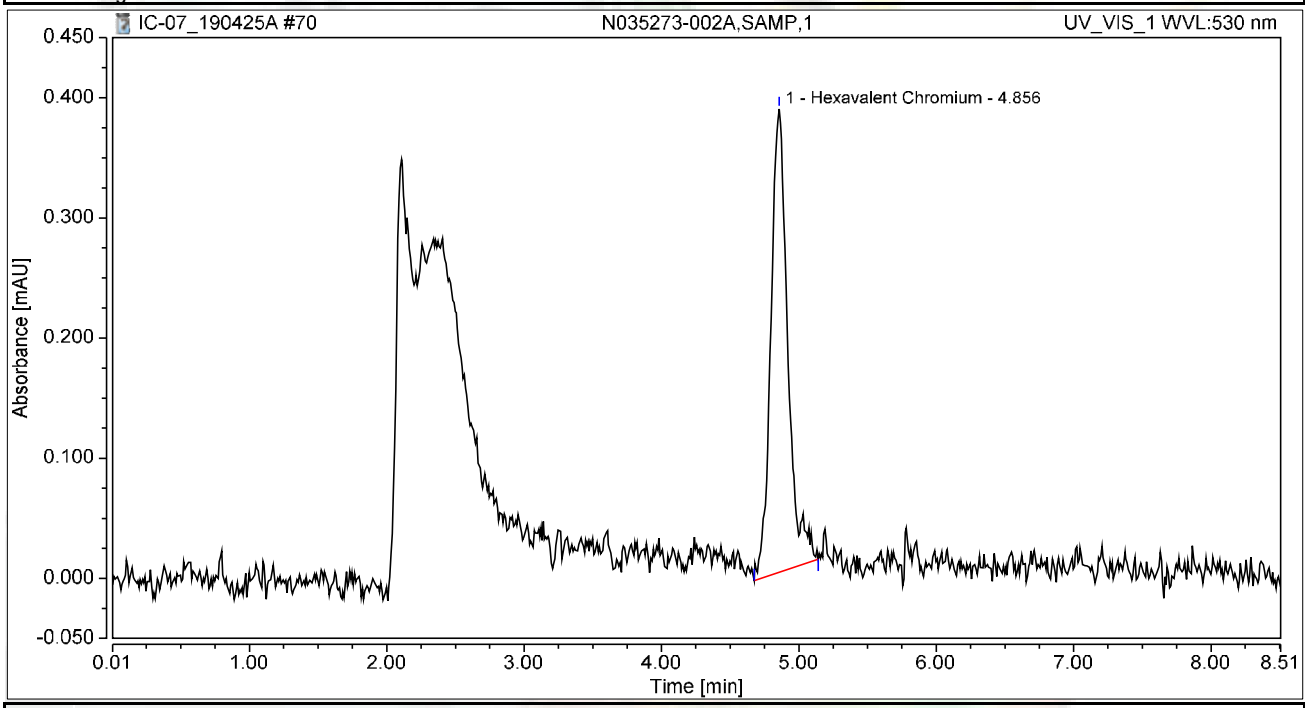
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.257	1.829	100.00	100.00	1.0330
Total:			**0.257**	**1.829**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035273-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 18:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

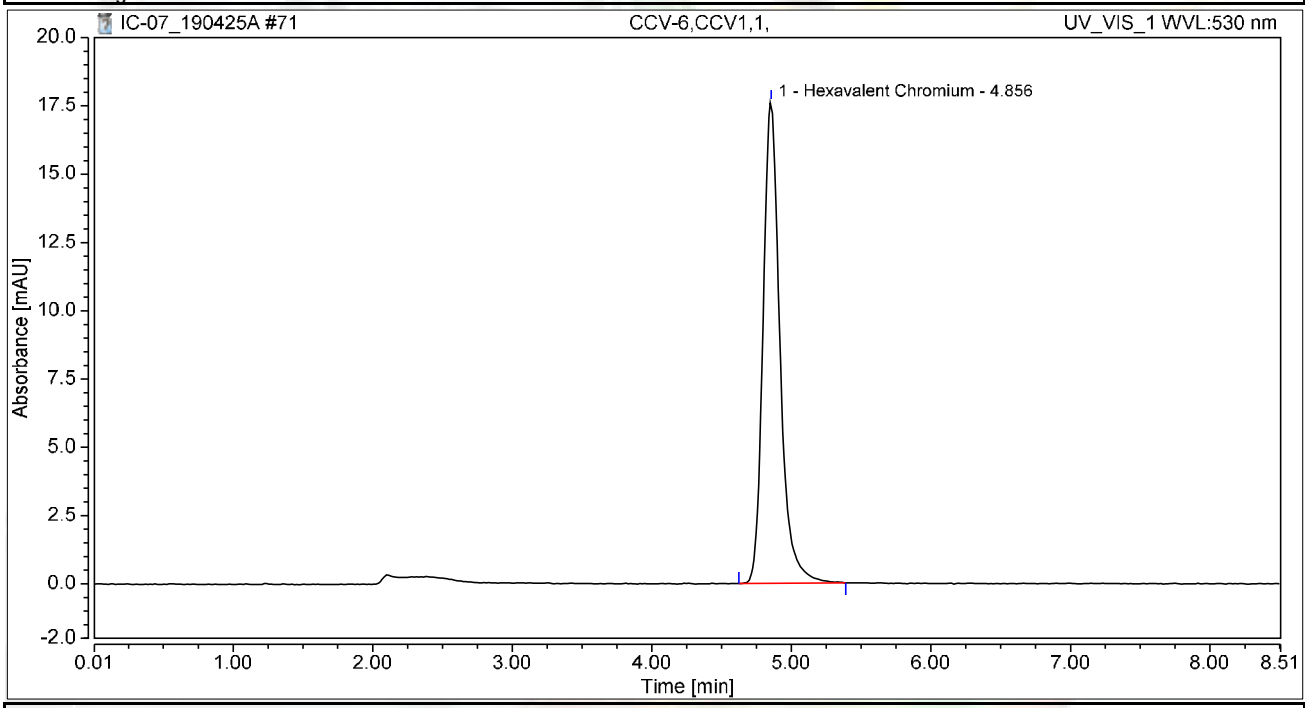
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.055	0.385	100.00	100.00	0.2211
Total:			**0.055**	**0.385**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 18:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

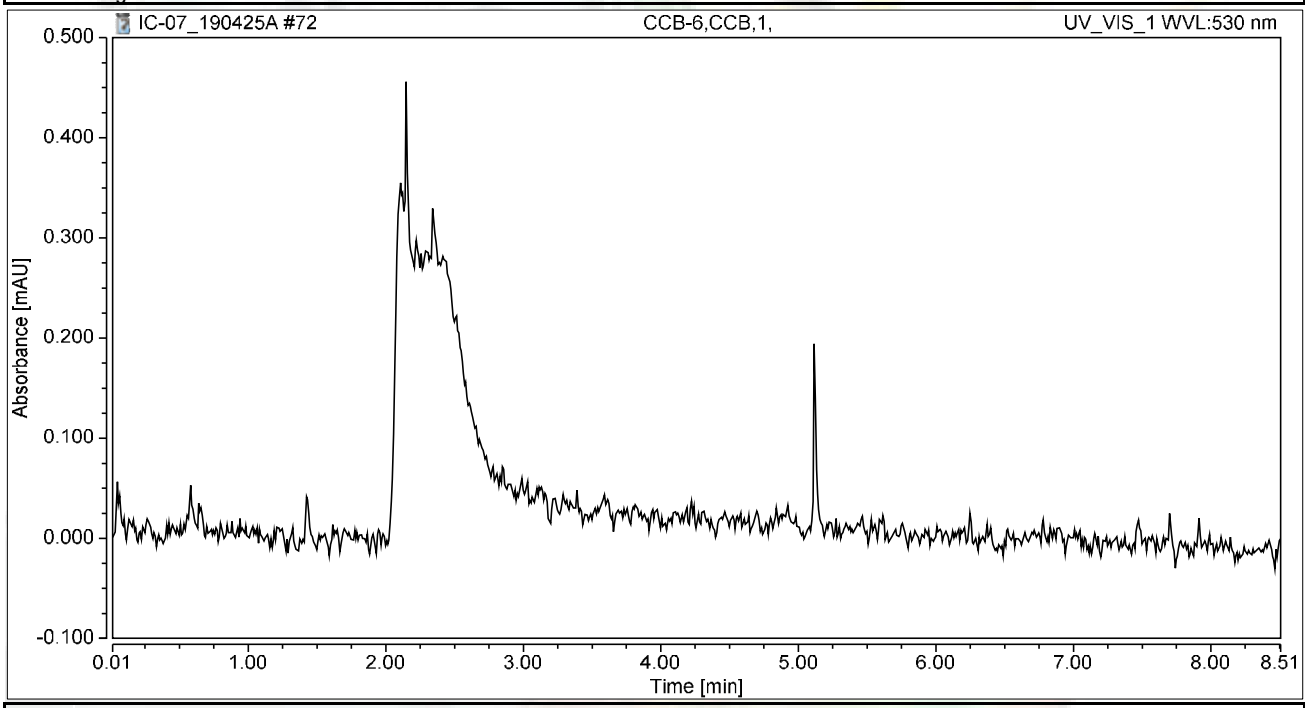
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	2.481	17.635	100.00	100.00	9.9655
Total:			**2.481**	**17.635**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 18:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

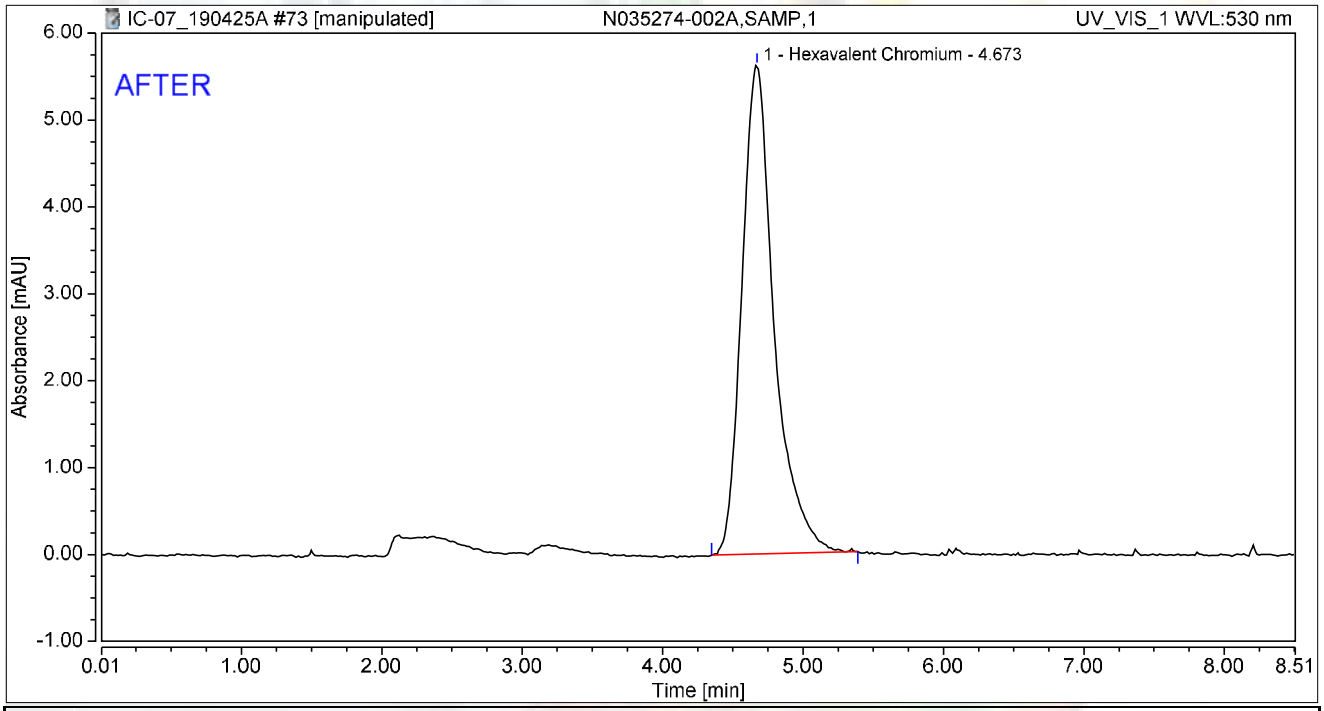
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 18:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	1.496	5.622	100.00	100.00	6.0086
Total:			**1.496**	**5.622**	**100.00**	**100.00**	

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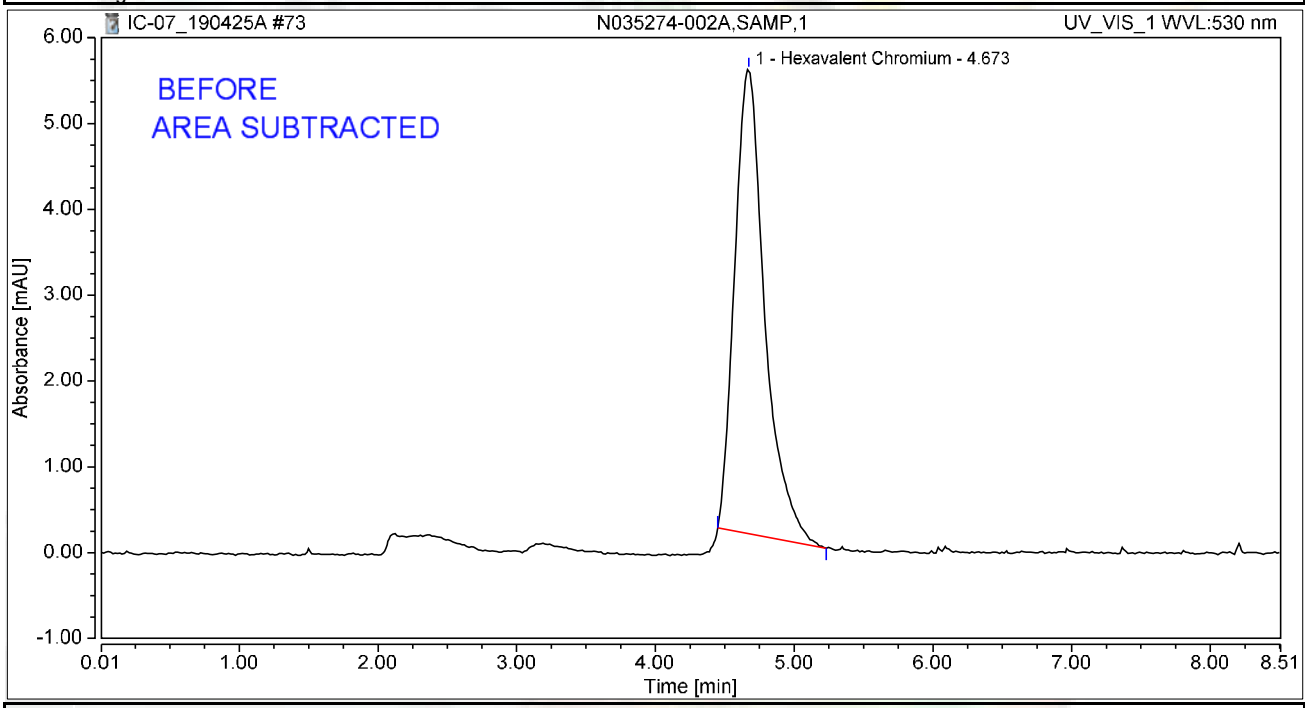
5/9/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035274-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 18:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	1.363	5.408	100.00	100.00	5.4745
Total:			**1.363**	**5.408**	**100.00**	**100.00**	

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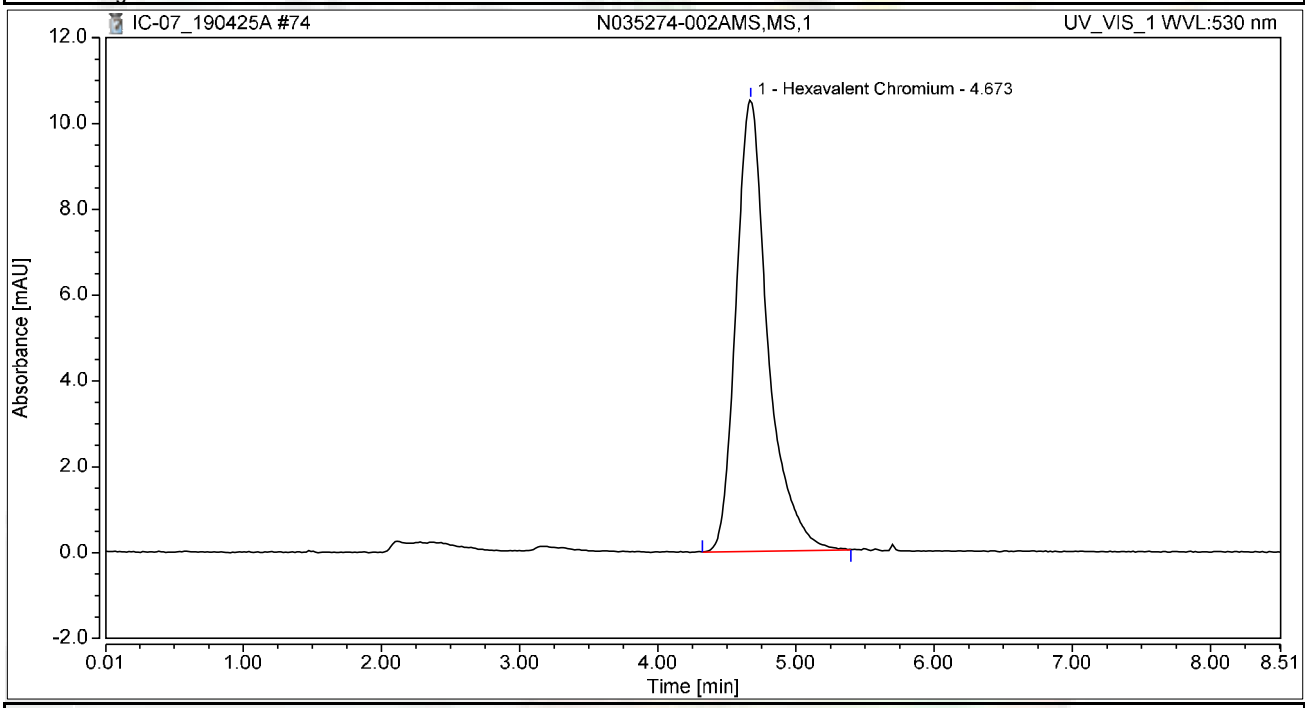
5/9/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035274-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 18:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

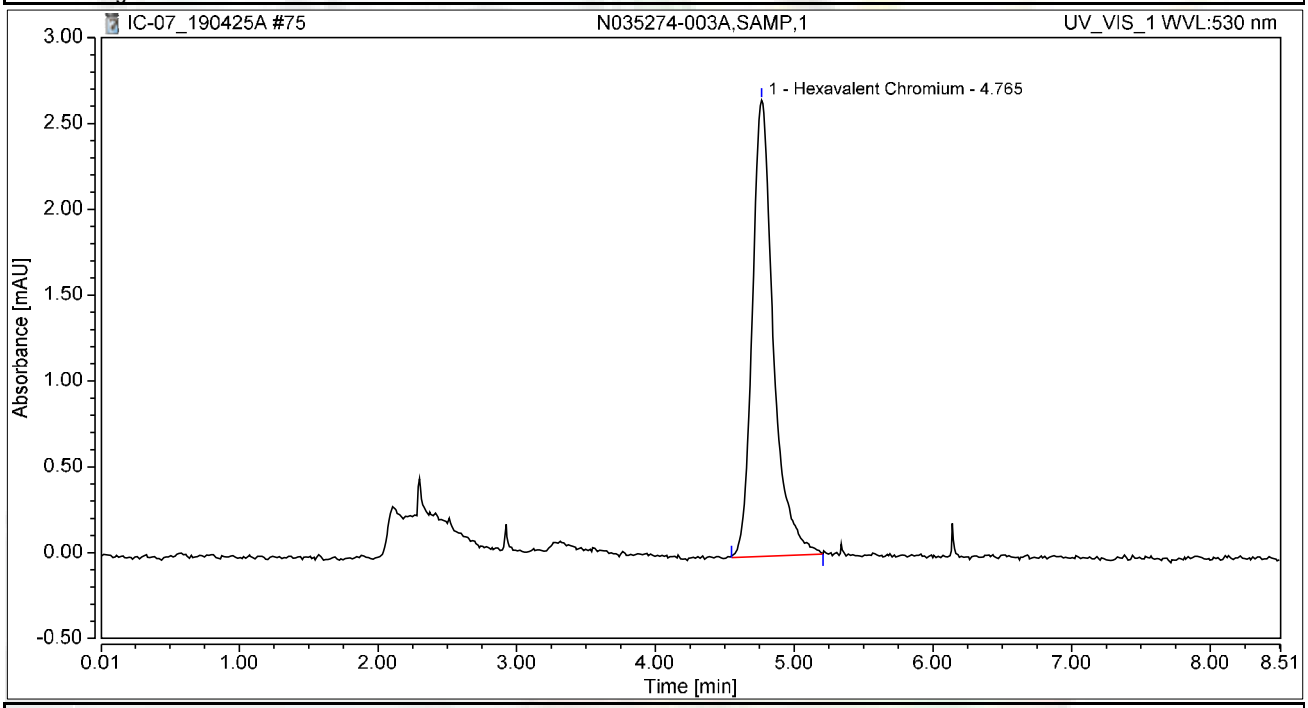
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	2.812	10.523	100.00	100.00	11.2944
Total:			**2.812**	**10.523**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 19:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

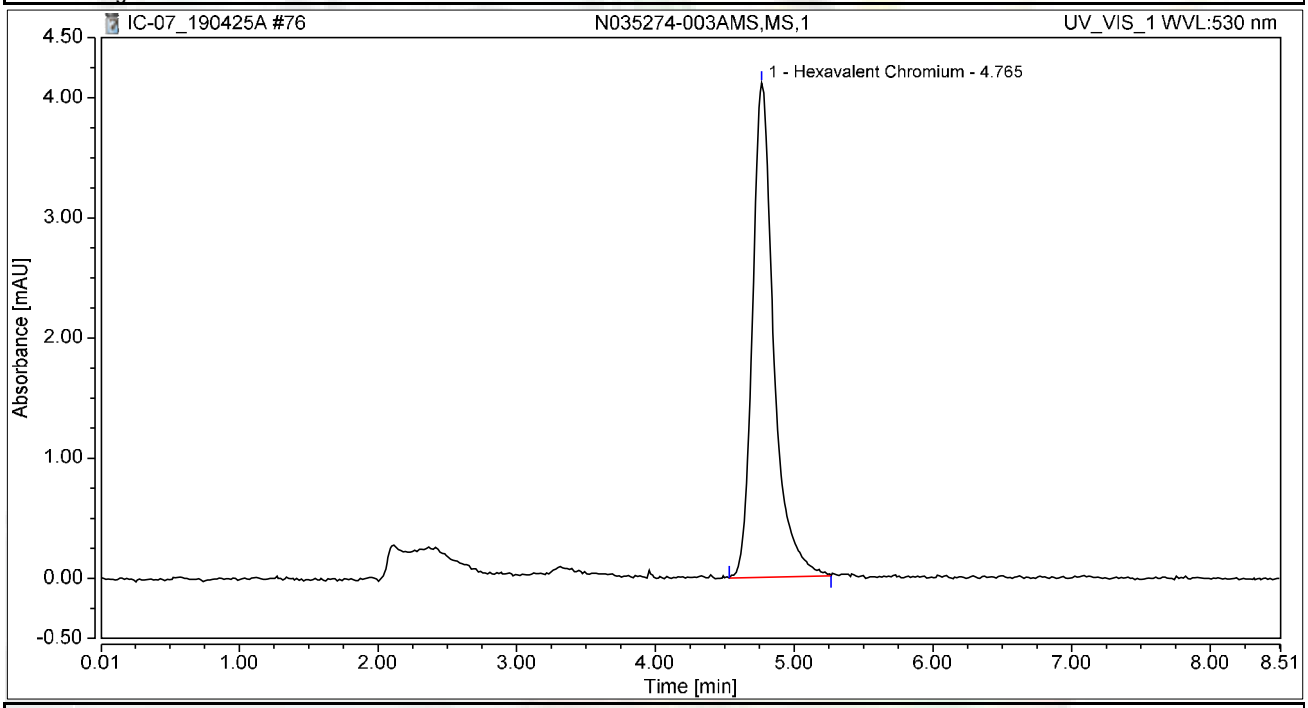
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	0.468	2.657	100.00	100.00	1.8806
Total:			**0.468**	**2.657**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 19:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

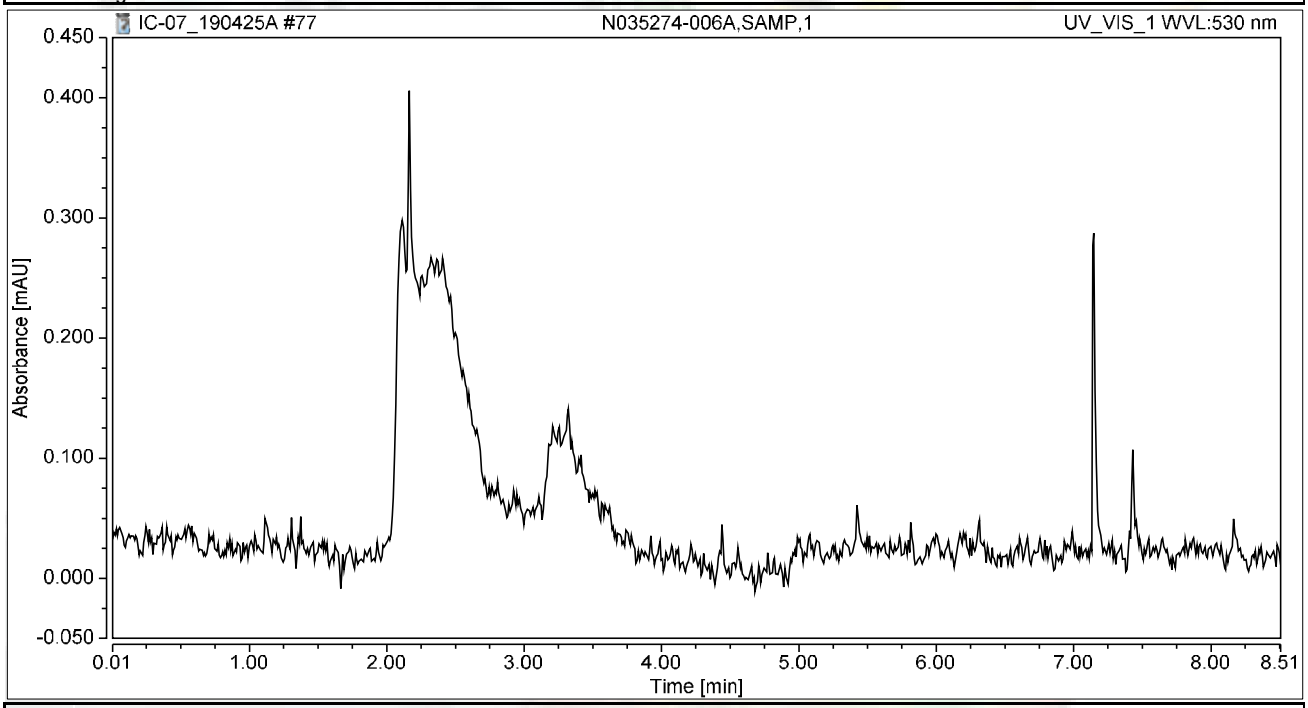
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	0.730	4.112	100.00	100.00	2.9337
Total:			**0.730**	**4.112**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 19:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

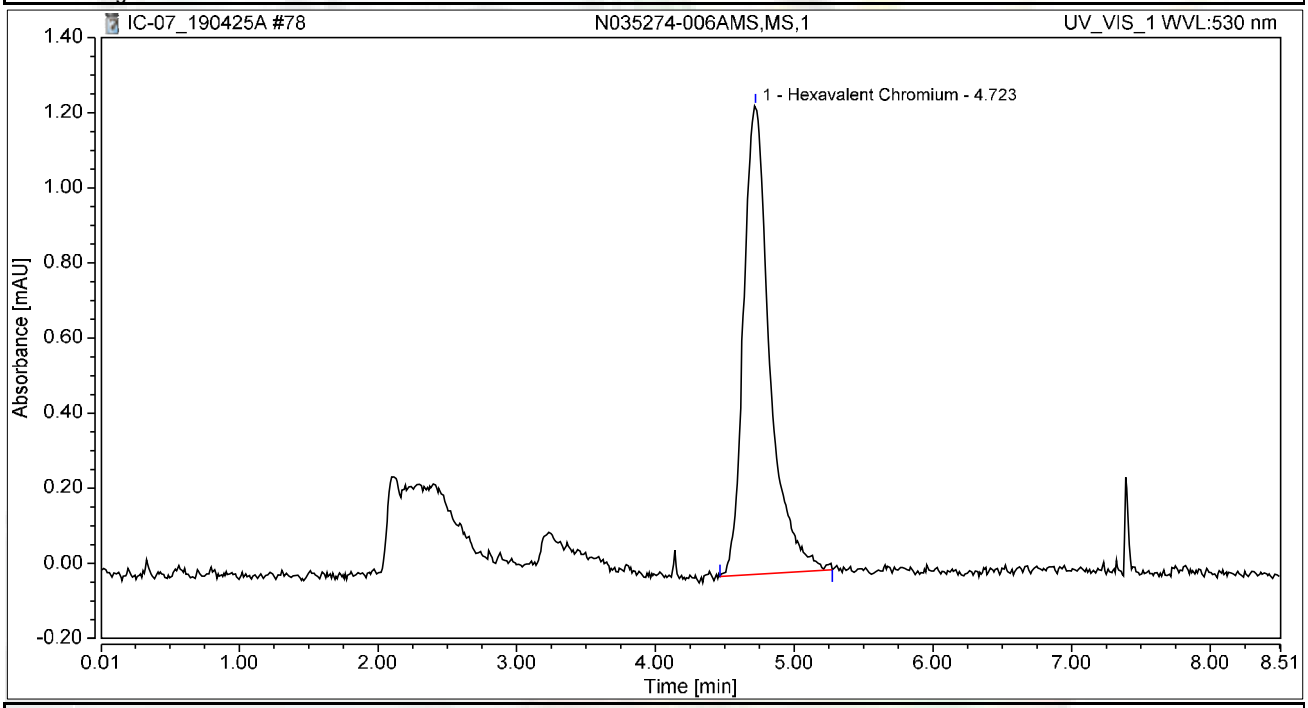
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 19:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

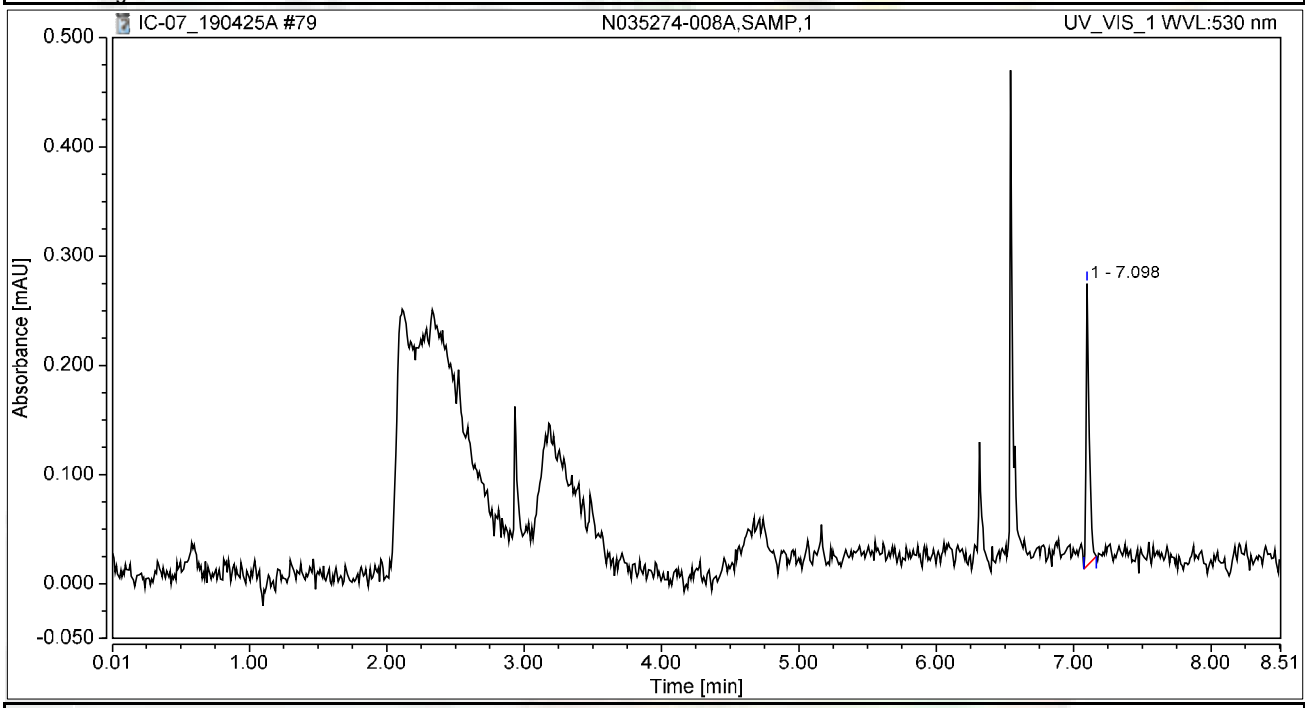
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.273	1.247	100.00	100.00	1.0967
Total:			**0.273**	**1.247**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-008A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 19:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

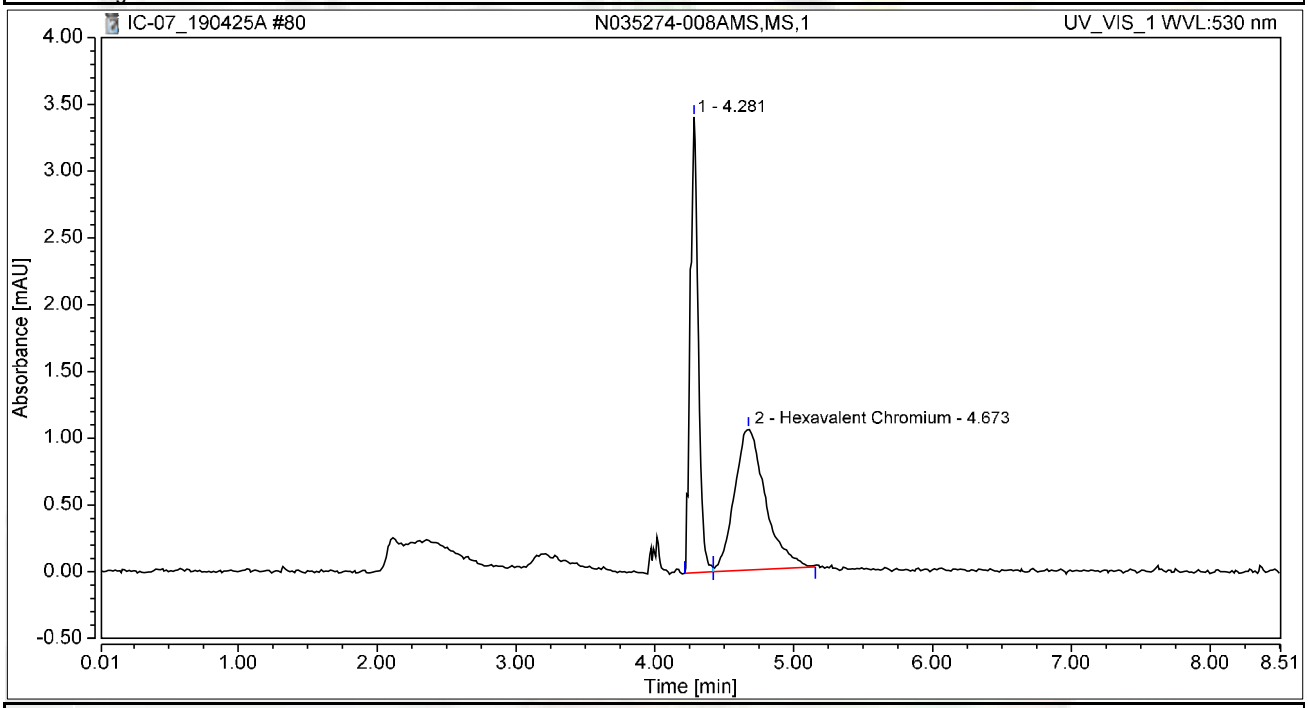
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		7.098	0.006	0.258	100.00	100.00	n.a.
Total:			**0.006**	**0.258**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-008AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 19:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

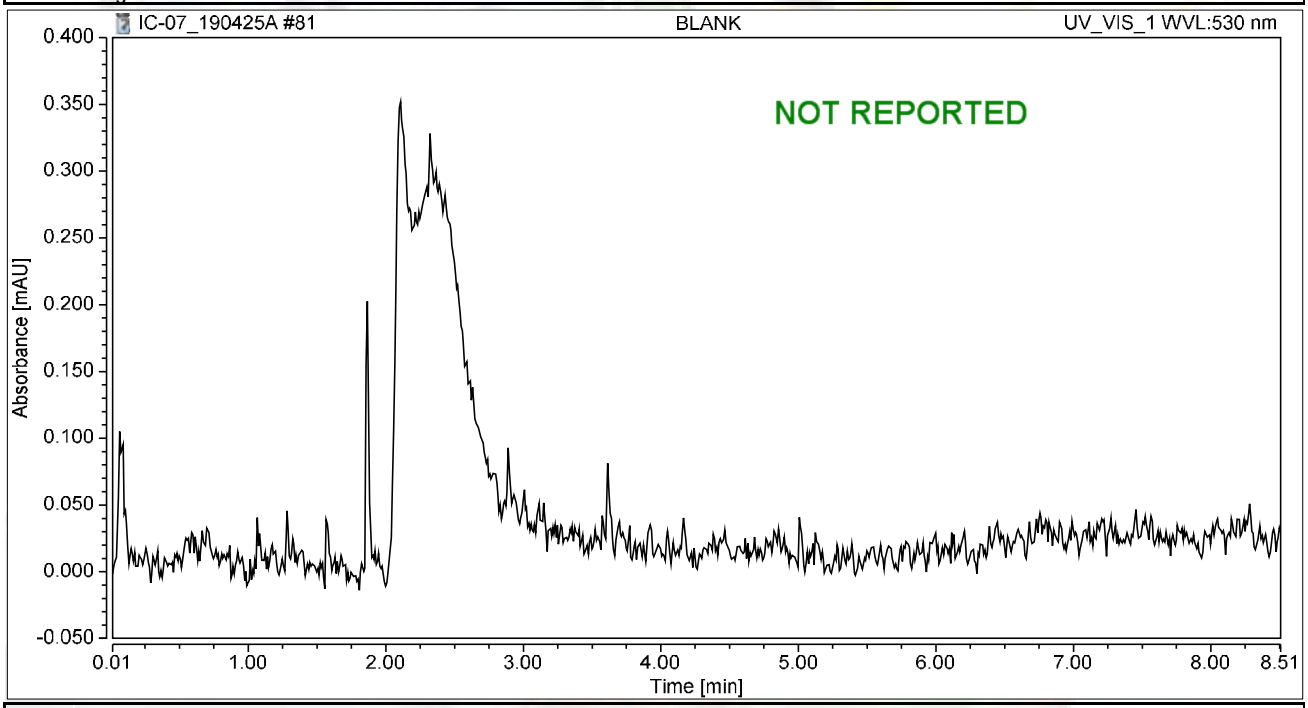
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		4.281	0.228	3.412	45.46	76.36	n.a.
2	Hexavalent Chromium	4.673	0.273	1.056	54.54	23.64	1.0972
Total:			**0.501**	**4.468**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 20:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

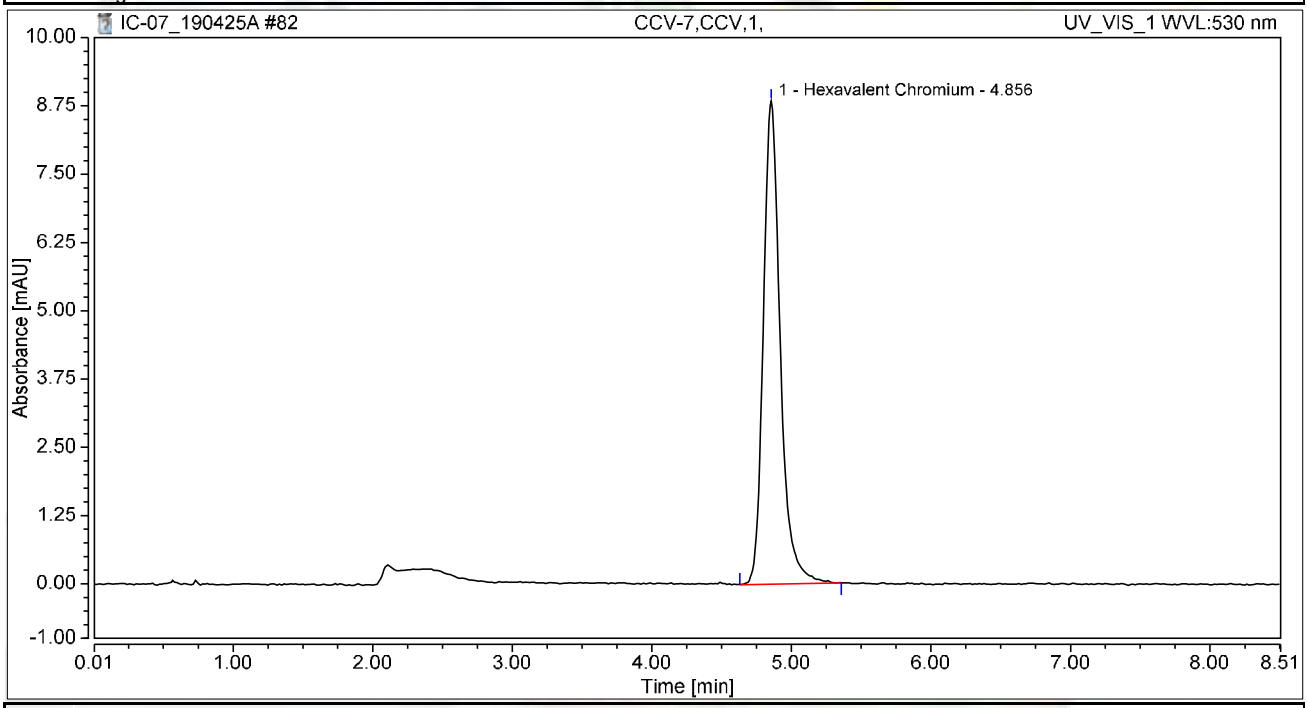
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-7,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 20:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

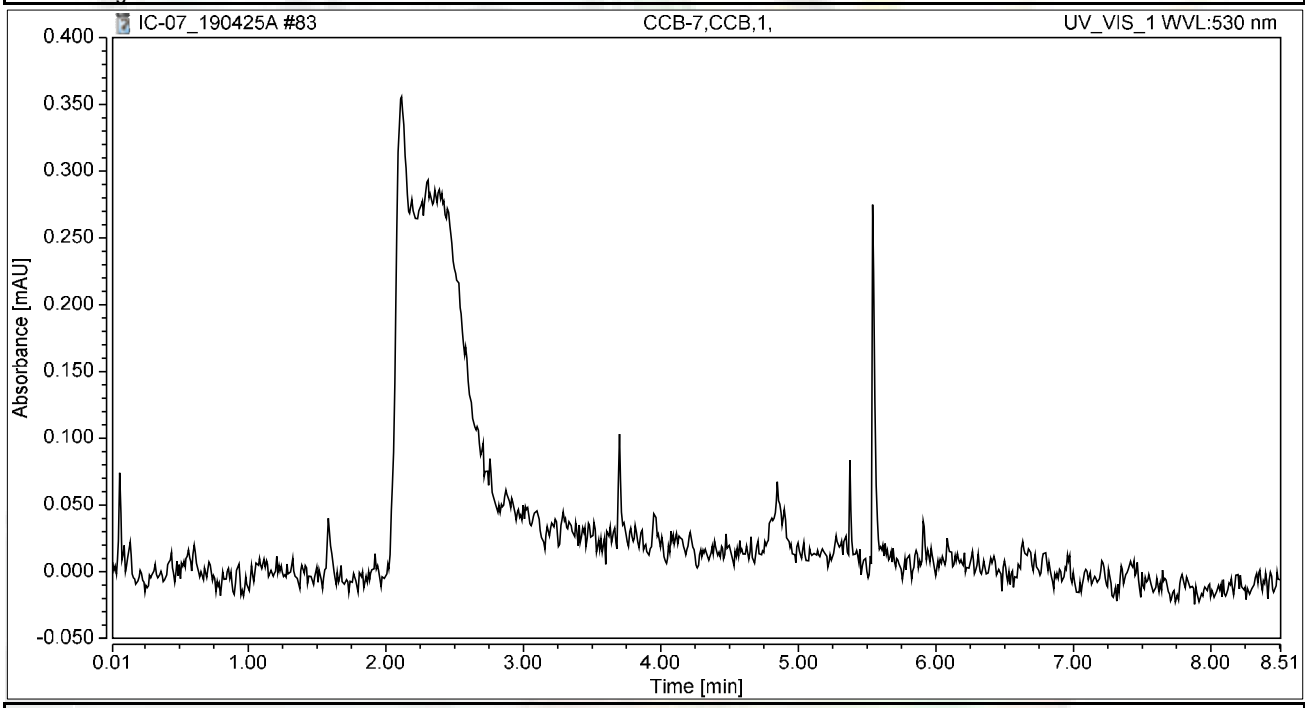
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.246	8.847	100.00	100.00	5.0058
Total:			**1.246**	**8.847**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-7,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 20:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

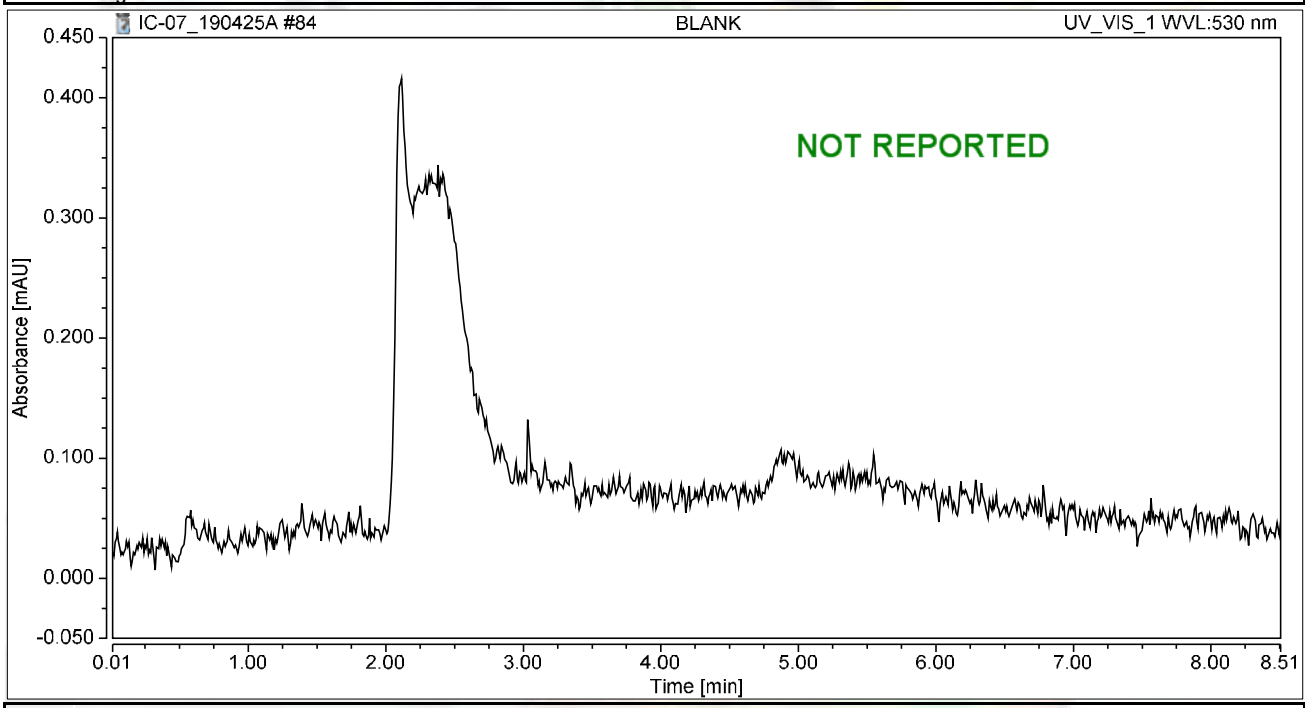
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**25/Apr/19 20:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190426A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 8:50 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	04/23/19 9:00 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	04/23/19 9:10 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:27 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:38 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:48 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 9:57 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:07 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	04/23/19 10:16 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	04/26/19 10:37 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	04/26/19 10:48 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	04/26/19 10:57 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	04/26/19 11:07 AM	Reported
14	MB-R133502	MBLK	1	Hexavalent Chromium	04/26/19 11:16 AM	Reported
15	LCS-R133502	LCS	1	Hexavalent Chromium	04/26/19 11:26 AM	Reported
16	N035274-013A	SAMP	1	Hexavalent Chromium	04/26/19 11:35 AM	Reported
17	N035274-014A	SAMP	1	Hexavalent Chromium	04/26/19 12:18 PM	Reported
18	N035274-013AMS	MS	1	Hexavalent Chromium	04/26/19 12:30 PM	Reported
19	N035274-013AMSD	MSD	1	Hexavalent Chromium	04/26/19 12:39 PM	Reported
20	N035274-014AMS	MS	1	Hexavalent Chromium	04/26/19 12:49 PM	Reported
21	N035274-014ADUP	DUP	1	Hexavalent Chromium	04/26/19 12:58 PM	Reported
22	N035076-002A	SAMP	1	Hexavalent Chromium	04/26/19 1:08 PM	Not Reported
23	N035076-002AMS	MS	1	Hexavalent Chromium	04/26/19 1:17 PM	Not Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	04/26/19 1:26 PM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	04/26/19 1:36 PM	Reported
26	N035076-010A	SAMP	1	Hexavalent Chromium	04/26/19 1:45 PM	Not Reported
27	N035076-010AMS	MS	1	Hexavalent Chromium	04/26/19 1:55 PM	Not Reported
28	CCV-3	CCV	1	Hexavalent Chromium	04/26/19 2:04 PM	Not Reported
29	CCB-3	CCB	1	Hexavalent Chromium	04/26/19 2:14 PM	Not Reported
30	BLANK	BLANK	1	Hexavalent Chromium	04/26/19 2:23 PM	Not Reported

5/9/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190426A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**26/Apr/19 14:54:03**
No. of Injections:	**33**	*Updated By:*	**ics 5000**

Injection Details

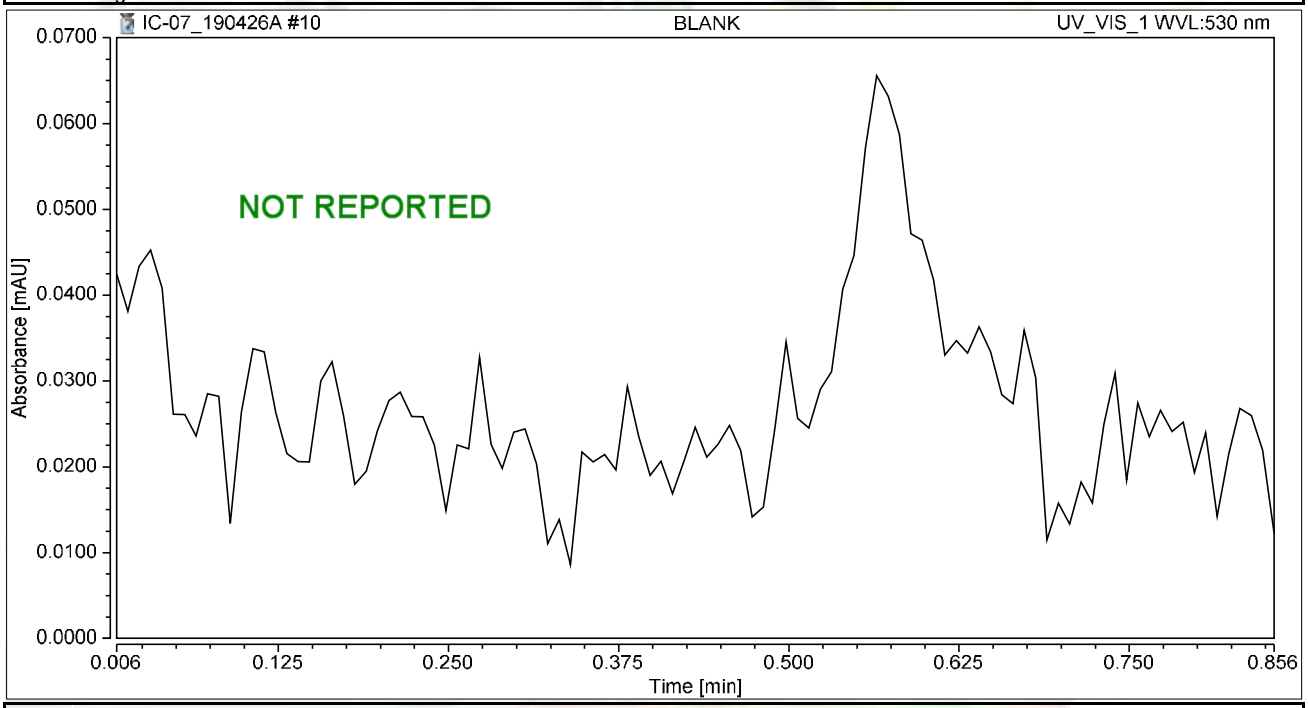
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		04/23/2019 08:50	Finished	BLANK
2	BLANK	2	1000	Unknown		04/23/2019 09:00	Finished	BLANK
3	iBLANK	3	1000	Unknown		04/23/2019 09:10	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	5	1000	Calibration Standard	01	04/23/2019 09:27	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	6	1000	Calibration Standard	02	04/23/2019 09:38	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	7	1000	Calibration Standard	03	04/23/2019 09:48	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	8	1000	Calibration Standard	04	04/23/2019 09:57	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	9	1000	Calibration Standard	05	04/23/2019 10:07	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	10	1000	Calibration Standard	06	04/23/2019 10:16	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		04/26/2019 10:37	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		04/26/2019 10:48	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		04/26/2019 10:57	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		04/26/2019 11:07	Finished	CCB R190411C
14	MB-H2O,MBLK,1,	5	1000	Unknown		04/26/2019 11:16	Finished	MB R190411C
15	LCS-H2O,LCS,1,	6	1000	Unknown		04/26/2019 11:26	Finished	LCS @5ppb, IWST-190423B
16	N035274-013A,SAMP	7	1000	Unknown		04/26/2019 11:35	Finished	SAMP,10mL
17	N035274-014A,SAMP	9	1000	Unknown		04/26/2019 12:18	Finished	SAMP,10mL
18	N035274-013AMS,MS	10	1000	Unknown		04/26/2019 12:30	Finished	MS (5ppb), IWST-190423B,10
19	N035274-013AMSD,M	11	1000	Unknown		04/26/2019 12:39	Finished	MSD (5ppb), IWST-190423B,10
20	N035274-014AMS,MS	12	1000	Unknown		04/26/2019 12:49	Finished	MS (5ppb), IWST-190423B,10
21	N035274-014ADUP,D	13	1000	Unknown		04/26/2019 12:58	Finished	DUP,10mL
22	N035076-002A,SAMP	14	1000	Unknown		04/26/2019 13:08	Finished	SAMP,10mL
23	N035076-002AMS,MS	15	1000	Unknown		04/26/2019 13:17	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	16	1000	Unknown		04/26/2019 13:26	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	17	1000	Unknown		04/26/2019 13:36	Finished	CCB R190411C
26	N035076-010A,SAMP	18	1000	Unknown		04/26/2019 13:45	Finished	SAMP,10mL
27	N035076-010AMS,MS	19	1000	Unknown		04/26/2019 13:55	Finished	MS (1ppb), IWST-190423B,10
28	CCV-3,CCV,1,	20	1000	Unknown		04/26/2019 14:04	Finished	CCV @5ppb, IWST-190423A
29	CCB-3,CCB,1,	21	1000	Unknown		04/26/2019 14:14	Finished	CCB R190411C
30	BLANK	22	1000	Unknown		04/26/2019 14:23	Finished	BLANK
31	SHUTDOWN	23	1000	Unknown		04/26/2019 14:33	Finished	
32	Eluent: R190426A	24	1000	Unknown		n.a.	Finished	Eluent
33	PCR: R190424B	25	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**0.85**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 10:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

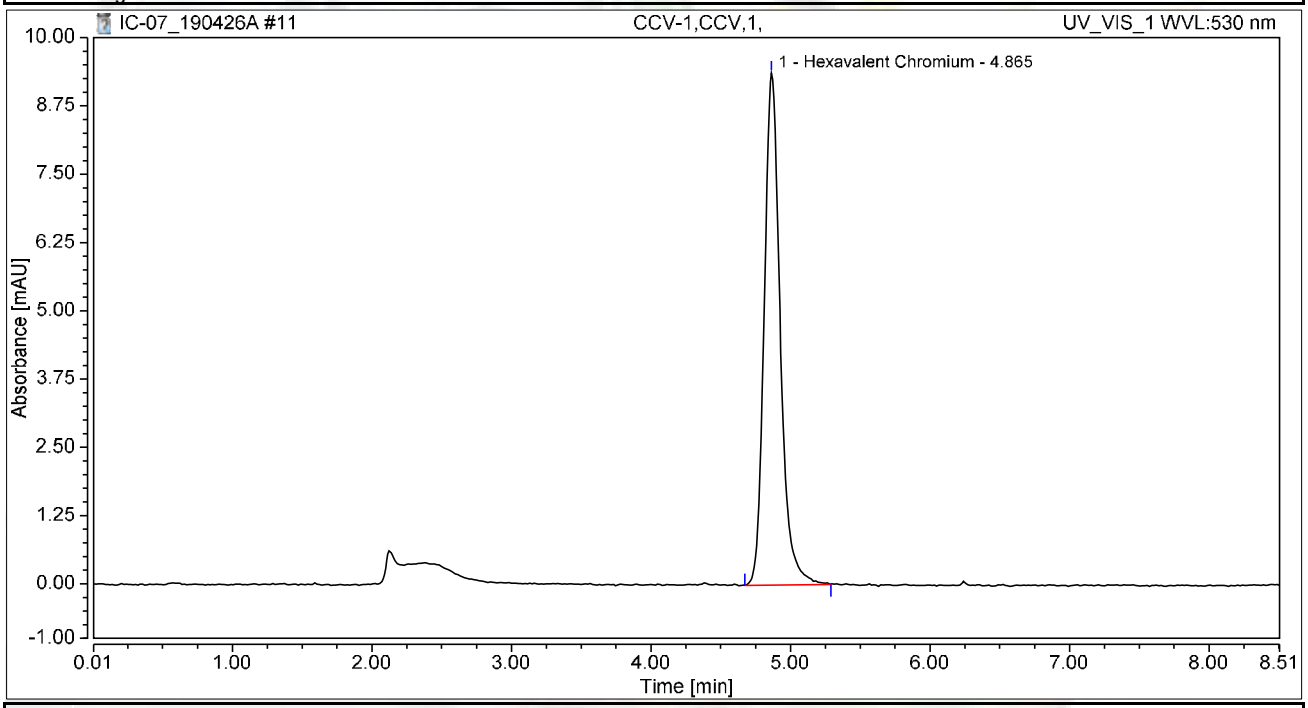
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 10:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

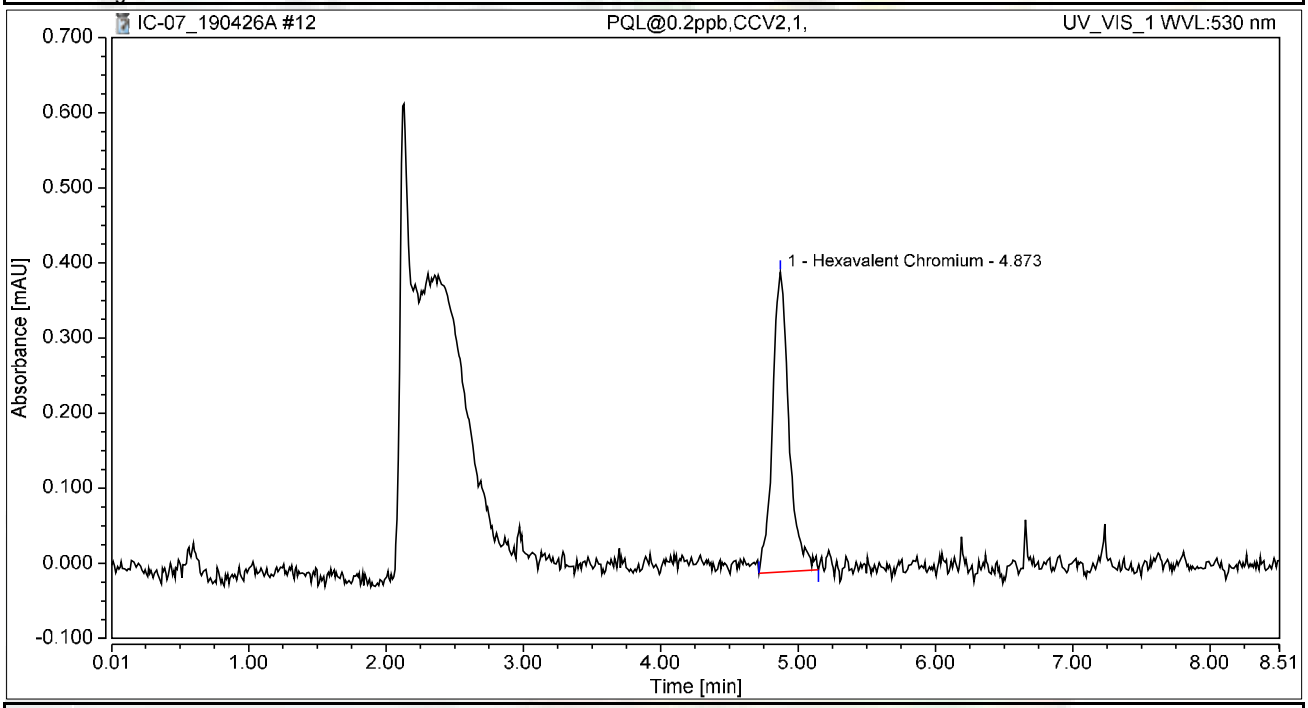
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	1.250	9.376	100.00	100.00	5.0212
Total:			**1.250**	**9.376**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

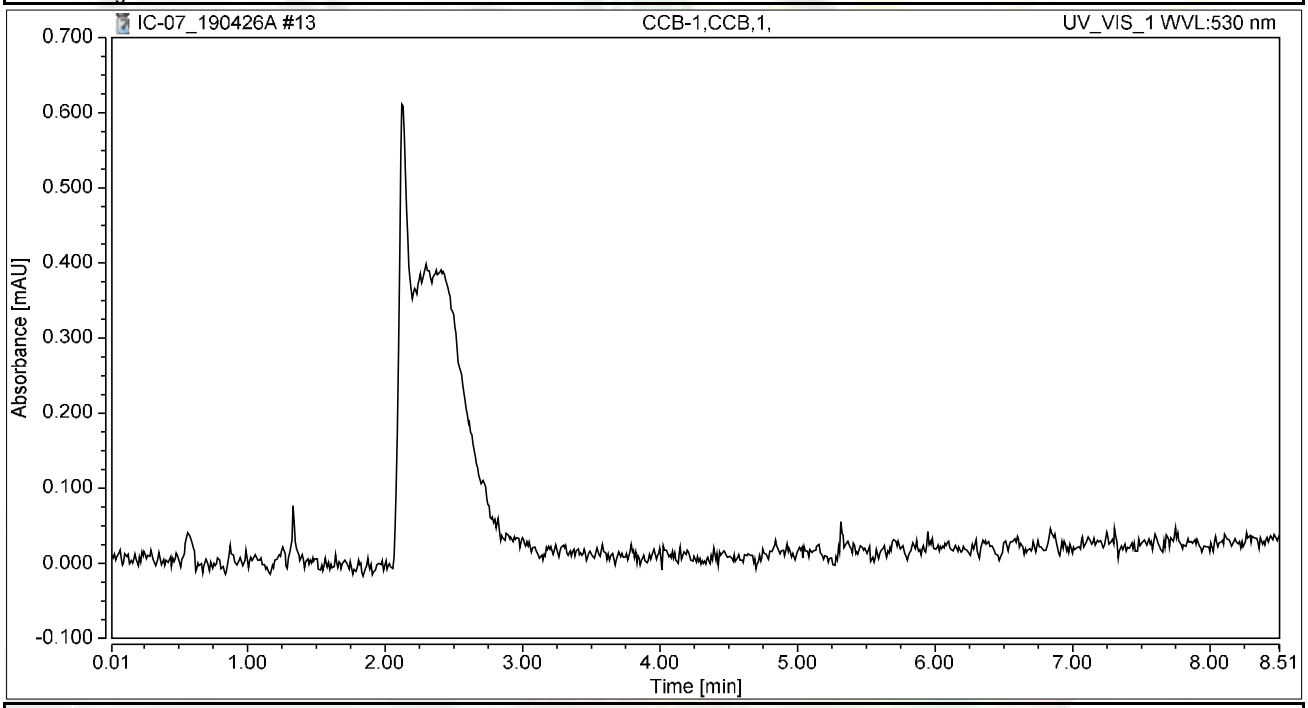
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.873	0.056	0.399	100.00	100.00	0.2232
Total:			**0.056**	**0.399**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 11:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

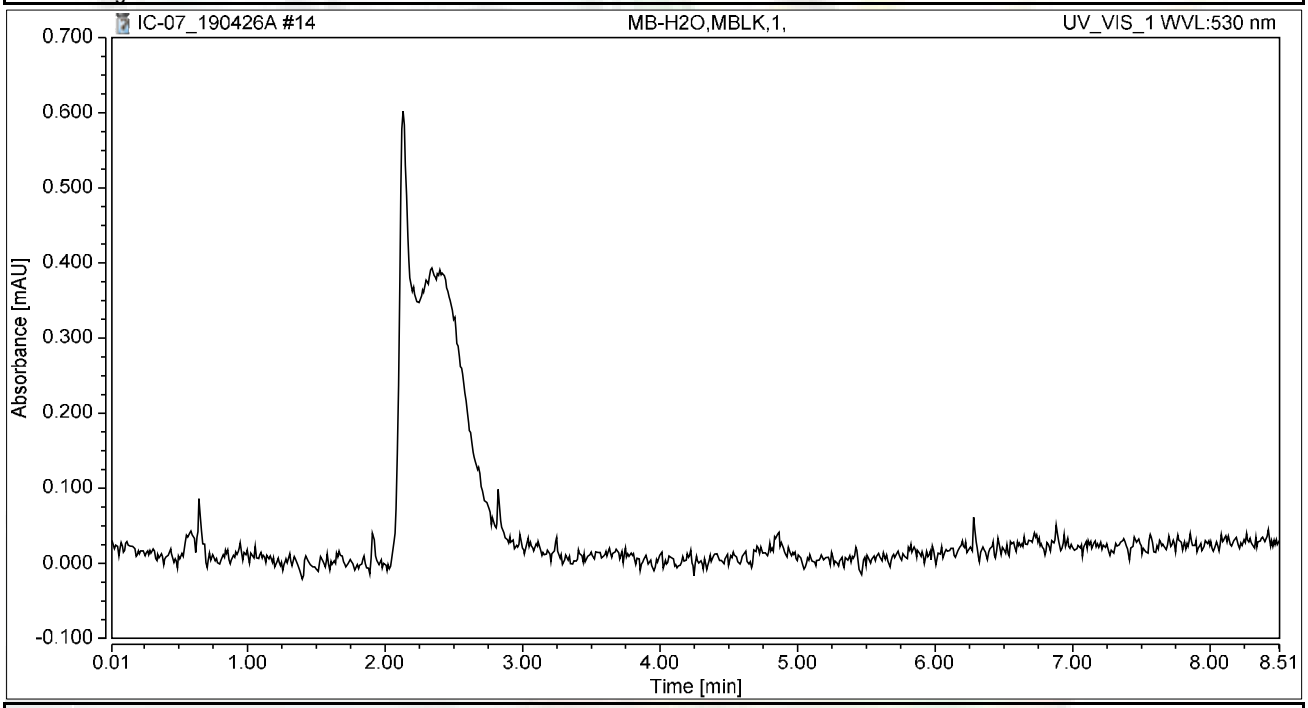
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

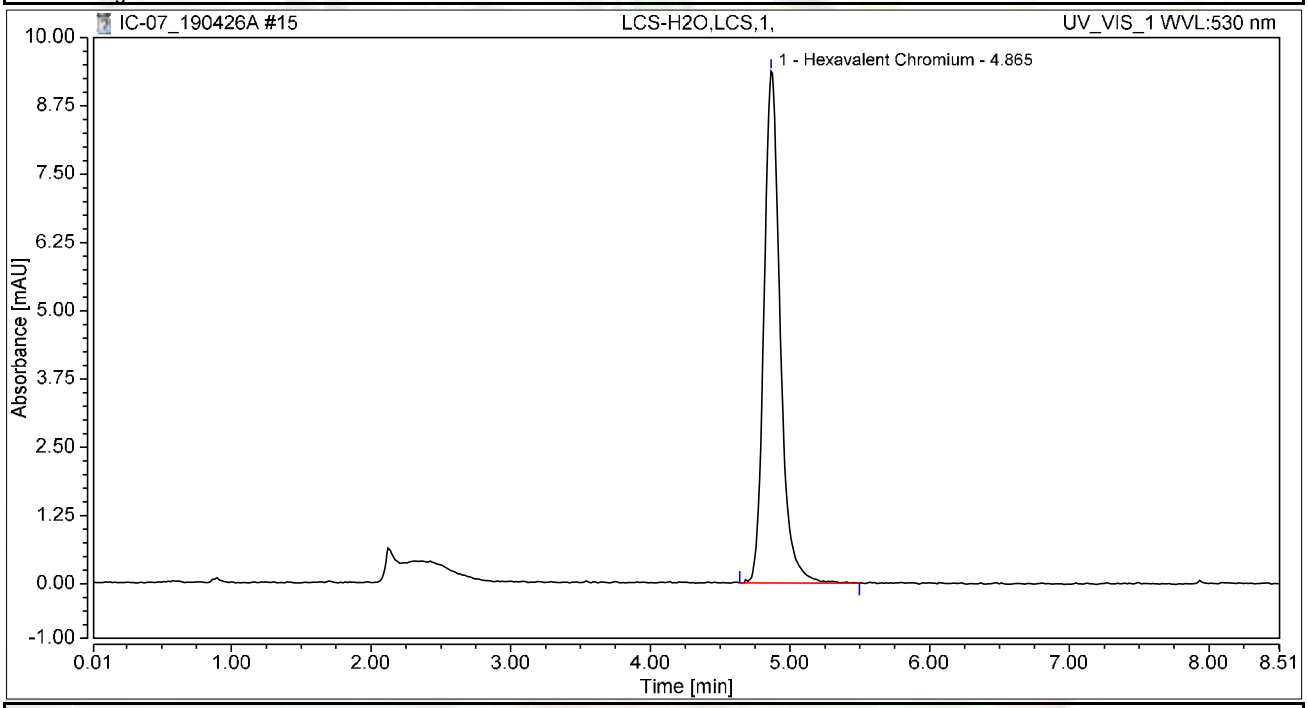
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 11:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

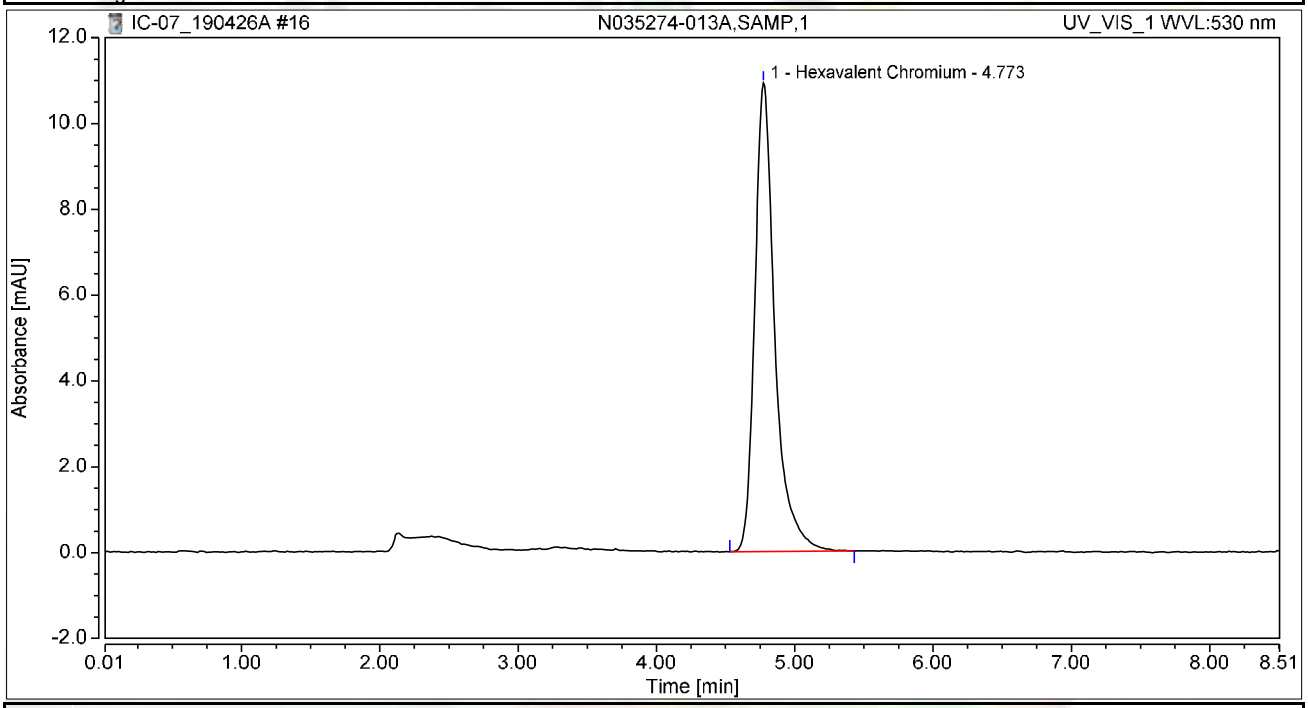
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	1.264	9.374	100.00	100.00	5.0778
Total:			**1.264**	**9.374**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-013A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

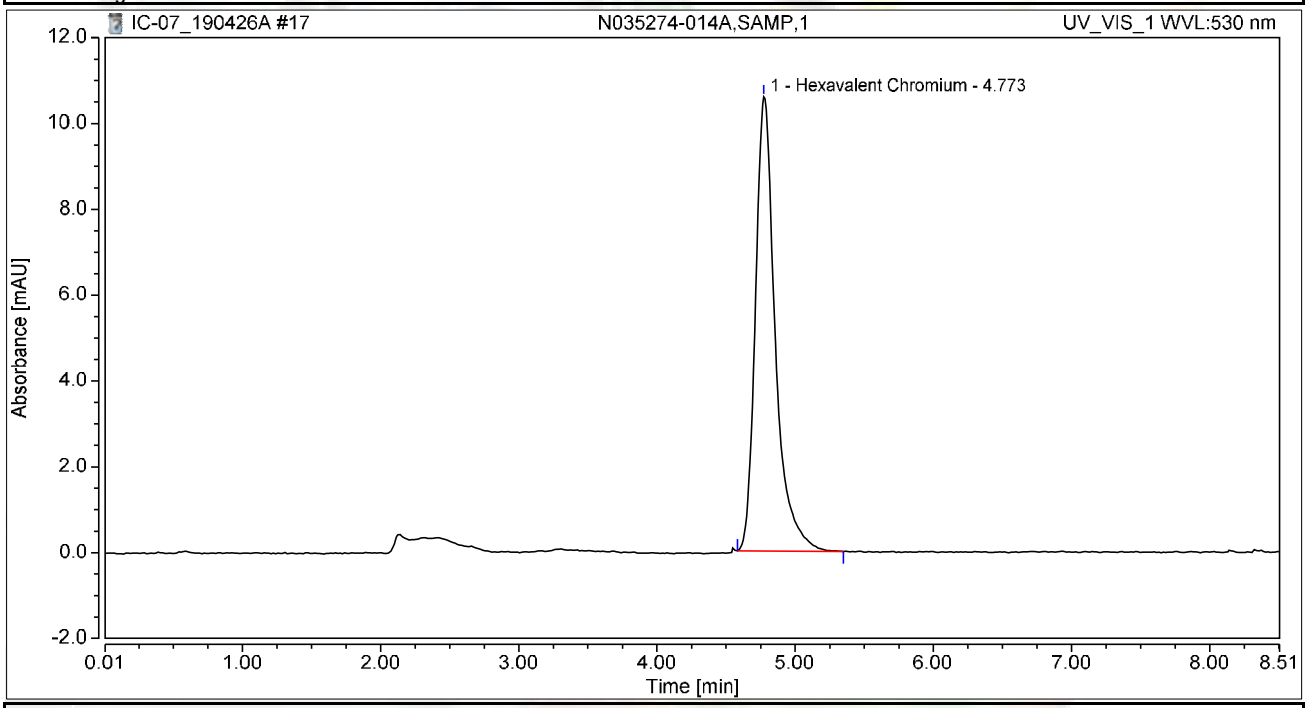
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	1.833	10.915	100.00	100.00	7.3604
Total:			**1.833**	**10.915**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-014A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 12:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

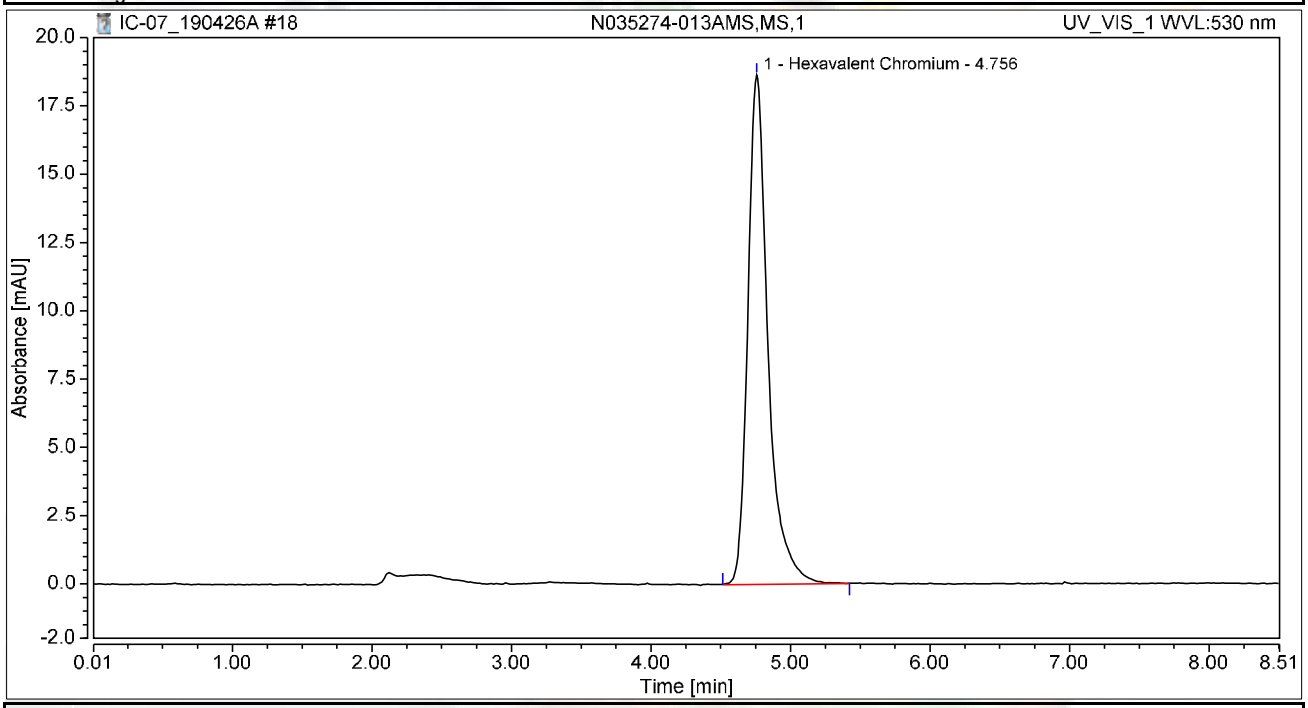
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	1.762	10.582	100.00	100.00	7.0790
Total:			**1.762**	**10.582**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 12:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

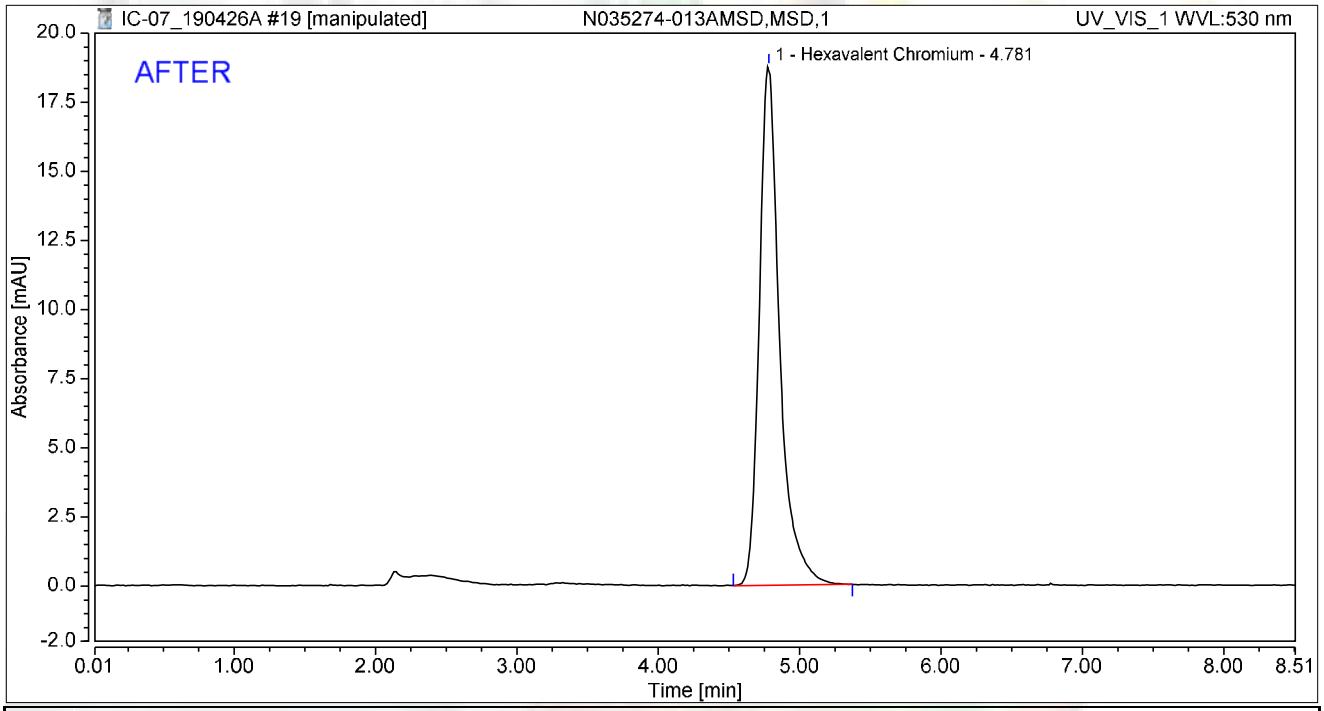
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	3.117	18.643	100.00	100.00	12.5195
Total:			**3.117**	**18.643**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-013AMSD,MSD,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 12:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.781	3.141	18.782	100.00	100.00	12.6165
Total:			**3.141**	**18.782**	**100.00**	**100.00**	

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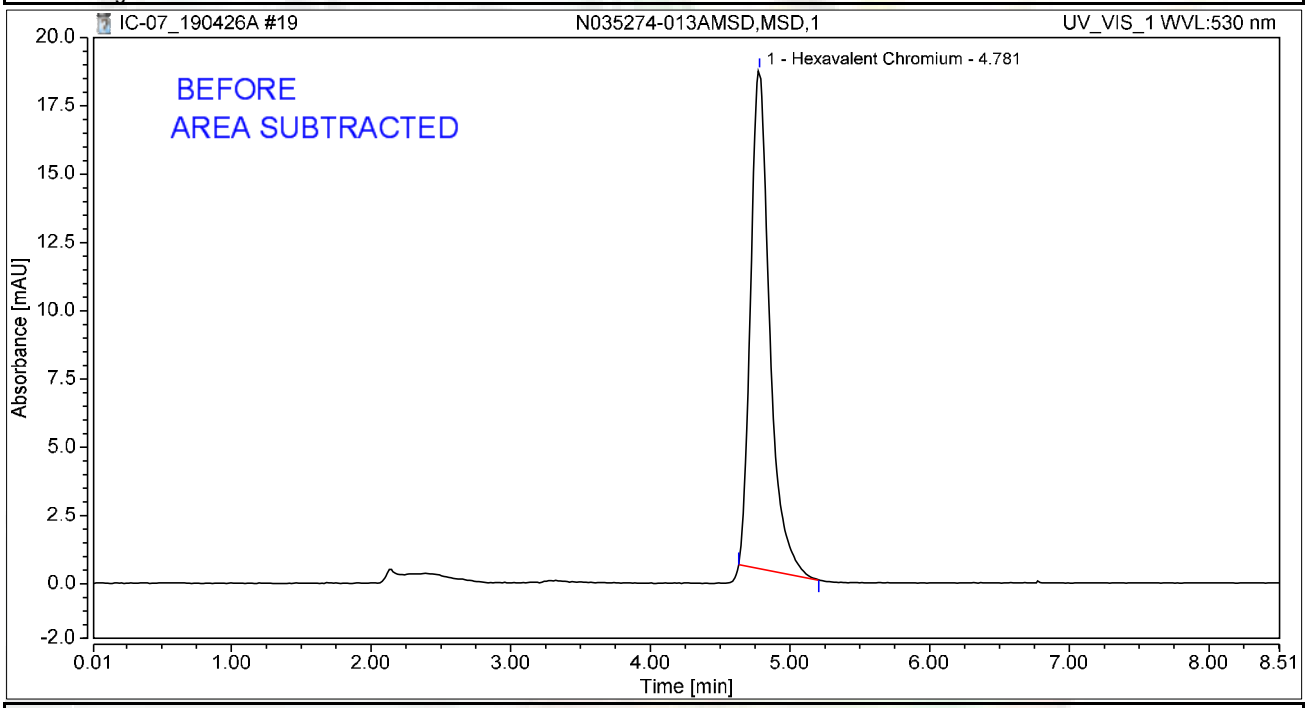
Chromatogram and Results

Injection Details

Injection Name:	**N035274-013AMSD,MSD,1**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 12:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.781	2.901	18.251	100.00	100.00	11.6533
Total:			**2.901**	**18.251**	**100.00**	**100.00**	

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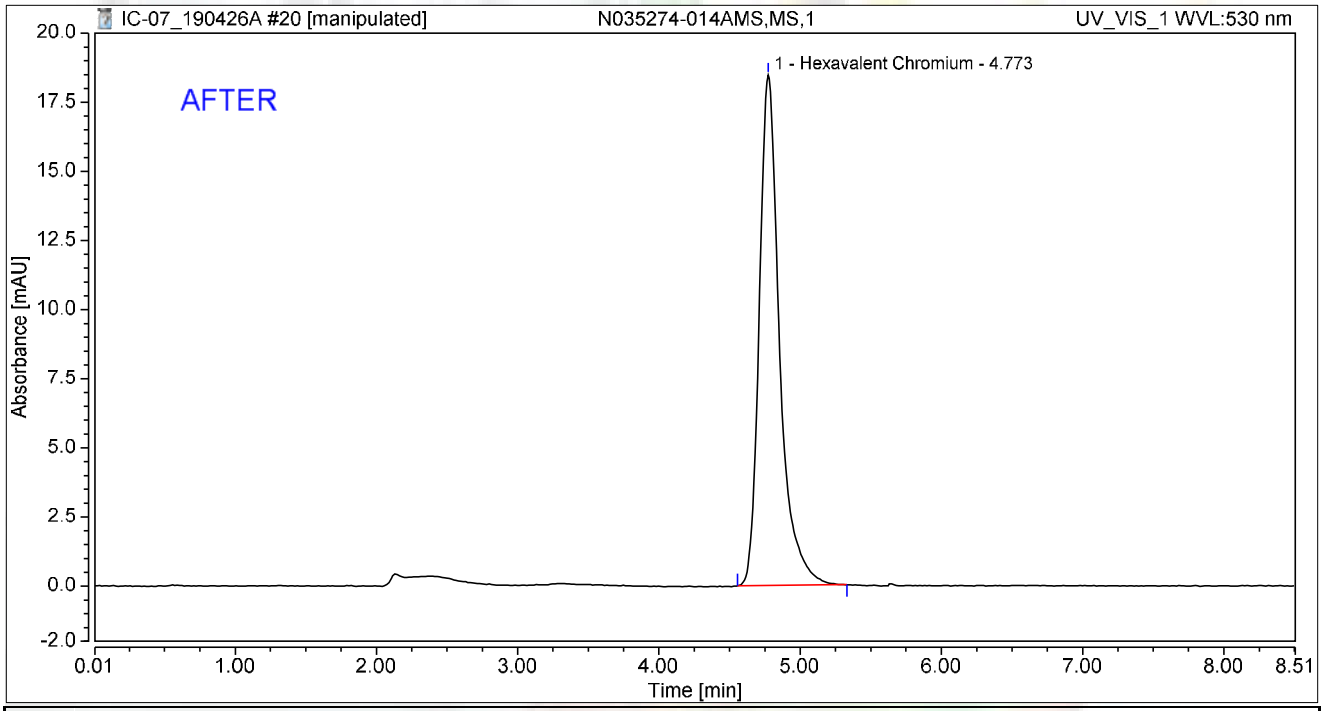
Chromatogram and Results

Injection Details

Injection Name:	**N035274-014AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 12:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	3.066	18.469	100.00	100.00	12.3145
Total:			**3.066**	**18.469**	**100.00**	**100.00**	

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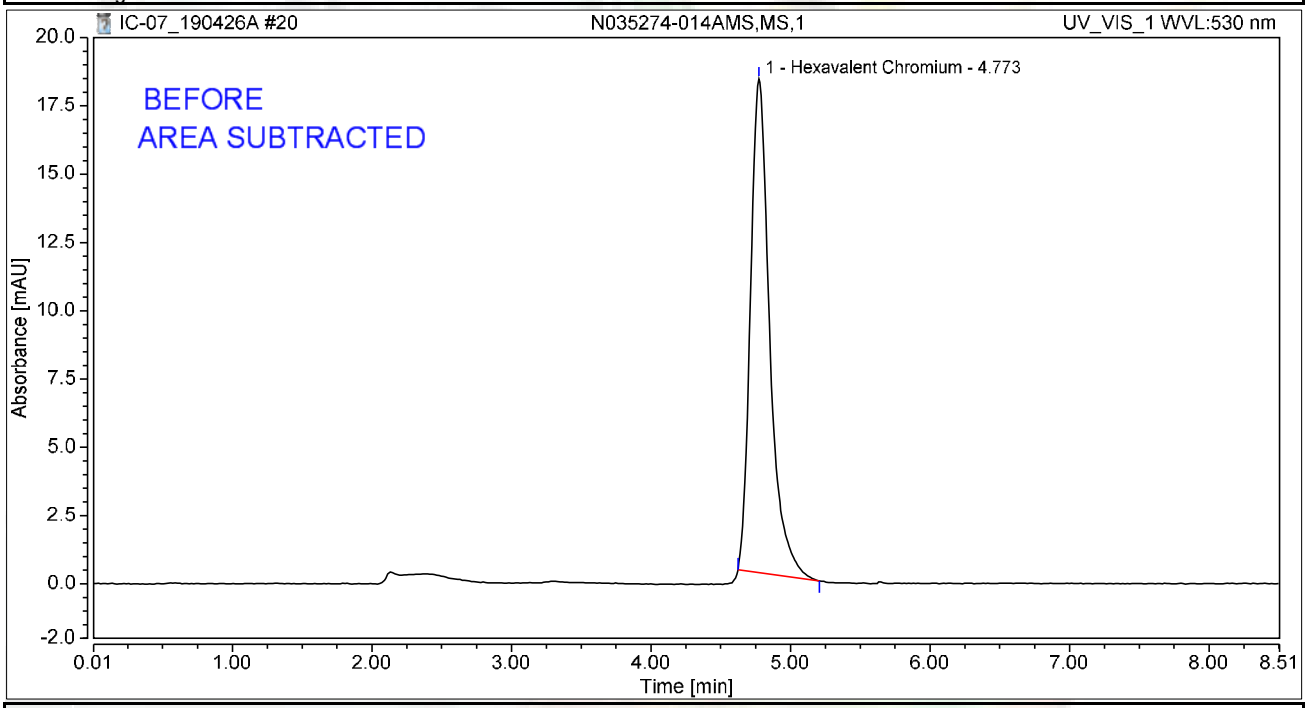
Chromatogram and Results

Injection Details

Injection Name:	**N035274-014AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 12:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	2.889	18.081	100.00	100.00	11.6054
Total:			**2.889**	**18.081**	**100.00**	**100.00**	

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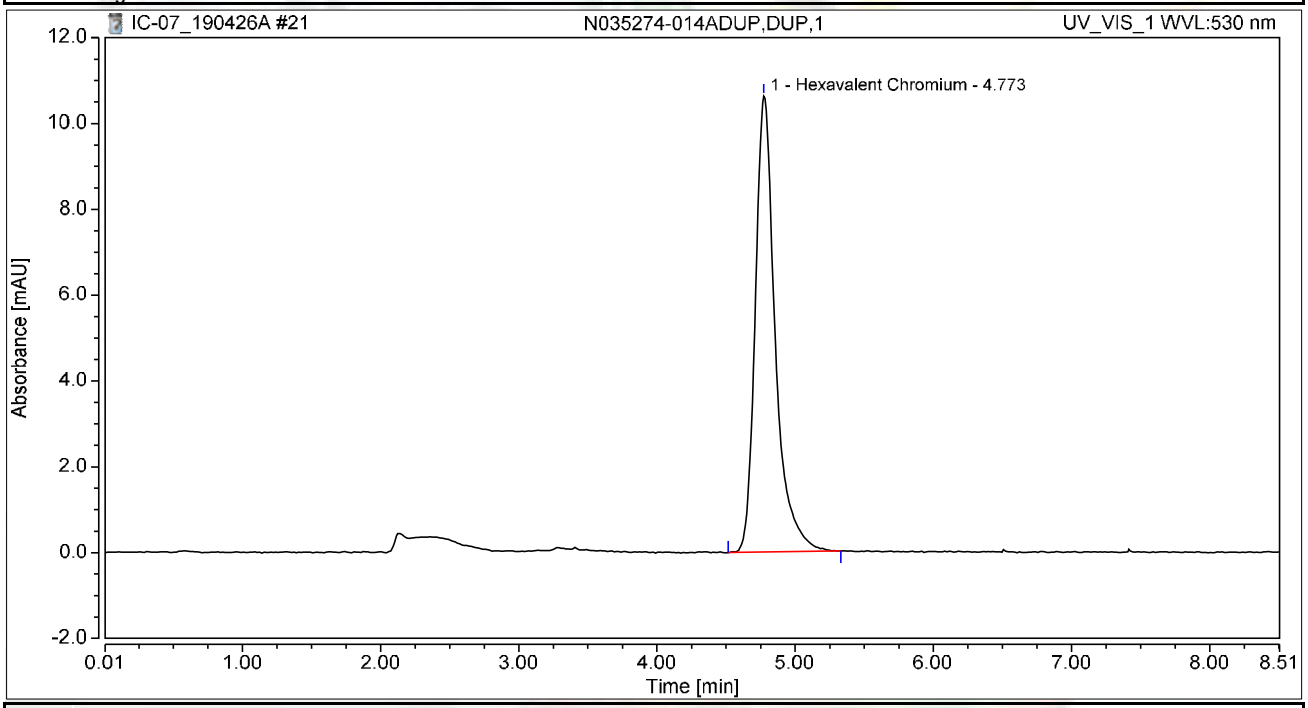
Chromatogram and Results

Injection Details

Injection Name:	**N035274-014ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 12:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

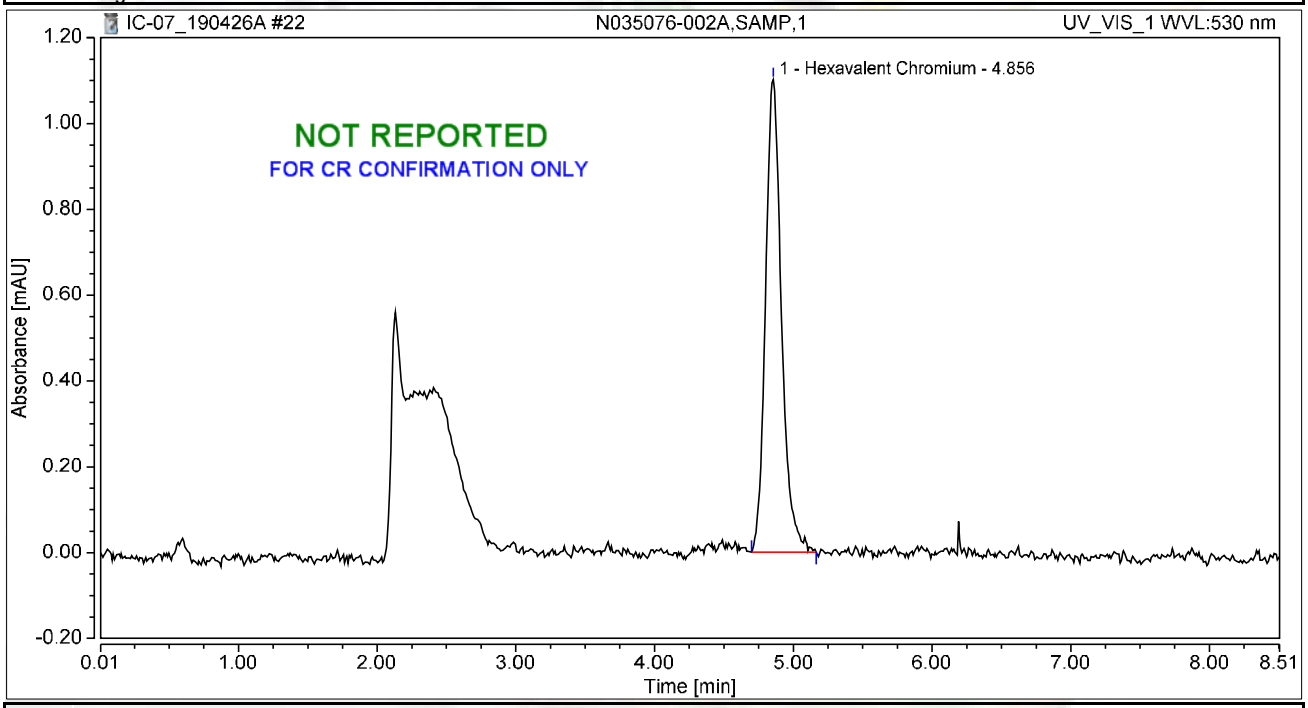
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	1.781	10.631	100.00	100.00	7.1518
Total:			**1.781**	**10.631**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035076-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 13:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

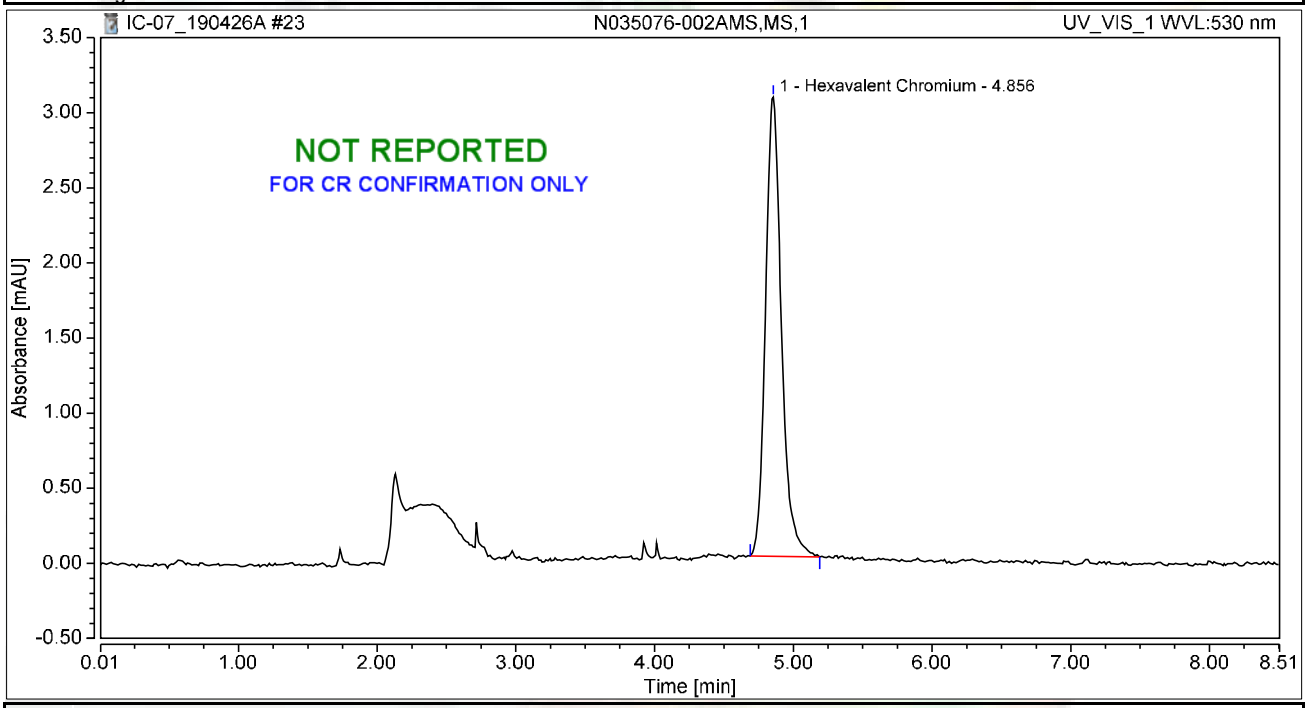
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.147	1.101	100.00	100.00	0.5908
Total:			**0.147**	**1.101**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035076-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 13:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

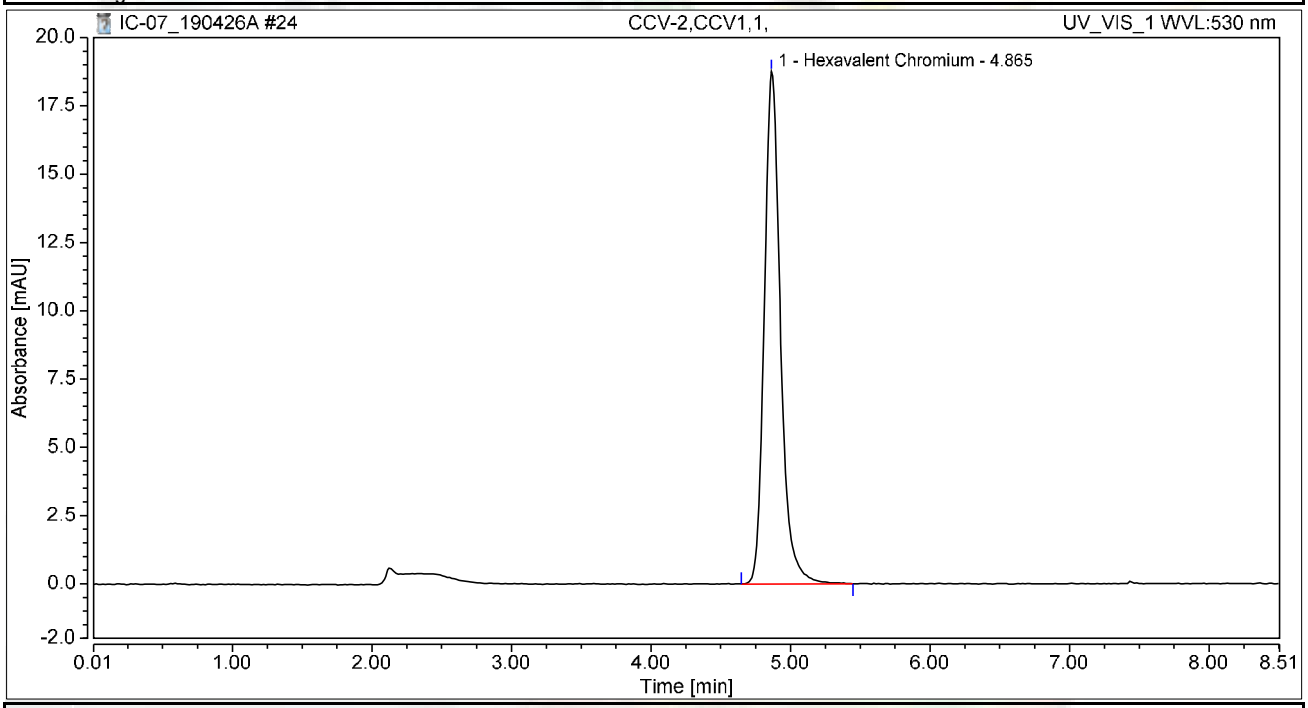
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.407	3.056	100.00	100.00	1.6329
Total:			**0.407**	**3.056**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 13:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

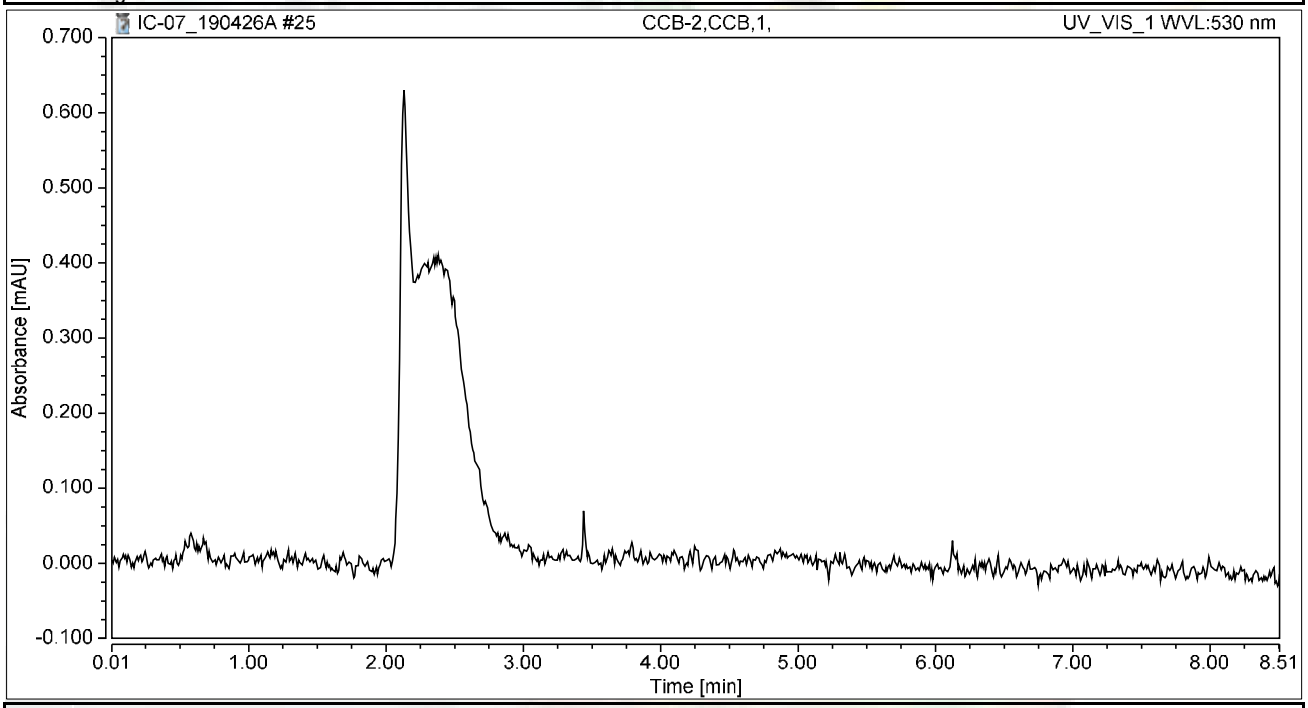
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.865	2.525	18.769	100.00	100.00	10.1398
Total:			**2.525**	**18.769**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 13:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

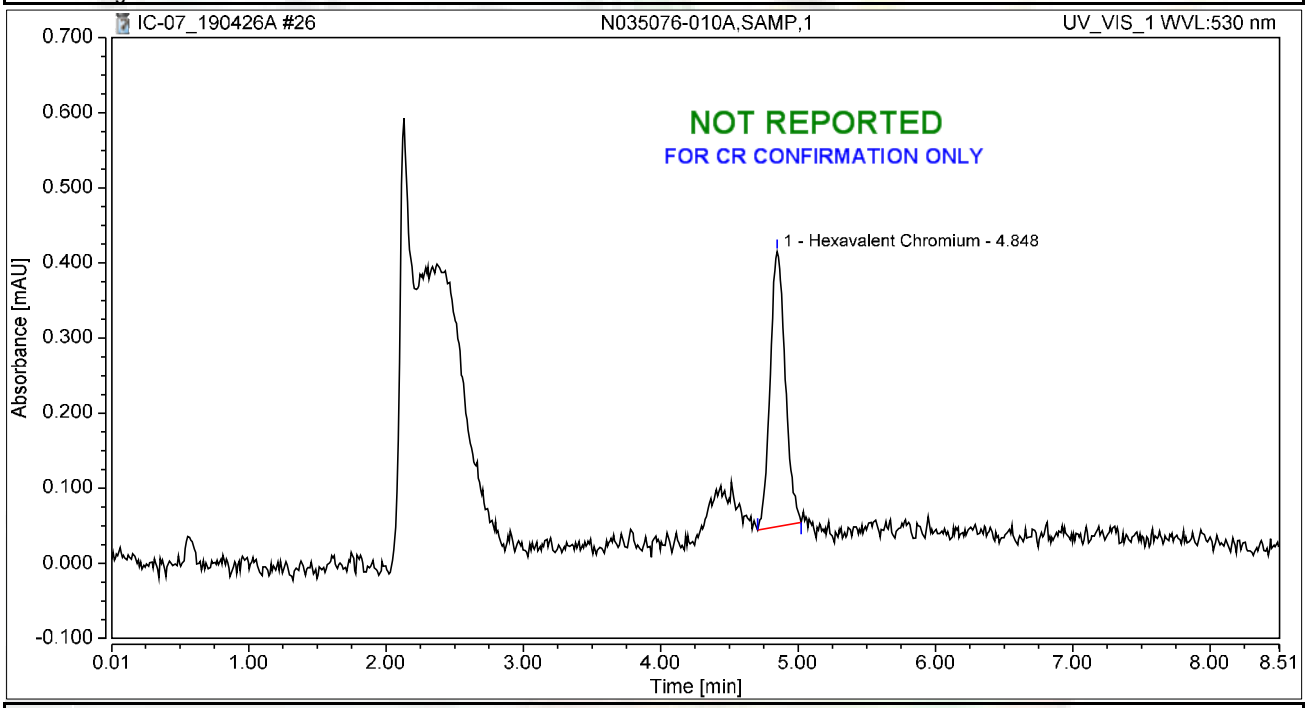
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035076-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 13:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

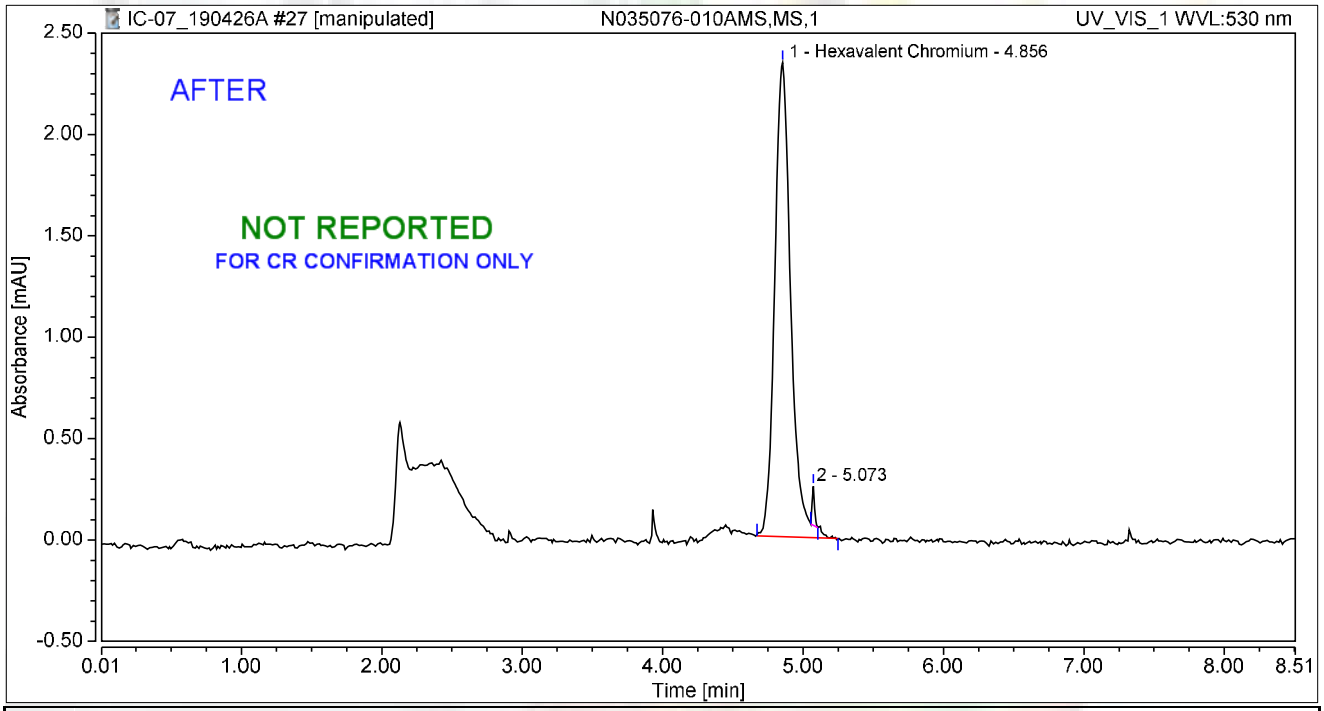
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.848	0.047	0.366	100.00	100.00	0.1875
Total:			**0.047**	**0.366**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035076-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 13:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.311	2.338	98.88	92.41	1.2496
2		5.073	0.004	0.192	1.12	7.59	n.a.
Total:			**0.315**	**2.530**	**100.00**	**100.00**	

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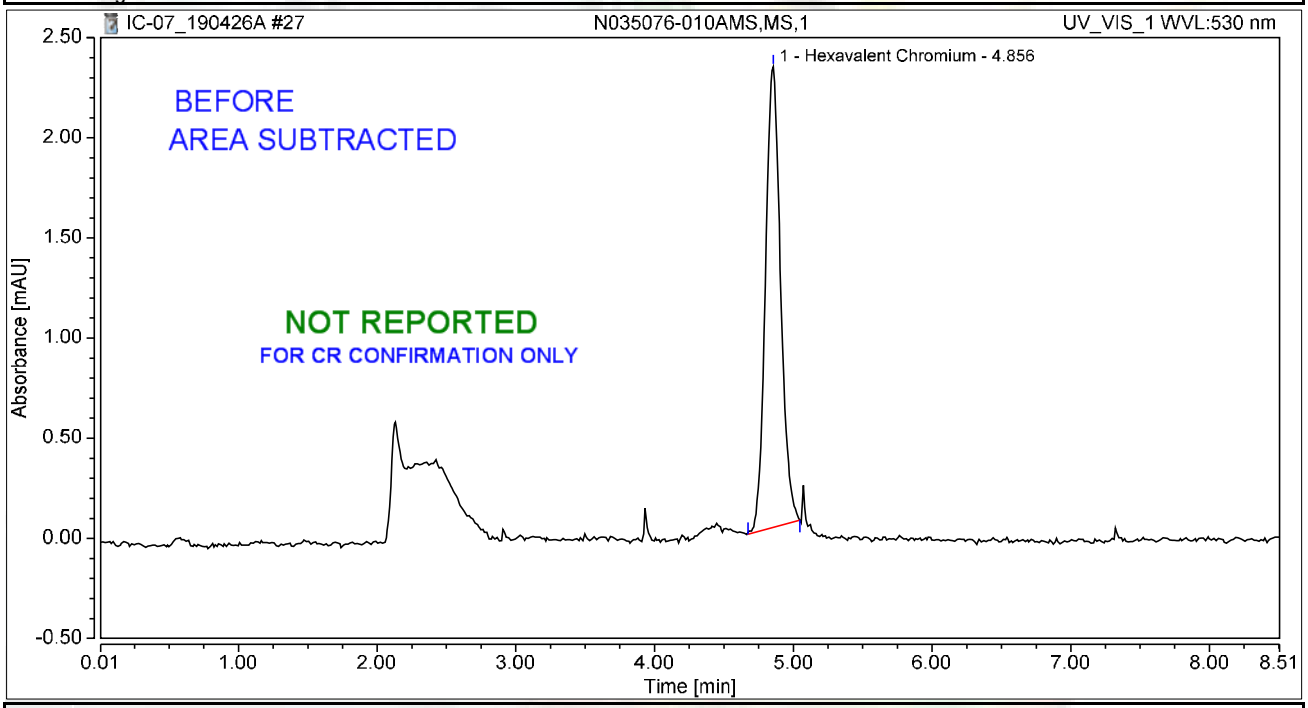
Chromatogram and Results

Injection Details

Injection Name:	**N035076-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 13:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	0.291	2.300	100.00	100.00	1.1679
Total:			**0.291**	**2.300**	**100.00**	**100.00**	

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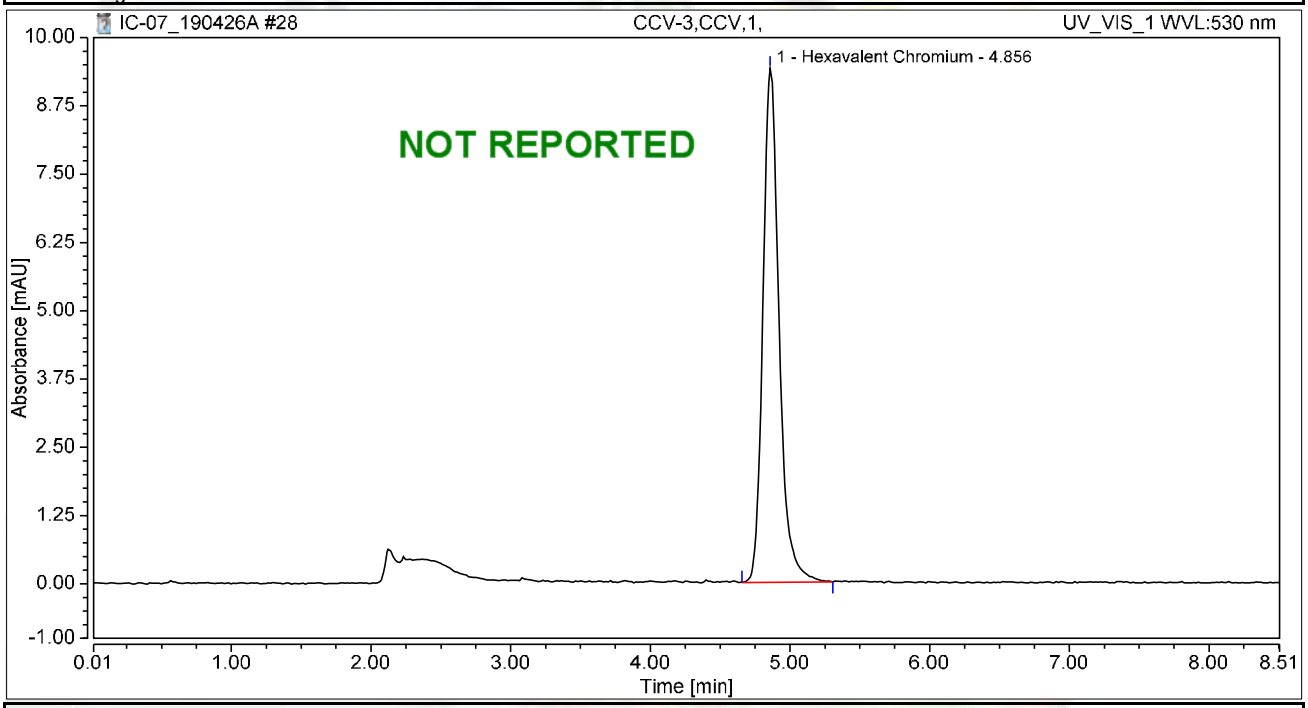
Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 14:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

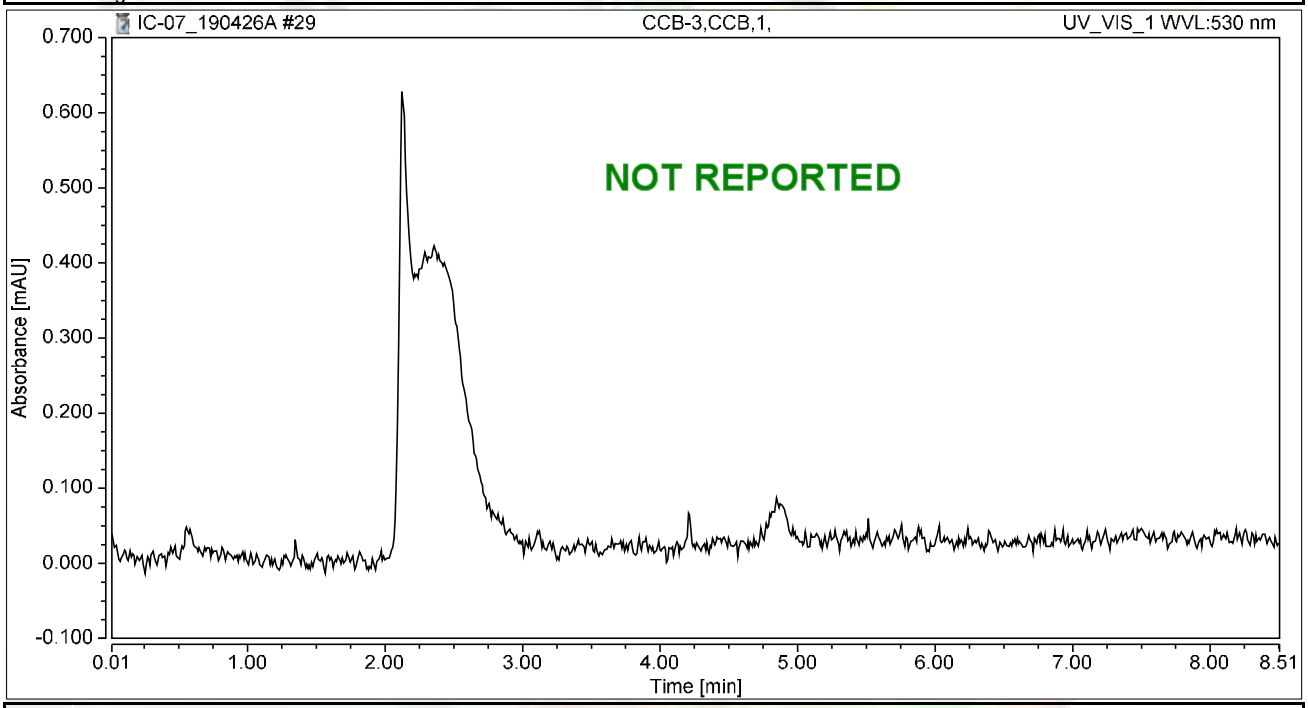
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.856	1.263	9.414	100.00	100.00	5.0733
Total:			**1.263**	**9.414**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 14:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

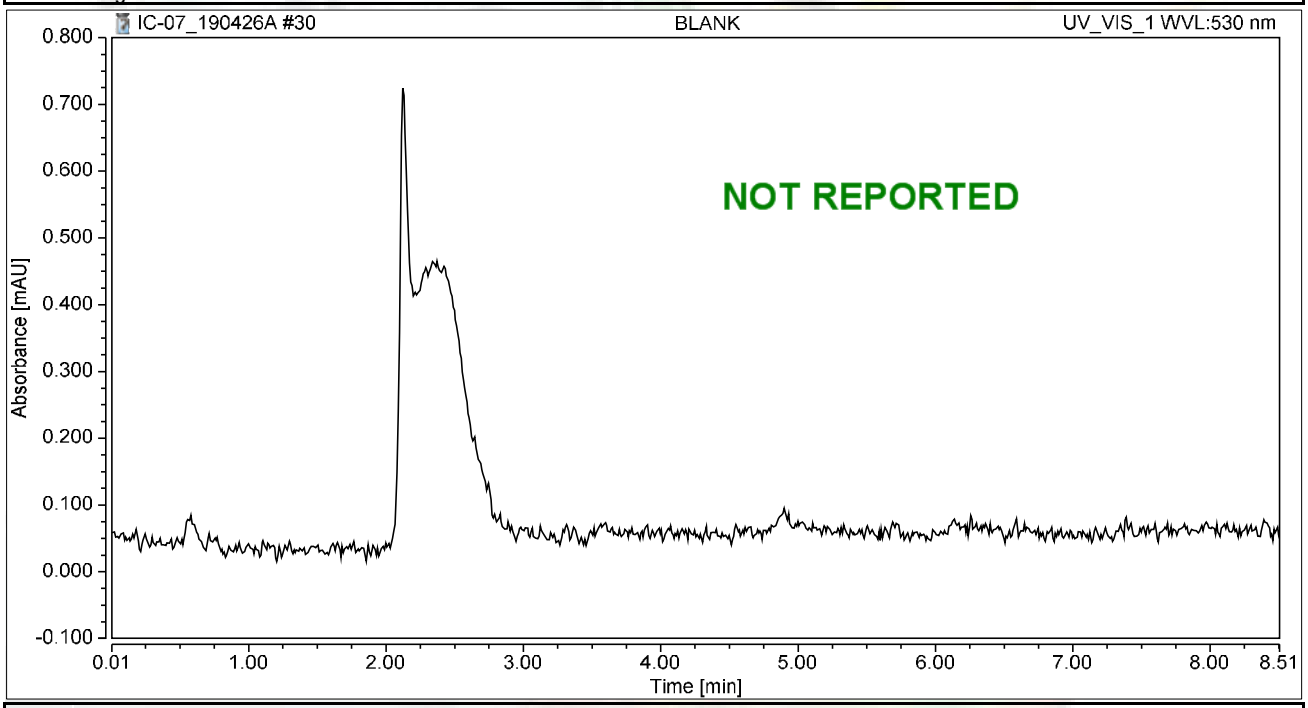
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190423_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**26/Apr/19 14:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

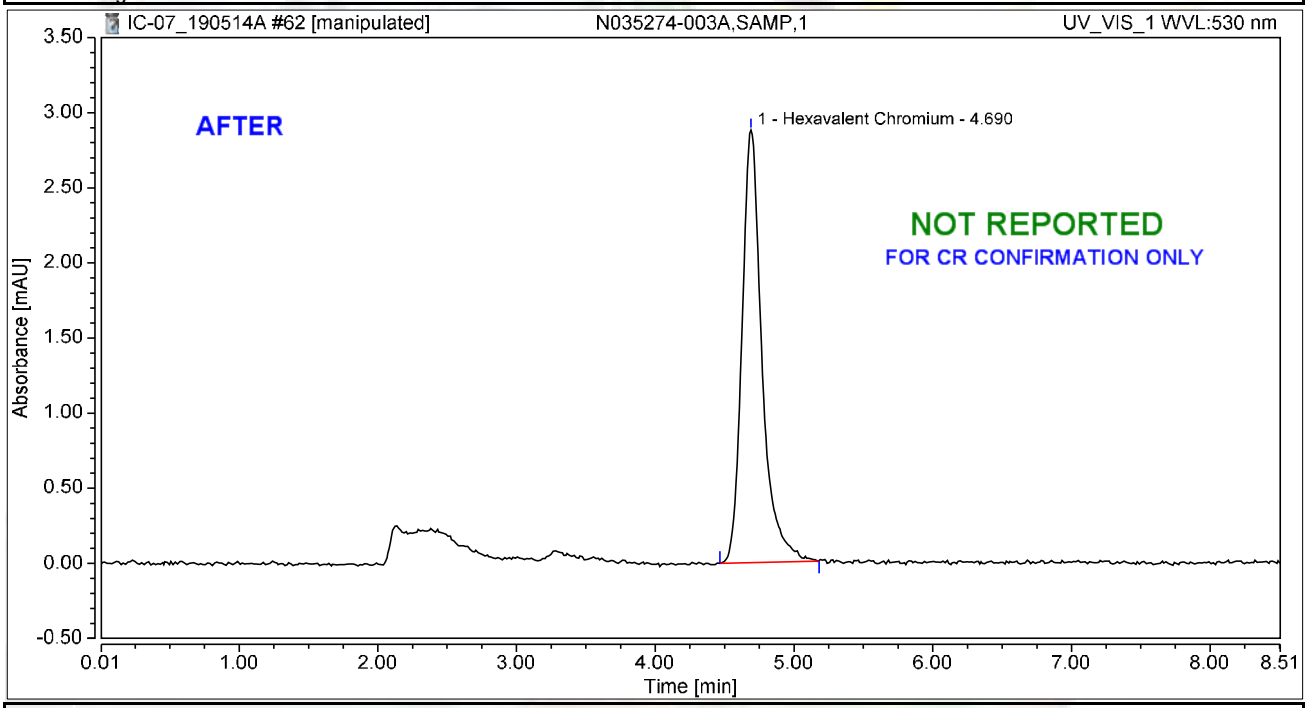
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**14/May/19 16:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

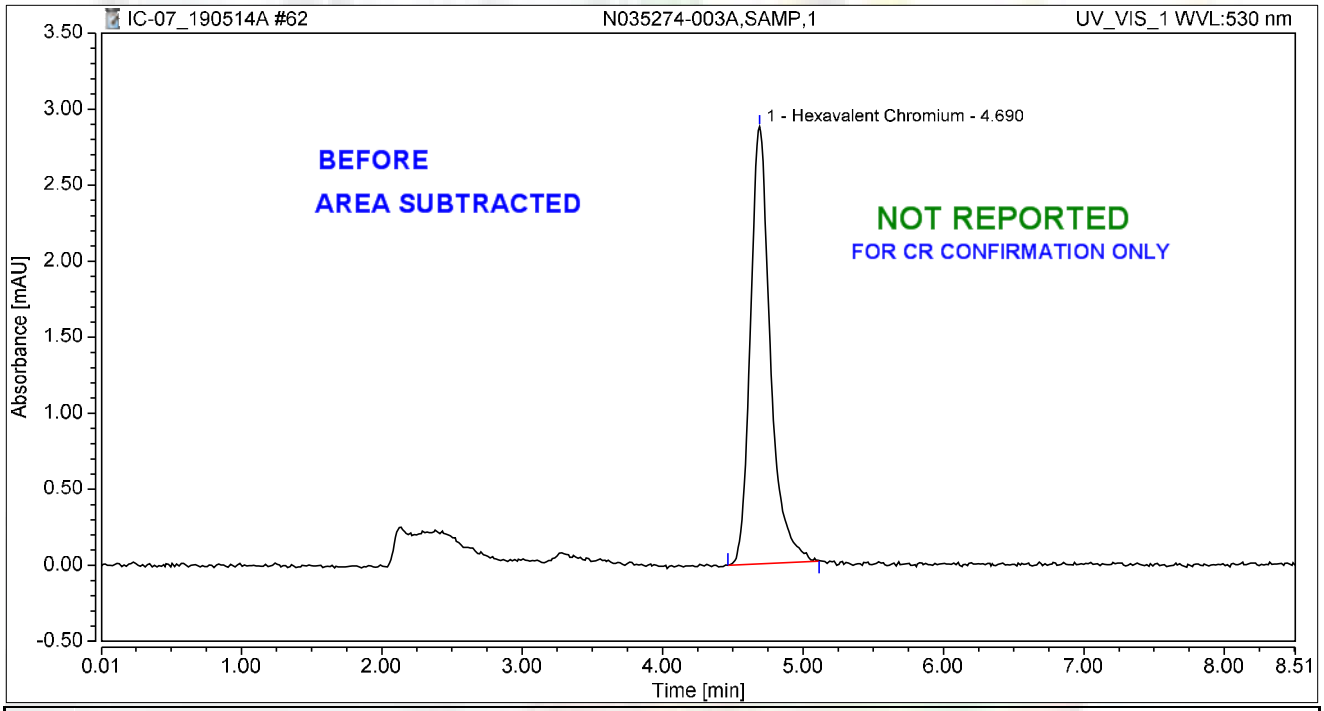
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.482	2.878	100.00	100.00	1.9107
Total:			**0.482**	**2.878**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**14/May/19 16:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

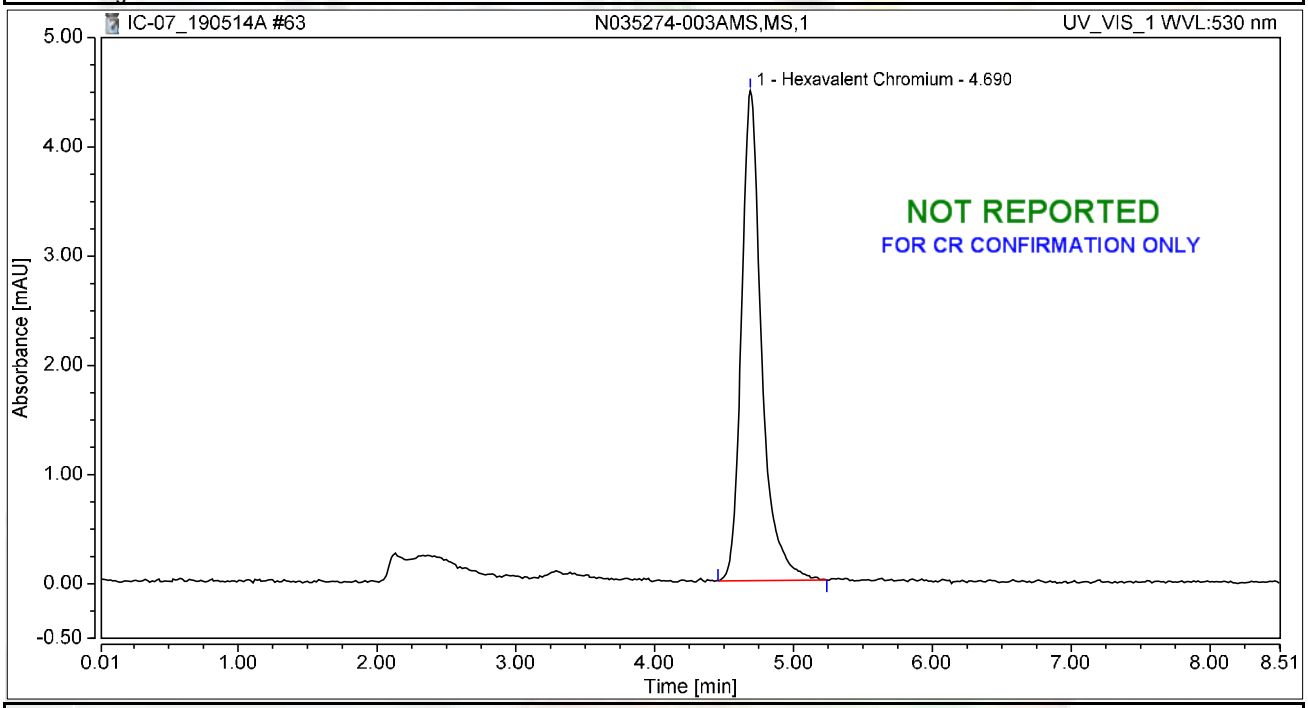
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.477	2.874	100.00	100.00	1.8906
Total:			**0.477**	**2.874**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-003AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**14/May/19 16:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

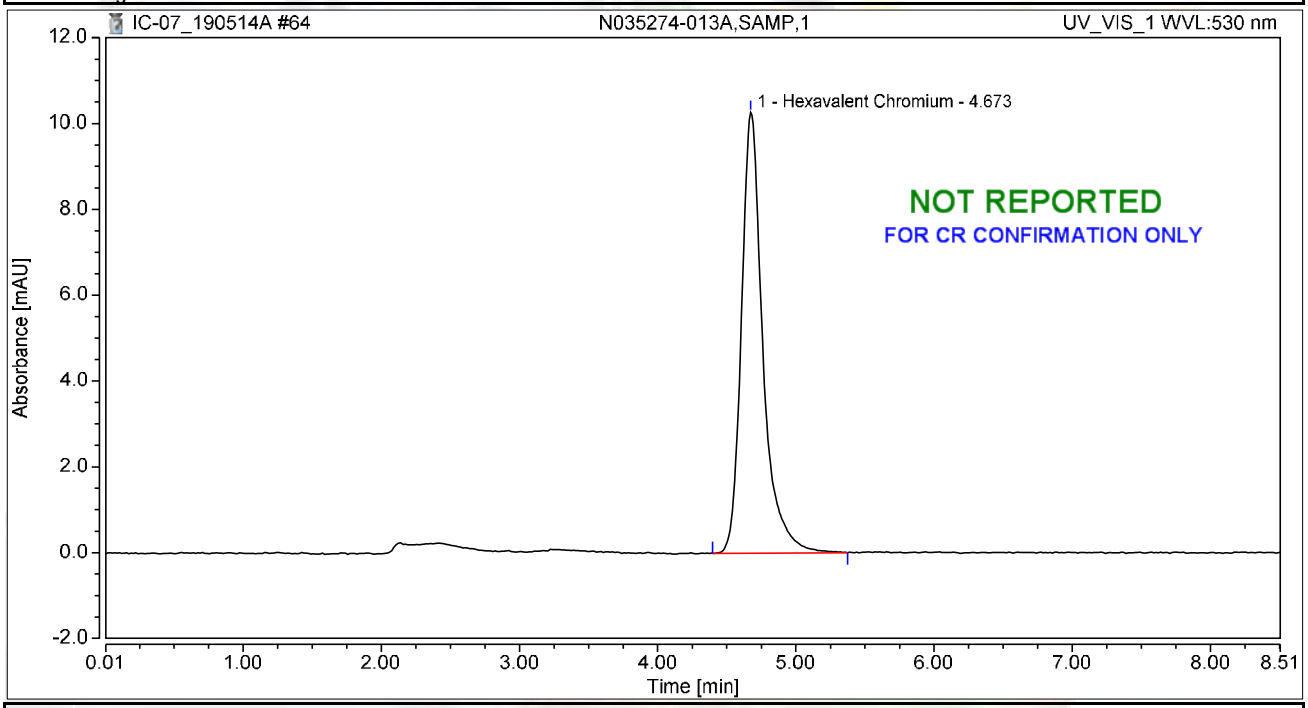
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.756	4.486	100.00	100.00	2.9997
Total:			**0.756**	**4.486**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-013A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**14/May/19 16:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

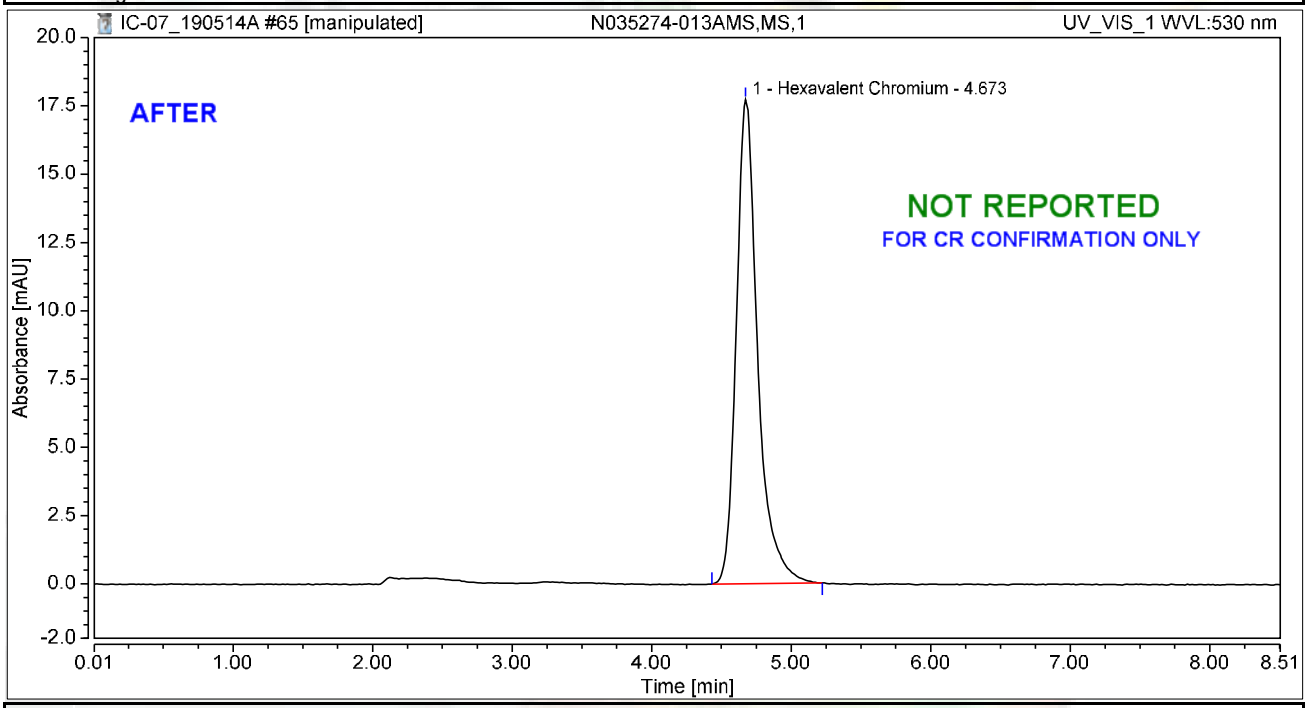
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	1.844	10.268	100.00	100.00	7.3138
Total:			**1.844**	**10.268**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**14/May/19 16:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

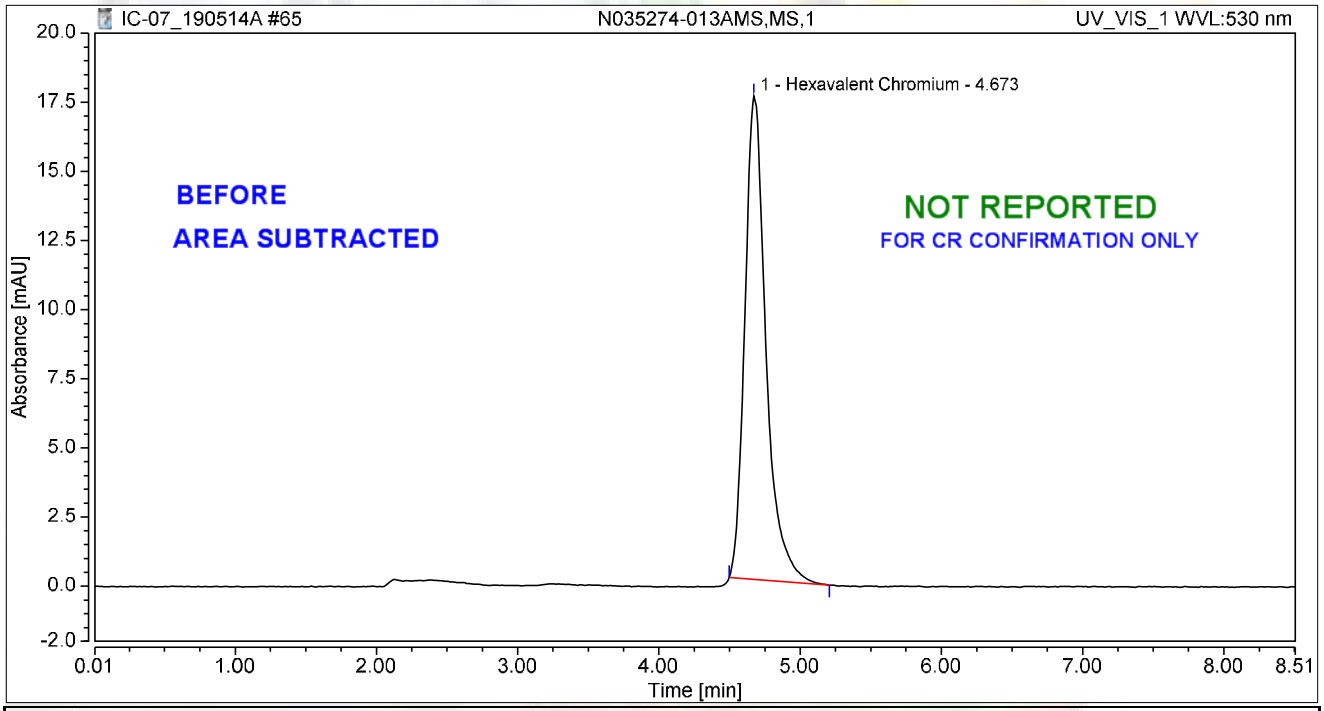
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	3.152	17.731	100.00	100.00	12.5025
Total:			**3.152**	**17.731**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**14/May/19 16:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

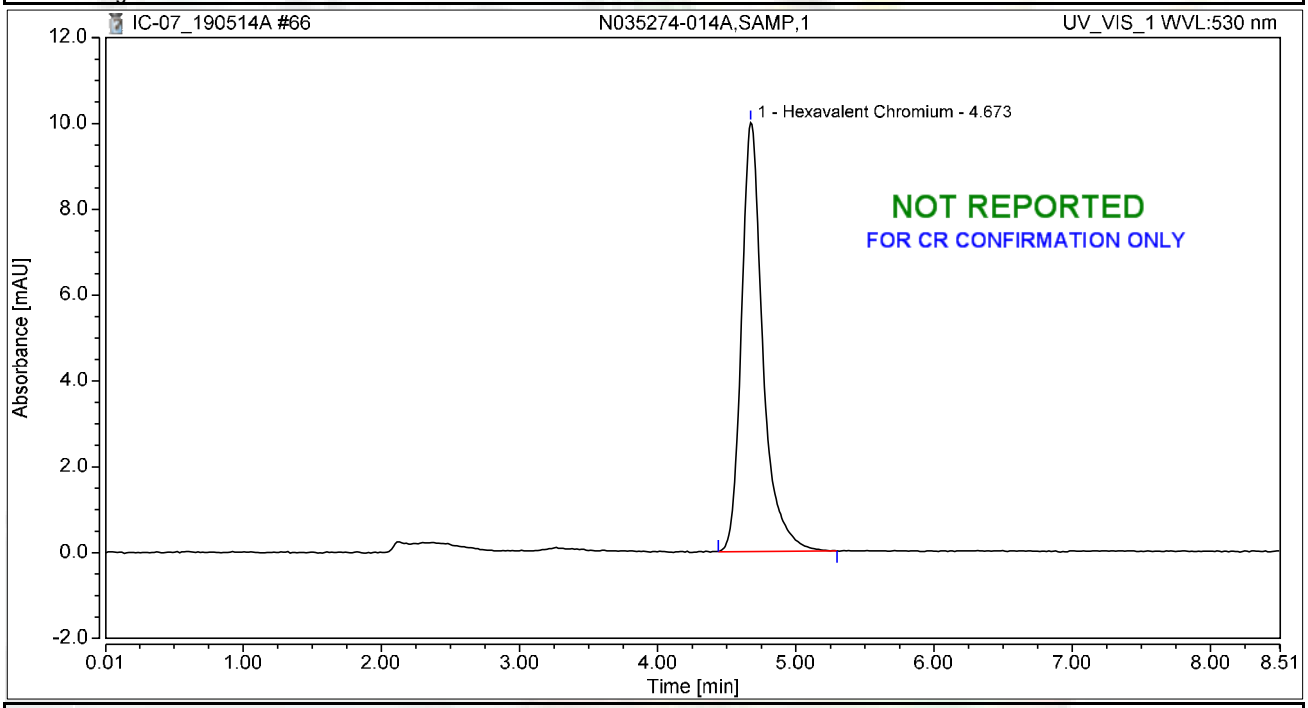
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	3.033	17.491	100.00	100.00	12.0313
Total:			**3.033**	**17.491**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-014A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**14/May/19 17:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

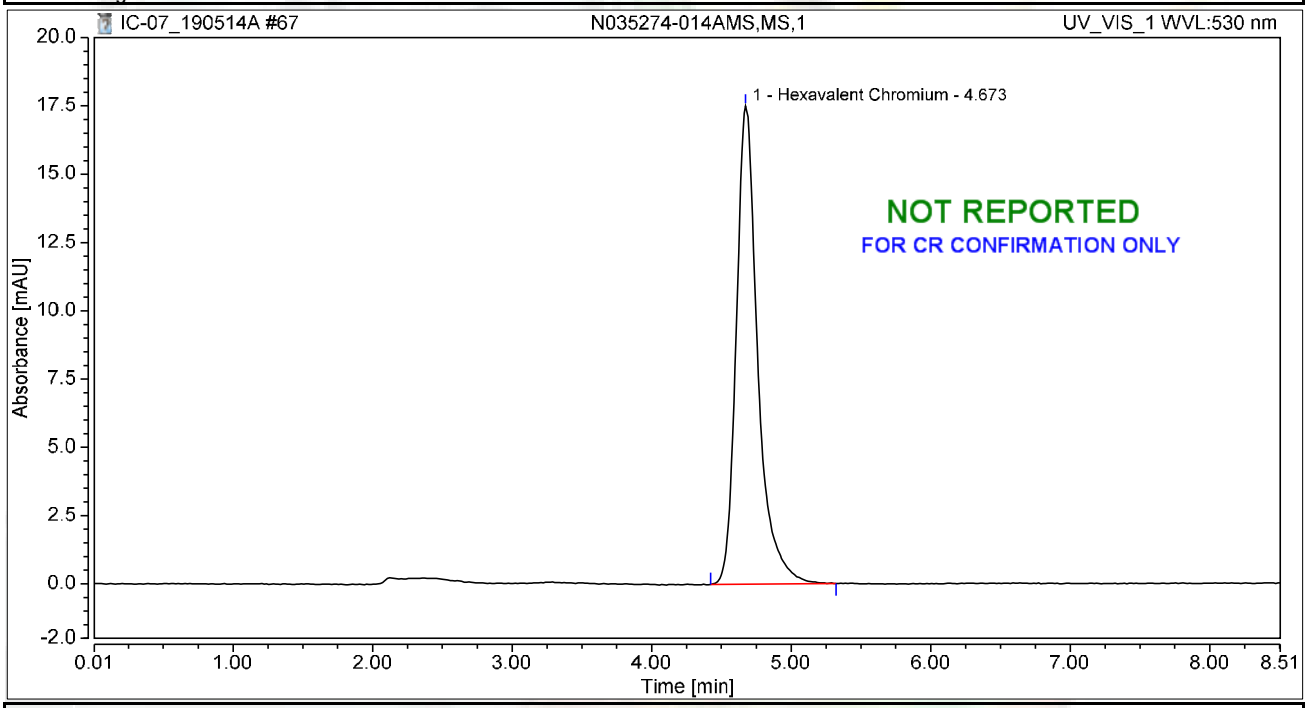
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	1.792	9.992	100.00	100.00	7.1071
Total:			**1.792**	**9.992**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035274-014AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**14/May/19 17:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	3.132	17.513	100.00	100.00	12.4239
Total:			**3.132**	**17.513**	**100.00**	**100.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133595 **Analyst:** QBM

ASSET #: N035274 **Date Analyzed:** 5/1/2019

Method: 4500_N03

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date:

2nd Level Reviewer NS Date: 5/16/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor ~~BGLE~~

For: **N035274-009C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.1005	*	1
	=	0.1005	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 0.10 mg/L

NS 5/16/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

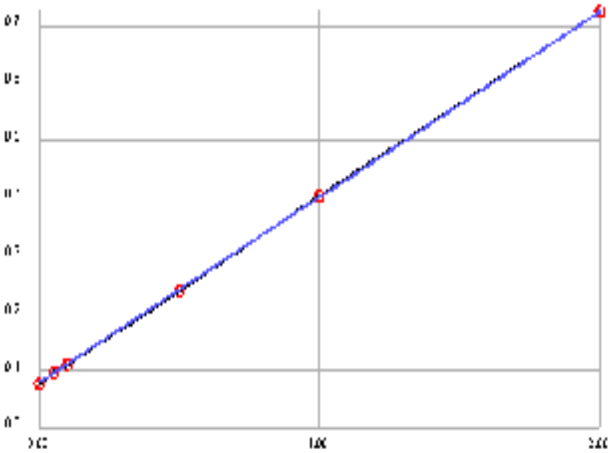
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3228x + 0.079
Correlation	.999983

Calibrant	Energy	Set	Conc
1	0.0771	0.0000	-0.0058
2	0.0976	0.0500	0.0577
3	0.1108	0.1000	0.0986
4	0.2397	0.5000	0.4979
5	0.4026	1.0000	1.0024
6	0.7244	2.0000	1.9992

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **ICV**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370426**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.505	0.050	0.5000	0	101	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **CCV**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370437**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.493	0.050	0.5000	0	98.6	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **CCV**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370442**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.491	0.050	0.5000	0	98.2	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **ICB**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370427**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **CCB**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370438**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133595**
Client ID: **CCB**	Batch ID: **R133595**	TestNo: **SM4500-NO3**		Analysis Date: **5/1/2019**	SeqNo: **3370443**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 05-01-2019 14:20
Time end: 05-01-2019 16:15

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	15:51:09	-0.0058		0.0771
2	<BLANK>	15:52:10	-0.0002		0.0789
3	<CAL1>	15:53:04	-0.0058	[0]	0.0771
4	<CAL2>	15:53:59	0.0577	[0.05]	0.0976
5	<CAL3>	15:55:01	0.0986	[0.1]	0.1108
6	<CAL4>	15:55:56	0.4979	[0.5]	0.2397
7	<CAL5>	15:56:50	1.0024	[1]	0.4026
8	<CAL6>	15:57:51	1.9992	[2]	0.7244
9	,BLANK,BLANK,1, NOT REPORTED	15:58:47	0.0212		0.0858
10	,ICV,ICV,1,	15:59:41	0.5047		0.2419
11	,ICB,ICB,1,	16:00:30	0.0032		0.0800
12	,MB-H2O,MBLK,1,	16:01:14	0.0007		0.0792
13	,LCS-H2O,LCS,1,	16:02:02	0.4855		0.2357
14	,N035274-002C,SAMP,1,	16:02:45	0.0292		0.0884
15	,N035274-003C,SAMP,1,	16:03:27	0.0481		0.0945
16	,N035274-006C,SAMP,1,	16:04:16	-0.0092		0.0760
17	,N035274-006CDUP,DUP,1,	16:04:58	0.0066		0.0811
18	,N035274-008C,SAMP,1,	16:05:42	0.0054		0.0807
19	,N035274-008CMS,MS,1,	16:06:31	0.5214		0.2473
20	,N035274-008CMSD,MSD,1,	16:07:13	0.5149		0.2452
21	,BLANK, NOT REPORTED	16:07:56	0.0029		0.0799
22	,CCV-1,CCV,1,	16:08:38	0.4932		0.2382
23	,CCB-1,CCB,1,	16:09:28	0.0044		0.0804
24	,N035274-009C,SAMP,1,	16:10:09	0.1005		0.1114
25	,N035274-013C,SAMP,1,	16:10:53	0.0484		0.0946
26	,N035274-014C,SAMP,1,	16:11:41	-0.0055		0.0772

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	**,BLANK,** NOT REPORTED	16:12:24	0.0128		0.0831
28	**,CCV-2,CCV,1,**	16:13:07	0.4910		0.2375
29	**,CCB-2,CCB,1,**	16:13:55	0.0205		0.0856

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 5/1/2019
Time Analyzed: 2:20 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190424E
Color reagent: R190424F
2% Copper Sulfate: R190424D
Ammonium Hydroxide: CINV-190402B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035274-002C		8.15							
N035274-003C		8.3							
N035274-006C		8.10							
N035274-008C		7.93							
N035274-009C		8.55							
N035274-013C		8.18							
N035274-014C		8.33							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73665
ASSET #: N035274

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 5/11/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X			X	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X	X		~~X~~
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X	X		~~X~~
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented	X			X		
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of Se in N035273-003B MS failed. For rerun.
% Rec of Mn in N035273-001A MS/MSD failed, low bias. However, LCS passed criteria.
/3B
%Rec of Mo in PS/MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 5/16/2019

2nd Level Reviewer NS Date: 5/16/2019

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73665
ASSET #: N035274
Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 5/13/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		X
24. LCS compounds within control limits.	X			X		X
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Se rerun in N035273-003B MS.

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer CEI Date: 5/16/2019

2nd Level Reviewer NS Date: 5/16/2019

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035274-002D** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 6.052 * 1

Manganese , ug/L = 6.052

Reporting results in two significant figures,

Manganese , ug/L = 6.1

NS 5/16/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190511B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	3.97	15	PASS	0.13	11.029	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.52	3.72	15	PASS	0.52	2.99	15	PASS
Std3-5/50 ppb	ICAL	1	5.073	3.81	15	PASS	5.24	3.3	15	PASS
Std4-10/100 ppb	ICAL	1	10.17	2.65	15	PASS	10.23	1.95	15	PASS
Std5-20/200 ppb	ICAL	1	20.24	2.17	15	PASS	20.26	1.85	15	PASS
Std6-40/400 ppb	ICAL	1	39.83	2.48	15	PASS	39.69	3.053	15	PASS
Std7-100/1000 ppb	ICAL	1	110.73	2.49	15	PASS	100.038	1.66	15	PASS
Std8-200/2000 ppb	ICAL	1	218.18	2.15	15	PASS	218.6	2.38	15	PASS
ICV	ICV	1	9.92	2.11	15	PASS	100.78	1.58	15	PASS
ICB	ICB	1	0.014	13.61	15	PASS	<0.000	N/A	15	<PQL
LLICV	CCV1	1	1.043	2.11	20	PASS	0.56	7.92	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.29	2.66	15	PASS	18.48	3.14	15	PASS
LLICV	CCV1	1	1.029	3.034	20	PASS	0.56	1.15	20	PASS
MB-73665	MBLK	1	0.02	42.9	15	<PQL	<0.000	N/A	15	<PQL
LCS-73665	LCS	1	10.088	2.34	15	PASS	103.12	1.7	15	PASS
N035273-001A	SAMP	1	0.085	5.14	15	PASS	892.66	1.97	15	PASS
N035273-001A	SAMP	5	<0.000	N/A	15	<PQL	208.18	2.2	15	PASS
N035273-001A-PS	PS	1	8.47	2.076	15	PASS	948.22	1.92	15	PASS
N035273-001A-MS	MS	1	8.39	1.24	15	PASS	942.82	1.46	15	PASS
N035273-001A-MSD	MSD	1	8.44	1.19	15	PASS	948.81	1.23	15	PASS
N035273-003B	SAMP	1	0.067	5.32	15	PASS	863.5	0.77	15	PASS
N035273-003B	SAMP	5	<0.000	N/A	15	<PQL	193.066	2.7	15	PASS
N035273-003B-PS	PS	1	8.42	1.083	15	PASS	936.11	1.64	15	PASS
CCV1	CCV	1	19.38	1.99	15	PASS	19.7	1.73	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.16	10.0044	15	PASS
N035273-003B-MS	MS	1	8.58	0.29	15	PASS	975.21	1.28	15	PASS
N035273-003B-MSD	MSD	1	8.37	1.2	15	PASS	955.8	0.86	15	PASS
N035274-001C	SAMP	1	<0.000	N/A	15	<PQL	231.22	1.95	15	PASS
N035274-002D	SAMP	1	6.055	2.95	15	PASS	6.052	1.2	15	PASS
N035274-003D	SAMP	1	9.99	2.46	15	PASS	282.32	1.19	15	PASS
N035274-006D	SAMP	1	0.13	0.79	15	PASS	54.69	2.29	15	PASS
N035274-008D	SAMP	1	0.66	2.27	15	PASS	140.8	5.97	15	PASS
N035274-009D	SAMP	1	89.33	2.35	15	PASS	11.083	0.96	15	PASS
N035274-011C	SAMP	1	0.27	1.6	15	PASS	64.95	1.93	15	PASS
N035274-013D	SAMP	1	10.53	2.52	15	PASS	352.78	3.14	15	PASS
CCV2	CCV	1	20.31	2.2	15	PASS	20.43	2.84	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.018	63.67	15	<PQL
N035274-014D	SAMP	1	10.55	2.15	15	PASS	358.83	3.18	15	PASS
N035306-001A	SAMP	1	<0.000	N/A	15	<PQL	399.17	1.8	15	PASS

PERCENT RSD SUMMARY: 190511B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035318-001A	SAMP	1	0.039	17.89	15	<PQL	445.21	1.55	15	PASS
N035320-001A	SAMP	1	<0.000	N/A	15	<PQL	763.72	1.59	15	PASS
N035320-003A	SAMP	1	0.023	25.088	15	<PQL	353.51	1.87	15	PASS
N035331-001A	SAMP	1	0.095	7.55	15	PASS	358.49	2.79	15	PASS
N035331-003A	SAMP	1	0.0011	315.83	15	<PQL	324.45	2.64	15	PASS
N035354-001A	SAMP	1	0.26	5.73	15	PASS	248.96	2.24	15	PASS
N035273-001A	SAMP	1	0.061	11.032	15	PASS	913.54	1.79	15	PASS
N035273-001A	SAMP	10	<0.000	N/A	15	<PQL	89.14	1.44	15	PASS
CCV3	CCV	1	19.85	1.6	15	PASS	19.95	2.22	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.91	2.44	15	PASS	18.43	2.9	15	PASS
N035273-001A	SAMP	50	<0.000	N/A	15	<PQL	19.24	2.18	15	PASS
N035273-001A-PS	PS	10	0.96	1.096	15	PASS	100.92	2.53	15	PASS
N035273-001A-MS	MS	10	0.9	0.24	15	PASS	98.16	1.66	15	PASS
N035273-001A-MSD	MSD	10	0.89	6.098	15	PASS	96.099	1.44	15	PASS
N035273-003B	SAMP	10	<0.000	N/A	15	<PQL	90.089	2.095	15	PASS
N035273-003B	SAMP	50	0.06	7.57	15	PASS	18.87	2.13	15	PASS
N035273-003B-PS	PS	10	0.92	1.72	15	PASS	98.44	1.89	15	PASS
N035273-003B-MS	MS	10	0.93	1.65	15	PASS	97.39	1.68	15	PASS
N035273-003B-MSD	MSD	10	0.93	2.65	15	PASS	98.25	1.56	15	PASS
N035274-001C	SAMP	5	<0.000	N/A	15	<PQL	45.056	2.16	15	PASS
CCV4	CCV	1	20.42	2.58	15	PASS	20.46	2.25	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035274-003D	SAMP	5	2.13	2.034	15	PASS	54.88	2.62	15	PASS
N035274-013D	SAMP	5	2.25	3.9	15	PASS	67.69	1.92	15	PASS
N035274-014D	SAMP	5	2.19	3.41	15	PASS	66.69	2.23	15	PASS
N035240-003D	SAMP	1	4.68	1.37	15	PASS	8.47	1.00063	15	PASS
N035240-003A	SAMP	1	3.63	2.3	15	PASS	<0.000	N/A	15	<PQL
N035442-001B	SAMP	1	5.52	2.095	15	PASS	1360.53	1.96	15	PASS
N035442-001A	SAMP	1	4.59	5.2	15	PASS	36.84	3.068	15	PASS
CCV5	CCV	1	20.38	1.46	15	PASS	20.46	1.47	15	PASS
CCB5	CCB	1	0.004	139.39	15	<PQL	0.043	29.43	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.11	3.22	15	PASS	18.6	2.94	15	PASS

PERCENT RSD SUMMARY: 190511B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	7.95	15	PASS	0.069	48.03	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.51	6.22	15	PASS	0.53	19.29	15	NR!
Std3-5/50 ppb	ICAL	1	4.9	0.85	15	PASS	4.86	1.31	15	PASS
Std4-10/100 ppb	ICAL	1	9.95	0.42	15	PASS	9.47	6.96	15	PASS
Std5-20/200 ppb	ICAL	1	19.87	1.3	15	PASS	19.56	0.51	15	PASS
Std6-40/400 ppb	ICAL	1	39.69	0.76	15	PASS	39.46	0.74	15	PASS
Std7-100/1000 ppb	ICAL	1	100.16	0.32	15	PASS	100.36	1.26	15	PASS
Std8-200/2000 ppb	ICAL	1	204.82	1.63	15	PASS	205.88	1.71	15	PASS
ICV	ICV	1	9.59	1.8	15	PASS	9.52	1.38	15	PASS
ICB	ICB	1	0.043	49.2	15	<PQL	0.088	28.076	15	<PQL
LLICV	CCV1	1	0.12	13.47	20	PASS	0.52	23.77	20	NR!
ICSA1	ICSA	1	0.033	45.34	15	<PQL	0.017	108.46	15	<PQL
ICSAB1	ICSAB	1	20.91	0.89	15	PASS	19.65	1.6	15	PASS
LLICV	CCV1	1	0.13	12.72	20	PASS	0.46	22.19	20	<PQL
MB-73665	MBLK	1	0.036	22.11	15	<PQL	0.013	92.97	15	<PQL
LCS-73665	LCS	1	9.62	1.28	15	PASS	9.41	3.25	15	PASS
N035273-001A	SAMP	1	0.16	22.64	15	NR!	0.59	37.084	15	NR!
N035273-001A	SAMP	5	0.02	35.26	15	<PQL	0.092	8.97	15	PASS
N035273-001A-PS	PS	1	10.3	1.66	15	PASS	9.75	1.13	15	PASS
N035273-001A-MS	MS	1	10.33	1.0084	15	PASS	9.7	3.38	15	PASS
N035273-001A-MSD	MSD	1	10.28	0.73	15	PASS	10.2	3.27	15	PASS
N035273-003B	SAMP	1	0.14	2.096	15	PASS	0.61	13.28	15	PASS
N035273-003B	SAMP	5	0.018	21.45	15	<PQL	0.09	70.77	15	<PQL
N035273-003B-PS	PS	1	10.44	1.76	15	PASS	10.25	6.44	15	PASS
CCV1	CCV	1	19.71	1.3	15	PASS	19.67	1.72	15	PASS
CCB1	CCB	1	0.014	39.18	15	<PQL	0.072	44.081	15	<PQL
N035273-003B-MS	MS	1	10.21	1.17	15	PASS	10.26	3.94	15	PASS
N035273-003B-MSD	MSD	1	10.34	0.2	15	PASS	10.37	1.52	15	PASS
N035274-001C	SAMP	1	2.68	1.36	15	PASS	0.042	56.62	15	<PQL
N035274-002D	SAMP	1	5.24	1.063	15	PASS	0.089	17.13	15	<PQL
N035274-003D	SAMP	1	5.88	0.78	15	PASS	0.11	17.92	15	<PQL
N035274-006D	SAMP	1	1.43	2.54	15	PASS	0.041	30.85	15	<PQL
N035274-008D	SAMP	1	1.62	2.2	15	PASS	0.031	0.5	15	PASS
N035274-009D	SAMP	1	2.16	0.96	15	PASS	0.11	46.31	15	<PQL
N035274-011C	SAMP	1	3.29	1.15	15	PASS	0.037	63.27	15	<PQL
N035274-013D	SAMP	1	3.2	1.049	15	PASS	0.045	59.84	15	<PQL
CCV2	CCV	1	19.72	2.066	15	PASS	18.9	0.43	15	PASS
CCB2	CCB	1	0.03	15.6	15	<PQL	0.034	34.91	15	<PQL
N035274-014D	SAMP	1	3.24	2.79	15	PASS	0.083	42.7	15	<PQL
N035306-001A	SAMP	1	1.2	0.58	15	PASS	0.044	137.76	15	<PQL

PERCENT RSD SUMMARY: 190511B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035318-001A	SAMP	1	0.5	1.54	15	PASS	0.51	14.65	15	PASS
N035320-001A	SAMP	1	0.7	5.19	15	PASS	0.091	14.69	15	PASS
N035320-003A	SAMP	1	0.63	6.87	15	PASS	0.023	114.41	15	<PQL
N035331-001A	SAMP	1	0.63	2.3	15	PASS	0.75	9.02	15	PASS
N035331-003A	SAMP	1	0.17	10.6	15	PASS	0.71	17.6	15	NR!
N035354-001A	SAMP	1	0.56	7.81	15	PASS	0.68	22.77	15	NR!
N035273-001A	SAMP	1	0.14	8.38	15	PASS	0.36	11.45	15	PASS
N035273-001A	SAMP	10	0.0073	104.54	15	<PQL	0.045	107.065	15	<PQL
CCV3	CCV	1	19.37	0.27	15	PASS	19.34	1.079	15	PASS
CCB3	CCB	1	0.016	30.97	15	<PQL	0.0069	230.11	15	<PQL
ICSA2	ICSA	1	0.046	24.079	15	<PQL	0.014	188.46	15	<PQL
ICSAB2	ICSAB	1	20.35	0.52	15	PASS	18.91	2.78	15	PASS
N035273-001A	SAMP	50	0.019	59.024	15	<PQL	0.038	80.35	15	<PQL
N035273-001A-PS	PS	10	1.025	4.83	15	PASS	1.049	17.48	15	NR!
N035273-001A-MS	MS	10	1.029	1.33	15	PASS	1.019	9.18	15	PASS
N035273-001A-MSD	MSD	10	1.013	1.77	15	PASS	0.9	24.43	15	NR!
N035273-003B	SAMP	10	0.005	14.86	15	PASS	0.04	101.18	15	<PQL
N035273-003B	SAMP	50	<0.000	N/A	15	<PQL	0.027	23.56	15	<PQL
N035273-003B-PS	PS	10	1.016	0.11	15	PASS	0.98	4.4	15	PASS
N035273-003B-MS	MS	10	1.046	2.32	15	PASS	0.95	21.15	15	NR!
N035273-003B-MSD	MSD	10	0.99	3.5	15	PASS	1.13	4.17	15	PASS
N035274-001C	SAMP	5	0.54	2.48	15	PASS	<0.000	0	15	PASS
CCV4	CCV	1	19.41	1.054	15	PASS	19.78	2.28	15	PASS
CCB4	CCB	1	0.016	23.3	15	<PQL	0.037	44.63	15	<PQL
N035274-003D	SAMP	5	1.15	2.53	15	PASS	0.026	92.82	15	<PQL
N035274-013D	SAMP	5	0.64	5.49	15	PASS	0.014	152.1	15	<PQL
N035274-014D	SAMP	5	0.63	4.028	15	PASS	0.026	46.44	15	<PQL
N035240-003D	SAMP	1	1.027	7.43	15	PASS	0.095	59.13	15	<PQL
N035240-003A	SAMP	1	0.72	1.064	15	PASS	0.15	42.51	15	<PQL
N035442-001B	SAMP	1	5.98	1.13	15	PASS	0.036	148.5	15	<PQL
N035442-001A	SAMP	1	5.32	2.83	15	PASS	0.029	21.66	15	<PQL
CCV5	CCV	1	19.28	1.2	15	PASS	19.52	2.41	15	PASS
CCB5	CCB	1	0.025	34.98	15	<PQL	0.019	145.71	15	<PQL
ICSA3	ICSA	1	0.041	29.13	15	<PQL	0.022	129.81	15	<PQL
ICSAB3	ICSAB	1	20.043	0.76	15	PASS	18.96	3.6	15	PASS

PERCENT RSD SUMMARY: 190511B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.092	26.2	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.44	4.72	15	PASS
Std3-5/50 ppb	ICAL	1	4.69	1.85	15	PASS
Std4-10/100 ppb	ICAL	1	9.67	0.93	15	PASS
Std5-20/200 ppb	ICAL	1	19.42	1.2	15	PASS
Std6-40/400 ppb	ICAL	1	39.39	0.99	15	PASS
Std7-100/1000 ppb	ICAL	1	100.41	0.93	15	PASS
Std8-200/2000 ppb	ICAL	1	227.59	1.054	15	PASS
ICV	ICV	1	10.42	1.23	15	PASS
ICB	ICB	1	0.23	12.63	15	PASS
LLICV	CCV1	1	0.54	2.12	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	21.36	0.91	15	PASS
LLICV	CCV1	1	0.58	3.8	20	PASS
MB-73665	MBLK	1	0.018	15.36	15	<PQL
LCS-73665	LCS	1	9.4	1.19	15	PASS
N035273-001A	SAMP	1	205.55	6.31	15	PASS
N035273-001A	SAMP	5	39.85	0.26	15	PASS
N035273-001A-PS	PS	1	224.014	0.88	15	PASS
N035273-001A-MS	MS	1	218.7	0.62	15	PASS
N035273-001A-MSD	MSD	1	221.92	0.67	15	PASS
N035273-003B	SAMP	1	214.73	0.93	15	PASS
N035273-003B	SAMP	5	37.25	0.71	15	PASS
N035273-003B-PS	PS	1	223.047	1.0081	15	PASS
CCV1	CCV	1	19.96	1.43	15	PASS
CCB1	CCB	1	0.27	9.021	15	PASS
N035273-003B-MS	MS	1	230.06	0.83	15	PASS
N035273-003B-MSD	MSD	1	229.015	1.031	15	PASS
N035274-001C	SAMP	1	8.79	0.012	15	PASS
N035274-002D	SAMP	1	68.052	1.9	15	PASS
N035274-003D	SAMP	1	121.73	1.0048	15	PASS
N035274-006D	SAMP	1	13.075	1.44	15	PASS
N035274-008D	SAMP	1	56.012	1.18	15	PASS
N035274-009D	SAMP	1	7.086	0.49	15	PASS
N035274-011C	SAMP	1	12.71	0.89	15	PASS
N035274-013D	SAMP	1	19.45	0.3	15	PASS
CCV2	CCV	1	18.92	1.37	15	PASS
CCB2	CCB	1	0.14	11.28	15	PASS
N035274-014D	SAMP	1	19.69	2.4	15	PASS
N035306-001A	SAMP	1	4.54	0.56	15	PASS

PERCENT RSD SUMMARY: 190511B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035318-001A	SAMP	1	56.86	1	15	PASS
N035320-001A	SAMP	1	16.87	0.62	15	PASS
N035320-003A	SAMP	1	24.79	0.95	15	PASS
N035331-001A	SAMP	1	39.52	1.53	15	PASS
N035331-003A	SAMP	1	37.59	0.95	15	PASS
N035354-001A	SAMP	1	338.3	0.73	15	PASS
N035273-001A	SAMP	1	217.92	1.062	15	PASS
N035273-001A	SAMP	10	18.21	0.99	15	PASS
CCV3	CCV	1	19.16	1.085	15	PASS
CCB3	CCB	1	0.18	15.097	15	<PQL
ICSA2	ICSA	1	0.08	14.8	15	PASS
ICSAB2	ICSAB	1	21.065	1.069	15	PASS
N035273-001A	SAMP	50	3.54	2.54	15	PASS
N035273-001A-PS	PS	10	18.22	1.98	15	PASS
N035273-001A-MS	MS	10	18.31	1.045	15	PASS
N035273-001A-MSD	MSD	10	17.99	1.96	15	PASS
N035273-003B	SAMP	10	17.67	1.62	15	PASS
N035273-003B	SAMP	50	3.52	1.94	15	PASS
N035273-003B-PS	PS	10	18.24	1.68	15	PASS
N035273-003B-MS	MS	10	18.27	0.81	15	PASS
N035273-003B-MSD	MSD	10	18.27	0.91	15	PASS
N035274-001C	SAMP	5	1.61	0.97	15	PASS
CCV4	CCV	1	18.63	0.53	15	PASS
CCB4	CCB	1	0.1	3.096	15	PASS
N035274-003D	SAMP	5	23.34	1.64	15	PASS
N035274-013D	SAMP	5	3.76	2.1	15	PASS
N035274-014D	SAMP	5	3.66	1.94	15	PASS
N035240-003D	SAMP	1	8.59	0.9	15	PASS
N035240-003A	SAMP	1	8.67	1.29	15	PASS
N035442-001B	SAMP	1	12.98	0.91	15	PASS
N035442-001A	SAMP	1	10.5	1.25	15	PASS
CCV5	CCV	1	18.82	0.24	15	PASS
CCB5	CCB	1	0.12	19.92	15	<PQL
ICSA3	ICSA	1	0.036	7.39	15	PASS
ICSAB3	ICSAB	1	20.64	1.15	15	PASS

PERCENT RSD SUMMARY: 190513A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	41.11	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	8.052	15	PASS
Std3-5/50 ppb	ICAL	1	4.96	1.23	15	PASS
Std4-10/100 ppb	ICAL	1	9.4	4.96	15	PASS
Std5-20/200 ppb	ICAL	1	19.99	1.012	15	PASS
Std6-40/400 ppb	ICAL	1	39.24	3.38	15	PASS
Std7-100/1000 ppb	ICAL	1	100.37	1.77	15	PASS
Std8-200/2000 ppb	ICAL	1	206.92	1.28	15	PASS
ICV	ICV	1	9.56	5.45	15	PASS
ICB	ICB	1	<0.000	0	15	PASS
LLICV	CCV1	1	0.46	29.12	20	<PQL
ICSA1	ICSA	1	0.031	116.042	15	<PQL
ICSAB1	ICSAB	1	18.3	3.75	15	PASS
LLICV	CCV1	1	0.14	57.63	20	<PQL
N035273-0003BMS	MS	10	0.97	6.99	15	PASS
CCV1	CCV	1	19.36	2.36	15	PASS
CCB1	CCB	1	0.05	69.29	15	<PQL
CCV2	CCV	1	19.99	0.45	15	PASS
CCB2	CCB	1	0.027	153.34	15	<PQL
CCV3	CCV	1	19.98	4.74	15	PASS
CCB3	CCB	1	0.031	108.66	15	<PQL
ICSA2	ICSA	1	0.0015	850.62	15	<PQL
ICSAB2	ICSAB	1	18.86	7.8	15	PASS
CCV4	CCV	1	19.86	1.76	15	PASS
CCB4	CCB	1	0.068	119.66	15	<PQL
CCV5	CCV	1	19.43	7.47	15	PASS
CCB5	CCB	1	0.042	102.09	15	<PQL
CCV6	CCV	1	20.44	2.14	15	PASS
CCB6	CCB	1	0.021	146.046	15	<PQL
ICSA3	ICSA	1	0.029	110.35	15	<PQL
ICSAB3	ICSAB	1	19.23	5.5	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190511B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0511001.D	RINSE	RINSE	1	05/11/19 10:19 AM
B0511002.D	Cal Blank	IBLK	1	05/11/19 10:24 AM
B0511003.D	Std1-0.1/1 ppb	ICAL	1	05/11/19 10:29 AM
B0511004.D	Std2-0.5/5 ppb	ICAL	1	05/11/19 10:34 AM
B0511005.D	Std3-5/50 ppb	ICAL	1	05/11/19 10:39 AM
B0511006.D	Std4-10/100 ppb	ICAL	1	05/11/19 10:44 AM
B0511007.D	Std5-20/200 ppb	ICAL	1	05/11/19 10:49 AM
B0511008.D	Std6-40/400 ppb	ICAL	1	05/11/19 10:54 AM
B0511009.D	Std7-100/1000 ppb	ICAL	1	05/11/19 10:59 AM
B0511010.D	Std8-200/2000 ppb	ICAL	1	05/11/19 11:04 AM
B0511011.D	ICV	ICV	1	05/11/19 11:08 AM
B0511012.D	ICB	ICB	1	05/11/19 11:13 AM
B0511013.D	LLICV	CCV1	1	05/11/19 11:18 AM
B0511014.D	ICSA1	ICSA	1	05/11/19 11:23 AM
B0511015.D	ICSAB1	ICSAB	1	05/11/19 11:28 AM
B0511016.D	LLICV	CCV1	1	05/11/19 11:33 AM
B0511017.D	MB-73665	MBLK	1	05/11/19 11:38 AM
B0511018.D	LCS-73665	LCS	1	05/11/19 11:43 AM
B0511019.D	N035273-001A	SAMP	1	05/11/19 11:48 AM
B0511020.D	N035273-001A	SAMP	5	05/11/19 11:53 AM
B0511021.D	N035273-001A-PS	PS	1	05/11/19 11:58 AM
B0511022.D	N035273-001A-MS	MS	1	05/11/19 12:03 PM
B0511023.D	N035273-001A-MSD	MSD	1	05/11/19 12:08 PM
B0511024.D	N035273-003B	SAMP	1	05/11/19 12:13 PM
B0511025.D	N035273-003B	SAMP	5	05/11/19 12:18 PM
B0511026.D	N035273-003B-PS	PS	1	05/11/19 12:23 PM
B0511027.D	CCV1	CCV	1	05/11/19 12:27 PM
B0511028.D	CCB1	CCB	1	05/11/19 12:32 PM
B0511029.D	N035273-003B-MS	MS	1	05/11/19 12:37 PM
B0511030.D	N035273-003B-MSD	MSD	1	05/11/19 12:42 PM
B0511031.D	N035274-001C	SAMP	1	05/11/19 12:47 PM
B0511032.D	N035274-002D	SAMP	1	05/11/19 12:52 PM
B0511033.D	N035274-003D	SAMP	1	05/11/19 12:57 PM
B0511034.D	N035274-006D	SAMP	1	05/11/19 1:02 PM
B0511035.D	N035274-008D	SAMP	1	05/11/19 1:07 PM
B0511036.D	N035274-009D	SAMP	1	05/11/19 1:12 PM
B0511037.D	N035274-011C	SAMP	1	05/11/19 1:17 PM
B0511038.D	N035274-013D	SAMP	1	05/11/19 1:22 PM
B0511039.D	CCV2	CCV	1	05/11/19 1:26 PM
B0511040.D	CCB2	CCB	1	05/11/19 1:31 PM
B0511041.D	N035274-014D	SAMP	1	05/11/19 1:36 PM
B0511042.D	N035306-001A	SAMP	1	05/11/19 1:41 PM

INJECTION LOG: 190511B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0511043.D	N035318-001A	SAMP	1	05/11/19 1:47 PM
B0511044.D	N035320-001A	SAMP	1	05/11/19 1:51 PM
B0511045.D	N035320-003A	SAMP	1	05/11/19 1:57 PM
B0511046.D	N035331-001A	SAMP	1	05/11/19 2:03 PM
B0511047.D	N035331-003A	SAMP	1	05/11/19 2:08 PM
B0511048.D	N035354-001A	SAMP	1	05/11/19 2:13 PM
B0511049.D	N035273-001A	SAMP	1	05/11/19 2:18 PM
B0511050.D	N035273-001A	SAMP	10	05/11/19 2:23 PM
B0511051.D	CCV3	CCV	1	05/11/19 2:28 PM
B0511052.D	CCB3	CCB	1	05/11/19 2:33 PM
B0511053.D	ICSA2	ICSA	1	05/11/19 2:38 PM
B0511054.D	ICSAB2	ICSAB	1	05/11/19 2:43 PM
B0511055.D	N035273-001A	SAMP	50	05/11/19 2:48 PM
B0511056.D	N035273-001A-PS	PS	10	05/11/19 2:53 PM
B0511057.D	N035273-001A-MS	MS	10	05/11/19 2:58 PM
B0511058.D	N035273-001A-MSD	MSD	10	05/11/19 3:03 PM
B0511059.D	N035273-003B	SAMP	10	05/11/19 3:08 PM
B0511060.D	N035273-003B	SAMP	50	05/11/19 3:12 PM
B0511061.D	N035273-003B-PS	PS	10	05/11/19 3:18 PM
B0511062.D	N035273-003B-MS	MS	10	05/11/19 3:22 PM
B0511063.D	N035273-003B-MSD	MSD	10	05/11/19 3:27 PM
B0511064.D	N035274-001C	SAMP	5	05/11/19 3:32 PM
B0511065.D	CCV4	CCV	1	05/11/19 3:37 PM
B0511066.D	CCB4	CCB	1	05/11/19 3:42 PM
B0511067.D	N035274-003D	SAMP	5	05/11/19 3:47 PM
B0511068.D	N035274-013D	SAMP	5	05/11/19 3:52 PM
B0511069.D	N035274-014D	SAMP	5	05/11/19 3:57 PM
B0511070.D	N035240-003D	SAMP	1	05/11/19 4:02 PM
B0511071.D	N035240-003A	SAMP	1	05/11/19 4:07 PM
B0511072.D	N035442-001B	SAMP	1	05/11/19 4:12 PM
B0511073.D	N035442-001A	SAMP	1	05/11/19 4:17 PM
B0511074.D	CCV5	CCV	1	05/11/19 4:22 PM
B0511075.D	CCB5	CCB	1	05/11/19 4:27 PM
B0511076.D	ICSA3	ICSA	1	05/11/19 4:32 PM
B0511077.D	ICSAB3	ICSAB	1	05/11/19 4:37 PM

INJECTION LOG: 190513A

Instrument ID: ICPMS-02

	Data File	Sample Name	Type	DF	Acq. Date-Time
	A0513001.D	RINSE	RINSE	1	05/13/19 11:47 AM
	A0513002.D	Cal Blank	IBLK	1	05/13/19 11:52 AM
	A0513003.D	Std1-0.1/1 ppb	ICAL	1	05/13/19 11:57 AM
	A0513004.D	Std2-0.5/5 ppb	ICAL	1	05/13/19 12:02 PM
	A0513005.D	Std3-5/50 ppb	ICAL	1	05/13/19 12:07 PM
	A0513006.D	Std4-10/100 ppb	ICAL	1	05/13/19 12:12 PM
	A0513007.D	Std5-20/200 ppb	ICAL	1	05/13/19 12:17 PM
	A0513008.D	Std6-40/400 ppb	ICAL	1	05/13/19 12:22 PM
	A0513009.D	Std7-100/1000 ppb	ICAL	1	05/13/19 12:27 PM
	A0513010.D	Std8-200/2000 ppb	ICAL	1	05/13/19 12:32 PM
	A0513011.D	ICV	ICV	1	05/13/19 12:37 PM
	A0513012.D	ICB	ICB	1	05/13/19 12:43 PM
	A0513013.D	LLICV	CCV1	1	05/13/19 12:48 PM
	A0513014.D	ICSA1	ICSA	1	05/13/19 12:53 PM
	A0513015.D	ICSAB1	ICSAB	1	05/13/19 12:59 PM
NR	A0513016.D	LLICV	CCV1	1	05/13/19 1:02 PM
	A0513017.D	MB-73666	MBLK	1	05/13/19 1:07 PM
	A0513018.D	LCS-73666	LCS	1	05/13/19 1:12 PM
	A0513019.D	N035249-001A	SAMP	1	05/13/19 1:17 PM
	A0513020.D	N035249-001A	SAMP	5	05/13/19 1:22 PM
	A0513021.D	N035249-001A	SAMP	25	05/13/19 1:27 PM
	A0513022.D	N035249-001A-PS	PS	1	05/13/19 1:32 PM
	A0513023.D	N035249-001A-PS	PS	5	05/13/19 1:37 PM
	A0513024.D	N035273-0003BMS	MS	10	05/13/19 1:42 PM
	A0513025.D	N035249-001A-MS	MS	1	05/13/19 1:47 PM
	A0513026.D	N035249-001A-MS	MS	5	05/13/19 1:52 PM
	A0513027.D	CCV1	CCV	1	05/13/19 1:57 PM
	A0513028.D	CCB1	CCB	1	05/13/19 2:03 PM
	A0513029.D	N035249-001A-MSD	MSD	1	05/13/19 2:12 PM
	A0513030.D	N035249-001A-MSD	MSD	5	05/13/19 2:17 PM
	A0513031.D	N035249-002A	SAMP	1	05/13/19 2:22 PM
	A0513032.D	N035249-002A	SAMP	5	05/13/19 2:27 PM
	A0513033.D	N035249-003A	SAMP	20	05/13/19 2:32 PM
	A0513034.D	N035249-003A	SAMP	5	05/13/19 2:37 PM
	A0513035.D	N035249-004A	SAMP	20	05/13/19 2:42 PM
	A0513036.D	N035249-004A	SAMP	25	05/13/19 2:47 PM
	A0513037.D	N035249-005A	SAMP	5	05/13/19 2:52 PM
	A0513038.D	N035249-006A	SAMP	5	05/13/19 2:57 PM
	A0513039.D	CCV2	CCV	1	05/13/19 3:02 PM
	A0513040.D	CCB2	CCB	1	05/13/19 3:07 PM
	A0513041.D	N035249-003A	SAMP	25	05/13/19 3:12 PM
	A0513042.D	N035249-007A	SAMP	5	05/13/19 3:17 PM

INJECTION LOG: 190513A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0513043.D	N035249-008A	SAMP	5	05/13/19 3:22 PM
A0513044.D	N035249-009A	SAMP	5	05/13/19 3:27 PM
A0513045.D	N035249-010A	SAMP	5	05/13/19 3:32 PM
A0513046.D	N035249-010A	SAMP	20	05/13/19 3:37 PM
A0513047.D	N035249-010A	SAMP	25	05/13/19 3:42 PM
A0513048.D	N035249-011A	SAMP	50	05/13/19 3:47 PM
A0513049.D	N035249-011A	SAMP	100	05/13/19 3:52 PM
A0513050.D	CCV3	CCV	1	05/13/19 3:57 PM
A0513051.D	CCB3	CCB	1	05/13/19 4:02 PM
A0513052.D	ICSA2	ICSA	1	05/13/19 4:07 PM
A0513053.D	ICSAB2	ICSAB	1	05/13/19 4:12 PM
A0513054.D	MB-73667	MBLK	1	05/13/19 4:17 PM
A0513055.D	LCS-73667	LCS	1	05/13/19 4:22 PM
A0513056.D	N035276-001A	SAMP	20	05/13/19 4:27 PM
A0513057.D	N035276-001A	SAMP	100	05/13/19 4:32 PM
A0513058.D	N035276-001A-PS	PS	20	05/13/19 4:37 PM
A0513059.D	N035276-001A-MS	MS	20	05/13/19 4:42 PM
A0513060.D	N035276-001A-MSD	MSD	20	05/13/19 4:48 PM
A0513061.D	N035276-002A	SAMP	20	05/13/19 4:52 PM
A0513062.D	N035276-002A	SAMP	25	05/13/19 4:56 PM
A0513063.D	N035276-003A	SAMP	20	05/13/19 5:01 PM
A0513064.D	CCV4	CCV	1	05/13/19 5:06 PM
A0513065.D	CCB4	CCB	1	05/13/19 5:11 PM
A0513066.D	N035276-003A	SAMP	25	05/13/19 5:16 PM
A0513067.D	N035276-004A	SAMP	20	05/13/19 5:21 PM
A0513068.D	N035276-004A	SAMP	25	05/13/19 5:26 PM
A0513069.D	N035276-005A	SAMP	20	05/13/19 5:31 PM
A0513070.D	N035276-005A	SAMP	25	05/13/19 5:36 PM
A0513071.D	N035276-006A	SAMP	5	05/13/19 5:41 PM
A0513072.D	N035276-007A	SAMP	20	05/13/19 5:46 PM
A0513073.D	N035276-007A	SAMP	25	05/13/19 5:52 PM
A0513074.D	N035276-008A	SAMP	50	05/13/19 5:56 PM
A0513075.D	N035276-008A	SAMP	100	05/13/19 6:01 PM
A0513076.D	CCV5	CCV	1	05/13/19 6:06 PM
A0513077.D	CCB5	CCB	1	05/13/19 6:11 PM
A0513078.D	N035276-009A	SAMP	50	05/13/19 6:16 PM
A0513079.D	N035276-009A	SAMP	100	05/13/19 6:21 PM
A0513080.D	N035276-010A	SAMP	20	05/13/19 6:26 PM
A0513081.D	N035276-010A	SAMP	25	05/13/19 6:32 PM
A0513082.D	N035276-011A	SAMP	20	05/13/19 6:36 PM
A0513083.D	N035276-011A	SAMP	25	05/13/19 6:42 PM
A0513084.D	N035249-006A	SAMP	25	05/13/19 6:46 PM

INJECTION LOG: 190513A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0513085.D	N035276-004A	SAMP	25	05/13/19 6:51 PM
A0513086.D	CCV6	CCV	1	05/13/19 6:56 PM
A0513087.D	CCB6	CCB	1	05/13/19 7:01 PM
A0513088.D	ICSA3	ICSA	1	05/13/19 7:07 PM
A0513089.D	ICSAB3	ICSAB	1	05/13/19 7:12 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/2/2019 7:35:40 A**
Prep End Date: **5/2/2019 12:00:00**
Reviewed/ Date: NS 5/16/2019
Initials/ Date: for

Prep Batch **73665** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.8**	**02-4**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73665	Aqueous		25	☐	0	0	25	1.000		
MB-73665	Aqueous		25	☐	0	0	25	1.000		
N035273-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035273-001AMS	Groundwater	<2	25	☐	0	0	25	1.000		
N035273-001AMS	Groundwater	<2	25	☐	0	0	25	1.000		
N035273-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035273-003BMS	Groundwater	<2	25	☐	0	0	25	1.000		
N035273-003BMS	Groundwater	<2	25	☐	0	0	25	1.000		
N035274-001C	Groundwater	<2	25	☐	0	0	25	1.000		
N035274-002D	Groundwater	<2	25	☐	0	0	25	1.000		
N035274-003D	Groundwater	<2	25	☐	0	0	25	1.000		
N035274-006D	Groundwater	<2	25	☐	0	0	25	1.000		
N035274-008D	Groundwater	<2	25	☐	0	0	25	1.000		
N035274-009D	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/2/2019 7:35:40 A**
Prep End Date: **5/2/2019 12:00:00**
Reviewed/ Date: NS 5/16/2019
Initials/ Date: for

Prep Batch **73665** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.8**	**02-4**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035274-011C	Groundwater	<2	25	☐	0	0	25	1.000		
N035274-013D	Groundwater	<2	25	☐	0	0	25	1.000		
N035274-014D	Groundwater	<2	25	☐	0	0	25	1.000		
N035306-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035318-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035320-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035320-003A	Groundwater	<2	25	☐	0	0	25	1.000		
N035331-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035331-003A	Groundwater	<2	25	☐	0	0	25	1.000		
N035354-001A	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution C		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 11 May 2019 04:16:31 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	3209690.00	0.00	
24 Mg	4391350.00	0.00	
25 Mg	553065.00	0.00	
26 Mg	639703.00	0.00	
59 Co	3146370.00	0.00	
115 In	5298270.00	0.00	
206 Pb	3385100.00	0.00	
207 Pb	3045490.00	0.00	
208 Pb	7130080.00	0.00	

RSD (%)

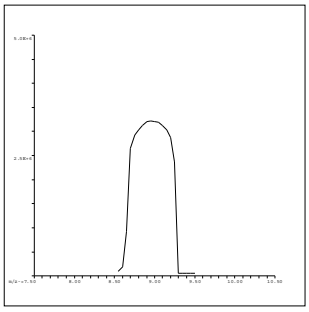
Element	Actual	Required	Flag
9 Be	0.54	5.00	
24 Mg	0.42	5.00	
25 Mg	0.64	5.00	
26 Mg	0.19	5.00	
59 Co	0.58	5.00	
115 In	0.99	5.00	
206 Pb	0.76	5.00	
207 Pb	0.56	5.00	
208 Pb	0.45	5.00	

Ion Ratio

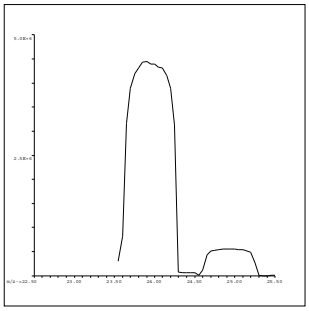
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

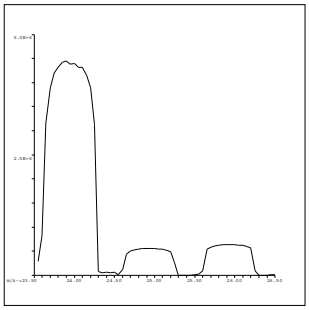
Element	Actual	Required	Flag



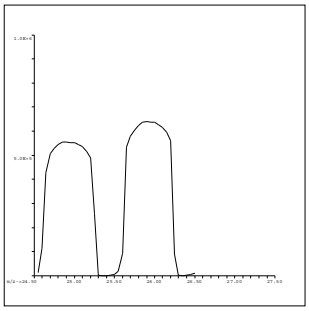
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



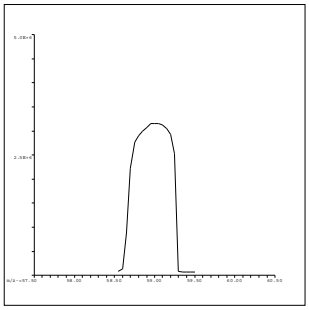
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



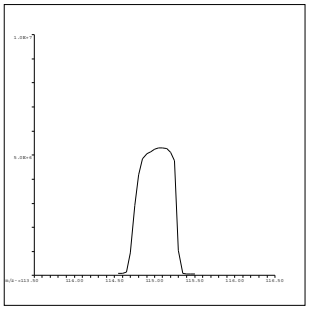
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



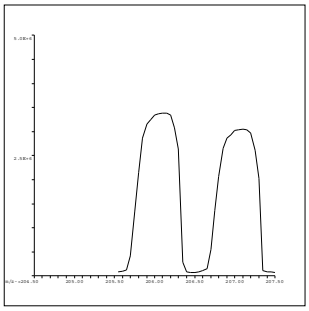
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



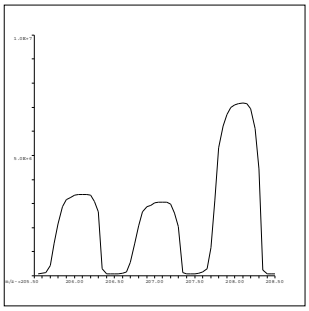
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



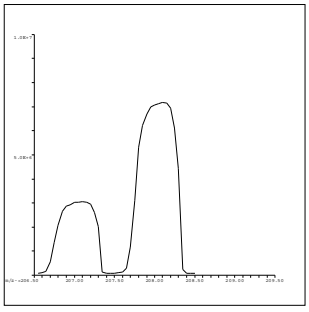
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.10
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.10
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 13 May 2019 11:24:45 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	84620.20	0.00	
24 Mg	330888.00	0.00	
25 Mg	43132.90	0.00	
26 Mg	50156.30	0.00	
59 Co	460295.00	0.00	
115 In	927244.00	0.00	
206 Pb	302014.00	0.00	
207 Pb	263390.00	0.00	
208 Pb	645069.00	0.00	

RSD (%)

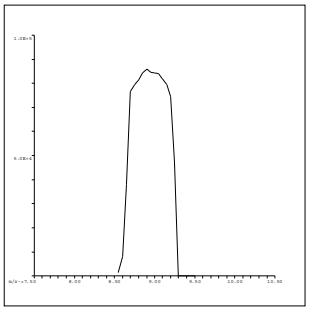
Element	Actual	Required	Flag
9 Be	1.36	5.00	
24 Mg	0.57	5.00	
25 Mg	3.02	5.00	
26 Mg	0.51	5.00	
59 Co	0.53	5.00	
115 In	0.21	5.00	
206 Pb	0.41	5.00	
207 Pb	0.73	5.00	
208 Pb	0.76	5.00	

Ion Ratio

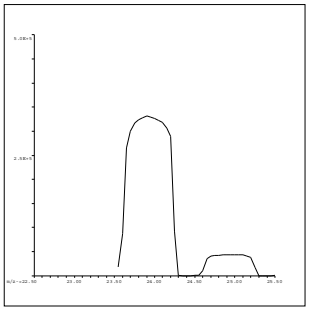
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

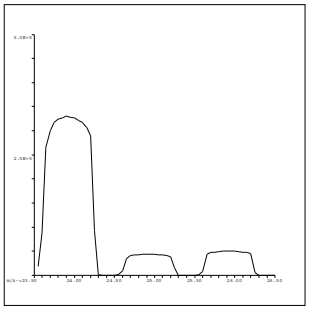
Element	Actual	Required	Flag



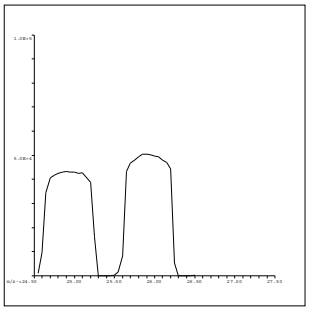
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



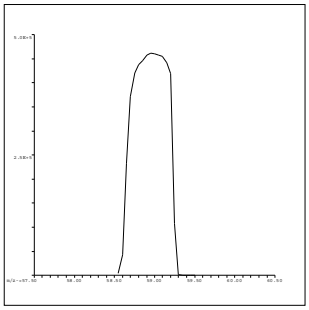
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



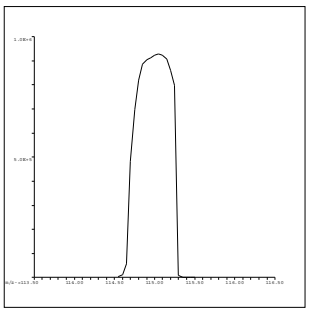
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



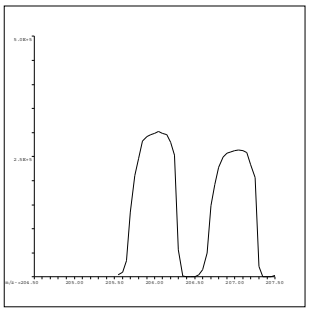
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



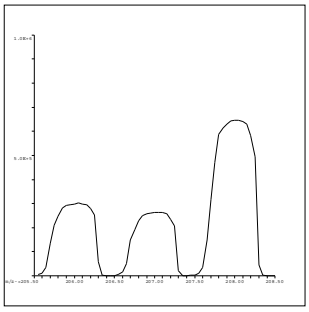
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



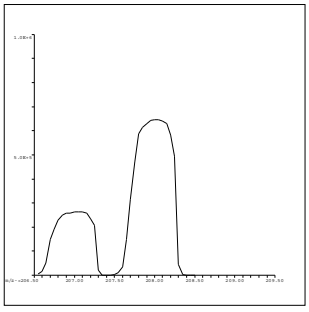
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.05
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190511B

Instrument ID: ICPMS-02

Analyte	Data File	B0511002.D	B0511003.D	B0511004.D	B0511005.D	B0511006.D	B0511007.D	B0511008.D	B0511009.D	B0511010.D	
	Acq. Date-Time	05/11/2019 10:24 AM	05/11/2019 10:29 AM	05/11/2019 10:34 AM	05/11/2019 10:39 AM	05/11/2019 10:44 AM	05/11/2019 10:49 AM	05/11/2019 10:54 AM	05/11/2019 10:59 AM	05/11/2019 11:04 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	203221.2		204803	205241.1	203449.6	203921.5	203125.7	195692.5	190907.7	
55 Mn [2]	CPS	318.4		4513	42576.8	82185.7	162815.7	317212.1	770204.4	1641454.8	1.0000
52 Cr [2]	CPS	1035.4		9185.8	80283	158597.1	315220.5	616804.3	1650507.9	3172136.2	1.0000
72 Ge (ISTD) [1]	CPS	80777.9		77620	77309.3	76324.9	75487.7	72792.1	69803.3	65805.5	
78 Se [1]	CPS	3.3		164.5	1487.9	2857	5833.5	11343.3	27660.1	53482.6	1.0000
72 Ge (ISTD) [2]	CPS	137436.9	143761	139067.3	137765.9	137633.8	137255.6	133782.1	128035.6	121684.5	
75 As [2]	CPS	66.2	276.5	1017.4	9152.9	18482.1	36754.7	71491.9	172588.4	335362.6	1.0000
103 Rh (ISTD) [2]	CPS	3777828		3751928.7	3757456.6	3696270.2	3698936.6	3611115	3476196.6	3282680.4	
95 Mo [2]	CPS	702.3		4479.7	40926.8	82265.9	164647.6	325270.5	797144.2	1705528.4	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190513A

Instrument ID: ICPMS-02

Analyte	Data File	A0513002.D	A0513004.D	A0513005.D	A0513006.D	A0513007.D	A0513008.D	A0513009.D	A0513010.D	
	Acq. Date-Time	05/13/2019 11:52 AM	05/13/2019 12:02 PM	05/13/2019 12:07 PM	05/13/2019 12:12 PM	05/13/2019 12:17 PM	05/13/2019 12:22 PM	05/13/2019 12:27 PM	05/13/2019 12:32 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [1]	CPS	52329.4	52082.4	52360.6	53126.6	52730.8	51886	50327.5	48268	
78 Se [1]	CPS	1.1	91.1	955.6	1836.9	3876.2	7484.3	18565.8	36711.7	0.9999

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **ICV** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.593	0.10	10.00	0	95.9	90	110				
Manganese	100.783	0.50	100.0	0	101	90	110				
Molybdenum	10.416	0.50	10.00	0	104	90	110				
Selenium	9.518	0.50	10.00	0	95.2	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **ZZZZZZ** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383877**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.120	0.10	0.1000	0	120	80	120				
Manganese	0.563	0.50	0.5000	0	113	80	120				
Molybdenum	0.539	0.50	0.5000	0	108	80	120				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **ZZZZZZ** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.462	0.50	0.5000	0	92.4	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **CCV** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383891**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.709	0.10	20.00	0	98.5	90	110				
Manganese	19.698	0.50	20.00	0	98.5	90	110				
Molybdenum	19.960	0.50	20.00	0	99.8	90	110				
Selenium	19.666	0.50	20.00	0	98.3	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCV**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.722	0.10	20.00	0	98.6	90	110				
Manganese	20.427	0.50	20.00	0	102	90	110				
Molybdenum	18.921	0.50	20.00	0	94.6	90	110				
Selenium	18.905	0.50	20.00	0	94.5	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCV**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.366	0.10	20.00	0	96.8	90	110				
Manganese	19.948	0.50	20.00	0	99.7	90	110				
Molybdenum	19.156	0.50	20.00	0	95.8	90	110				
Selenium	19.341	0.50	20.00	0	96.7	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCV**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.406	0.10	20.00	0	97.0	90	110				
Manganese	20.457	0.50	20.00	0	102	90	110				
Molybdenum	18.630	0.50	20.00	0	93.2	90	110				
Selenium	19.776	0.50	20.00	0	98.9	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCV**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383938**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.277	0.10	20.00	0	96.4	90	110				
Manganese	20.460	0.50	20.00	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **CCV** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383938**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	18.820	0.50	20.00	0	94.1	90	110				
Selenium	19.516	0.50	20.00	0	97.6	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133886**
Client ID: **ICV** Batch ID: **R133886** TestNo: **EPA 6020** Analysis Date: **5/13/2019** SeqNo: **3385275**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	9.565	0.50	10.00	0	95.6	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133886**
Client ID: **ZZZZZZ** Batch ID: **R133886** TestNo: **EPA 6020** Analysis Date: **5/13/2019** SeqNo: **3385277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.464	0.50	0.5000	0	92.9	80	120				

not reported

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133886**
Client ID: **ZZZZZZ** Batch ID: **R133886** TestNo: **EPA 6020** Analysis Date: **5/13/2019** SeqNo: **3385280**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50	0.5000	0	0	80	120				S

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133886**
Client ID: **CCV** Batch ID: **R133886** TestNo: **EPA 6020** Analysis Date: **5/13/2019** SeqNo: **3385291**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.360	0.50	20.00	0	96.8	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133886**
Client ID: **CCV** Batch ID: **R133886** TestNo: **EPA 6020** Analysis Date: **5/13/2019** SeqNo: **3385303**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.994	0.50	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

NS 5/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133886**
Client ID: **CCV** Batch ID: **R133886** TestNo: **EPA 6020** Analysis Date: **5/13/2019** SeqNo: **3385314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.977	0.50	20.00	0	99.9	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV** SampType: **ICV** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **ICV** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.919	1.0	10.00	0	99.2	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **ZZZZZZ** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383810**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.043	1.0	1.000	0	104	80	120				

not reported

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **ZZZZZZ** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383813**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.029	1.0	1.000	0	103	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **CCV** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383824**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.379	1.0	20.00	0	96.9	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **CCV** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.306	1.0	20.00	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

NS 5/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCV**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.845	1.0	20.00	0	99.2	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCV**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.417	1.0	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCV**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.377	1.0	20.00	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383876**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.231	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.273	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Detection of Mo in CCB1 is >1/2 RL. However, results of samples were > 5x the CCB detection.

NS 5/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383930**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383939**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133886**
Client ID: **ICB**	Batch ID: **R133886**	TestNo: **EPA 6020**		Analysis Date: **5/13/2019**	SeqNo: **3385276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133886**
Client ID: **CCB**	Batch ID: **R133886**	TestNo: **EPA 6020**		Analysis Date: **5/13/2019**	SeqNo: **3385292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133886**
Client ID: **CCB**	Batch ID: **R133886**	TestNo: **EPA 6020**		Analysis Date: **5/13/2019**	SeqNo: **3385304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133886**
Client ID: **CCB**	Batch ID: **R133886**	TestNo: **EPA 6020**		Analysis Date: **5/13/2019**	SeqNo: **3385315**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **CCB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **ICSA** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **ICSAB** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.910	0.10	20.00	0	105	80	120				
Manganese	18.482	0.50	20.00	0	92.4	80	120				
Molybdenum	21.358	0.50	20.00	0	107	80	120				
Selenium	19.648	0.50	20.00	0	98.2	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **ICSA** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **133852**
Client ID: **ICSAB** Batch ID: **R133852** TestNo: **EPA 6020** Analysis Date: **5/11/2019** SeqNo: **3383918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.351	0.10	20.00	0	102	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICSAB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	18.428	0.50	20.00	0	92.1	80	120				
Molybdenum	21.065	0.50	20.00	0	105	80	120				
Selenium	18.910	0.50	20.00	0	94.6	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICSA**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383940**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICSAB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383941**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.043	0.10	20.00	0	100	80	120				
Manganese	18.597	0.50	20.00	0	93.0	80	120				
Molybdenum	20.637	0.50	20.00	0	103	80	120				
Selenium	18.962	0.50	20.00	0	94.8	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133886**
Client ID: **ICSA**	Batch ID: **R133886**	TestNo: **EPA 6020**		Analysis Date: **5/13/2019**	SeqNo: **3385278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133886**
Client ID: **ICSAB**	Batch ID: **R133886**	TestNo: **EPA 6020**		Analysis Date: **5/13/2019**	SeqNo: **3385279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.297	0.50	20.00	0	91.5	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133886**
Client ID: **ICSA**	Batch ID: **R133886**	TestNo: **EPA 6020**		Analysis Date: **5/13/2019**	SeqNo: **3385316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133886**
Client ID: **ICSAB**	Batch ID: **R133886**	TestNo: **EPA 6020**		Analysis Date: **5/13/2019**	SeqNo: **3385317**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.857	0.50	20.00	0	94.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICSA**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICSAB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383812**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.288	1.0	20.00	0	101	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICSA**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICSAB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.907	1.0	20.00	0	99.5	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICSA**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ICSAB**	Batch ID: **R133852**	TestNo: **EPA 6020**		Analysis Date: **5/11/2019**	SeqNo: **3383874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.113	1.0	20.00	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190511B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	203221.2	203221.2	100	PASS	70-125	137436.9	137436.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	209805.6	203221.2	103.24	PASS	70-125	143761	137436.9	104.6	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	204803	203221.2	100.78	PASS	70-125	139067.3	137436.9	101.19	PASS	70-125
Std3-5/50 ppb	ICAL	1	205241.1	203221.2	100.99	PASS	70-125	137765.9	137436.9	100.24	PASS	70-125
Std4-10/100 ppb	ICAL	1	203449.6	203221.2	100.11	PASS	70-125	137633.8	137436.9	100.14	PASS	70-125
Std5-20/200 ppb	ICAL	1	203921.5	203221.2	100.34	PASS	70-125	137255.6	137436.9	99.87	PASS	70-125
Std6-40/400 ppb	ICAL	1	203125.7	203221.2	99.95	PASS	70-125	133782.1	137436.9	97.34	PASS	70-125
Std7-100/1000 ppb	ICAL	1	195692.5	203221.2	96.3	PASS	70-125	128035.6	137436.9	93.16	PASS	70-125
Std8-200/2000 ppb	ICAL	1	190907.7	203221.2	93.94	PASS	70-125	121684.5	137436.9	88.54	PASS	70-125
ICV	ICV	1	203538.8	203221.2	100.16	PASS	70-125	138259.1	137436.9	100.6	PASS	70-125
ICB	ICB	1	183720.2	203221.2	90.4	PASS	70-125	126763.2	137436.9	92.23	PASS	70-125
LLICV	CCV1	1	191968.3	203221.2	94.46	PASS	70-125	132642.3	137436.9	96.51	PASS	70-125
ICSA1	ICSA	1	189496.4	203221.2	93.25	PASS	70-125	134343.3	137436.9	97.75	PASS	70-125
ICSAB1	ICSAB	1	202604.4	203221.2	99.7	PASS	70-125	133013.2	137436.9	96.78	PASS	70-125
LLICV	CCV1	1	207168.8	203221.2	101.94	PASS	70-125	142962.3	137436.9	104.02	PASS	70-125
MB-73665	MBLK	1	181764.2	203221.2	89.44	PASS	70-125	128392.1	137436.9	93.42	PASS	70-125
LCS-73665	LCS	1	189630	203221.2	93.31	PASS	70-125	131864	137436.9	95.95	PASS	70-125
N035273-001A	SAMP	1	162611.4	203221.2	80.017	PASS	70-125	95833.4	137436.9	69.73	NR!	70-125
N035273-001A	SAMP	5	194652.2	203221.2	95.78	PASS	70-125	122777.4	137436.9	89.33	PASS	70-125
N035273-001A-PS	PS	1	188760	203221.2	92.88	PASS	70-125	108330.1	137436.9	78.82	PASS	70-125
N035273-001A-MS	MS	1	187602.2	203221.2	92.31	PASS	70-125	107519.6	137436.9	78.23	PASS	70-125
N035273-001A-MSD	MSD	1	187182.3	203221.2	92.11	PASS	70-125	108483	137436.9	78.93	PASS	70-125
N035273-003B	SAMP	1	185339.2	203221.2	91.2	PASS	70-125	106328.2	137436.9	77.37	PASS	70-125
N035273-003B	SAMP	5	199947.4	203221.2	98.39	PASS	70-125	126612.1	137436.9	92.12	PASS	70-125
N035273-003B-PS	PS	1	189033.5	203221.2	93.019	PASS	70-125	109871	137436.9	79.94	PASS	70-125
CCV1	CCV	1	221679.1	203221.2	109.08	PASS	70-125	147130.6	137436.9	107.05	PASS	70-125
CCB1	CCB	1	207972.9	203221.2	102.34	PASS	70-125	142251.3	137436.9	103.5	PASS	70-125
N035273-003B-MS	MS	1	187606.9	203221.2	92.32	PASS	70-125	110204.7	137436.9	80.19	PASS	70-125
N035273-003B-MSD	MSD	1	192366.6	203221.2	94.66	PASS	70-125	111010.4	137436.9	80.77	PASS	70-125
N035274-001C	SAMP	1	208870.3	203221.2	102.78	PASS	70-125	132881.4	137436.9	96.69	PASS	70-125
N035274-002D	SAMP	1	186928.8	203221.2	91.98	PASS	70-125	114559	137436.9	83.35	PASS	70-125
N035274-003D	SAMP	1	186761.6	203221.2	91.9	PASS	70-125	119660.9	137436.9	87.066	PASS	70-125
N035274-006D	SAMP	1	194449.2	203221.2	95.68	PASS	70-125	122012.2	137436.9	88.78	PASS	70-125
N035274-008D	SAMP	1	185051.7	203221.2	91.059	PASS	70-125	116773.7	137436.9	84.97	PASS	70-125
N035274-009D	SAMP	1	182413.1	203221.2	89.76	PASS	70-125	114574.6	137436.9	83.37	PASS	70-125
N035274-011C	SAMP	1	196676.2	203221.2	96.78	PASS	70-125	128937.4	137436.9	93.82	PASS	70-125
N035274-013D	SAMP	1	187637	203221.2	92.33	PASS	70-125	121556.9	137436.9	88.45	PASS	70-125
CCV2	CCV	1	214065.6	203221.2	105.34	PASS	70-125	148762.7	137436.9	108.24	PASS	70-125
CCB2	CCB	1	200605.3	203221.2	98.71	PASS	70-125	144529.4	137436.9	105.16	PASS	70-125
N035274-014D	SAMP	1	183704	203221.2	90.4	PASS	70-125	119897.4	137436.9	87.24	PASS	70-125
N035306-001A	SAMP	1	197367.8	203221.2	97.12	PASS	70-125	135600.6	137436.9	98.66	PASS	70-125

INTERNAL STANDARD: 190511B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035318-001A	SAMP	1	197876.8	203221.2	97.37	PASS	70-125	117554.8	137436.9	85.53	PASS	70-125
N035320-001A	SAMP	1	192608.4	203221.2	94.78	PASS	70-125	124976.2	137436.9	90.93	PASS	70-125
N035320-003A	SAMP	1	204479.1	203221.2	100.62	PASS	70-125	126799.5	137436.9	92.26	PASS	70-125
N035331-001A	SAMP	1	177734.4	203221.2	87.46	PASS	70-125	110694.2	137436.9	80.54	PASS	70-125
N035331-003A	SAMP	1	204623.1	203221.2	100.69	PASS	70-125	138393.3	137436.9	100.7	PASS	70-125
N035354-001A	SAMP	1	170912.6	203221.2	84.1	PASS	70-125	106197.5	137436.9	77.27	PASS	70-125
N035273-001A	SAMP	1	185895.5	203221.2	91.47	PASS	70-125	113949.3	137436.9	82.91	PASS	70-125
N035273-001A	SAMP	10	204219.6	203221.2	100.49	PASS	70-125	138635.6	137436.9	100.87	PASS	70-125
CCV3	CCV	1	216072.4	203221.2	106.32	PASS	70-125	150469	137436.9	109.48	PASS	70-125
CCB3	CCB	1	205187.7	203221.2	100.97	PASS	70-125	144626.4	137436.9	105.23	PASS	70-125
ICSA2	ICSA	1	216530.1	203221.2	106.55	PASS	70-125	147729.6	137436.9	107.49	PASS	70-125
ICSAB2	ICSAB	1	217150.1	203221.2	106.85	PASS	70-125	146894.2	137436.9	106.88	PASS	70-125
N035273-001A	SAMP	50	207801.3	203221.2	102.25	PASS	70-125	146213.9	137436.9	106.39	PASS	70-125
N035273-001A-PS	PS	10	192955.6	203221.2	94.95	PASS	70-125	133008.9	137436.9	96.78	PASS	70-125
N035273-001A-MS	MS	10	193752.1	203221.2	95.34	PASS	70-125	133557.2	137436.9	97.18	PASS	70-125
N035273-001A-MSD	MSD	10	194832.6	203221.2	95.87	PASS	70-125	133756.5	137436.9	97.32	PASS	70-125
N035273-003B	SAMP	10	193577.3	203221.2	95.25	PASS	70-125	131278.9	137436.9	95.52	PASS	70-125
N035273-003B	SAMP	50	203052.4	203221.2	99.92	PASS	70-125	142214.6	137436.9	103.48	PASS	70-125
N035273-003B-PS	PS	10	191321.7	203221.2	94.14	PASS	70-125	131852.9	137436.9	95.94	PASS	70-125
N035273-003B-MS	MS	10	193560.9	203221.2	95.25	PASS	70-125	131919	137436.9	95.99	PASS	70-125
N035273-003B-MSD	MSD	10	192162.1	203221.2	94.56	PASS	70-125	131578.2	137436.9	95.74	PASS	70-125
N035274-001C	SAMP	5	197976.9	203221.2	97.42	PASS	70-125	138776.8	137436.9	100.97	PASS	70-125
CCV4	CCV	1	204884.3	203221.2	100.82	PASS	70-125	144706.8	137436.9	105.29	PASS	70-125
CCB4	CCB	1	199804.2	203221.2	98.32	PASS	70-125	143998.6	137436.9	104.77	PASS	70-125
N035274-003D	SAMP	5	187931.6	203221.2	92.48	PASS	70-125	130204.3	137436.9	94.74	PASS	70-125
N035274-013D	SAMP	5	184522.3	203221.2	90.8	PASS	70-125	131761	137436.9	95.87	PASS	70-125
N035274-014D	SAMP	5	185430.6	203221.2	91.25	PASS	70-125	129901.2	137436.9	94.52	PASS	70-125
N035240-003D	SAMP	1	166504.7	203221.2	81.93	PASS	70-125	105815.4	137436.9	76.99	PASS	70-125
N035240-003A	SAMP	1	184024.5	203221.2	90.55	PASS	70-125	117637.6	137436.9	85.59	PASS	70-125
N035442-001B	SAMP	1	183112.1	203221.2	90.1	PASS	70-125	125748.9	137436.9	91.5	PASS	70-125
N035442-001A	SAMP	1	167363.4	203221.2	82.36	PASS	70-125	126216.6	137436.9	91.84	PASS	70-125
CCV5	CCV	1	197811.8	203221.2	97.34	PASS	70-125	140532.3	137436.9	102.25	PASS	70-125
CCB5	CCB	1	189350.3	203221.2	93.17	PASS	70-125	137034.6	137436.9	99.71	PASS	70-125
ICSA3	ICSA	1	221818.4	203221.2	109.15	PASS	70-125	143590.7	137436.9	104.48	PASS	70-125
ICSAB3	ICSAB	1	204316.3	203221.2	100.54	PASS	70-125	140126	137436.9	101.96	PASS	70-125

INTERNAL STANDARD: 190511B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	80777.9	80777.9	100	PASS	70-125	3777828	3777828	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	81367.5	80777.9	100.73	PASS	70-125	3842811.4	3777828	101.72	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	77620	80777.9	96.091	PASS	70-125	3751928.7	3777828	99.31	PASS	70-125
Std3-5/50 ppb	ICAL	1	77309.3	80777.9	95.71	PASS	70-125	3757456.6	3777828	99.46	PASS	70-125
Std4-10/100 ppb	ICAL	1	76324.9	80777.9	94.49	PASS	70-125	3696270.2	3777828	97.84	PASS	70-125
Std5-20/200 ppb	ICAL	1	75487.7	80777.9	93.45	PASS	70-125	3698936.6	3777828	97.91	PASS	70-125
Std6-40/400 ppb	ICAL	1	72792.1	80777.9	90.11	PASS	70-125	3611115	3777828	95.59	PASS	70-125
Std7-100/1000 ppb	ICAL	1	69803.3	80777.9	86.41	PASS	70-125	3476196.6	3777828	92.016	PASS	70-125
Std8-200/2000 ppb	ICAL	1	65805.5	80777.9	81.46	PASS	70-125	3282680.4	3777828	86.89	PASS	70-125
ICV	ICV	1	74797.7	80777.9	92.6	PASS	70-125	3811892.4	3777828	100.9	PASS	70-125
ICB	ICB	1	68647.7	80777.9	84.98	PASS	70-125	3525301.2	3777828	93.32	PASS	70-125
LLICV	CCV1	1	72429.5	80777.9	89.66	PASS	70-125	3696109.6	3777828	97.84	PASS	70-125
ICSA1	ICSA	1	72611	80777.9	89.89	PASS	70-125	3589209.4	3777828	95.007	PASS	70-125
ICSAB1	ICSAB	1	73417.2	80777.9	90.89	PASS	70-125	3458539.7	3777828	91.55	PASS	70-125
LLICV	CCV1	1	80397.6	80777.9	99.53	PASS	70-125	3922458.5	3777828	103.83	PASS	70-125
MB-73665	MBLK	1	72918.9	80777.9	90.27	PASS	70-125	3596487.7	3777828	95.2	PASS	70-125
LCS-73665	LCS	1	73509	80777.9	91.001	PASS	70-125	3718753.7	3777828	98.44	PASS	70-125
N035273-001A	SAMP	1	50251.8	80777.9	62.21	NR!	70-125	2332252.6	3777828	61.74	NR!	70-125
N035273-001A	SAMP	5	68861.6	80777.9	85.25	PASS	70-125	3113531.1	3777828	82.42	PASS	70-125
N035273-001A-PS	PS	1	58016.5	80777.9	71.82	PASS	70-125	2579463.2	3777828	68.28	NR!	70-125
N035273-001A-MS	MS	1	60284.4	80777.9	74.63	PASS	70-125	2596023.6	3777828	68.72	NR!	70-125
N035273-001A-MSD	MSD	1	60997.2	80777.9	75.51	PASS	70-125	2607155.6	3777828	69.012	NR!	70-125
N035273-003B	SAMP	1	59807.3	80777.9	74.039	PASS	70-125	2573781.3	3777828	68.13	NR!	70-125
N035273-003B	SAMP	5	72705	80777.9	90.006	PASS	70-125	3214718.8	3777828	85.094	PASS	70-125
N035273-003B-PS	PS	1	58041.9	80777.9	71.85	PASS	70-125	2613641.5	3777828	69.18	NR!	70-125
CCV1	CCV	1	83092.4	80777.9	102.87	PASS	70-125	3954763.5	3777828	104.68	PASS	70-125
CCB1	CCB	1	78737.2	80777.9	97.47	PASS	70-125	3888904.9	3777828	102.94	PASS	70-125
N035273-003B-MS	MS	1	54862.3	80777.9	67.92	NR!	70-125	2599070.8	3777828	68.8	NR!	70-125
N035273-003B-MSD	MSD	1	56900.3	80777.9	70.44	PASS	70-125	2646375.4	3777828	70.05	PASS	70-125
N035274-001C	SAMP	1	75580.3	80777.9	93.57	PASS	70-125	3390324.7	3777828	89.74	PASS	70-125
N035274-002D	SAMP	1	59761.5	80777.9	73.98	PASS	70-125	2755753.7	3777828	72.95	PASS	70-125
N035274-003D	SAMP	1	64940.2	80777.9	80.39	PASS	70-125	2898576.8	3777828	76.73	PASS	70-125
N035274-006D	SAMP	1	65177.9	80777.9	80.69	PASS	70-125	2955273.1	3777828	78.23	PASS	70-125
N035274-008D	SAMP	1	61765.6	80777.9	76.46	PASS	70-125	2804134.6	3777828	74.23	PASS	70-125
N035274-009D	SAMP	1	60738.4	80777.9	75.19	PASS	70-125	2724304.1	3777828	72.11	PASS	70-125
N035274-011C	SAMP	1	71658.2	80777.9	88.71	PASS	70-125	3182353.3	3777828	84.24	PASS	70-125
N035274-013D	SAMP	1	66651.5	80777.9	82.51	PASS	70-125	2987009.5	3777828	79.067	PASS	70-125
CCV2	CCV	1	85235.4	80777.9	105.52	PASS	70-125	4060356.4	3777828	107.48	PASS	70-125
CCB2	CCB	1	81870.5	80777.9	101.35	PASS	70-125	3924891.8	3777828	103.89	PASS	70-125
N035274-014D	SAMP	1	63254.6	80777.9	78.31	PASS	70-125	2921117.9	3777828	77.32	PASS	70-125
N035306-001A	SAMP	1	77554.9	80777.9	96.01	PASS	70-125	3467901.5	3777828	91.8	PASS	70-125

INTERNAL STANDARD: 190511B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035318-001A	SAMP	1	60337.7	80777.9	74.7	PASS	70-125	2767564.7	3777828	73.26	PASS	70-125
N035320-001A	SAMP	1	69075.7	80777.9	85.51	PASS	70-125	3131897.3	3777828	82.9	PASS	70-125
N035320-003A	SAMP	1	68073.8	80777.9	84.27	PASS	70-125	3084655.1	3777828	81.65	PASS	70-125
N035331-001A	SAMP	1	56784.5	80777.9	70.3	PASS	70-125	2587115.6	3777828	68.48	NR!	70-125
N035331-003A	SAMP	1	79789.1	80777.9	98.78	PASS	70-125	3519489.4	3777828	93.16	PASS	70-125
N035354-001A	SAMP	1	52569.4	80777.9	65.079	NR!	70-125	2421881.2	3777828	64.11	NR!	70-125
N035273-001A	SAMP	1	57619.4	80777.9	71.33	PASS	70-125	2682413.5	3777828	71.004	PASS	70-125
N035273-001A	SAMP	10	76014.6	80777.9	94.1	PASS	70-125	3545656.1	3777828	93.85	PASS	70-125
CCV3	CCV	1	84620.8	80777.9	104.76	PASS	70-125	4069837.7	3777828	107.73	PASS	70-125
CCB3	CCB	1	81526.4	80777.9	100.93	PASS	70-125	3991265.2	3777828	105.65	PASS	70-125
ICSA2	ICSA	1	81408.3	80777.9	100.78	PASS	70-125	3801672.3	3777828	100.63	PASS	70-125
ICSAB2	ICSAB	1	80093.1	80777.9	99.15	PASS	70-125	3714209.7	3777828	98.32	PASS	70-125
N035273-001A	SAMP	50	81642.4	80777.9	101.07	PASS	70-125	3816714.4	3777828	101.03	PASS	70-125
N035273-001A-PS	PS	10	72633.8	80777.9	89.92	PASS	70-125	3465187.7	3777828	91.72	PASS	70-125
N035273-001A-MS	MS	10	72990.6	80777.9	90.36	PASS	70-125	3419172	3777828	90.51	PASS	70-125
N035273-001A-MSD	MSD	10	72176	80777.9	89.35	PASS	70-125	3420949.9	3777828	90.55	PASS	70-125
N035273-003B	SAMP	10	72277.6	80777.9	89.48	PASS	70-125	3401369.6	3777828	90.035	PASS	70-125
N035273-003B	SAMP	50	76035.7	80777.9	94.13	PASS	70-125	3726190	3777828	98.63	PASS	70-125
N035273-003B-PS	PS	10	70772	80777.9	87.61	PASS	70-125	3407465.9	3777828	90.2	PASS	70-125
N035273-003B-MS	MS	10	71272	80777.9	88.23	PASS	70-125	3406946	3777828	90.18	PASS	70-125
N035273-003B-MSD	MSD	10	69964.2	80777.9	86.61	PASS	70-125	3388168.1	3777828	89.69	PASS	70-125
N035274-001C	SAMP	5	75072.2	80777.9	92.94	PASS	70-125	3664265.1	3777828	96.99	PASS	70-125
CCV4	CCV	1	78813.2	80777.9	97.57	PASS	70-125	3970484.8	3777828	105.1	PASS	70-125
CCB4	CCB	1	77518.4	80777.9	95.96	PASS	70-125	3922549.9	3777828	103.83	PASS	70-125
N035274-003D	SAMP	5	68648.7	80777.9	84.98	PASS	70-125	3331027.2	3777828	88.17	PASS	70-125
N035274-013D	SAMP	5	69995.7	80777.9	86.65	PASS	70-125	3366664.6	3777828	89.12	PASS	70-125
N035274-014D	SAMP	5	69060.4	80777.9	85.49	PASS	70-125	3347648.7	3777828	88.61	PASS	70-125
N035240-003D	SAMP	1	53429.7	80777.9	66.14	NR!	70-125	2703027.4	3777828	71.55	PASS	70-125
N035240-003A	SAMP	1	60729.7	80777.9	75.18	PASS	70-125	2886802.8	3777828	76.41	PASS	70-125
N035442-001B	SAMP	1	73662.6	80777.9	91.19	PASS	70-125	3300032.3	3777828	87.35	PASS	70-125
N035442-001A	SAMP	1	70661.7	80777.9	87.48	PASS	70-125	3548478.9	3777828	93.93	PASS	70-125
CCV5	CCV	1	78514.2	80777.9	97.2	PASS	70-125	3834067.2	3777828	101.49	PASS	70-125
CCB5	CCB	1	76612.8	80777.9	94.84	PASS	70-125	3793350.3	3777828	100.41	PASS	70-125
ICSA3	ICSA	1	78976.5	80777.9	97.77	PASS	70-125	3704486.9	3777828	98.059	PASS	70-125
ICSAB3	ICSAB	1	76329.3	80777.9	94.49	PASS	70-125	3574159.5	3777828	94.61	PASS	70-125

INTERNAL STANDARD: 190513A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	52329.4	52329.4	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	53186.7	52329.4	101.64	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	52082.4	52329.4	99.53	PASS	70-125
Std3-5/50 ppb	ICAL	1	52360.6	52329.4	100.06	PASS	70-125
Std4-10/100 ppb	ICAL	1	53126.6	52329.4	101.52	PASS	70-125
Std5-20/200 ppb	ICAL	1	52730.8	52329.4	100.77	PASS	70-125
Std6-40/400 ppb	ICAL	1	51886	52329.4	99.15	PASS	70-125
Std7-100/1000 ppb	ICAL	1	50327.5	52329.4	96.17	PASS	70-125
Std8-200/2000 ppb	ICAL	1	48268	52329.4	92.24	PASS	70-125
ICV	ICV	1	61967.9	52329.4	118.42	PASS	70-125
ICB	ICB	1	49363.8	52329.4	94.33	PASS	70-125
LLICV	CCV1	1	61530.2	52329.4	117.58	PASS	70-125
ICSA1	ICSA	1	56512.3	52329.4	107.99	PASS	70-125
ICSAB1	ICSAB	1	54626	52329.4	104.39	PASS	70-125
LLICV	CCV1	1	60881.4	52329.4	116.34	PASS	70-125
N035273-0003BMS	MS	10	50734.5	52329.4	96.95	PASS	70-125
CCV1	CCV	1	54496.5	52329.4	104.14	PASS	70-125
CCB1	CCB	1	53511.3	52329.4	102.26	PASS	70-125
CCV2	CCV	1	47204.9	52329.4	90.21	PASS	70-125
CCB2	CCB	1	46637.9	52329.4	89.12	PASS	70-125
CCV3	CCV	1	42376.1	52329.4	80.98	PASS	70-125
CCB3	CCB	1	41552.8	52329.4	79.41	PASS	70-125
ICSA2	ICSA	1	41409.3	52329.4	79.13	PASS	70-125
ICSAB2	ICSAB	1	41197.5	52329.4	78.73	PASS	70-125
CCV4	CCV	1	44520.7	52329.4	85.078	PASS	70-125
CCB4	CCB	1	44785.9	52329.4	85.58	PASS	70-125
CCV5	CCV	1	45054.6	52329.4	86.098	PASS	70-125
CCB5	CCB	1	44378.2	52329.4	84.81	PASS	70-125
CCV6	CCV	1	44734.7	52329.4	85.49	PASS	70-125
CCB6	CCB	1	44487.3	52329.4	85.014	PASS	70-125
ICSA3	ICSA	1	43805.6	52329.4	83.71	PASS	70-125
ICSAB3	ICSAB	1	46802.8	52329.4	89.44	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035274
Test Method: EPA 6020
Analysis Date: 5/11/2019

Matrix: Groundwater
Batch No.: 73665

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr, As, Se. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035273-001A DT 5x	Chromium	Cr	µg/L	0	NA	0		10
N035273-001A DT 5x	Arsenic	As	µg/L	0	NA	0.1395896	100.00%	10
N035273-001A DT 5x	Selenium	Se	µg/L	0	NA	0		10
N035273-001A DT 50x	Manganese	Mn	µg/L	961.8437	PASS	891.4055	7.90%	10
N035273-001A DT 50x	Molybdenum	Mo	µg/L	177.0349	PASS	182.1213	2.79%	10

Note: NA - Not Applicable

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035274
Test Method: EPA 6020
Analysis Date: 5/11/2019

Matrix: Groundwater
Batch No.: 73665

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Cr, As, Se. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035273-003B DT 5x	Chromium	Cr	µg/L	0	NA	0		10
N035273-003B DT 5x	Arsenic	As	µg/L	0	NA	0.1419205	100.00%	10
N035273-003B DT 50x	Manganese	Mn	µg/L	943.3523	PASS	900.8903	4.71%	10
N035273-003B DT 50x	Molybdenum	Mo	µg/L	176.1296	PASS	176.6863	0.32%	10
N035273-003B DT 50x	Selenium	Se	µg/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035273-001APS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383885**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.301	0.10	10.00	0.1396	102	80	120				
Selenium	9.746	0.50	10.00	0	97.5	80	120				

Sample ID **N035273-003BPS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.438	0.10	10.00	0.1419	103	80	120				

Sample ID **N035273-001APS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	1009.235	5.0	100.0	891.4	118	80	120				
Molybdenum	182.202	5.0	10.00	182.1	0.802	80	120				S

Sample ID **N035273-003BPS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **133852**
Client ID: **ZZZZZZ**	Batch ID: **73665**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **5/11/2019**	SeqNo: **3383925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	984.385	5.0	100.0	900.9	83.5	80	120				
Molybdenum	182.425	5.0	10.00	176.7	57.4	80	120				S
Selenium	9.799	5.0	10.00	0	98.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035274
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N035273-001A-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	133852
Client ID:	ZZZZZZ	Batch ID:	73665	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	5/11/2019	SeqNo:	3383818

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.470	1.0	10.00	0	84.7	80	120				

Sample ID	N035273-003B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	133852
Client ID:	ZZZZZZ	Batch ID:	73665	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	5/11/2019	SeqNo:	3383823

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.419	1.0	10.00	0	84.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

May 28, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035484

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 09, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035484

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Iron in QC sample N035484-001B-MSD1 possibly due to matrix interference. Dilution Test (DT) failed acceptance criteria however Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N035484-001B-MS1 and N035484-001B-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed and both passed the acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N035484-002B-MS2 and N035484-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N0354441-001B-MS and N035441-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *28-May-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035484
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035484-001A	PE-01-0519	Groundwater	5/9/2019 12:05:00 PM	5/9/2019	5/28/2019
N035484-001B	PE-01-0519	Groundwater	5/9/2019 12:05:00 PM	5/9/2019	5/28/2019
N035484-001C	PE-01-0519	Groundwater	5/9/2019 12:05:00 PM	5/9/2019	5/28/2019
N035484-001D	PE-01-0519	Groundwater	5/9/2019 12:05:00 PM	5/9/2019	5/28/2019
N035484-002A	TW-03D-0519	Groundwater	5/9/2019 11:55:00 AM	5/9/2019	5/28/2019
N035484-002B	TW-03D-0519	Groundwater	5/9/2019 11:55:00 AM	5/9/2019	5/28/2019
N035484-002C	TW-03D-0519	Groundwater	5/9/2019 11:55:00 AM	5/9/2019	5/28/2019
N035484-002D	TW-03D-0519	Groundwater	5/9/2019 11:55:00 AM	5/9/2019	5/28/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190510G**	QC Batch: **R133819**			PrepDate:			Analyst: **LR**
Specific Conductance	2400	0.10	0.10		umhos/cm	1	5/10/2019 10:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190510G**	QC Batch: **R133819**			PrepDate:			Analyst: **LR**
Specific Conductance	7100	0.10	0.10		umhos/cm	1	5/10/2019 10:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035490-002BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133819**
Client ID: **ZZZZZZ** Batch ID: **R133819** TestNo: **EPA 120.1** Analysis Date: **5/10/2019** SeqNo: **3381086**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7110.000	0.10						7140	0.421	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-001

Client Sample ID: PE-01-0519
Collection Date: 5/9/2019 12:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190510E**	QC Batch: **R133817**			PrepDate:			Analyst: **LR**
pH	7.5	0.10	0.10	H	pH Units	1	5/10/2019 10:35 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	5/10/2019 10:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-002

Client Sample ID: TW-03D-0519
Collection Date: 5/9/2019 11:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190510E**	QC Batch: **R133817**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	5/10/2019 10:35 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	5/10/2019 10:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: **N035484-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **133817**
Client ID: **ZZZZZZ** Batch ID: **R133817** TestNo: **SM4500-H+B** Analysis Date: **5/10/2019** SeqNo: **3381078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.570	0.10						7.530	0.530	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190513C**	QC Batch: **73830**			PrepDate:	**5/13/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1500	17	17		mg/L	1	5/13/2019 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190513C**	QC Batch: **73830**			PrepDate:	**5/13/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	5/13/2019 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **LCS-73830**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **5/13/2019**	RunNo: **133890**
Client ID: **LCSW**	Batch ID: **73830**	TestNo: **SM2540C**		Analysis Date: **5/13/2019**	SeqNo: **3385466**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	979.000	10	1000	0	97.9	80	120				

Sample ID: **MB-73830**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **5/13/2019**	RunNo: **133890**
Client ID: **PBW**	Batch ID: **73830**	TestNo: **SM2540C**		Analysis Date: **5/13/2019**	SeqNo: **3385467**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **N035484-002CDUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **5/13/2019**	RunNo: **133890**
Client ID: **ZZZZZZ**	Batch ID: **73830**	TestNo: **SM2540C**		Analysis Date: **5/13/2019**	SeqNo: **3385470**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4280.000	50						4250	0.703	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190511D**	QC Batch: **73817**			PrepDate:	**5/11/2019**		Analyst: **CEI**
Calcium	110000	85	500		µg/L	1	5/11/2019 07:08 PM
Iron	1200	18	20		µg/L	1	5/11/2019 07:08 PM
Magnesium	25000	48	100		µg/L	1	5/11/2019 07:08 PM
Sodium	190000	2400	12000		µg/L	25	5/16/2019 11:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190511D**	QC Batch: **73817**				PrepDate:	**5/11/2019**	Analyst: **CEI**
Calcium	230000	85	500		µg/L	1	5/11/2019 08:03 PM
Iron	ND	18	20		µg/L	1	5/11/2019 08:03 PM
Magnesium	25000	48	100		µg/L	1	5/11/2019 08:03 PM
Sodium	1600000	4800	25000		µg/L	50	5/16/2019 11:46 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **MB-73817** SampType: **MBLK** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **5/11/2019** RunNo: **133835**
Client ID: **PBW** Batch ID: **73817** TestNo: **EPA 200.7** Analysis Date: **5/11/2019** SeqNo: **3382244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **LCS1-73817** SampType: **LCS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **5/11/2019** RunNo: **133835**
Client ID: **LCSW** Batch ID: **73817** TestNo: **EPA 200.7** Analysis Date: **5/11/2019** SeqNo: **3382245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	5349.602	500	5000	0	107	85	115				
Iron	103.088	20	100.0	0	103	85	115				
Magnesium	5072.469	100	5000	0	101	85	115				

Sample ID: **N035484-001B-MS1** SampType: **MS** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **5/11/2019** RunNo: **133835**
Client ID: **ZZZZZZ** Batch ID: **73817** TestNo: **EPA 200.7** Analysis Date: **5/11/2019** SeqNo: **3382251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	109950.496	500	5000	106900	61.3	75	125				S
Iron	1274.357	20	100.0	1198	76.0	75	125				
Magnesium	28622.597	100	5000	24670	79.1	75	125				

Sample ID: **N035484-001B-MSD** SampType: **MSD** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: **5/11/2019** RunNo: **133835**
Client ID: **ZZZZZZ** Batch ID: **73817** TestNo: **EPA 200.7** Analysis Date: **5/11/2019** SeqNo: **3382252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	109443.856	500	5000	106900	51.2	75	125	110000	0.462	20	S
Iron	1270.762	20	100.0	1198	72.4	75	125	1274	0.282	20	S
Magnesium	28574.777	100	5000	24670	78.2	75	125	28620	0.167	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **MB-73817**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133936**
Client ID: **PBW**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS2-73817**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133936**
Client ID: **LCSW**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	21474.119	500	20000	0	107	85	115				

Sample ID: **N035484-002B-MS2**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133936**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1603485.216	25000	20000	1605000	-6.36	75	125				S

Sample ID: **N035484-002B-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133936**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1602243.295	25000	20000	1605000	-12.6	75	125	0	0	20	S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **N035484-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	111044.989	500	5000	106900	83.2	80	120				
Iron	1288.886	20	100.0	1198	90.5	80	120				
Magnesium	28810.718	100	5000	24670	82.9	80	120				

Sample ID: **N035484-002B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1548973.050	25000	20000	1605000	-279	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_190517C** QC Batch: **73814** PrepDate: **5/11/2019** Analyst: **CEI**							
Manganese	360	1.3	2.5		µg/L	5	5/17/2019 07:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_190517C** QC Batch: **73814** PrepDate: **5/11/2019** Analyst: **CEI**							
Manganese	21	0.26	0.50		µg/L	1	5/17/2019 07:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: **MB-73814**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **PBW**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID: **LCS-73814**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **LCSW**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	101.202	0.50	100.0	0	101	85	115				

Sample ID: **N035441-001B-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **ZZZZZZ**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	99.407	0.50	100.0	0	99.4	75	125				

Sample ID: **N035441-001B-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **ZZZZZZ**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	98.901	0.50	100.0	0	98.9	75	125	99.41	0.510	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: **N035441-001B-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **134071**
Client ID: **ZZZZZZ** Batch ID: **73814** TestNo: **EPA 200.8** Analysis Date: **5/17/2019** SeqNo: **3392778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	97.939	0.50	100.0	0	97.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-001

Client Sample ID: PE-01-0519
Collection Date: 5/9/2019 12:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190510A** QC Batch: **R133820**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/10/2019 11:30 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190517C** QC Batch: **73814**				PrepDate:	**5/11/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/17/2019 07:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190510A**	QC Batch: **R133820**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	460	3.3	20		µg/L	100	5/10/2019 11:49 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190517C**	QC Batch: **73814**			PrepDate:	**5/11/2019**		Analyst: **CEI**
Chromium	440	0.65	5.0		µg/L	5	5/17/2019 07:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID: **MB-73814**	SampType: **MBLK**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **PBW**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-73814**	SampType: **LCS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **LCSW**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.956	1.0	10.00	0	99.6	85	115				

Sample ID: **N035441-001B-MS**	SampType: **MS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **ZZZZZZ**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	130.524	1.0	10.00	128.7	18.2	75	125				S

Sample ID: **N035441-001B-MSD**	SampType: **MSD**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **ZZZZZZ**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	130.049	1.0	10.00	128.7	13.4	75	125	130.5	0.365	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133820**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **PBW**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381094**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R133820**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **LCSW**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.057	0.20	5.000	0	101	90	110				

Sample ID: **N035482-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.078	0.20	1.000	0	108	90	110				

Sample ID: **N035482-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.211	0.20	1.000	0.1777	103	90	110				

Sample ID: **N035483-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.275	0.20	1.000	0.2033	107	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035487-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.036	0.20	1.000	0.9612	107	90	110				

Sample ID: **N035482-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381106**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.071	0.20	1.000	0	107	90	110	1.078	0.642	20	

Sample ID: **N035487-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381107**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.969	0.20						0.9612	0.798	20	

Sample ID: **N035484-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381109**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.062	0.20	1.000	0	106	90	110				

Sample ID: **N035484-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381111**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	961.310	20	500.0	455.6	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID: **N035441-001B-PS** SampType: **PS** TestCode: **200.8DIS_CrP** Units: **µg/L** Prep Date: RunNo: **134071**
Client ID: **ZZZZZZ** Batch ID: **73814** TestNo: **EPA 200.8** Analysis Date: **5/17/2019** SeqNo: **3392872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	133.458	1.0	10.00	128.7	47.5	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190513A**	QC Batch: **R133860**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	5/13/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190513A**	QC Batch: **R133860**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	5/13/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R133860**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133860**
Client ID: **LCSW**	Batch ID: **R133860**	TestNo: **SM 2320 B**		Analysis Date: **5/13/2019**	SeqNo: **3384164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	97.895	5.0	100.0	0	97.9	85	115				

Sample ID: **MB-R133860**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133860**
Client ID: **PBW**	Batch ID: **R133860**	TestNo: **SM 2320 B**		Analysis Date: **5/13/2019**	SeqNo: **3384165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID: **N035484-002CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133860**
Client ID: **ZZZZZZ**	Batch ID: **R133860**	TestNo: **SM 2320 B**		Analysis Date: **5/13/2019**	SeqNo: **3384168**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	161.053	5.0						161.1	0	30	

Sample ID: **N035484-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133860**
Client ID: **ZZZZZZ**	Batch ID: **R133860**	TestNo: **SM 2320 B**		Analysis Date: **5/13/2019**	SeqNo: **3384169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	257.895	5.0	100.0	161.1	96.8	75	125				

Sample ID: **N035484-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133860**
Client ID: **ZZZZZZ**	Batch ID: **R133860**	TestNo: **SM 2320 B**		Analysis Date: **5/13/2019**	SeqNo: **3384170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	254.737	5.0	100.0	161.1	93.7	75	125	257.9	1.23	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-001

Client Sample ID: PE-01-0519
Collection Date: 5/9/2019 12:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190510B** QC Batch: **R133848**				PrepDate:			Analyst: **RAB**
Chloride	550	0.91	50		mg/L	100	5/10/2019 07:27 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190510B** QC Batch: **R133848**				PrepDate:			Analyst: **RAB**
Sulfate	270	1.1	25		mg/L	50	5/10/2019 07:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-002

Client Sample ID: TW-03D-0519
Collection Date: 5/9/2019 11:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190510B** QC Batch: **R133848**				PrepDate:			Analyst: **RAB**
Chloride	2100	4.6	250		mg/L	500	5/10/2019 08:27 PM
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190510B** QC Batch: **R133848**				PrepDate:			Analyst: **RAB**
Sulfate	490	1.1	25		mg/L	50	5/10/2019 09:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **LCS-R133848_CL**	SampType: **LCS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133848**			
Client ID: **LCSW**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**			SeqNo: **3383594**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.076	0.50	2.000	0	104	90	110				

Sample ID: **MB-R133848_CL**	SampType: **MBLK**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133848**			
Client ID: **PBW**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**			SeqNo: **3383595**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **N035484-001CDUP**	SampType: **DUP**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133848**			
Client ID: **ZZZZZZ**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**			SeqNo: **3383597**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	553.110	50						554.4	0.228	20	

Sample ID: **N035484-002CMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133848**			
Client ID: **ZZZZZZ**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**			SeqNo: **3383599**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3145.200	250	1000	2126	102	80	120				

Sample ID: **N035484-002CMSD**	SampType: **MSD**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:			RunNo: **133848**			
Client ID: **ZZZZZZ**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**			SeqNo: **3383600**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3157.100	250	1000	2126	103	80	120	3145	0.378	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **LCS-R133848_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133848**
Client ID: **LCSW** Batch ID: **R133848** TestNo: **EPA 300.0** Analysis Date: **5/10/2019** SeqNo: **3383609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.042	0.50	4.000	0	101	90	110				

Sample ID: **MB-R133848_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133848**
Client ID: **PBW** Batch ID: **R133848** TestNo: **EPA 300.0** Analysis Date: **5/10/2019** SeqNo: **3383610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **N035484-001CDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133848**
Client ID: **ZZZZZZ** Batch ID: **R133848** TestNo: **EPA 300.0** Analysis Date: **5/10/2019** SeqNo: **3383612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	272.490	25						272.2	0.110	20	

Sample ID: **N035490-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133848**
Client ID: **ZZZZZZ** Batch ID: **R133848** TestNo: **EPA 300.0** Analysis Date: **5/10/2019** SeqNo: **3383617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	698.710	25	200.0	495.6	102	80	120				

Sample ID: **N035490-002BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133848**
Client ID: **ZZZZZZ** Batch ID: **R133848** TestNo: **EPA 300.0** Analysis Date: **5/10/2019** SeqNo: **3383618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	698.615	25	200.0	495.6	102	80	120	698.7	0.0136	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190515E**	QC Batch: **R133920**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/15/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190515E**	QC Batch: **R133920**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	2.7	0.16	0.25		mg/L	5	5/15/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R133920**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **PBW**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R133920**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **LCSW**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.519	0.050	0.5000	0	104	85	115				

Sample ID: **N035484-002DDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **ZZZZZZ**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.580	0.25						2.668	3.37	20	

Sample ID: **N035490-002DMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **ZZZZZZ**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.246	0.25	2.500	2.658	104	75	125				

Sample ID: **N035490-002DMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **ZZZZZZ**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.019	0.25	2.500	2.658	94.4	75	125	5.246	4.43	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III ✓; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition (Y / N): 1. Chilled Y; 2. Headspace; 3. Container Intact Y; 4. Seal Present; 5. IR number 2; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051	Global ID: Specify State:
Submitted By: Andrew Pham	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Sample Temp: 2.3 °C
Title: Field Tech	Sampled By: Andrew Pham		
Signature: Date: 05/09/19	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
I hereby authorize ASSET Labs to perform the tests indicated below.	Signature: Date: 05/09/19		
Project Name: PG&E Topock - PMP			Courier: ASSET; Tracking No.:
Project Number: RC000753.801D			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2; SO4, NH4, OH (250 mL poly)	(1 L poly)	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly)	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, (1 L poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (1 L poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035484-01	PE-01-0519	05/09/19	1205		X		X	X			X	X	X	X	X		X	E	4	P	BN	
2	-02	TW-03D-0519	05/09/19	1155		X		X	X			X	X	X	X	X		X	E	4	P	BN	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name)	Date/Time	Recieved by (Signature and Printed Name)	Date/Time
Andrew Pham	05/09/19 1255	SEAN MCGRANE	5/9/19 1255
SEAN MCGRANE	5/9/19 1620	MBCARTHIN	5/9/19 @1620
MBCARTHIN	5/9/19 @1849	MBCARTHIN	5/9/19 @1849

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives: H=HCL; N=HNO_3; S=H_2SO_4; C=4°C; Z=$Zn(AC)_2$; O=NaOH; T=$Na_2S_2O_3$; Others/Specify: B (NH4)2SO4/NH4OH

Container Type: T=Tube; V=VOA; P=Pint; J=Jar; B=Tedlar; G=Glass; M=Metal; M=Metal; C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/9/2019	Workorder:	N035484
Rep sample Temp (Deg C):	2.3	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Sample forpH was past holding time upon receipt.

For:

Checklist Completed By: MBC YRJ 5/10/2019

Reviewed By: LG 051819

ASSET Laboratories

WORK ORDER Summary

10-May-19

WorkOrder: N035484

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/9/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035484-001A	PE-01-0519	5/9/2019 12:05:00 PM	5/23/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035484-001B			5/23/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/23/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			5/23/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/23/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			5/23/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035484-001C			5/23/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			5/23/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			5/23/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			5/23/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			5/23/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			5/23/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/23/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/23/2019		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	LSR
N035484-001D			5/23/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035484-002A	TW-03D-0519	5/9/2019 11:55:00 AM	5/23/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035484-002B			5/23/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/23/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			5/23/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/23/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			5/23/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035484-002C			5/23/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

10-May-19

WorkOrder: N035484

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/9/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035484-002C	TW-03D-0519	5/9/2019 11:55:00 AM	5/23/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	LSR
			5/23/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			5/23/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			5/23/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			5/23/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/23/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/23/2019		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	LSR
N035484-002D			5/23/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035484-003A	FOLDER	5/23/2019	5/23/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/23/2019		Folder	Folder	☐	☐	☐	LAB
			5/23/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - PMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035484

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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May 28, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035484

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 09, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035484

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 200.7_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria for Iron in QC sample N035484-001B-MSD1 possibly due to matrix interference. Dilution Test (DT) failed acceptance criteria however Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Calcium in QC samples N035484-001B-MS1 and N035484-001B-MSD1 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed and both passed the acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Sodium in QC samples N035484-002B-MS2 and N035484-002B-MSD2 since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N0354441-001B-MS and N035441-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *28-May-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035484
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035484-001A	PE-01-0519	Groundwater	5/9/2019 12:05:00 PM	5/9/2019	5/28/2019
N035484-001B	PE-01-0519	Groundwater	5/9/2019 12:05:00 PM	5/9/2019	5/28/2019
N035484-001C	PE-01-0519	Groundwater	5/9/2019 12:05:00 PM	5/9/2019	5/28/2019
N035484-001D	PE-01-0519	Groundwater	5/9/2019 12:05:00 PM	5/9/2019	5/28/2019
N035484-002A	TW-03D-0519	Groundwater	5/9/2019 11:55:00 AM	5/9/2019	5/28/2019
N035484-002B	TW-03D-0519	Groundwater	5/9/2019 11:55:00 AM	5/9/2019	5/28/2019
N035484-002C	TW-03D-0519	Groundwater	5/9/2019 11:55:00 AM	5/9/2019	5/28/2019
N035484-002D	TW-03D-0519	Groundwater	5/9/2019 11:55:00 AM	5/9/2019	5/28/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190510G**	QC Batch: **R133819**			PrepDate:			Analyst: **LR**
Specific Conductance	2400	0.10	0.10		umhos/cm	1	5/10/2019 10:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190510G**	QC Batch: **R133819**			PrepDate:			Analyst: **LR**
Specific Conductance	7100	0.10	0.10		umhos/cm	1	5/10/2019 10:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035490-002BDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133819**
Client ID: **ZZZZZZ** Batch ID: **R133819** TestNo: **EPA 120.1** Analysis Date: **5/10/2019** SeqNo: **3381086**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7110.000	0.10						7140	0.421	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-001

Client Sample ID: PE-01-0519
Collection Date: 5/9/2019 12:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190510E**	QC Batch: **R133817**			PrepDate:			Analyst: **LR**
pH	7.5	0.10	0.10	H	pH Units	1	5/10/2019 10:35 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	5/10/2019 10:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-002

Client Sample ID: TW-03D-0519
Collection Date: 5/9/2019 11:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190510E**	QC Batch: **R133817**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	5/10/2019 10:35 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	5/10/2019 10:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: **N035484-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **133817**
Client ID: **ZZZZZZ** Batch ID: **R133817** TestNo: **SM4500-H+B** Analysis Date: **5/10/2019** SeqNo: **3381078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.570	0.10						7.530	0.530	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190513C**	QC Batch: **73830**			PrepDate:	**5/13/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1500	17	17		mg/L	1	5/13/2019 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190513C**	QC Batch: **73830**				PrepDate:	**5/13/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	5/13/2019 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID: **LCS-73830**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **5/13/2019**	RunNo: **133890**
Client ID: **LCSW**	Batch ID: **73830**	TestNo: **SM2540C**		Analysis Date: **5/13/2019**	SeqNo: **3385466**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	979.000	10	1000	0	97.9	80	120				

Sample ID: **MB-73830**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **5/13/2019**	RunNo: **133890**
Client ID: **PBW**	Batch ID: **73830**	TestNo: **SM2540C**		Analysis Date: **5/13/2019**	SeqNo: **3385467**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID: **N035484-002CDUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **5/13/2019**	RunNo: **133890**
Client ID: **ZZZZZZ**	Batch ID: **73830**	TestNo: **SM2540C**		Analysis Date: **5/13/2019**	SeqNo: **3385470**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4280.000	50						4250	0.703	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-001

Client Sample ID: PE-01-0519
Collection Date: 5/9/2019 12:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190511D**	QC Batch: **73817**				PrepDate:	**5/11/2019**	Analyst: **CEI**
Calcium	110000	85	500		µg/L	1	5/11/2019 07:08 PM
Iron	1200	18	20		µg/L	1	5/11/2019 07:08 PM
Magnesium	25000	48	100		µg/L	1	5/11/2019 07:08 PM
Sodium	190000	2400	12000		µg/L	25	5/16/2019 11:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-002

Client Sample ID: TW-03D-0519
Collection Date: 5/9/2019 11:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
			EPA 200.7				
RunID: **NV00922-ICP2_190511D**	QC Batch: **73817**			PrepDate:	**5/11/2019**		Analyst: **CEI**
Calcium	230000	85	500		µg/L	1	5/11/2019 08:03 PM
Iron	ND	18	20		µg/L	1	5/11/2019 08:03 PM
Magnesium	25000	48	100		µg/L	1	5/11/2019 08:03 PM
Sodium	1600000	4800	25000		µg/L	50	5/16/2019 11:46 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **MB-73817**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133835**
Client ID: **PBW**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	ND	500									
Iron	ND	20									
Magnesium	ND	100									

Sample ID: **LCS1-73817**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133835**
Client ID: **LCSW**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	5349.602	500	5000	0	107	85	115				
Iron	103.088	20	100.0	0	103	85	115				
Magnesium	5072.469	100	5000	0	101	85	115				

Sample ID: **N035484-001B-MS1**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133835**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	109950.496	500	5000	106900	61.3	75	125				S
Iron	1274.357	20	100.0	1198	76.0	75	125				
Magnesium	28622.597	100	5000	24670	79.1	75	125				

Sample ID: **N035484-001B-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133835**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	109443.856	500	5000	106900	51.2	75	125	110000	0.462	20	S
Iron	1270.762	20	100.0	1198	72.4	75	125	1274	0.282	20	S
Magnesium	28574.777	100	5000	24670	78.2	75	125	28620	0.167	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **MB-73817**	SampType: **MBLK**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133936**
Client ID: **PBW**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387889**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	ND	500									

Sample ID: **LCS2-73817**	SampType: **LCS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133936**
Client ID: **LCSW**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	21474.119	500	20000	0	107	85	115				

Sample ID: **N035484-002B-MS2**	SampType: **MS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133936**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1603485.216	25000	20000	1605000	-6.36	75	125				S

Sample ID: **N035484-002B-MSD**	SampType: **MSD**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **133936**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1602243.295	25000	20000	1605000	-12.6	75	125	0	0	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID: **N035484-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	111044.989	500	5000	106900	83.2	80	120				
Iron	1288.886	20	100.0	1198	90.5	80	120				
Magnesium	28810.718	100	5000	24670	82.9	80	120				

Sample ID: **N035484-002B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1548973.050	25000	20000	1605000	-279	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190517C**	QC Batch: **73814**			PrepDate:		**5/11/2019**	Analyst: **CEI**
Manganese	360	1.3	2.5		µg/L	5	5/17/2019 07:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
EPA 200.8							
RunID: **NV00922-ICP7_190517C** QC Batch: **73814**				PrepDate:	**5/11/2019**		Analyst: **CEI**
Manganese	21	0.26	0.50		µg/L	1	5/17/2019 07:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: **MB-73814**	SampType: **MBLK**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **PBW**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID: **LCS-73814**	SampType: **LCS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **LCSW**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	101.202	0.50	100.0	0	101	85	115				

Sample ID: **N035441-001B-MS**	SampType: **MS**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **ZZZZZZ**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	99.407	0.50	100.0	0	99.4	75	125				

Sample ID: **N035441-001B-MSD**	SampType: **MSD**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **ZZZZZZ**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	98.901	0.50	100.0	0	98.9	75	125	99.41	0.510	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID: **N035441-001B-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **134071**
Client ID: **ZZZZZZ** Batch ID: **73814** TestNo: **EPA 200.8** Analysis Date: **5/17/2019** SeqNo: **3392778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	97.939	0.50	100.0	0	97.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-001

Client Sample ID: PE-01-0519
Collection Date: 5/9/2019 12:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190510A** QC Batch: **R133820**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/10/2019 11:30 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190517C** QC Batch: **73814**				PrepDate:	**5/11/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	5/17/2019 07:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190510A**	QC Batch: **R133820**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	460	3.3	20		µg/L	100	5/10/2019 11:49 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190517C**	QC Batch: **73814**			PrepDate:	**5/11/2019**		Analyst: **CEI**
Chromium	440	0.65	5.0		µg/L	5	5/17/2019 07:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID: **MB-73814**	SampType: **MBLK**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **PBW**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-73814**	SampType: **LCS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **LCSW**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.956	1.0	10.00	0	99.6	85	115				

Sample ID: **N035441-001B-MS**	SampType: **MS**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **ZZZZZZ**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	130.524	1.0	10.00	128.7	18.2	75	125				S

Sample ID: **N035441-001B-MSD**	SampType: **MSD**	TestCode: **200.8DIS_CrP**	Units: **µg/L**	Prep Date: **5/11/2019**	RunNo: **134071**
Client ID: **ZZZZZZ**	Batch ID: **73814**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	130.049	1.0	10.00	128.7	13.4	75	125	130.5	0.365	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R133820** SampType: **MBLK** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133820**
Client ID: **PBW** Batch ID: **R133820** TestNo: **EPA 218.6** Analysis Date: **5/10/2019** SeqNo: **3381094**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R133820** SampType: **LCS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133820**
Client ID: **LCSW** Batch ID: **R133820** TestNo: **EPA 218.6** Analysis Date: **5/10/2019** SeqNo: **3381095**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.057	0.20	5.000	0	101	90	110				

Sample ID: **N035482-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133820**
Client ID: **ZZZZZZ** Batch ID: **R133820** TestNo: **EPA 218.6** Analysis Date: **5/10/2019** SeqNo: **3381100**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.078	0.20	1.000	0	108	90	110				

Sample ID: **N035482-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133820**
Client ID: **ZZZZZZ** Batch ID: **R133820** TestNo: **EPA 218.6** Analysis Date: **5/10/2019** SeqNo: **3381101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.211	0.20	1.000	0.1777	103	90	110				

Sample ID: **N035483-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133820**
Client ID: **ZZZZZZ** Batch ID: **R133820** TestNo: **EPA 218.6** Analysis Date: **5/10/2019** SeqNo: **3381102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.275	0.20	1.000	0.2033	107	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035487-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133820**
Client ID: **ZZZZZZ** Batch ID: **R133820** TestNo: **EPA 218.6** Analysis Date: **5/10/2019** SeqNo: **3381103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.036	0.20	1.000	0.9612	107	90	110				

Sample ID: **N035482-001AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133820**
Client ID: **ZZZZZZ** Batch ID: **R133820** TestNo: **EPA 218.6** Analysis Date: **5/10/2019** SeqNo: **3381106**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.071	0.20	1.000	0	107	90	110	1.078	0.642	20	

Sample ID: **N035487-001ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133820**
Client ID: **ZZZZZZ** Batch ID: **R133820** TestNo: **EPA 218.6** Analysis Date: **5/10/2019** SeqNo: **3381107**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.969	0.20						0.9612	0.798	20	

Sample ID: **N035484-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133820**
Client ID: **ZZZZZZ** Batch ID: **R133820** TestNo: **EPA 218.6** Analysis Date: **5/10/2019** SeqNo: **3381109**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.062	0.20	1.000	0	106	90	110				

Sample ID: **N035484-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133820**
Client ID: **ZZZZZZ** Batch ID: **R133820** TestNo: **EPA 218.6** Analysis Date: **5/10/2019** SeqNo: **3381111**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	961.310	20	500.0	455.6	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID: **N035441-001B-PS** SampType: **PS** TestCode: **200.8DIS_CrP** Units: **µg/L** Prep Date: RunNo: **134071**
Client ID: **ZZZZZZ** Batch ID: **73814** TestNo: **EPA 200.8** Analysis Date: **5/17/2019** SeqNo: **3392872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	133.458	1.0	10.00	128.7	47.5	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190513A**	QC Batch: **R133860**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	220	1.2	5.0		mg/L	1	5/13/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190513A**	QC Batch: **R133860**			PrepDate:			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	5/13/2019 10:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID: **LCS-R133860**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133860**
Client ID: **LCSW**	Batch ID: **R133860**	TestNo: **SM 2320 B**		Analysis Date: **5/13/2019**	SeqNo: **3384164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	97.895	5.0	100.0	0	97.9	85	115				

Sample ID: **MB-R133860**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133860**
Client ID: **PBW**	Batch ID: **R133860**	TestNo: **SM 2320 B**		Analysis Date: **5/13/2019**	SeqNo: **3384165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID: **N035484-002CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133860**
Client ID: **ZZZZZZ**	Batch ID: **R133860**	TestNo: **SM 2320 B**		Analysis Date: **5/13/2019**	SeqNo: **3384168**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	161.053	5.0						161.1	0	30	

Sample ID: **N035484-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133860**
Client ID: **ZZZZZZ**	Batch ID: **R133860**	TestNo: **SM 2320 B**		Analysis Date: **5/13/2019**	SeqNo: **3384169**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	257.895	5.0	100.0	161.1	96.8	75	125				

Sample ID: **N035484-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **133860**
Client ID: **ZZZZZZ**	Batch ID: **R133860**	TestNo: **SM 2320 B**		Analysis Date: **5/13/2019**	SeqNo: **3384170**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	254.737	5.0	100.0	161.1	93.7	75	125	257.9	1.23	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035484
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035484-001

Client Sample ID: PE-01-0519
Collection Date: 5/9/2019 12:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190510B** QC Batch: **R133848**				PrepDate:			Analyst: **RAB**
Chloride	550	0.91	50		mg/L	100	5/10/2019 07:27 PM
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190510B** QC Batch: **R133848**				PrepDate:			Analyst: **RAB**
Sulfate	270	1.1	25		mg/L	50	5/10/2019 07:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190510B** QC Batch: **R133848**				PrepDate:			Analyst: **RAB**
Chloride	2100	4.6	250		mg/L	500	5/10/2019 08:27 PM
ANIONS BY ION CHROMATOGRAPHY				**EPA 300.0**			
RunID: **NV00922-IC8_190510B** QC Batch: **R133848**				PrepDate:			Analyst: **RAB**
Sulfate	490	1.1	25		mg/L	50	5/10/2019 09:41 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID: **LCS-R133848_CL**	SampType: **LCS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **LCSW**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383594**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.076	0.50	2.000	0	104	90	110				

Sample ID: **MB-R133848_CL**	SampType: **MBLK**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **PBW**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID: **N035484-001CDUP**	SampType: **DUP**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **ZZZZZZ**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	553.110	50						554.4	0.228	20	

Sample ID: **N035484-002CMS**	SampType: **MS**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **ZZZZZZ**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383599**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3145.200	250	1000	2126	102	80	120				

Sample ID: **N035484-002CMSD**	SampType: **MSD**	TestCode: **300_W_CLPG**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **ZZZZZZ**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383600**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3157.100	250	1000	2126	103	80	120	3145	0.378	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID: **LCS-R133848_SO4** SampType: **LCS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133848**
Client ID: **LCSW** Batch ID: **R133848** TestNo: **EPA 300.0** Analysis Date: **5/10/2019** SeqNo: **3383609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.042	0.50	4.000	0	101	90	110				

Sample ID: **MB-R133848_SO4** SampType: **MBLK** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133848**
Client ID: **PBW** Batch ID: **R133848** TestNo: **EPA 300.0** Analysis Date: **5/10/2019** SeqNo: **3383610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID: **N035484-001CDUP** SampType: **DUP** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133848**
Client ID: **ZZZZZZ** Batch ID: **R133848** TestNo: **EPA 300.0** Analysis Date: **5/10/2019** SeqNo: **3383612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	272.490	25						272.2	0.110	20	

Sample ID: **N035490-002BMS** SampType: **MS** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133848**
Client ID: **ZZZZZZ** Batch ID: **R133848** TestNo: **EPA 300.0** Analysis Date: **5/10/2019** SeqNo: **3383617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	698.710	25	200.0	495.6	102	80	120				

Sample ID: **N035490-002BMSD** SampType: **MSD** TestCode: **300_W_SO4P** Units: **mg/L** Prep Date: RunNo: **133848**
Client ID: **ZZZZZZ** Batch ID: **R133848** TestNo: **EPA 300.0** Analysis Date: **5/10/2019** SeqNo: **3383618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	698.615	25	200.0	495.6	102	80	120	698.7	0.0136	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 12:05:00 PM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190515E**	QC Batch: **R133920**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/15/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0519
Lab Order:	N035484	**Collection Date:**	5/9/2019 11:55:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035484-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190515E**	QC Batch: **R133920**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	2.7	0.16	0.25		mg/L	5	5/15/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R133920**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **PBW**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R133920**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **LCSW**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.519	0.050	0.5000	0	104	85	115				

Sample ID: **N035484-002DDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **ZZZZZZ**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.580	0.25						2.668	3.37	20	

Sample ID: **N035490-002DMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **ZZZZZZ**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.246	0.25	2.500	2.658	104	75	125				

Sample ID: **N035490-002DMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **ZZZZZZ**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.019	0.25	2.500	2.658	94.4	75	125	5.246	4.43	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III ✓; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: Y / N
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Andrew Pham	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: Field Tech		Global ID:	Specify State:
Signature: Date: 05/09/19	Sampled By: Andrew Pham		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - PMP	Signature: Date: 05/09/19		
Project Number: RC000753.801D			

Sample Receipt Condition:
1. Chilled: Y ✗
2. Headspace:
3. Container Intact: ✗
4. Seal Present:
5. IR number: 2
6. Method of Cooling: ICE

Sample Temp: 2.3 °C

Courier: ASSET
Tracking No.:

Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2; SO4, NH4, OH (250 mL poly)		Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly)	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, (1 L poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (1 L poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)									Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035484-01	PE-01-0519	05/09/19	1205		X		X	X			X	X	X	X	X		X									E	4	P	BN	
2	-02	TW-03D-0519	05/09/19	1155		X		X	X			X	X	X	X	X		X									E	4	P	BN	
3																															
4																															
5																															
6																															
7																															
8																															
9																															
10																															

Relinquished by (Signature and Printed Name):	Date/Time:	Recieved by (Signature and Printed Name):	Date/Time:
Andrew Pham	05/09/19 1255	SEAN McGRANE	5/9/19 1255
SEAN McGRANE	5/9/19 1620	MBCARTHIN	5/9/19 @1620
MBCARTHIN	5/9/19 @1849	MBCARTHIN	5/9/19 @1849

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		
Others/Specify:	B	(NH4)2SO4/NH4OH		

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/9/2019	Workorder:	N035484
Rep sample Temp (Deg C):	2.3	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Sample forpH was past holding time upon receipt.

For:

Checklist Completed By: MBC YRJ 5/10/2019

Reviewed By: LG 051819

ASSET Laboratories

WORK ORDER Summary

10-May-19

WorkOrder: N035484

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/9/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035484-001A	PE-01-0519	5/9/2019 12:05:00 PM	5/23/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035484-001B			5/23/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/23/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			5/23/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/23/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			5/23/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035484-001C			5/23/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			5/23/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			5/23/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			5/23/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			5/23/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			5/23/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/23/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/23/2019		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	LSR
N035484-001D			5/23/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035484-002A	TW-03D-0519	5/9/2019 11:55:00 AM	5/23/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035484-002B			5/23/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/23/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			5/23/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/23/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			5/23/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035484-002C			5/23/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

10-May-19

WorkOrder: N035484

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/9/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035484-002C	TW-03D-0519	5/9/2019 11:55:00 AM	5/23/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	LSR
			5/23/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	LSR
			5/23/2019			Total Dissolved Solids Prep	☐	☐	☐	LSR
			5/23/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	LSR
			5/23/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/23/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	LSR
			5/23/2019		SM 1030F1	Cation-Anion Balance Calculation	☐	☐	☐	LSR
N035484-002D			5/23/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035484-003A	FOLDER	5/23/2019	5/23/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/23/2019		Folder	Folder	☐	☐	☐	LAB
			5/23/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035484

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 200.7_Dissolved, EPA 200.8_Dissolved
Ria Abes	EPA 218.6, EPA 300.0
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540C, SM 2320 B

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133819 **Analyst:** LSR

ASSET #: N035484 **Date Analyzed:** 10-May

Method: EPA 120.1

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 5/13/2019

2nd Level Reviewer: 5/23/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 5/9/19 1100
Analyst: HSR

	Standard	Std ID	Reading	Comments
	11.26 us/cm	CNW-181011A	11.40 @20.6°C	% Rec: (90-110%)
	1410 |	| 190107D	1403 @20.6°C	
	9965 |	| 190218B	9900 @20.6°C	
	100390 ↓	↓ 190218C	101000 @20.8°C	

	Sample ID	Matrix	Reading	Comments
1	ND35462-2B	H2O	7110 @18.4°C	
2	↓ 2BDUP	↓	7120 @18.4°C	
3				
4				
5				
6				
7				
8	1413 us/cm	CNW-190313A	1429 @20.4°C	
9	10000 |	| 181022B	9560 @20.1°C	
10	99922 ↓	↓ 190111H	94900 @20.3°C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 5/10/19 1020
Analyst: HSR

Julia Ramit 5/13/2019

	Standard	Std ID	Reading	Comments
	11.26 us/cm	CNW-181011A	1121 @ 18.8°C	% Rec: (90-110%)
	1410 |	| 190107D	1413 @19.1°C	
	9965 |	| 190218B	10010 @19.1°C	
	100390 ↓	↓ 190218C	102300 @19.1°C	

	Sample ID	Matrix	Reading	Comments
1	ND35484-1C	H2O	2370 @18.2°C	
2	↓ 2C	↓	7110 @17.8°C	
3	ND35490-1A		7090 @17.4°C	
4	↓ 2B		7140 @17.6°C	
5	↓ 2BDUP		7110 @17.4°C	
6				
7				
8				
9	1413 us/cm	CNW-190313A	1447 @18.5°C	
10	10006 |	| 181022B	10010 @18.8°C	
Dup	99922 ↓	↓ 190111H	100900 @19.1°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133817 **Instrument ID:** pH meter

ASSET #: N035484 **Analyst:** LSR

Date Analyzed: 10-May

Method: EPA 150.1 / SM 4500 H+B

pH Meter Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?			X			
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Silvia Ramit Date: 5/13/2019

2nd Level Reviewer 5/23/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 5/10/19 845
Analyst: LR

Standard	Std ID	pH	Comments
Buffer 7	GNV-190107A	6.97 @25°C	
Buffer 4	1 B	4.01 @25°C	
Buffer 10	GNV-190111G	10.02 @25°C	
Slope		96.3%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	N035488 - 1A	Soil	9.30 @25C	
2	1 1ADUP	1	9.25 @25C	
3	N035489-1A	1	8.91 @25C	
4				
5				
6				
7				
8				
9				
10				Accept: 10% water, 20% soil
Dup				
	Buffer 7, 4, 10 (Circle one)	GNV-190218A	6.99 @25°C	Accept: +/-0.05 pH units from expected value

Date: 5/10/19 1035
Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	GNV-190107A	6.97 @25C	
Buffer 4	1 190107B	4.01 @25C	
Buffer 10	1 190111G	10.02 @25C	
Slope		96.3%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	N035484-1C	H2O	7.53 @25C	
2	1 1CDUP	1	7.57 @25C	
3	1 2C	1	7.22 @25C	
4				
5				
6				
7			Julia Ramit	5/13/2019
8				
9				
10				Accept: 10% water, 20% soil
Dup				
	Buffer 7, 4, 10 (Circle one)	GNV-190218A	7.00 @25C	Accept: +/-0.05 pH units from expected value

Logbook #15

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73830 **Analyst:** LSR

ASSET #: N035484 **Date Analyzed:** 13-May

Method: EPA 160.1 / SM 2540C

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 5/28/2019

2nd Level Reviewer: 5/28/2019 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N035484-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(53.8563- 53.7653)*1000000}{60}$$
$$= 1516.6667 \text{ mg/L}$$

Reporting result in two significant figures,

TDS= 1500 mg/L

Divia Ramit 5/28/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/13/2019 1:02:16 P**
Prep End Date: **5/14/2019 10:20:00**
Reviewed/ Date: 5/28/2019
Initials/ Date: Lilia Ramit 5/28/2019
Prep Batch **73830** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73830	Water		100	☐	0	0	100	1.000		
MB-73830	Water		100	☐	0	0	100	1.000		
N035484-001C	Groundwater		60	☐	0	0	100	1.667		
N035484-002C	Groundwater		20	☐	0	0	100	5.000		
N035484-002C-DU	Groundwater		20	☐	0	0	100	5.000		
N035485-007D	Groundwater		100	☐	0	0	100	1.000		
N035486-001C	Groundwater		100	☐	0	0	100	1.000		
N035486-002C	Groundwater		100	☐	0	0	100	1.000		
N035486-003C	Groundwater		100	☐	0	0	100	1.000		
N035486-004C	Groundwater		100	☐	0	0	100	1.000		
N035490-001A	Water		20	☐	0	0	100	5.000		
N035490-002B	Water		20	☐	0	0	100	5.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10408	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190508A	1000 ppm NaCl	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/13/2019 1:02:16 P**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 5/28/2019

Prep Batch **73830** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73830	Water IWST 19050879		100	☐	0	0	100	1.000		
MB-73830	Water		100	☐	0	0	100	1.000		
N035484-001C	Groundwater	2370	100 | 60	☐	0	0	100	1.000		
N035484-002C	Groundwater	7110	100 | 20	☐	0	0	100	1.000		
N035484-002C-DU	Groundwater	I	100 | 20	☐	0	0	100	1.000		
N035485-007D	Groundwater	1151	100	☐	0	0	100	1.000		
N035486-001C	Groundwater	1286	100	☐	0	0	100	1.000		
N035486-002C	Groundwater	1163	100	☐	0	0	100	1.000		
N035486-003C	Groundwater	1229	100	☐	0	0	100	1.000		
N035486-004C	Groundwater	1222	100	☐	0	0	100	1.000		
N035490-001A	Water	7090	100 | 20	☐	0	0	100	1.000		
N035490-002B	Water	7140	100 | 20	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10508

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
5/13/19 1302 KK	MB 73830	100	70.4064 70.4062	70.4062 70.4063	
CC	LCS 73830	100	69.7332 69.7332	69.8311 69.8311	
DD	MB35484-1C	60	53.7655 53.7653	53.8566 53.8563	
R	2C	20	48.1094 48.1097	48.1945 48.1947	
N	2C DUP	20	49.9509 49.9510	50.0370 50.0366	1
GG	MB35485-7D	100	67.7593 67.7589	67.8332 67.8330	
IA	MB35486-1C	100	76.4316 76.4318	76.5145 76.5143	
HH	2C	100	69.7920 69.7923	69.8671 69.8670	
LL	3C	100	76.2833 76.2837	76.3599 76.3601	
EE	4C	100	68.0754 68.0751	68.1509 68.1508	

Julia Ramit 5/28/2019

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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
5/13/19	NO25490-1A	20	49.2215	49.3080	
g			49.2211	49.3084	
	2B	20	46.0639	46.1469	
T			46.0636	46.1471	
					1
	Julia Ramit 5/28/2019				
	49.9995	C	1020	5/14/19 cm	

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3151 W. Post Rd., Las Vegas, NV 89118
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ORELAP/NELAP Cert 4046

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
5/14/2019									
MB-73830	100	70.4062	70.4063	1	1	1			MBLK
LCS-73830	100	69.7332	69.8311	979	1	979			LCS
N035484-001C	60	53.7653	53.8563	910	1.66666667	1516.66667	2370	0.640	SAMP
N035484-002C	20	48.1097	48.1947	850	5	4250	7110	0.598	SAMP
N035484-002CDUP	20	49.951	50.0366	856	5	4280	7110	0.602	DUP
N035485-007D	100	67.7589	67.833	741	1	741	1151	0.644	SAMP
N035486-001C	100	76.4318	76.5143	825	1	825	1286	0.642	SAMP
N035486-002C	100	69.7923	69.867	747	1	747	1163	0.642	SAMP
N035486-003C	100	76.2837	76.3601	764	1	764	1229	0.622	SAMP
N035486-004C	100	68.0751	68.1508	757	1	757	1222	0.619	SAMP
N035490-001A	20	49.2211	49.3084	873	5	4365	7090	0.616	SAMP
N035490-002B	20	46.0636	46.1471	835	5	4175	7140	0.585	SAMP

Silica Ramit 5/28/2019

EPA 200.7
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73817
ASSET #: N035484
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 5/11/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Ca in N035484-001B MS/MSD failed, low bias. However, LCS passed criteria.
% Rec of Fe in N035484-001B MSD failed, low bias. However, LCS passed criteria.
Dilution test for Fe failed. However, PS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 5/28/2019

2nd Level Reviewer NS Date: 5/28/2019

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73817
ASSET #: N035484
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 5/16/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X		X	~~X~~	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments: Na run
~~% RSD of Na in several IQCs failed. However, % Rec passed criteria.~~
% Rec of Na in N035484-002B PS/MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 5/28/2019
2nd Level Reviewer HSG Date: 5/28/2019

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Sodium concentration, in ug/L , in the original sample as follows:

Sodium , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N035484-001B** , the concentration ir ug/L is calculated as follows:

Sodium , ug/L = 7.54014 * 25 *(25/25) * 1000

Sodium , ug/L = 188503.5

Reporting results in two significant figures,

Sodium , ug/L = 190000

NS 5/28/2019

% RSD SUMMARY

RSD SUMMARY: 190511A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Ca	0	14.62	15	PASS
Standard1	ICAL	1	Ca	0.2	15.97	15	<PQL
Standard2	ICAL	1	Ca	1	3.36	15	PASS
Standard3	ICAL	1	Ca	2	0.6	15	PASS
Standard4	ICAL	1	Ca	5	0.65	15	PASS
Standard5	ICAL	1	Ca	7.5	0.58	15	PASS
Standard6	ICAL	1	Ca	10	0.56	15	PASS
Standard7	ICAL	1	Ca	20	0.97	15	PASS
ICV	ICV	1	Ca	10.039	0.3	15	PASS
ICB	ICB	1	Ca	-0.018	97.81	15	<PQL
LLICV	CCV1	1	Ca	0.2	13.38	20	PASS
ICSA1	ICSA	1	Ca	465.46	0.085	15	PASS
ICSAB1	ICSAB	1	Ca	546.82	0.1	15	PASS
CCV1	CCV	1	Ca	10.071	1.11	15	PASS
CCB1	CCB	1	Ca	0.0056	595.64	15	<PQL
CCV2	CCV	1	Ca	10.38	0.14	15	PASS
CCB2	CCB	1	Ca	0.045	108.91	15	<PQL
CCV3	CCV	1	Ca	10.31	0.7	15	PASS
CCB3	CCB	1	Ca	0.055	15.35	15	<PQL
CCV4	CCV	1	Ca	10.31	0.15	15	PASS
CCB4	CCB	1	Ca	0.047	13.85	15	PASS
CCB4	CCB	1	Ca	0.082	37.64	15	<PQL
CCV5	CCV	1	Ca	10.46	0.21	15	PASS
CCB5	CCB	1	Ca	0.047	81.99	15	<PQL
CCB5	CCB	1	Ca	0.03	156.93	15	<PQL
ICSA2	ICSA	1	Ca	478.21	0.033	15	PASS
ICSAB2	ICSAB	1	Ca	574.23	0.64	15	PASS
CCV6	CCV	1	Ca	10.46	0.83	15	PASS
CCB6	CCB	1	Ca	0.052	69.63	15	<PQL
MB-73817	MBLK	1	Ca	0.054	48.24	15	<PQL
LCS1-73817	LCS	1	Ca	5.35	0.062	15	PASS
N035484-001B	SAMP	1	Ca	106.89	0.17	15	PASS
N035484-001B	SAMP	5	Ca	22.077	1.021	15	PASS
CCV7	CCV	1	Ca	10.45	0.47	15	PASS
CCB7	CCB	1	Ca	0.034	27.71	15	<PQL
N035484-001B-PS	PS	1	Ca	111.04	0.58	15	PASS
N035484-001B-MS1	MS	1	Ca	109.95	0.47	15	PASS
N035484-001B-MSD1	MSD	1	Ca	109.44	0.53	15	PASS
N035484-002B	SAMP	1	Ca	226.58	1.16	15	PASS
N035490-001C	SAMP	1	Ca	225.18	0.27	15	PASS
N035490-002E	SAMP	1	Ca	160.08	0.13	15	PASS
CCV8	CCV	1	Ca	10.24	0.25	15	PASS

RSD SUMMARY: 190511A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB8	CCB	1	Ca	0.014	212.0066	15	<PQL
ICSA3	ICSA	1	Ca	470.55	0.055	15	PASS
ICSAB3	ICSAB	1	Ca	553.9	0.028	15	PASS
CCV9	CCV	1	Ca	10.33	0.13	15	PASS
CCB9	CCB	1	Ca	0.047	31.58	15	<PQL
CCV10	CCV	1	Ca	10.3	0.24	15	PASS
CCB10	CCB	1	Ca	0.059	32.28	15	<PQL
CCV11	CCV	1	Ca	10.35	0.37	15	PASS
CCB11	CCB	1	Ca	0.034	39.045	15	<PQL
ICSA4	ICSA	1	Ca	473.49	0.12	15	PASS
ICSAB4	ICSAB	1	Ca	569.53	0.47	15	PASS
CCV12	CCV	1	Ca	10.39	0.21	15	PASS
CCB12	CCB	1	Ca	0.039	25.36	15	<PQL
ICSA5	ICSA	1	Ca	477.26	0.1	15	PASS
ICSAB5	ICSAB	1	Ca	561.44	0.12	15	PASS
CalBlk	IBLK	1	Fe	0	120.59	15	<PQL
Standard1	ICAL	1	Fe	0.02	4.54	15	PASS
Standard2	ICAL	1	Fe	0.05	0.53	15	PASS
Standard3	ICAL	1	Fe	2	0.32	15	PASS
Standard4	ICAL	1	Fe	5	0.45	15	PASS
Standard5	ICAL	1	Fe	7.5	0.31	15	PASS
Standard6	ICAL	1	Fe	10	0.41	15	PASS
Standard7	ICAL	1	Fe	20	0.14	15	PASS
ICV	ICV	1	Fe	10.3	0.5	15	PASS
ICB	ICB	1	Fe	0.0051	7.51	15	PASS
LLICV	CCV1	1	Fe	0.021	1.91	20	PASS
ICSA1	ICSA	1	Fe	177.23	0.9	15	PASS
ICSAB1	ICSAB	1	Fe	179.78	0.34	15	PASS
CCV1	CCV	1	Fe	10.008	0.16	15	PASS
CCB1	CCB	1	Fe	0.0064	29.0065	15	<PQL
CCV2	CCV	1	Fe	10.31	0.16	15	PASS
CCB2	CCB	1	Fe	0.0065	14.99	15	PASS
CCV3	CCV	1	Fe	10.14	0.4	15	PASS
CCB3	CCB	1	Fe	0.0066	4.68	15	PASS
CCV4	CCV	1	Fe	10.19	0.23	15	PASS
CCB4	CCB	1	Fe	0.0061	7.6	15	PASS
CCB4	CCB	1	Fe	0.0065	7.44	15	PASS
CCV5	CCV	1	Fe	10.16	0.083	15	PASS
CCB5	CCB	1	Fe	0.0023	9.63	15	PASS
CCB5	CCB	1	Fe	0.002	15.097	15	<PQL
ICSA2	ICSA	1	Fe	171.75	0.32	15	PASS
ICSAB2	ICSAB	1	Fe	180.24	0.17	15	PASS

RSD SUMMARY: 190511A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCV6	CCV	1	Fe	10.15	0.45	15	PASS
CCB6	CCB	1	Fe	0.0031	20.84	15	<PQL
MB-73817	MBLK	1	Fe	-0.0051	20.49	15	<PQL
LCS1-73817	LCS	1	Fe	0.1	0.6	15	PASS
N035484-001B	SAMP	1	Fe	1.2	0.3	15	PASS
N035484-001B	SAMP	5	Fe	0.27	0.8	15	PASS
CCV7	CCV	1	Fe	10.2	0.49	15	PASS
CCB7	CCB	1	Fe	-0.0023	81.66	15	<PQL
N035484-001B-PS	PS	1	Fe	1.29	0.74	15	PASS
N035484-001B-MS1	MS	1	Fe	1.27	0.35	15	PASS
N035484-001B-MSD1	MSD	1	Fe	1.27	0.22	15	PASS
N035484-002B	SAMP	1	Fe	-0.004	12.86	15	PASS
N035490-001C	SAMP	1	Fe	-0.0061	10.32	15	PASS
N035490-002E	SAMP	1	Fe	0.0037	29.25	15	<PQL
CCV8	CCV	1	Fe	10.24	0.34	15	PASS
CCB8	CCB	1	Fe	-0.0031	21.16	15	<PQL
ICSA3	ICSA	1	Fe	173.73	0.081	15	PASS
ICSAB3	ICSAB	1	Fe	177.28	0.31	15	PASS
CCV9	CCV	1	Fe	10.14	0.43	15	PASS
CCB9	CCB	1	Fe	-0.0037	7.57	15	PASS
CCV10	CCV	1	Fe	10.16	0.38	15	PASS
CCB10	CCB	1	Fe	-0.0044	16.74	15	<PQL
CCV11	CCV	1	Fe	10.076	0.28	15	PASS
CCB11	CCB	1	Fe	-0.0042	10.55	15	PASS
ICSA4	ICSA	1	Fe	170.46	0.12	15	PASS
ICSAB4	ICSAB	1	Fe	178.76	0.18	15	PASS
CCV12	CCV	1	Fe	10.13	0.28	15	PASS
CCB12	CCB	1	Fe	-0.0038	2.67	15	PASS
ICSA5	ICSA	1	Fe	170.34	0.32	15	PASS
ICSAB5	ICSAB	1	Fe	173.98	0.62	15	PASS
CalBlk	IBLK	1	Mg	0	53.83	15	<PQL
Standard1	ICAL	1	Mg	0.1	0.36	15	PASS
Standard2	ICAL	1	Mg	1	0.15	15	PASS
Standard3	ICAL	1	Mg	2	0.28	15	PASS
Standard4	ICAL	1	Mg	5	0.53	15	PASS
Standard5	ICAL	1	Mg	7.5	0.19	15	PASS
Standard6	ICAL	1	Mg	10	0.48	15	PASS
Standard7	ICAL	1	Mg	20	0.39	15	PASS
ICV	ICV	1	Mg	10.21	0.45	15	PASS
ICB	ICB	1	Mg	0.0065	11.087	15	PASS
LLICV	CCV1	1	Mg	0.096	0.65	20	PASS
ICSA1	ICSA	1	Mg	430.3	0.92	15	PASS

RSD SUMMARY: 190511A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
ICSAB1	ICSAB	1	Mg	503.3	0.39	15	PASS
CCV1	CCV	1	Mg	9.74	0.21	15	PASS
CCB1	CCB	1	Mg	0.0099	42.33	15	<PQL
CCV2	CCV	1	Mg	9.98	0.2	15	PASS
CCB2	CCB	1	Mg	0.0094	20.94	15	<PQL
CCV3	CCV	1	Mg	9.64	0.38	15	PASS
CCB3	CCB	1	Mg	0.01	13.075	15	PASS
CCV4	CCV	1	Mg	9.59	0.17	15	PASS
CCB4	CCB	1	Mg	0.01	4.67	15	PASS
CCB4	CCB	1	Mg	0.011	8.44	15	PASS
CCV5	CCV	1	Mg	9.61	0.18	15	PASS
CCB5	CCB	1	Mg	0.0044	7.24	15	PASS
CCB5	CCB	1	Mg	0.0048	12.64	15	PASS
ICSA2	ICSA	1	Mg	406.4	0.33	15	PASS
ICSAB2	ICSAB	1	Mg	498.09	0.22	15	PASS
CCV6	CCV	1	Mg	9.65	0.4	15	PASS
CCB6	CCB	1	Mg	0.008	20.2	15	<PQL
MB-73817	MBLK	1	Mg	-0.0042	2.36	15	PASS
LCS1-73817	LCS	1	Mg	5.072	0.23	15	PASS
N035484-001B	SAMP	1	Mg	24.67	0.071	15	PASS
N035484-001B	SAMP	5	Mg	5.27	0.62	15	PASS
CCV7	CCV	1	Mg	9.64	0.4	15	PASS
CCB7	CCB	1	Mg	-0.0034	62.86	15	<PQL
N035484-001B-PS	PS	1	Mg	28.81	0.24	15	PASS
N035484-001B-MS1	MS	1	Mg	28.62	0.3	15	PASS
N035484-001B-MSD1	MSD	1	Mg	28.57	0.24	15	PASS
N035484-002B	SAMP	1	Mg	25.063	0.48	15	PASS
N035490-001C	SAMP	1	Mg	25.46	1.057	15	PASS
N035490-002E	SAMP	1	Mg	25.069	0.85	15	PASS
CCV8	CCV	1	Mg	9.61	0.15	15	PASS
CCB8	CCB	1	Mg	-0.0042	16.068	15	<PQL
ICSA3	ICSA	1	Mg	406.22	0.16	15	PASS
ICSAB3	ICSAB	1	Mg	480	0.26	15	PASS
CCV9	CCV	1	Mg	9.55	0.47	15	PASS
CCB9	CCB	1	Mg	-0.0053	15.56	15	<PQL
CCV10	CCV	1	Mg	9.64	0.39	15	PASS
CCB10	CCB	1	Mg	-0.0048	3.29	15	PASS
CCV11	CCV	1	Mg	9.54	0.3	15	PASS
CCB11	CCB	1	Mg	-0.0056	2.2	15	PASS
ICSA4	ICSA	1	Mg	403.37	0.12	15	PASS
ICSAB4	ICSAB	1	Mg	493.13	0.21	15	PASS
CCV12	CCV	1	Mg	9.59	0.23	15	PASS

RSD SUMMARY: 190511A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB12	CCB	1	Mg	-0.0028	77.98	15	<PQL
ICSA5	ICSA	1	Mg	403.06	0.29	15	PASS
ICSAB5	ICSAB	1	Mg	475.91	0.64	15	PASS

RSD SUMMARY: 190516A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment	
CalBlk	IBLK	1	Na	0	152.48	15	<PQL	
Standard1	ICAL	1	Na	0.1	7.18	15	PASS	
Standard2	ICAL	1	Na	1	0.49	15	PASS	
Standard3	ICAL	1	Na	5	0.13	15	PASS	
Standard4	ICAL	1	Na	10	0.42	15	PASS	
Standard5	ICAL	1	Na	20	0.13	15	PASS	
Standard6	ICAL	1	Na	40	0.17	15	PASS	
ICV	ICV	1	Na	10	0.18	15	PASS	
ICB	ICB	1	Na	0.0044	84.35	15	~~NR!~~	<PQL
LLICV	CCV	1	Na	0.12	5.71	20	PASS	
LLICV	CCV	1	Na	0.11	6.18	20	PASS	
ICSA1	ICSA	1	Na	-0.0093	20.65	15	<PQL	
ICSAB1	ICSAB	1	Na	9.97	0.26	15	PASS	
CCV1	CCV	1	Na	10.15	0.13	15	PASS	
CCB1	CCB	1	Na	0.019	24.83	15	~~NR!~~	<PQL
CCV2	CCV	1	Na	10.13	0.096	15	PASS	
CCB2	CCB	1	Na	0.011	26.39	15	~~NR!~~	<PQL
CCV3	CCV	1	Na	10.066	0.26	15	PASS	
CCB3	CCB	1	Na	0.012	18.61	15	~~NR!~~	<PQL
ICSA2	ICSA	1	Na	0.048	16.42	15	~~NR!~~	<PQL
ICSAB2	ICSAB	1	Na	9.85	0.12	15	PASS	
CCV4	CCV	1	Na	9.96	0.15	15	PASS	
CCB4	CCB	1	Na	0.0072	48.88	15	~~NR!~~	<PQL
CCV5	CCV	1	Na	10.074	0.32	15	PASS	
CCB5	CCB	1	Na	-0.0022	135.23	15	<PQL	
MB-73817	MBLK	1	Na	-0.018	4.23	15	PASS	
LCS2-73817	LCS	1	Na	21.47	0.13	15	PASS	
N035484-001B	SAMP	5	Na	37.9	0.18	15	PASS	
N035484-002B	SAMP	5	Na	318.26	0.21	15	PASS	
N035484-001B	SAMP	25	Na	7.54	0.088	15	PASS	
N035484-002B	SAMP	50	Na	32.095	0.1	15	PASS	
N035484-002B	SAMP	250	Na	6.39	0.19	15	PASS	
N035484-002B-PS	PS	50	Na	30.98	0.18	15	PASS	
N035484-002B-MS2	MS	50	Na	32.07	0.22	15	PASS	
CCV6	CCV	1	Na	10.29	0.22	15	PASS	
CCB6	CCB	1	Na	-0.0042	197.28	15	<PQL	
N035484-002B-MSD2	MSD	50	Na	32.045	0.14	15	PASS	
CCV7	CCV	1	Na	10.29	0.17	15	PASS	
CCB7	CCB	1	Na	0.0031	133.43	15	~~NR!~~	<PQL
ICSA3	ICSA	1	Na	0.041	8.34	15	PASS	
ICSAB3	ICSAB	1	Na	10.27	0.47	15	PASS	
CCV8	CCV	1	Na	10.36	0.2	15	PASS	

RSD SUMMARY: 190516A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB8	CCB	1	Na	-0.0043	185.82	15	<PQL
CCV9	CCV	1	Na	10.41	0.062	15	PASS
CCB9	CCB	1	Na	-0.003	79.9	15	<PQL
ICSA4	ICSA	1	Na	0.041	6.86	15	PASS
ICSAB4	ICSAB	1	Na	10.42	0.14	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190511A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	05/11/2019	06:11:54 AM
2	Standard1	ICAL	1	05/11/2019	06:17:44 AM
3	Standard2	ICAL	1	05/11/2019	06:23:59 AM
4	Standard3	ICAL	1	05/11/2019	06:30:15 AM
5	Standard4	ICAL	1	05/11/2019	06:36:32 AM
6	Standard5	ICAL	1	05/11/2019	06:44:50 AM
7	Standard6	ICAL	1	05/11/2019	06:53:14 AM
8	Standard7	ICAL	1	05/11/2019	07:01:35 AM
250	ICV	ICV	1	05/11/2019	07:07:32 AM
1	ICB	ICB	1	05/11/2019	07:26:20 AM
2	LLICV	CCV1	1	05/11/2019	07:32:06 AM
9	ICSA1	ICSA	1	05/11/2019	07:38:23 AM
10	ICSAB1	ICSAB	1	05/11/2019	07:46:55 AM
71	MB-73606	MBLK	1	05/11/2019	07:55:29 AM
72	LCS1-73606	LCS	1	05/11/2019	08:01:16 AM
72	LCS1-73606	LCS	1	05/11/2019	08:08:53 AM
73	N035249-001A	SAMP	1	05/11/2019	08:17:11 AM
76	N035249-001A	SAMP	5	05/11/2019	08:25:29 AM
77	N035249-001A-PS	PS	1	05/11/2019	08:31:48 AM
78	N035249-001A-MS1	MS	1	05/11/2019	08:40:06 AM
79	N035249-001A-MSD1	MSD	1	05/11/2019	08:48:24 AM
75	N035249-002A	SAMP	5	05/11/2019	08:56:43 AM
80	N035249-003A	SAMP	5	05/11/2019	09:05:01 AM
7	CCV1	CCV	1	05/11/2019	09:13:57 AM
1	CCB1	CCB	1	05/11/2019	09:21:53 AM
81	N035249-004A	SAMP	5	05/11/2019	09:28:10 AM
82	N035249-005A	SAMP	1	05/11/2019	09:36:36 AM
83	N035249-006A	SAMP	1	05/11/2019	09:48:19 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
84	N035249-007A	SAMP	1	05/11/2019	09:53:44 AM
85	N035249-008A	SAMP	1	05/11/2019	10:02:07 AM
86	N035249-009A	SAMP	1	05/11/2019	10:10:27 AM
89	N035249-010A	SAMP	25	05/11/2019	10:18:19 AM
90	N035249-011A	SAMP	25	05/11/2019	10:26:37 AM
95	MB-73607	MBLK	1	05/11/2019	10:34:56 AM
96	LCS1-73607	LCS	1	05/11/2019	10:41:12 AM
7	CCV2	CCV	1	05/11/2019	10:49:30 AM
1	CCB2	CCB	1	05/11/2019	10:57:53 AM
97	N035276-001A	SAMP	5	05/11/2019	11:04:10 AM
100	N035276-001A	SAMP	25	05/11/2019	11:12:29 AM
101	N035276-001A-PS	PS	5	05/11/2019	11:20:48 AM
102	N035276-001A-MS1	MS	5	05/11/2019	11:29:06 AM
103	N035276-001A-MSD1	MSD	5	05/11/2019	11:37:24 AM
99	N035276-002A	SAMP	25	05/11/2019	11:45:43 AM
104	N035276-003A	SAMP	5	05/11/2019	11:54:01 AM
105	N035276-004A	SAMP	5	05/11/2019	12:02:21 PM
106	N035276-005A	SAMP	25	05/11/2019	12:10:49 PM
83	N035276-006A	SAMP	1	05/11/2019	12:19:10 PM
7	CCV3	CCV	1	05/11/2019	12:27:36 PM
1	CCB3	CCB	1	05/11/2019	12:35:57 PM
108	N035276-007A	SAMP	5	05/11/2019	12:42:11 PM
109	N035276-008A	SAMP	25	05/11/2019	12:50:33 PM
110	N035276-009A	SAMP	25	05/11/2019	12:58:55 PM
111	N035276-010A	SAMP	5	05/11/2019	01:07:14 PM
112	N035276-011A	SAMP	25	05/11/2019	01:15:32 PM
113	N035249-005A	SAMP	5	05/11/2019	01:23:52 PM
114	N035249-006A	SAMP	5	05/11/2019	01:35:05 PM
115	N035249-007A	SAMP	5	05/11/2019	01:43:38 PM
116	N035249-008A	SAMP	5	05/11/2019	01:51:57 PM
117	N035249-009A	SAMP	5	05/11/2019	01:58:15 PM
7	CCV4	CCV	1	05/11/2019	02:06:34 PM
1	CCB4	CCB	1	05/11/2019	02:13:52 PM
1	CCB4	CCB	1	05/11/2019	02:19:50 PM
95	MB-73607	MBLK	1	05/11/2019	02:26:07 PM
107	N035276-006A	SAMP	1	05/11/2019	02:32:24 PM
118	N035276-006A	SAMP	5	05/11/2019	02:40:51 PM
119	N035276-007A	SAMP	25	05/11/2019	02:49:11 PM
120	N035276-008A	SAMP	125	05/11/2019	02:57:34 PM
121	N035276-007A	SAMP	125	05/11/2019	03:05:58 PM
122	N035276-007A	SAMP	25	05/11/2019	03:14:18 PM
7	CCV5	CCV	1	05/11/2019	03:22:37 PM
1	CCB5	CCB	1	05/11/2019	03:31:00 PM
1	CCB5	CCB	1	05/11/2019	03:44:09 PM
9	ICSA2	ICSA	1	05/11/2019	03:54:01 PM
10	ICSAB2	ICSAB	1	05/11/2019	04:02:33 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
131	MB-73712	MBLK	1	05/11/2019	04:25:54 PM
132	LCS-73712	LCS	1	05/11/2019	04:32:11 PM
133	N035356-001A	SAMP	1	05/11/2019	04:40:29 PM
134	N035356-001A	SAMP	5	05/11/2019	04:48:47 PM
135	N035356-001A-PS	PS	1	05/11/2019	04:55:04 PM
136	N035356-001A-MS1	MS	1	05/11/2019	05:03:21 PM
137	N035356-001A-MSD1	MSD	1	05/11/2019	05:11:38 PM
138	N035356-002A	SAMP	1	05/11/2019	05:19:57 PM
139	N035356-003A	SAMP	1	05/11/2019	05:28:16 PM
140	N035356-004A	SAMP	1	05/11/2019	05:36:36 PM
7	CCV6	CCV	1	05/11/2019	05:44:55 PM
1	CCB6	CCB	1	05/11/2019	05:58:08 PM
141	N035356-005A	SAMP	1	05/11/2019	06:04:23 PM
142	N035356-006A	SAMP	1	05/11/2019	06:12:45 PM
143	N035356-007A	SAMP	1	05/11/2019	06:21:06 PM
144	N035356-008A	SAMP	1	05/11/2019	06:29:25 PM
144	N035356-008A	SAMP	1	05/11/2019	06:37:42 PM
145	N035356-009A	SAMP	1	05/11/2019	06:46:01 PM
146	MB-73817	MBLK	1	05/11/2019	06:54:21 PM
147	LCS1-73817	LCS	1	05/11/2019	07:00:40 PM
148	N035484-001B	SAMP	1	05/11/2019	07:08:59 PM
149	N035484-001B	SAMP	5	05/11/2019	07:17:19 PM
7	CCV7	CCV	1	05/11/2019	07:23:37 PM
1	CCB7	CCB	1	05/11/2019	07:31:59 PM
150	N035484-001B-PS	PS	1	05/11/2019	07:38:14 PM
151	N035484-001B-MS1	MS	1	05/11/2019	07:46:36 PM
152	N035484-001B-MSD1	MSD	1	05/11/2019	07:54:56 PM
153	N035484-002B	SAMP	1	05/11/2019	08:03:16 PM
154	N035490-001C	SAMP	1	05/11/2019	08:11:36 PM
155	N035490-002E	SAMP	1	05/11/2019	08:19:55 PM
156	MB-73713	MBLK	1	05/11/2019	08:28:14 PM
157	LCS-73713	LCS	1	05/11/2019	08:34:03 PM
158	N035356-001B	SAMP	1	05/11/2019	08:42:22 PM
159	N035356-001B	SAMP	5	05/11/2019	08:50:41 PM
7	CCV8	CCV	1	05/11/2019	08:57:00 PM
1	CCB8	CCB	1	05/11/2019	09:05:23 PM
9	ICSA3	ICSA	1	05/11/2019	09:11:39 PM
10	ICSAB3	ICSAB	1	05/11/2019	09:20:12 PM
160	N035356-001B-PS	PS	1	05/11/2019	09:28:46 PM
161	N035356-001B-MS1	MS	1	05/11/2019	09:37:06 PM
162	N035356-001B-MSD1	MSD	1	05/11/2019	09:45:25 PM
163	N035356-002B	SAMP	1	05/11/2019	09:53:45 PM
164	N035356-003B	SAMP	1	05/11/2019	10:02:06 PM
165	N035356-004B	SAMP	1	05/11/2019	10:10:27 PM
166	N035356-005B	SAMP	1	05/11/2019	10:18:47 PM
167	N035356-006B	SAMP	1	05/11/2019	10:27:08 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
168	N035356-007B	SAMP	1	05/11/2019	10:35:29 PM
169	N035356-008B	SAMP	1	05/11/2019	10:43:48 PM
7	CCV9	CCV	1	05/11/2019	10:52:10 PM
1	CCB9	CCB	1	05/11/2019	11:00:33 PM
170	N035356-009B	SAMP	1	05/11/2019	11:06:49 PM
171	MB-73801	MBLK	1	05/11/2019	11:15:10 PM
172	LCS-73801	LCS	1	05/11/2019	11:21:29 PM
173	N035418-001B	SAMP	1	05/11/2019	11:29:50 PM
174	N035418-001B	SAMP	5	05/11/2019	11:38:11 PM
175	N035418-001B-PS	PS	1	05/11/2019	11:44:32 PM
176	N035418-001B-MS	MS	1	05/11/2019	11:52:53 PM
177	N035418-001B-MSD	MSD	1	05/12/2019	12:01:14 AM
178	N035457-001B	SAMP	1	05/12/2019	12:09:35 AM
179	N035457-002B	SAMP	1	05/12/2019	12:15:55 AM
7	CCV10	CCV	1	05/12/2019	12:24:17 AM
1	CCB10	CCB	1	05/12/2019	12:32:40 AM
180	N035457-004B	SAMP	1	05/12/2019	12:38:56 AM
181	N035457-005B	SAMP	1	05/12/2019	12:45:16 AM
182	N035458-002B	SAMP	1	05/12/2019	12:51:35 AM
183	N035458-003B	SAMP	1	05/12/2019	12:57:54 AM
184	N035485-001B	SAMP	1	05/12/2019	01:04:14 AM
185	N035485-002B	SAMP	1	05/12/2019	01:12:34 AM
186	N035485-003B	SAMP	1	05/12/2019	01:20:54 AM
187	N035485-004B	SAMP	1	05/12/2019	01:29:14 AM
188	N035485-005B	SAMP	1	05/12/2019	01:37:34 AM
189	N035485-006B	SAMP	1	05/12/2019	01:43:52 AM
7	CCV11	CCV	1	05/12/2019	01:50:12 AM
1	CCB11	CCB	1	05/12/2019	01:58:33 AM
9	ICSA4	ICSA	1	05/12/2019	02:04:48 AM
10	ICSAB4	ICSAB	1	05/12/2019	02:13:21 AM
190	N035485-007B	SAMP	1	05/12/2019	02:21:47 AM
191	N035485-008B	SAMP	1	05/12/2019	02:30:07 AM
192	N035486-001B	SAMP	1	05/12/2019	02:38:26 AM
193	N035486-002B	SAMP	1	05/12/2019	02:46:46 AM
194	N035486-003B	SAMP	1	05/12/2019	02:55:06 AM
195	N035486-004B	SAMP	1	05/12/2019	03:03:52 AM
7	CCV12	CCV	1	05/12/2019	03:12:12 AM
1	CCB12	CCB	1	05/12/2019	03:20:35 AM
9	ICSA5	ICSA	1	05/12/2019	03:26:51 AM
10	ICSAB5	ICSAB	1	05/12/2019	03:35:23 AM

INJECTION LOG: 190516A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401Y,0.025<50mL
Standard2	MWST-190401Y,0.25<50mL
Standard3	MWST-190401Y,1.25<50mL
Standard4	MWST-190401Y,2.5<50mL
Standard5	MWST-190401Y,5<50mL
Standard6	MWST-190401Y,10<50mL
ICV	MWST-190401Z
CCV	MWST-190401Y,2.5<50mL
ICSA/ICSAB	MWST-190401W/MWST-190401AA
Int. Std. (Sc):	MSST-190315B
PS Spike	MSST-140120B/ -180608B/A

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	05/16/2019	06:38:23 AM
11	Standard1	ICAL	1	05/16/2019	06:41:38 AM
12	Standard2	ICAL	1	05/16/2019	06:44:50 AM
13	Standard3	ICAL	1	05/16/2019	06:48:36 AM
14	Standard4	ICAL	1	05/16/2019	06:52:23 AM
15	Standard5	ICAL	1	05/16/2019	06:56:14 AM
16	Standard6	ICAL	1	05/16/2019	07:00:06 AM
17	ICV	ICV	1	05/16/2019	07:04:09 AM
1	ICB	ICB	1	05/16/2019	07:07:58 AM
11	LLICV	CCV	1	05/16/2019	07:13:58 AM
11	LLICV	CCV	1	05/16/2019	07:16:40 AM
18	ICSA1	ICSA	1	05/16/2019	07:19:55 AM
19	ICSAB1	ICSAB	1	05/16/2019	07:23:11 AM
23	MB-73712	MBLK	1	05/16/2019	07:27:01 AM
24	LCS2-73712	LCS	1	05/16/2019	07:30:14 AM
25	N035356-001A	SAMP	5	05/16/2019	07:34:13 AM
26	N035356-002A	SAMP	5	05/16/2019	07:38:57 AM
27	N035356-003A	SAMP	5	05/16/2019	07:43:43 AM
28	N035356-004A	SAMP	5	05/16/2019	07:48:28 AM
29	N035356-005A	SAMP	5	05/16/2019	07:53:15 AM
30	N035356-006A	SAMP	5	05/16/2019	07:58:01 AM
31	N035356-007A	SAMP	5	05/16/2019	08:02:46 AM
32	N035356-008A	SAMP	5	05/16/2019	08:07:32 AM
14	CCV1	CCV	1	05/16/2019	08:11:19 AM
1	CCB1	CCB	1	05/16/2019	08:15:10 AM
33	N035356-009A	SAMP	5	05/16/2019	08:18:25 AM
34	N035356-001A	SAMP	50	05/16/2019	08:23:12 AM
35	N035356-002A	SAMP	50	05/16/2019	08:26:28 AM
36	N035356-003A	SAMP	50	05/16/2019	08:29:43 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
37	N035356-004A	SAMP	50	05/16/2019	08:32:57 AM
38	N035356-005A	SAMP	50	05/16/2019	08:36:10 AM
39	N035356-006A	SAMP	50	05/16/2019	08:39:26 AM
40	N035356-007A	SAMP	50	05/16/2019	08:42:41 AM
41	N035356-008A	SAMP	50	05/16/2019	08:45:56 AM
42	N035356-009A	SAMP	50	05/16/2019	08:49:11 AM
14	CCV2	CCV	1	05/16/2019	08:52:26 AM
1	CCB2	CCB	1	05/16/2019	08:56:17 AM
43	N035356-002A	SAMP	25	05/16/2019	09:02:00 AM
44	N035356-002A-PS	PS	5	05/16/2019	09:05:16 AM
45	N035356-002A-MS2	MS	5	05/16/2019	09:10:04 AM
46	N035356-002A-MSD2	MSD	5	05/16/2019	09:14:56 AM
47	N035356-002A	SAMP	250	05/16/2019	09:19:47 AM
48	N035356-002A-PS	PS	50	05/16/2019	09:23:02 AM
49	N035356-002A-MS2	MS	50	05/16/2019	09:26:17 AM
50	N035356-002A-MSD2	MSD	50	05/16/2019	09:29:32 AM
14	CCV3	CCV	1	05/16/2019	09:32:48 AM
1	CCB3	CCB	1	05/16/2019	09:36:40 AM
18	ICSA2	ICSA	1	05/16/2019	09:39:54 AM
19	ICSAB2	ICSAB	1	05/16/2019	09:43:10 AM
71	MB-73823	MBLK	1	05/16/2019	09:51:33 AM
72	LCS2-73823	LCS	1	05/16/2019	09:54:48 AM
73	N035515-002A	SAMP	1	05/16/2019	09:58:48 AM
74	N035515-002A	SAMP	5	05/16/2019	10:02:02 AM
75	N035515-002A-PS	PS	1	05/16/2019	10:05:16 AM
76	N035515-002A-MS	MS	1	05/16/2019	10:09:16 AM
77	N035515-002A-MSD	MSD	1	05/16/2019	10:13:16 AM
71	MB-73810	MBLK	1	05/16/2019	10:18:32 AM
72	LCS-73810	LCS	1	05/16/2019	10:21:47 AM
73	N035515-001A	SAMP	1	05/16/2019	10:25:48 AM
14	CCV4	CCV	1	05/16/2019	10:29:03 AM
1	CCB4	CCB	1	05/16/2019	10:32:54 AM
74	N035515-001A	SAMP	5	05/16/2019	10:36:08 AM
75	N035515-001A-PS	PS	1	05/16/2019	10:39:25 AM
77	N035515-002A-MSD2	MSD	1	05/16/2019	10:46:20 AM
78	MB-73810	MBLK	1	05/16/2019	10:50:21 AM
79	LCS-73810	LCS	1	05/16/2019	10:53:36 AM
80	N035515-001A	SAMP	1	05/16/2019	10:57:27 AM
81	N035515-001A	SAMP	5	05/16/2019	11:01:16 AM
82	N035515-001A-PS	PS	1	05/16/2019	11:05:03 AM
83	N035515-001A-MS	MS	1	05/16/2019	11:08:56 AM
84	N035515-001A-MSD	MSD	1	05/16/2019	11:12:48 AM
14	CCV5	CCV	1	05/16/2019	11:16:40 AM
1	CCB5	CCB	1	05/16/2019	11:20:31 AM
85	N035488-001A	SAMP	1	05/16/2019	11:23:45 AM
86	MB-73817	MBLK	1	05/16/2019	11:27:33 AM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
87	LCS2-73817	LCS	1	05/16/2019	11:30:48 AM
88	N035484-001B	SAMP	5	05/16/2019	11:34:49 AM
89	N035484-002B	SAMP	5	05/16/2019	11:38:36 AM
90	N035484-001B	SAMP	25	05/16/2019	11:43:25 AM
91	N035484-002B	SAMP	50	05/16/2019	11:46:40 AM
92	N035484-002B	SAMP	250	05/16/2019	11:49:56 AM
93	N035484-002B-PS	PS	50	05/16/2019	11:53:12 AM
94	N035484-002B-MS2	MS	50	05/16/2019	11:57:00 AM
14	CCV6	CCV	1	05/16/2019	12:00:48 PM
1	CCB6	CCB	1	05/16/2019	12:04:39 PM
95	N035484-002B-MSD2	MSD	50	05/16/2019	12:07:54 PM
14	CCV7	CCV	1	05/16/2019	12:11:41 PM
1	CCB7	CCB	1	05/16/2019	12:15:32 PM
18	ICSA3	ICSA	1	05/16/2019	12:18:46 PM
19	ICSAB3	ICSAB	1	05/16/2019	12:22:03 PM
96	N035515-002A-PS	PS	1	05/16/2019	12:33:51 PM
97	N035515-002A-MS2	MS	1	05/16/2019	12:37:42 PM
98	N035515-002A-MSD2	MSD	1	05/16/2019	12:41:43 PM
99	MB-73846	MBLK	1	05/16/2019	12:45:34 PM
100	LCS-73846	LCS	1	05/16/2019	12:48:49 PM
101	N035545-001A	SAMP	10	05/16/2019	12:52:42 PM
101	N035533-001A	SAMP	100	05/16/2019	12:55:58 PM
102	N035545-001A	SAMP	10	05/16/2019	12:59:13 PM
103	N035533-001A	SAMP	10	05/16/2019	01:02:30 PM
14	CCV8	CCV	1	05/16/2019	01:06:18 PM
1	CCB8	CCB	1	05/16/2019	01:14:41 PM
104	N035533-001A	SAMP	50	05/16/2019	01:17:54 PM
105	N035533-001A-PS	PS	10	05/16/2019	01:21:39 PM
106	N035533-001A-MS	MS	10	05/16/2019	01:25:29 PM
107	N035533-001A-MSD	MSD	10	05/16/2019	01:29:19 PM
108	N035545-001A	SAMP	100	05/16/2019	01:33:08 PM
14	CCV9	CCV	1	05/16/2019	01:36:25 PM
1	CCB9	CCB	1	05/16/2019	01:40:16 PM
18	ICSA4	ICSA	1	05/16/2019	01:43:31 PM
19	ICSAB4	ICSAB	1	05/16/2019	01:46:47 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/11/2019 12:00:00**
Prep End Date: **5/11/2019 4:30:00 P**
Prep Batch **73817** Prep Code: **200.7_PR**

Reviewed/ Date: 5/28/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-73817	Aqueous		25	☐	0	0	25	1.000		
LCS2-73817	Aqueous		25	☐	0	0	25	1.000		
MB-73817	Aqueous		25	☐	0	0	25	1.000		
N035484-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035484-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035484-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035484-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035484-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035484-002B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035490-001C	Water	<2	25	☐	0	0	25	1.000		
N035490-002E	Water	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10760	HYDROCHLORIC ACID
10767	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MSST-140120B	Sodium	LCS,MS,MSD	0.05
MSST-180608A	Strontium	LCS,MS,MSD	0.125
MSST-180608B	Potassium	LCS,MS,MSD	0.05
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190511A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Magnesium								
CalBlk	05/11/2019	06:11:54 AM	Mg	279.079	127	0.00	mg/L	
Standard1	05/11/2019	06:17:44 AM	Mg	279.079	1199	0.1000	mg/L	
Standard2	05/11/2019	06:23:59 AM	Mg	279.079	12800	1.000	mg/L	
Standard3	05/11/2019	06:30:15 AM	Mg	279.079	25941	2.000	mg/L	
Standard4	05/11/2019	06:36:32 AM	Mg	279.079	64199	5.000	mg/L	
Standard5	05/11/2019	06:44:50 AM	Mg	279.079	96254	7.500	mg/L	
Standard6	05/11/2019	06:53:14 AM	Mg	279.079	128192	10.000	mg/L	
Standard7	05/11/2019	07:01:35 AM	Mg	279.079	244344	20.000	mg/L	0.9997
Calcium								
CalBlk	05/11/2019	06:11:54 AM	Ca	227.546	-77	0.00	mg/L	
Standard1	05/11/2019	06:17:44 AM	Ca	227.546	55	0.2000	mg/L	
Standard2	05/11/2019	06:23:59 AM	Ca	227.546	273	1.000	mg/L	
Standard3	05/11/2019	06:30:15 AM	Ca	227.546	572	2.000	mg/L	
Standard4	05/11/2019	06:36:32 AM	Ca	227.546	1425	5.000	mg/L	
Standard5	05/11/2019	06:44:50 AM	Ca	227.546	2161	7.500	mg/L	
Standard6	05/11/2019	06:53:14 AM	Ca	227.546	2879	10.000	mg/L	
Standard7	05/11/2019	07:01:35 AM	Ca	227.546	5698	20.000	mg/L	1.0000
Iron								
CalBlk	05/11/2019	06:11:54 AM	Fe	273.953	65	0.00	mg/L	
Standard1	05/11/2019	06:17:44 AM	Fe	273.953	431	0.0200	mg/L	
Standard2	05/11/2019	06:23:59 AM	Fe	273.953	1635	0.050	mg/L	
Standard3	05/11/2019	06:30:15 AM	Fe	273.953	50288	2.000	mg/L	
Standard4	05/11/2019	06:36:32 AM	Fe	273.953	124565	5.000	mg/L	
Standard5	05/11/2019	06:44:50 AM	Fe	273.953	188363	7.500	mg/L	
Standard6	05/11/2019	06:53:14 AM	Fe	273.953	252148	10.000	mg/L	
Standard7	05/11/2019	07:01:35 AM	Fe	273.953	479561	20.000	mg/L	0.9997

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190516A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Sodium								
CalBlk	05/16/2019	06:38:23 AM	Na	589.594	-7	0.00	mg/L	
Standard1	05/16/2019	06:41:38 AM	Na	589.594	393	0.1000	mg/L	
Standard2	05/16/2019	06:44:50 AM	Na	589.594	3302	1.000	mg/L	
Standard3	05/16/2019	06:48:36 AM	Na	589.594	15539	5.000	mg/L	
Standard4	05/16/2019	06:52:23 AM	Na	589.594	32340	10.000	mg/L	
Standard5	05/16/2019	06:56:14 AM	Na	589.594	61522	20.000	mg/L	
Standard6	05/16/2019	07:00:06 AM	Na	589.594	123821	40.000	mg/L	0.9999

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **ICV**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382160**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10039.487	500	10000	0	100	90	110				
Iron	10296.153	20	10000	0	103	90	110				
Magnesium	10211.149	100	10000	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **ZZZZZZ**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	197.624	500	200.0	0	98.8	80	120				
Iron	20.526	20	20.00	0	103	80	120				
Magnesium	95.597	100	100.0	0	95.6	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCV**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10070.643	500	10000	0	101	90	110				
Iron	10007.988	20	10000	0	100	90	110				
Magnesium	9738.087	100	10000	0	97.4	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCV**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10378.327	500	10000	0	104	90	110				
Iron	10312.000	20	10000	0	103	90	110				
Magnesium	9975.161	100	10000	0	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCV**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10306.905	500	10000	0	103	90	110				
Iron	10136.840	20	10000	0	101	90	110				
Magnesium	9637.939	100	10000	0	96.4	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCV**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10309.474	500	10000	0	103	90	110				
Iron	10190.793	20	10000	0	102	90	110				
Magnesium	9590.836	100	10000	0	95.9	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCV**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382221**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10462.751	500	10000	0	105	90	110				
Iron	10158.285	20	10000	0	102	90	110				
Magnesium	9610.174	100	10000	0	96.1	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCV**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10458.155	500	10000	0	105	90	110				
Iron	10153.202	20	10000	0	102	90	110				
Magnesium	9648.349	100	10000	0	96.5	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV7**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCV**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10453.084	500	10000	0	105	90	110				
Iron	10201.265	20	10000	0	102	90	110				
Magnesium	9641.226	100	10000	0	96.4	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCV**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382260**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	10241.935	500	10000	0	102	90	110				
Iron	10238.196	20	10000	0	102	90	110				
Magnesium	9610.865	100	10000	0	96.1	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ICV**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9998.148	500	10000	0	100	90	110				

Sample ID **LLICV**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCV**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387825**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	108.195	500	100.0	0	108	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCV**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10153.597	500	10000	0	102	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCV**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10130.004	500	10000	0	101	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCV**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10066.410	500	10000	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCV**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9963.501	500	10000	0	99.6	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCV**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387886**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10073.545	500	10000	0	101	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCV**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10287.696	500	10000	0	103	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCV**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10290.886	500	10000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **ICB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	-17.59698	500									
Iron	5.071	20									
Magnesium	6.483	100									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382176**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	5.625	500									
Iron	6.373	20									
Magnesium	9.916	100									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	45.443	500									
Iron	6.497	20									
Magnesium	9.453	100									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	54.779	500									
Iron	6.631	20									
Magnesium	10.241	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	82.247	500									
Iron	6.468	20									
Magnesium	10.583	100									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382223**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	30.496	500									
Iron	1.946	20									
Magnesium	4.759	100									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	51.544	500									
Iron	3.061	20									
Magnesium	8.051	100									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	34.237	500									
Iron	-2.267589	20									
Magnesium	-3.38257	100									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB8**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **CCB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	14.349	500									
Iron	-3.1047	20									
Magnesium	-4.197449	100									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ICB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	4.357	500									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	19.414	500									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	11.450	500									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	12.045	500									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	7.240	500									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387887**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-2.248781	500									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-4.178372	500									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **CCB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	3.103	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133835**
Client ID: **ICSA** Batch ID: **R133835** TestNo: **EPA 200.7** Analysis Date: **5/11/2019** SeqNo: **3382163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	458102.358	50	500000	0	91.6	80	120				
Calcium	465455.422	500	500000	0	93.1	80	120				
Iron	177225.821	20	200000	0	88.6	80	120				
Magnesium	430299.990	100	500000	0	86.1	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133835**
Client ID: **ICSAB** Batch ID: **R133835** TestNo: **EPA 200.7** Analysis Date: **5/11/2019** SeqNo: **3382164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	550779.530	50	500000	0	110	80	120				
Calcium	546820.768	500	500000	0	109	80	120				
Iron	179776.799	20	200000	0	89.9	80	120				
Magnesium	503303.336	100	500000	0	101	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133835**
Client ID: **ICSA** Batch ID: **R133835** TestNo: **EPA 200.7** Analysis Date: **5/11/2019** SeqNo: **3382224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	463129.078	50	500000	0	92.6	80	120				
Calcium	478205.933	500	500000	0	95.6	80	120				
Iron	171754.069	20	200000	0	85.9	80	120				
Magnesium	406401.307	100	500000	0	81.3	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **200.7_WDPG** Units: **µg/L** Prep Date: RunNo: **133835**
Client ID: **ICSAB** Batch ID: **R133835** TestNo: **EPA 200.7** Analysis Date: **5/11/2019** SeqNo: **3382225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	554451.006	50	500000	0	111	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **ICSAB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	574232.506	500	500000	0	115	80	120				
Iron	180244.445	20	200000	0	90.1	80	120				
Magnesium	498088.901	100	500000	0	99.6	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **ICSA**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	459658.859	50	500000	0	91.9	80	120				
Calcium	470546.719	500	500000	0	94.1	80	120				
Iron	173729.750	20	200000	0	86.9	80	120				
Magnesium	406216.380	100	500000	0	81.2	80	120				

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **ICSAB**	Batch ID: **R133835**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	553824.213	50	500000	0	111	80	120				
Calcium	553898.365	500	500000	0	111	80	120				
Iron	177282.661	20	200000	0	88.6	80	120				
Magnesium	479997.983	100	500000	0	96.0	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ICSA**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	-9.271194	500									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ICSAB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9971.222	500	10000	0	99.7	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ICSA**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	48.246	500									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ICSAB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	9844.980	500	10000	0	98.4	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ICSA**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	40.635	500									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ICSAB**	Batch ID: **R133936**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	10268.382	500	10000	0	103	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190511A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0035	100.35	65-125	PASS
Standard2	ICAL	1	1.037	103.69	65-125	PASS
Standard3	ICAL	1	1.016	101.56	65-125	PASS
Standard4	ICAL	1	1.0043	100.43	65-125	PASS
Standard5	ICAL	1	1.0051	100.51	65-125	PASS
Standard6	ICAL	1	1.0038	100.38	65-125	PASS
Standard7	ICAL	1	0.99	99.29	65-125	PASS
ICV	ICV	1	1.012	101.17	65-125	PASS
ICB	ICB	1	1.02	102.02	65-125	PASS
LLICV	CCV1	1	1.024	102.37	65-125	PASS
ICSA1	ICSA	1	1.16	116.18	65-125	PASS
ICSAB1	ICSAB	1	0.92	92.037	65-125	PASS
CCV1	CCV	1	1.039	103.9	65-125	PASS
CCB1	CCB	1	1.045	104.51	65-125	PASS
CCV2	CCV	1	1.042	104.24	65-125	PASS
CCB2	CCB	1	1.056	105.64	65-125	PASS
CCV3	CCV	1	1.06	105.98	65-125	PASS
CCB3	CCB	1	1.072	107.23	65-125	PASS
CCV4	CCV	1	1.06	106.04	65-125	PASS
CCB4	CCB	1	1.078	107.79	65-125	PASS
CCB4	CCB	1	1.077	107.74	65-125	PASS
CCV5	CCV	1	1.065	106.53	65-125	PASS
CCB5	CCB	1	1.067	106.7	65-125	PASS
CCB5	CCB	1	1.067	106.67	65-125	PASS
ICSA2	ICSA	1	1.22	121.78	65-125	PASS
ICSAB2	ICSAB	1	0.94	94.39	65-125	PASS
CCV6	CCV	1	1.078	107.82	65-125	PASS
CCB6	CCB	1	1.082	108.22	65-125	PASS
MB-73817	MBLK	1	1.061	106.14	65-125	PASS
LCS1-73817	LCS	1	1.02	102	65-125	PASS
N035484-001B	SAMP	1	1.058	105.79	65-125	PASS
N035484-001B	SAMP	5	1.054	105.45	65-125	PASS
CCV7	CCV	1	1.064	106.44	65-125	PASS
CCB7	CCB	1	1.064	106.41	65-125	PASS
N035484-001B-PS	PS	1	1.054	105.4	65-125	PASS
N035484-001B-MS1	MS	1	1.054	105.45	65-125	PASS
N035484-001B-MSD1	MSD	1	1.056	105.57	65-125	PASS
N035484-002B	SAMP	1	0.93	93.16	65-125	PASS
N035490-001C	SAMP	1	0.89	89.29	65-125	PASS
N035490-002E	SAMP	1	0.9	90.12	65-125	PASS

INTERNAL STANDARD: 190511A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CCV8	CCV	1	1.026	102.62	65-125	PASS
CCB8	CCB	1	1.031	103.08	65-125	PASS
ICSA3	ICSA	1	1.19	118.55	65-125	PASS
ICSAB3	ICSAB	1	0.94	93.59	65-125	PASS
CCV9	CCV	1	1.052	105.25	65-125	PASS
CCB9	CCB	1	1.053	105.31	65-125	PASS
CCV10	CCV	1	1.057	105.66	65-125	PASS
CCB10	CCB	1	1.068	106.83	65-125	PASS
CCV11	CCV	1	1.051	105.12	65-125	PASS
CCB11	CCB	1	1.056	105.55	65-125	PASS
ICSA4	ICSA	1	1.21	120.59	65-125	PASS
ICSAB4	ICSAB	1	0.94	93.7	65-125	PASS
CCV12	CCV	1	1.073	107.26	65-125	PASS
CCB12	CCB	1	1.08	107.96	65-125	PASS
ICSA5	ICSA	1	1.23	123.11	65-125	PASS
ICSAB5	ICSAB	1	0.98	97.59	65-125	PASS

INTERNAL STANDARD: 190516A

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0078	100.78	65-125	PASS
Standard2	ICAL	1	1.064	106.39	65-125	PASS
Standard3	ICAL	1	1.049	104.93	65-125	PASS
Standard4	ICAL	1	1	99.58	65-125	PASS
Standard5	ICAL	1	1.033	103.29	65-125	PASS
Standard6	ICAL	1	1.022	102.25	65-125	PASS
ICV	ICV	1	1	100	65-125	PASS
ICB	ICB	1	0.99	99.24	65-125	PASS
LLICV	CCV	1	0.99	99.28	65-125	PASS
LLICV	CCV	1	0.98	98.49	65-125	PASS
ICSA1	ICSA	1	1.077	107.65	65-125	PASS
ICSAB1	ICSAB	1	1	99.94	65-125	PASS
CCV1	CCV	1	0.98	98.35	65-125	PASS
CCB1	CCB	1	0.97	97.35	65-125	PASS
CCV2	CCV	1	0.97	96.88	65-125	PASS
CCB2	CCB	1	0.97	96.82	65-125	PASS
CCV3	CCV	1	0.97	96.7	65-125	PASS
CCB3	CCB	1	0.97	96.66	65-125	PASS
ICSA2	ICSA	1	1.0046	100.46	65-125	PASS
ICSAB2	ICSAB	1	0.98	97.92	65-125	PASS
CCV4	CCV	1	0.96	96.3	65-125	PASS
CCB4	CCB	1	0.96	95.61	65-125	PASS
CCV5	CCV	1	1	99.79	65-125	PASS
CCB5	CCB	1	0.99	98.93	65-125	PASS
MB-73817	MBLK	1	1.0003	100.03	65-125	PASS
LCS2-73817	LCS	1	1.04	104.02	65-125	PASS
N035484-001B	SAMP	5	1	99.58	65-125	PASS
N035484-002B	SAMP	5	0.97	97.32	65-125	PASS
N035484-001B	SAMP	25	0.98	98.3	65-125	PASS
N035484-002B	SAMP	50	0.98	97.61	65-125	PASS
N035484-002B	SAMP	250	0.97	97.29	65-125	PASS
N035484-002B-PS	PS	50	0.97	97.19	65-125	PASS
N035484-002B-MS2	MS	50	0.98	97.58	65-125	PASS
CCV6	CCV	1	0.97	96.86	65-125	PASS
CCB6	CCB	1	0.97	96.86	65-125	PASS
N035484-002B-MSD2	MSD	50	0.95	95.43	65-125	PASS
CCV7	CCV	1	0.95	95.28	65-125	PASS
CCB7	CCB	1	0.96	96.31	65-125	PASS
ICSA3	ICSA	1	1	99.85	65-125	PASS
ICSAB3	ICSAB	1	0.96	95.79	65-125	PASS

INTERNAL STANDARD: 190516A

Instrument ID: ICP-02

Sample Name	Type	DF	Scandium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CCV8	CCV	1	0.95	95.23	65-125	PASS
CCB8	CCB	1	0.96	96.036	65-125	PASS
CCV9	CCV	1	0.94	93.77	65-125	PASS
CCB9	CCB	1	0.95	95.15	65-125	PASS
ICSA4	ICSA	1	0.99	98.83	65-125	PASS
ICSAB4	ICSAB	1	0.95	95.19	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N035484
Test Method: EPA 200.7
Analysis Date: 05 / 11 & 16 / 2019

Matrix: Groundwater
Batch No.: 73817

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Fe failed. However, PS passed criteria.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035484-001B DT 5x	Calcium	Ca	µg/L	110386.6	PASS	106885.8	3.28%	10
N035484-001B DT 5x	Iron	Fe	µg/L	1331.683	FAIL	1198.379	11.12%	10
N035484-001B DT 5x	Magnesium	Mg	µg/L	26341.03	PASS	24665.98	6.79%	10
N035484-002B DT 250x	Sodium	Na	µg/L	1596861	PASS	1604757	0.49%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.7_WDPGEPPB

Sample ID **N035484-001B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133835**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/11/2019**	SeqNo: **3382250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	111044.989	500	5000	106900	83.2	80	120				
Iron	1288.886	20	100.0	1198	90.5	80	120				
Magnesium	28810.718	100	5000	24670	82.9	80	120				

Sample ID **N035484-002B-PS**	SampType: **PS**	TestCode: **200.7_WDPG**	Units: **µg/L**	Prep Date:	RunNo: **133936**
Client ID: **ZZZZZZ**	Batch ID: **73817**	TestNo: **EPA 200.7**		Analysis Date: **5/16/2019**	SeqNo: **3387896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sodium	1548973.050	25000	20000	1605000	-279	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

Method Detection Limit

Analytical Method: EPA 6010B / 200.7
Digestion Method: EPA 200.7
Date of Analysis: 4/26/2018,4/27/18, 4/28/18
Instrument Name: ICP2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: mg/L

Analyte	1	2	3	4	5	6	7	SD	Ave	AMT SPIKED	MDL	PQL
Potassium	0.52047	0.51468	0.50982	0.46507	0.46016	0.45873	0.49093	0.02710	0.48855	0.5000	0.08509	0.5
Sodium	0.55314	0.5464	0.5354	0.4861	0.49466	0.48423	0.49053	0.03061	0.51292	0.5000	0.09611	0.5
Strontium	0.0543	0.05418	0.05429	0.05295	0.05353	0.05251	0.05341	0.00070	0.05360	0.0250	0.00220	0.05

MBLK

Analyte	1	2	3	4	5	6	7	SD	Ave	MDL
Potassium	0.046	0.02365	0.01213	-0.00541	-0.0022	-0.00535	0.03047	0.02002	0.01418	0.0771
Sodium	0.04731	0.03661	0.02294	-0.0006	-0.00135	-0.00646	-0.00911	0.02270	0.01276	0.0841
Strontium	0.00006	-0.0006	-0.0002	0.00003	-0.00002	0.00001	0.00035	0.00029	-0.00005	0.0009

Note: MDL spike is used since its value is greater than the MDL blank.

LOD & PQL VERIFICATION

Analytical Method: EPA 6010B / 200.7
Date of Analysis: 4/30/2018
Instrument Name: ICP2
Analyst: MI

Matrix: Water
Units: mg/L

Compound	MDL	LOD		PQL		
		Spike	Recovered	Spike	Recovered	% Recovery
Potassium	0.08509	0.250	0.304	0.500	0.544	108.9
Sodium	0.09611	0.250	0.274	0.500	0.521	104.1
Strontium	0.00220	0.025	0.027	0.050	0.054	108.0

EPA 200.8
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73814
ASSET #: N035484
Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 5/17/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			~~X~~	X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Cr in N035441-001B-PS/MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer CEI Date: 5/28/2019

2nd Level Reviewer NS Date: 5/28/2019

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035484-001B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 72.5634 * 5 *(25 / 25)

Manganese , ug/L = 362.817

Reporting results in two significant figures,

Manganese , ug/L = 360

NS 5/28/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190517B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	6.66	15	PASS	0.082	17.69	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.5	1.34	15	PASS	0.53	3.019	15	PASS
Std3-5/50 ppb	ICAL	1	5.078	3.48	15	PASS	5.1	2.2	15	PASS
Std4-10/100 ppb	ICAL	1	10.26	2.57	15	PASS	10.18	1.25	15	PASS
Std5-20/200 ppb	ICAL	1	20.076	2.88	15	PASS	19.95	2.61	15	PASS
Std6-40/400 ppb	ICAL	1	40.081	1.6	15	PASS	40.021	1.83	15	PASS
Std7-100/1000 ppb	ICAL	1	99.92	1.91	15	PASS	99.24	2.51	15	PASS
Std8-200/2000 ppb	ICAL	1	216.67	1.5	15	PASS	200.37	1.41	15	PASS
ICV	ICV	1	9.84	1.3	15	PASS	100.76	1.94	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	0.97	2.82	20	PASS	0.5	2.54	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.8	2.54	15	PASS	16.15	2.65	15	PASS
LLICV	CCV1	1	1.039	4.4	20	PASS	0.55	3.47	20	PASS
MB-73814	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-73814	LCS	1	9.96	0.73	15	PASS	101.2	1.87	15	PASS
N035441-001B	SAMP	1	128.71	2.36	15	PASS	0.14	39.61	15	<PQL
N035441-001B	SAMP	5	25.28	1.92	15	PASS	0.032	48.58	15	<PQL
N035441-001B-PS	PS	1	133.46	2.64	15	PASS	97.94	2.033	15	PASS
N035441-001B-MS	MS	1	130.52	3.82	15	PASS	99.41	2.46	15	PASS
N035441-001B-MSD	MSD	1	130.049	2.5	15	PASS	98.9	2.41	15	PASS
N035484-001B	SAMP	1	0.072	8.84	15	PASS	377.3	2.42	15	PASS
N035484-001B	SAMP	5	0.0064	101.31	15	<PQL	72.56	1.91	15	PASS
N035484-002B	SAMP	1	438.94	1.73	15	PASS	20.56	1.48	15	PASS
CCV1	CCV	1	19.81	2.97	15	PASS	19.8	2.56	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035484-002B	SAMP	5	88.33	2.65	15	PASS	4.4	3.99	15	PASS
N035490-001C	SAMP	1	453.76	2.47	15	PASS	12.62	1.76	15	PASS
N035490-001C	SAMP	5	97.034	4.88	15	PASS	2.74	0.56	15	PASS
N035490-002E	SAMP	1	0.22	10.096	15	PASS	17.24	2.17	15	PASS
N035490-002E	SAMP	5	0.041	13.94	15	PASS	3.63	1.27	15	PASS
N035441-001B	SAMP	10	12.054	2.69	15	PASS	0.14	12.48	15	PASS
N035441-001B	SAMP	50	2.4	3.21	15	PASS	0.052	8.34	15	PASS
N035441-001B-PS	PS	10	12.82	2.63	15	PASS	10.32	3.31	15	PASS
N035441-001B-MS	MS	10	12.69	4.052	15	PASS	10.48	2.96	15	PASS
N035441-001B-MSD	MSD	10	12.83	2.83	15	PASS	10.71	1.67	15	PASS
CCV2	CCV	1	19.94	2.98	15	PASS	20.024	2.19	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.016	20.96	15	<PQL
CCV3	CCV	1	19.76	3.39	15	PASS	20.17	3.6	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190517B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.41	1.62	15	PASS	16.1	1.89	15	PASS
CCV4	CCV	1	19.73	1.58	15	PASS	20.16	3.12	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV4 5	CCV	1	19.33	3.095	15	PASS	20.059	3.85	15	PASS
CCB4 5	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV5 6	CCV	1	19.65	2.37	15	PASS	20.29	3.69	15	PASS
CCB5 6	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV6 7	CCV	1	19.78	1.29	15	PASS	19.82	2.35	15	PASS
CCB6 7	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.5	1.67	15	PASS	17.23	0.28	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190517B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0517001.D	RINSE	RINSE	1	05/17/19 5:20 PM
B0517002.D	Cal Blank	IBLK	1	05/17/19 5:25 PM
B0517003.D	Std1-0.1/1 ppb	ICAL	1	05/17/19 5:30 PM
B0517004.D	Std2-0.5/5 ppb	ICAL	1	05/17/19 5:35 PM
B0517005.D	Std3-5/50 ppb	ICAL	1	05/17/19 5:40 PM
B0517006.D	Std4-10/100 ppb	ICAL	1	05/17/19 5:46 PM
B0517007.D	Std5-20/200 ppb	ICAL	1	05/17/19 5:51 PM
B0517008.D	Std6-40/400 ppb	ICAL	1	05/17/19 5:56 PM
B0517009.D	Std7-100/1000 ppb	ICAL	1	05/17/19 6:01 PM
B0517010.D	Std8-200/2000 ppb	ICAL	1	05/17/19 6:06 PM
B0517011.D	ICV	ICV	1	05/17/19 6:10 PM
B0517012.D	ICB	ICB	1	05/17/19 6:15 PM
B0517013.D	LLICV	CCV1	1	05/17/19 6:20 PM
B0517014.D	ICSA1	ICSA	1	05/17/19 6:25 PM
B0517015.D	ICSAB1	ICSAB	1	05/17/19 6:30 PM
B0517016.D	LLICV	CCV1	1	05/17/19 6:35 PM
B0517017.D	MB-73814	MBLK	1	05/17/19 6:41 PM
B0517018.D	LCS-73814	LCS	1	05/17/19 6:46 PM
B0517019.D	N035441-001B	SAMP	1	05/17/19 6:51 PM
B0517020.D	N035441-001B	SAMP	5	05/17/19 6:55 PM
B0517021.D	N035441-001B-PS	PS	1	05/17/19 7:01 PM
B0517022.D	N035441-001B-MS	MS	1	05/17/19 7:06 PM
B0517023.D	N035441-001B-MSD	MSD	1	05/17/19 7:11 PM
B0517024.D	N035484-001B	SAMP	1	05/17/19 7:16 PM
B0517025.D	N035484-001B	SAMP	5	05/17/19 7:20 PM
B0517026.D	N035484-002B	SAMP	1	05/17/19 7:26 PM
B0517027.D	CCV1	CCV	1	05/17/19 7:30 PM
B0517028.D	CCB1	CCB	1	05/17/19 7:35 PM
B0517029.D	N035484-002B	SAMP	5	05/17/19 7:40 PM
B0517030.D	N035490-001C	SAMP	1	05/17/19 7:45 PM
B0517031.D	N035490-001C	SAMP	5	05/17/19 7:50 PM
B0517032.D	N035490-002E	SAMP	1	05/17/19 7:55 PM
B0517033.D	N035490-002E	SAMP	5	05/17/19 8:00 PM
B0517034.D	N035441-001B	SAMP	10	05/17/19 8:05 PM
B0517035.D	N035441-001B	SAMP	50	05/17/19 8:10 PM
B0517036.D	N035441-001B-PS	PS	10	05/17/19 8:15 PM
B0517037.D	N035441-001B-MS	MS	10	05/17/19 8:20 PM
B0517038.D	N035441-001B-MSD	MSD	10	05/17/19 8:25 PM
B0517039.D	CCV2	CCV	1	05/17/19 8:30 PM
B0517040.D	CCB2	CCB	1	05/17/19 8:35 PM
B0517041.D	MB-73812	MBLK	1	05/17/19 8:40 PM
B0517042.D	LCS-73812	LCS	1	05/17/19 8:45 PM

INJECTION LOG: 190517B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0517043.D	N035483-001A	SAMP	1	05/17/19 8:50 PM
B0517044.D	N035483-001A	SAMP	5	05/17/19 8:55 PM
B0517045.D	N035483-001A-PS	PS	1	05/17/19 9:00 PM
B0517046.D	N035483-001A-MS	MS	1	05/17/19 9:05 PM
B0517047.D	N035483-001A-MSD	MSD	1	05/17/19 9:10 PM
B0517048.D	N035483-003A	SAMP	1	05/17/19 9:15 PM
B0517049.D	N035457-001B	SAMP	1	05/17/19 9:20 PM
B0517050.D	N035457-001B	SAMP	5	05/17/19 9:24 PM
B0517051.D	CCV3	CCV	1	05/17/19 9:29 PM
B0517052.D	CCB3	CCB	1	05/17/19 9:39 PM
B0517053.D	ICSA2	ICSA	1	05/17/19 9:44 PM
B0517054.D	ICSAB2	ICSAB	1	05/17/19 9:44 PM
B0517055.D	N035457-002B	SAMP	1	05/17/19 9:49 PM
B0517056.D	N035457-002B	SAMP	50	05/17/19 9:54 PM
B0517057.D	N035457-003B	SAMP	1	05/17/19 9:59 PM
B0517058.D	N035457-004B	SAMP	1	05/17/19 10:04 PM
B0517059.D	N035457-005B	SAMP	1	05/17/19 10:09 PM
B0517060.D	N035458-001B	SAMP	1	05/17/19 10:14 PM
B0517061.D	N035458-002B	SAMP	1	05/17/19 10:19 PM
B0517062.D	N035458-003B	SAMP	1	05/17/19 10:24 PM
B0517063.D	N035461-001A	SAMP	1	05/17/19 10:29 PM
B0517064.D	N035485-001B	SAMP	1	05/17/19 10:33 PM
B0517065.D	CCV4	CCV	1	05/17/19 10:38 PM
B0517066.D	CCB4	CCB	1	05/17/19 10:43 PM
B0517067.D	N035485-002B	SAMP	1	05/17/19 10:48 PM
B0517068.D	N035485-003B	SAMP	1	05/17/19 10:53 PM
B0517069.D	N035485-004B	SAMP	1	05/17/19 10:58 PM
B0517070.D	N035485-005B	SAMP	1	05/17/19 11:03 PM
B0517071.D	N035485-006B	SAMP	1	05/17/19 11:08 PM
B0517072.D	N035485-007B	SAMP	1	05/17/19 11:13 PM
B0517073.D	N035485-008B	SAMP	1	05/17/19 11:18 PM
B0517074.D	MB-73813	MBLK	1	05/17/19 11:23 PM
B0517075.D	LCS-73813	LCS	1	05/17/19 11:28 PM
B0517076.D	N035486-001B	SAMP	1	05/17/19 11:33 PM
B0517077.D	CCV5	CCV	1	05/17/19 11:38 PM
B0517078.D	CCB5	CCB	1	05/17/19 11:42 PM
B0517079.D	N035486-001B	SAMP	5	05/17/19 11:47 PM
B0517080.D	N035486-001B-PS	PS	1	05/17/19 11:52 PM
B0517081.D	N035486-001B-MS	MS	1	05/17/19 11:57 PM
B0517082.D	N035486-001B-MSD	MSD	1	05/18/19 12:02 AM
B0517083.D	N035486-002B	SAMP	1	05/18/19 12:07 AM
B0517084.D	N035486-002B	SAMP	5	05/18/19 12:12 AM

5/23/2019

INJECTION LOG: 190517B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0517085.D	N035486-003B	SAMP	1	05/18/19 12:17 AM
B0517086.D	N035486-003B	SAMP	5	05/18/19 12:22 AM
B0517087.D	N035486-004B	SAMP	1	05/18/19 12:27 AM
B0517088.D	N035486-004B	SAMP	5	05/18/19 12:32 AM
B0517089.D	CCV5 6	CCV	1	05/18/19 12:37 AM
B0517090.D	CCB5 6	CCB	1	05/18/19 12:42 AM
B0517091.D	N035511-001B	SAMP	1	05/18/19 12:47 AM
B0517092.D	N035511-002B	SAMP	1	05/18/19 12:52 AM
B0517093.D	N035511-003B	SAMP	1	05/18/19 12:57 AM
B0517094.D	N035511-004B	SAMP	1	05/18/19 1:02 AM
B0517095.D	N035511-005B	SAMP	1	05/18/19 1:07 AM
B0517096.D	N035511-006B	SAMP	1	05/18/19 1:12 AM
B0517097.D	N035516-001B	SAMP	1	05/18/19 1:17 AM
B0517098.D	N035518-001A	SAMP	1	05/18/19 1:22 AM
B0517099.D	N035530-001A	SAMP	1	05/18/19 1:27 AM
B0517100.D	N035530-003A	SAMP	1	05/18/19 1:32 AM
B0517101.D	CCV6 7	CCV	1	05/18/19 1:37 AM
B0517102.D	CCB6 7	CCB	1	05/18/19 1:42 AM
B0517103.D	ICSA3	ICSA	1	05/18/19 1:47 AM
B0517104.D	ICSAB3	ICSAB	1	05/18/19 1:52 AM

5/23/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/11/2019 6:39:26**
Prep End Date: **5/11/2019 11:00:00**
Prep Batch **73814** Prep Code: **200.8_PR**

Reviewed/ Date: NS 5/28/2019
Initials/ Date: for
Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.7**	**01-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73814	Aqueous		25	☐	0	0	25	1.000		
MB-73814	Aqueous		25	☐	0	0	25	1.000		
N035441-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035441-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035441-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035484-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035484-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035490-001C	Water	<2	25	☐	0	0	25	1.000		
N035490-002E	Water	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 17 May 2019 07:33:40 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	3142620.00	0.00	
24	Mg	4409110.00	0.00	
25	Mg	556414.00	0.00	
26	Mg	636164.00	0.00	
59	Co	2905180.00	0.00	
115	In	4679830.00	0.00	
206	Pb	2523490.00	0.00	
207	Pb	2252810.00	0.00	
208	Pb	5284360.00	0.00	

RSD (%)

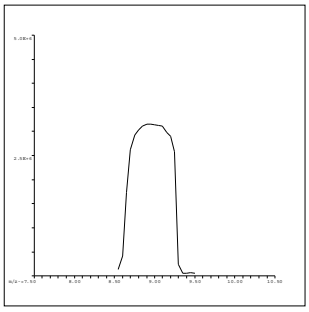
Element		Actual	Required	Flag
9	Be	1.09	5.00	
24	Mg	0.99	5.00	
25	Mg	0.27	5.00	
26	Mg	0.30	5.00	
59	Co	1.21	5.00	
115	In	0.93	5.00	
206	Pb	1.47	5.00	
207	Pb	0.65	5.00	
208	Pb	0.60	5.00	

Ion Ratio

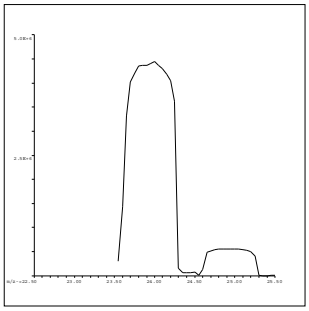
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

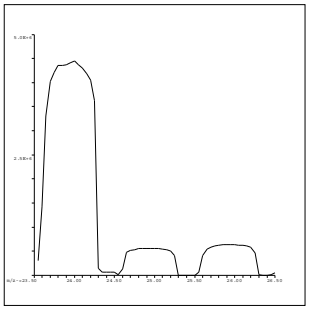
Element		Actual	Required	Flag



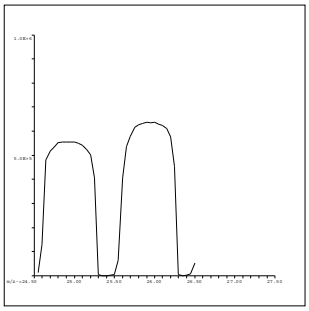
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



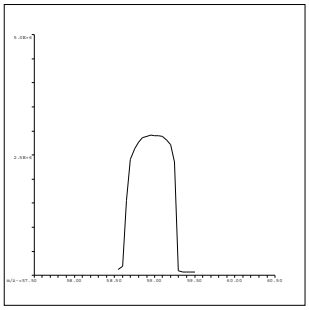
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



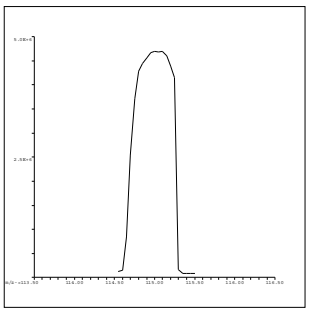
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



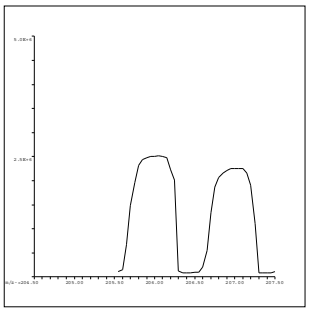
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



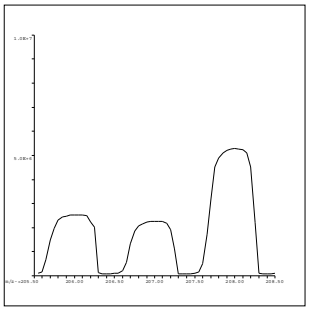
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



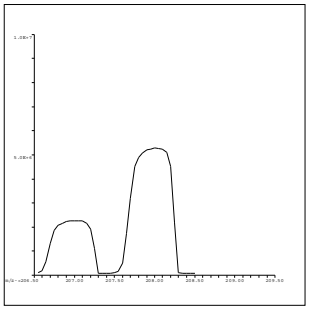
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190517B

Instrument ID: ICPMS-02

Analyte	Data File	B0517002.D	B0517004.D	B0517005.D	B0517006.D	B0517007.D	B0517008.D	B0517009.D	B0517010.D	
	Acq. Date-Time	05/17/2019 05:25 PM	05/17/2019 05:35 PM	05/17/2019 05:40 PM	05/17/2019 05:46 PM	05/17/2019 05:51 PM	05/17/2019 05:56 PM	05/17/2019 06:01 PM	05/17/2019 06:06 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	149708.9	147953.1	149652.5	149073.9	152794.8	152129.1	150919.7	144720.7	
55 Mn [2]	CPS	324	3424.5	30343.6	60019	120201.4	239751.7	589238.6	1140852.2	1.0000
52 Cr [2]	CPS	543.9	6151.2	58286.9	116802.5	233655.7	464064.7	1146836.6	2384540.7	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICV**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	100.757	0.50	100.0	0	101	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ZZZZZZ**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.501	0.50	0.5000	0	100	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCV**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.800	0.50	20.00	0	99.0	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCV**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.024	0.50	20.00	0	100	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCV**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.171	0.50	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICV**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.838	1.0	10.00	0	98.4	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ZZZZZZ**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.969	1.0	1.000	0	96.9	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCV**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392878**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.807	1.0	20.00	0	99.0	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCV**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392890**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.943	1.0	20.00	0	99.7	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCV**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.755	1.0	20.00	0	98.8	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392785**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392891**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **CCB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICSA**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392771**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICSAB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	16.154	0.50	20.00	0	80.8	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICSA**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392810**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICSAB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	16.102	0.50	20.00	0	80.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICSA**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICSAB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.805	1.0	20.00	0	99.0	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICSA**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134071**
Client ID: **ICSAB**	Batch ID: **R134071**	TestNo: **EPA 200.8**		Analysis Date: **5/17/2019**	SeqNo: **3392905**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.407	1.0	20.00	0	97.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190517B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	149708.9	149708.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	147283.1	149708.9	98.38	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	147953.1	149708.9	98.83	PASS	70-125
Std3-5/50 ppb	ICAL	1	149652.5	149708.9	99.96	PASS	70-125
Std4-10/100 ppb	ICAL	1	149073.9	149708.9	99.58	PASS	70-125
Std5-20/200 ppb	ICAL	1	152794.8	149708.9	102.06	PASS	70-125
Std6-40/400 ppb	ICAL	1	152129.1	149708.9	101.62	PASS	70-125
Std7-100/1000 ppb	ICAL	1	150919.7	149708.9	100.81	PASS	70-125
Std8-200/2000 ppb	ICAL	1	144720.7	149708.9	96.67	PASS	70-125
ICV	ICV	1	157105.8	149708.9	104.94	PASS	70-125
ICB	ICB	1	160133.3	149708.9	106.96	PASS	70-125
LLICV	CCV1	1	165599.7	149708.9	110.61	PASS	70-125
ICSA1	ICSA	1	144952.9	149708.9	96.82	PASS	70-125
ICSAB1	ICSAB	1	168417.5	149708.9	112.5	PASS	70-125
LLICV	CCV1	1	167633.4	149708.9	111.97	PASS	70-125
MB-73814	MBLK	1	143848.2	149708.9	96.085	PASS	70-125
LCS-73814	LCS	1	168245.2	149708.9	112.38	PASS	70-125
N035441-001B	SAMP	1	150836.6	149708.9	100.75	PASS	70-125
N035441-001B	SAMP	5	147952.9	149708.9	98.83	PASS	70-125
N035441-001B-PS	PS	1	153663.2	149708.9	102.64	PASS	70-125
N035441-001B-MS	MS	1	156721.4	149708.9	104.68	PASS	70-125
N035441-001B-MSD	MSD	1	159363.9	149708.9	106.45	PASS	70-125
N035484-001B	SAMP	1	157116.8	149708.9	104.95	PASS	70-125
N035484-001B	SAMP	5	158275.7	149708.9	105.72	PASS	70-125
N035484-002B	SAMP	1	160076.3	149708.9	106.93	PASS	70-125
CCV1	CCV	1	178602.4	149708.9	119.3	PASS	70-125
CCB1	CCB	1	140592.9	149708.9	93.91	PASS	70-125
N035484-002B	SAMP	5	160363.1	149708.9	107.12	PASS	70-125
N035490-001C	SAMP	1	164172.2	149708.9	109.66	PASS	70-125
N035490-001C	SAMP	5	170467	149708.9	113.87	PASS	70-125
N035490-002E	SAMP	1	170729.4	149708.9	114.04	PASS	70-125
N035490-002E	SAMP	5	176146.1	149708.9	117.66	PASS	70-125
N035441-001B	SAMP	10	186601.1	149708.9	124.64	PASS	70-125
N035441-001B	SAMP	50	181285.5	149708.9	121.09	PASS	70-125
N035441-001B-PS	PS	10	177969.5	149708.9	118.88	PASS	70-125
N035441-001B-MS	MS	10	173693.2	149708.9	116.02	PASS	70-125
N035441-001B-MSD	MSD	10	168184.5	149708.9	112.34	PASS	70-125
CCV2	CCV	1	173712.3	149708.9	116.03	PASS	70-125
CCB2	CCB	1	163273.9	149708.9	109.06	PASS	70-125
CCV3	CCV	1	182761.6	149708.9	122.08	PASS	70-125
CCB3	CCB	1	149116.1	149708.9	99.6	PASS	70-125

INTERNAL STANDARD: 190517B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
ICSA2	ICSA	1	158224.9	149708.9	105.69	PASS	70-125
ICSAB2	ICSAB	1	182321.6	149708.9	121.78	PASS	70-125
CCV4	CCV	1	170919.8	149708.9	114.17	PASS	70-125
CCB4	CCB	1	151680.7	149708.9	101.32	PASS	70-125
CCV4	CCV	1	167802.5	149708.9	112.09	PASS	70-125
CCB4	CCB	1	143921.5	149708.9	96.13	PASS	70-125
CCV5	CCV	1	154095.4	149708.9	102.93	PASS	70-125
CCB5	CCB	1	139512.2	149708.9	93.19	PASS	70-125
CCV6	CCV	1	153405.5	149708.9	102.47	PASS	70-125
CCB6	CCB	1	149106.3	149708.9	99.6	PASS	70-125
ICSA3	ICSA	1	158027	149708.9	105.56	PASS	70-125
ICSAB3	ICSAB	1	162891.3	149708.9	108.81	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035484
Test Method: EPA 200.8
Analysis Date: 5/17/2019

Matrix: Groundwater
Batch No.: 73814

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035441-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N035441-001B DT 5x	Chromium	Cr	µg/L	126.4199	PASS	128.7082	1.78%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N035441-001B-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **134071**
Client ID: **ZZZZZZ** Batch ID: **73814** TestNo: **EPA 200.8** Analysis Date: **5/17/2019** SeqNo: **3392778**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	97.939	0.50	100.0	0	97.9	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	N035441-001B-PS	SampType:	PS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:		RunNo:	134071
Client ID:	ZZZZZZ	Batch ID:	73814	TestNo:	EPA 200.8			Analysis Date:	5/17/2019	SeqNo:	3392872

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	133.458	1.0	10.00	128.7	47.5	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133820
ASSET #: N035484

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 510/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: rba Date: 5/13/2019

2nd Level Reviewer: NS Date: 5/28/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035484-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.5564 * 100$$

$$Cr^{+6}, \mu g/L = 455.6400$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 460}$$

NS 5/28/2019

ANALYSIS RUN LOG

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

jrba 5/11/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 5/11/2019

INJECTION LOG: 190510A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/10/19 8:29 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/10/19 8:40 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/10/19 8:49 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/10/19 8:59 AM	Reported
14	MB-R133820	MBLK	1	Hexavalent Chromium	05/10/19 9:08 AM	Reported
15	LCS-R133820	LCS	1	Hexavalent Chromium	05/10/19 9:18 AM	Reported
16	N035482-001A	SAMP	1	Hexavalent Chromium	05/10/19 9:35 AM	Reported
17	N035482-002A	SAMP	1	Hexavalent Chromium	05/10/19 9:46 AM	Reported
18	N035483-002A	SAMP	1	Hexavalent Chromium	05/10/19 9:56 AM	Reported
19	N035487-001A	SAMP	1	Hexavalent Chromium	05/10/19 10:05 AM	Reported
20	N035482-001AMS	MS	1	Hexavalent Chromium	05/10/19 10:15 AM	Reported
21	N035482-002AMS	MS	1	Hexavalent Chromium	05/10/19 10:24 AM	Reported
22	N035483-002AMS	MS	1	Hexavalent Chromium	05/10/19 10:33 AM	Reported
23	N035487-001AMS	MS	1	Hexavalent Chromium	05/10/19 10:43 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	05/10/19 10:52 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/10/19 11:02 AM	Reported
26	N035482-001AMSD	MSD	1	Hexavalent Chromium	05/10/19 11:11 AM	Reported
27	N035487-001ADUP	DUP	1	Hexavalent Chromium	05/10/19 11:21 AM	Reported
28	N035484-001A	SAMP	1	Hexavalent Chromium	05/10/19 11:30 AM	Reported
29	N035484-001AMS	MS	1	Hexavalent Chromium	05/10/19 11:40 AM	Reported
30	N035484-002A	SAMP	100	Hexavalent Chromium	05/10/19 11:49 AM	Reported
31	N035484-002AMS	MS	100	Hexavalent Chromium	05/10/19 11:59 AM	Reported
32	N035486-001A	SAMP	10	Hexavalent Chromium	05/10/19 12:08 PM	Reported
33	N035486-002A	SAMP	100	Hexavalent Chromium	05/10/19 12:18 PM	Reported
34	N035486-003A	SAMP	10	Hexavalent Chromium	05/10/19 12:27 PM	Reported
35	N035486-004A	SAMP	10	Hexavalent Chromium	05/10/19 12:36 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	05/10/19 12:46 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/10/19 12:55 PM	Reported
38	N035485-001A	SAMP	5	Hexavalent Chromium	05/10/19 1:05 PM	Not Reported
39	N035485-002A	SAMP	1	Hexavalent Chromium	05/10/19 1:14 PM	Reported
40	N035485-003A	SAMP	1	Hexavalent Chromium	05/10/19 1:24 PM	Reported
41	N035485-004A	SAMP	1	Hexavalent Chromium	05/10/19 1:33 PM	Reported
42	N035485-005A	SAMP	1	Hexavalent Chromium	05/10/19 1:43 PM	Reported

INJECTION LOG: 190510A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035485-006A	SAMP	1	Hexavalent Chromium	05/10/19 1:52 PM	Reported
44	N035485-007A	SAMP	1	Hexavalent Chromium	05/10/19 2:02 PM	Not Reported
45	N035485-008A	SAMP	1	Hexavalent Chromium	05/10/19 2:11 PM	Not Reported
46	N035485-009A	SAMP	1	Hexavalent Chromium	05/10/19 2:21 PM	Reported
47	N035485-001A	SAMP	1	Hexavalent Chromium	05/10/19 2:30 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	05/10/19 2:39 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	05/10/19 2:49 PM	Reported
50	N035240-003A	SAMP	1	Hexavalent Chromium	05/10/19 2:58 PM	Not Reported
51	N035240-003AMS	MS	1	Hexavalent Chromium	05/10/19 3:08 PM	Not Reported
52	N035442-001A	SAMP	1	Hexavalent Chromium	05/10/19 3:17 PM	Not Reported
53	N035442-001AMS	MS	1	Hexavalent Chromium	05/10/19 3:27 PM	Not Reported
54	N035483-002A	SAMP	1	Hexavalent Chromium	05/10/19 3:36 PM	Not Reported
55	N035485-007A	SAMP	5	Hexavalent Chromium	05/10/19 3:46 PM	Reported
56	N035485-008A	SAMP	20	Hexavalent Chromium	05/10/19 3:55 PM	Reported
57	CCV-5	CCV	1	Hexavalent Chromium	05/10/19 4:05 PM	Reported
58	CCB-5	CCB	1	Hexavalent Chromium	05/10/19 4:14 PM	Reported
59	BLANK	BLANK	1	Hexavalent Chromium	05/10/19 4:24 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190510A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**10/May/19 16:54:20**
No. of Injections:	**62**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/10/2019 08:29	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/10/2019 08:40	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/10/2019 08:49	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/10/2019 08:59	Finished	CCB R190411C
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/10/2019 09:08	Finished	MB R190411C
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/10/2019 09:18	Finished	LCS @5ppb, IWST-190423B
16	N035482-001A,SAMP	1	1000	Unknown		05/10/2019 09:35	Finished	SAMP, 10mL
17	N035482-002A,SAMP	2	1000	Unknown		05/10/2019 09:46	Finished	SAMP, 10mL
18	N035483-002A,SAMP	3	1000	Unknown		05/10/2019 09:56	Finished	SAMP, 10mL
19	N035487-001A,SAMP	5	1000	Unknown		05/10/2019 10:05	Finished	SAMP, 10mL
20	N035482-001AMS,MS	6	1000	Unknown		05/10/2019 10:15	Finished	MS (1ppb), IWST-190423B,10
21	N035482-002AMS,MS	7	1000	Unknown		05/10/2019 10:24	Finished	MS (1ppb), IWST-190423B,10
22	N035483-002AMS,MS	8	1000	Unknown		05/10/2019 10:33	Finished	MS (1ppb), IWST-190423B,10
23	N035487-001AMS,MS	9	1000	Unknown		05/10/2019 10:43	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	10	1000	Unknown		05/10/2019 10:52	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	11	1000	Unknown		05/10/2019 11:02	Finished	CCB R190411C
26	N035482-001AMSD,M	12	1000	Unknown		05/10/2019 11:11	Finished	MSD (1ppb), IWST-190423B,1
27	N035487-001ADUP,D	13	1000	Unknown		05/10/2019 11:21	Finished	DUP, 10mL
28	N035484-001A,SAMP	14	1000	Unknown		05/10/2019 11:30	Finished	SAMP, 10mL
29	N035484-001AMS,MS	15	1000	Unknown		05/10/2019 11:40	Finished	MS (1ppb), IWST-190423B,10
30	N035484-002A,SAMP	16	1000	Unknown		05/10/2019 11:49	Finished	SAMP, 0.1>10mL
31	N035484-002AMS,MS	17	1000	Unknown		05/10/2019 11:59	Finished	MS (5ppb), IWST-190423B,0.1
32	N035486-001A,SAMP	18	1000	Unknown		05/10/2019 12:08	Finished	SAMP, 1>10mL
33	N035486-002A,SAMP	19	1000	Unknown		05/10/2019 12:18	Finished	SAMP, 0.1>10mL
34	N035486-003A,SAMP	20	1000	Unknown		05/10/2019 12:27	Finished	SAMP, 1>10mL
35	N035486-004A,SAMP	21	1000	Unknown		05/10/2019 12:36	Finished	SAMP, 1>10mL
36	CCV-3,CCV,1,	22	1000	Unknown		05/10/2019 12:46	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	23	1000	Unknown		05/10/2019 12:55	Finished	CCB R190411C
38	N035485-001A,SAMP	24	1000	Unknown		05/10/2019 13:05	Finished	SAMP,2>10mL
39	N035485-002A,SAMP	25	1000	Unknown		05/10/2019 13:14	Finished	SAMP, 10mL
40	N035485-003A,SAMP	26	1000	Unknown		05/10/2019 13:24	Finished	SAMP, 10mL
41	N035485-004A,SAMP	27	1000	Unknown		05/10/2019 13:33	Finished	SAMP, 10mL
42	N035485-005A,SAMP	28	1000	Unknown		05/10/2019 13:43	Finished	SAMP, 10mL
43	N035485-006A,SAMP	29	1000	Unknown		05/10/2019 13:52	Finished	SAMP, 10mL
44	N035485-007A,SAMP	30	1000	Unknown		05/10/2019 14:02	Finished	SAMP, 10mL
45	N035485-008A,SAMP	31	1000	Unknown		05/10/2019 14:11	Finished	SAMP, 10mL
46	N035485-009A,SAMP	32	1000	Unknown		05/10/2019 14:21	Finished	SAMP,5>10mL
47	N035485-001A,SAMP	33	1000	Unknown		05/10/2019 14:30	Finished	SAMP, 10mL
48	CCV-4,CCV1,1,	34	1000	Unknown		05/10/2019 14:39	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	35	1000	Unknown		05/10/2019 14:49	Finished	CCB R190411C
50	N035240-003A,SAMP	36	1000	Unknown		05/10/2019 14:58	Finished	SAMP, 10mL
51	N035240-003AMS,MS	37	1000	Unknown		05/10/2019 15:08	Finished	MS (1ppb), IWST-190423B,10
52	N035442-001A,SAMP	38	1000	Unknown		05/10/2019 15:17	Finished	SAMP, 10mL
53	N035442-001AMS,MS	39	1000	Unknown		05/10/2019 15:27	Finished	MS (1ppb), IWST-190423B,10
54	N035483-002A,SAMP	40	1000	Unknown		05/10/2019 15:36	Finished	SAMP, 10mL
55	N035485-007A,SAMP	41	1000	Unknown		05/10/2019 15:46	Finished	SAMP,2>10mL
56	N035485-008A,SAMP	42	1000	Unknown		05/10/2019 15:55	Finished	SAMP,0.5>10mL
57	CCV-5,CCV,1,	43	1000	Unknown		05/10/2019 16:05	Finished	CCV @5ppb, IWST-190423A
58	CCB-5,CCB,1,	44	1000	Unknown		05/10/2019 16:14	Finished	CCB R190411C
59	BLANK	45	1000	Unknown		05/10/2019 16:24	Finished	BLANK
60	SHUTDOWN	46	1000	Unknown		05/10/2019 16:33	Finished	

61	Eluent: R190509D	47	1000	Unknown		n.a.	Finished	Eluent
62	PCR: R190509E	48	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 5/9/19
Time Prepared: 0912H
Prepared By: MSA

slope: 96.5%
pH 4: 4.02
7: 6.99
10: 9.98

Reagent ID:
Sulfuric Acid: 1050
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: MG0506A
NH4OH + NH4SO4 buffer: MG0411C/MG0414C

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	MW5457-01A	9.40	-	~300mL	~250mL		
2)	2A	9.32	-				
3)	3A	9.34	-				
4)	4A	9.35	-				
5)	5B	9.30					
6)	MW5458-01A	9.49	-				
7)	2A	9.62	-				
8)	3A	9.50	-				
9)	4A	9.67	-				
10)	MW5459-1A	8.02	9.62			+3mL MG0411C	
11)	MW5460-1A	9.50	-				
12)	MW5461-2A	9.65	-				
13)	MW5462-1B	-	-				missing sample (HOLD)
14)	2C	7.87	9.68				
15)	MW5463-1B	9.54	-				

Sample Preparation

Date Prepared: 5/10/19
Time Prepared: 0903H
Prepared By: MSA

slope: 96.3
pH 4: 4.01
7: 6.97
10: 10.02

Reagent ID:
Sulfuric Acid: 1090
Diphenylcarbazide: CLNV-190328A
NH4OH + NH4SO4 eluent: MG0509D
NH4OH + NH4SO4 buffer: MG0411C/MG0414C

GN NaOH: MG0329A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	MW5482-01A	9.34	-	~250mL	~200mL		
2)	2A	9.34	-				
3)	MW5483-2A	9.64	-				
4)	MW5484-1A	9.50	-				
5)	2A	9.32	-				
6)	MW5485-1A	9.25	9.34			+2 drops NaOH	
7)	2A	9.25	9.33			+2 " "	
8)	3A	9.21	9.44			+3 " "	
9)	4A	8.77	9.64			+8 " "	
10)	5A	9.32	-				
11)	6D	9.41	-				
12)	7A	9.18	9.34			+4 " "	
13)	8A	9.43	-				
14)	9A	9.69	-				
15)	MW5486-1A	9.31	-				
	2A	9.34	-				

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 5/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2514	1.2615	2.5188	3.7985	5.0310	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ICV**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3381088**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.175	0.20	5.000	0	104	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3381089**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **CCV**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.095	0.20	5.000	0	102	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381092**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.058	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **CCV**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.006	0.20	5.000	0	100	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ZZZZZZ**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381125**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.990	0.20	10.00	0	99.9	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **CCV**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381267**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.989	0.20	5.000	0	99.8	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **ICB**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3381090**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **CCB**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381093**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **CCB**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **CCB**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **CCB**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381126**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133820**
Client ID: **CCB**	Batch ID: **R133820**	TestNo: **EPA 218.6**		Analysis Date: **5/10/2019**	SeqNo: **3381268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/10/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.765	
CCV-2	4.765	
CCV-3	4.765	
CCV-4	4.765	
CCV-5	4.756	

Average	4.763
Actual RT Window	4.683 - 4.843
Applied RT Window	4.563 - 4.963

MB-R133820	N.A.	N.A.
LCS-R133820	4.765	PASS
N035482-001A	N.A.	N.A.
N035482-002A	4.656	PASS
N035483-002A	4.756	PASS
N035487-001A	4.756	PASS
N035482-001AMS	4.673	PASS
N035482-002AMS	4.665	PASS
N035483-002AMS	4.765	PASS
N035487-001AMS	4.756	PASS
N035482-001AMSD	4.673	PASS
N035487-001ADUP	4.756	PASS
N035484-001A	N.A.	N.A.
N035484-001AMS	4.756	PASS
N035484-002A	4.765	PASS
N035484-002AMS	4.765	PASS
N035486-001A	4.756	PASS
N035486-002A	4.756	PASS
N035486-003A	4.756	PASS
N035486-004A	4.756	PASS
N035485-001A	4.756	PASS
N035485-002A	4.756	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/10/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.765	
CCV-2	4.765	
CCV-3	4.765	
CCV-4	4.765	
CCV-5	4.756	
Average	4.763	
Actual RT Window	4.683 - 4.843	
Applied RT Window	4.563 - 4.963	
N035485-003A	4.756	PASS
N035485-004A	4.673	PASS
N035485-005A	4.756	PASS
N035485-006A	4.756	PASS
N035485-007A	4.748	PASS
N035485-008A	4.740	PASS
N035485-009A	N.A.	N.A.
N035485-001A	4.756	PASS
N035240-003A	4.623	PASS
N035240-003AMS	4.623	PASS
N035442-001A	4.765	PASS
N035442-001AMS	4.765	PASS
N035483-002A	4.773	PASS
N035485-007A	4.765	PASS
N035485-008A	4.765	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

rba 5/11/2019

5/15/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

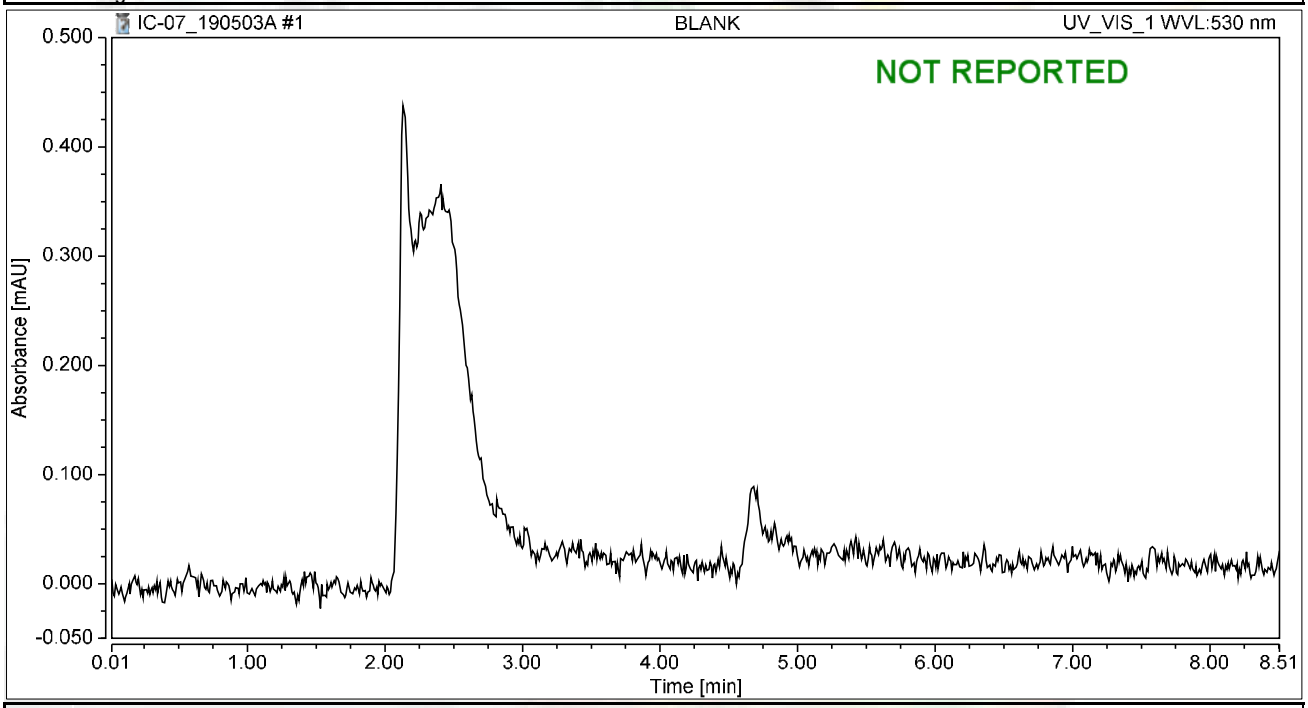
rba 5/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 09:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

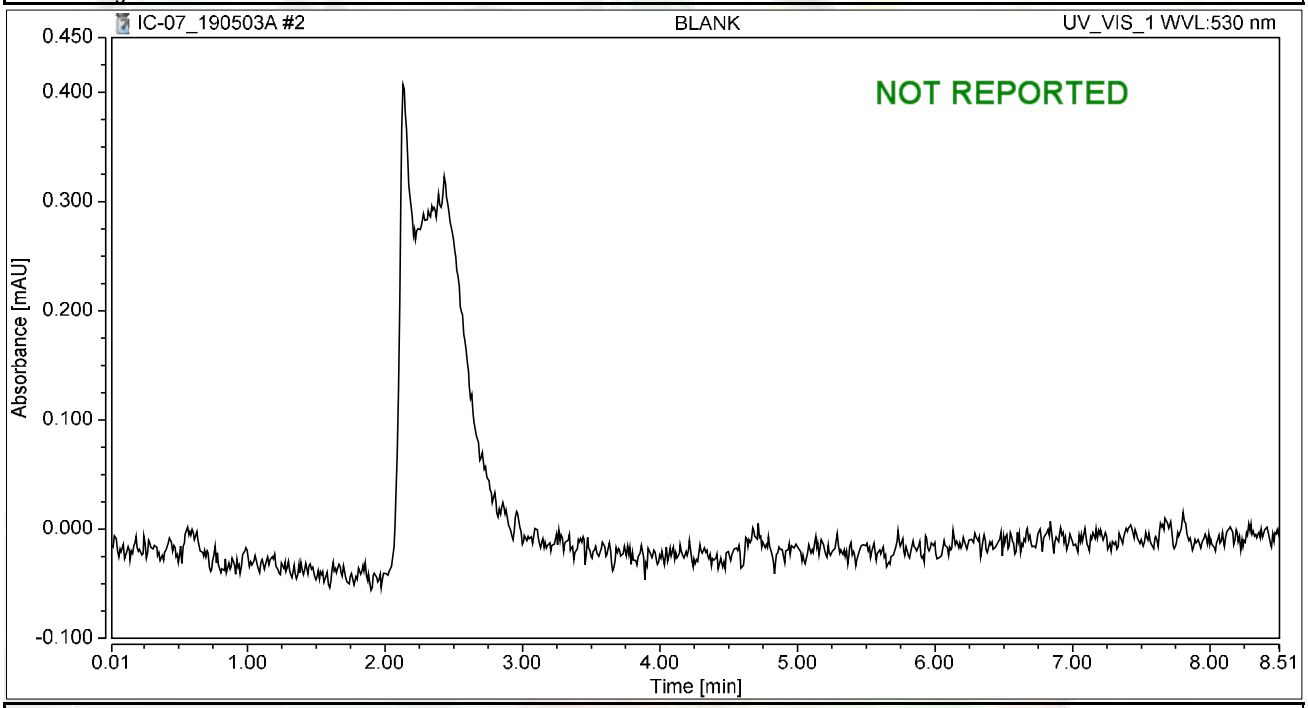
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

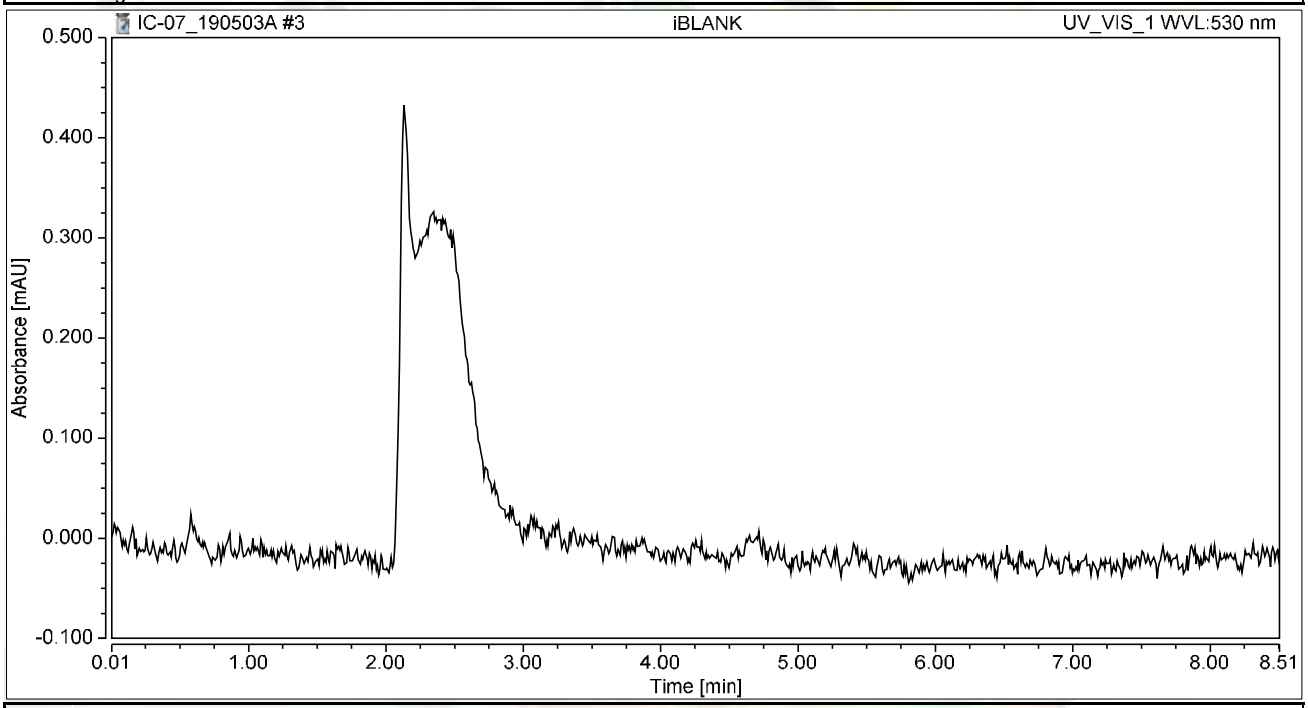
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

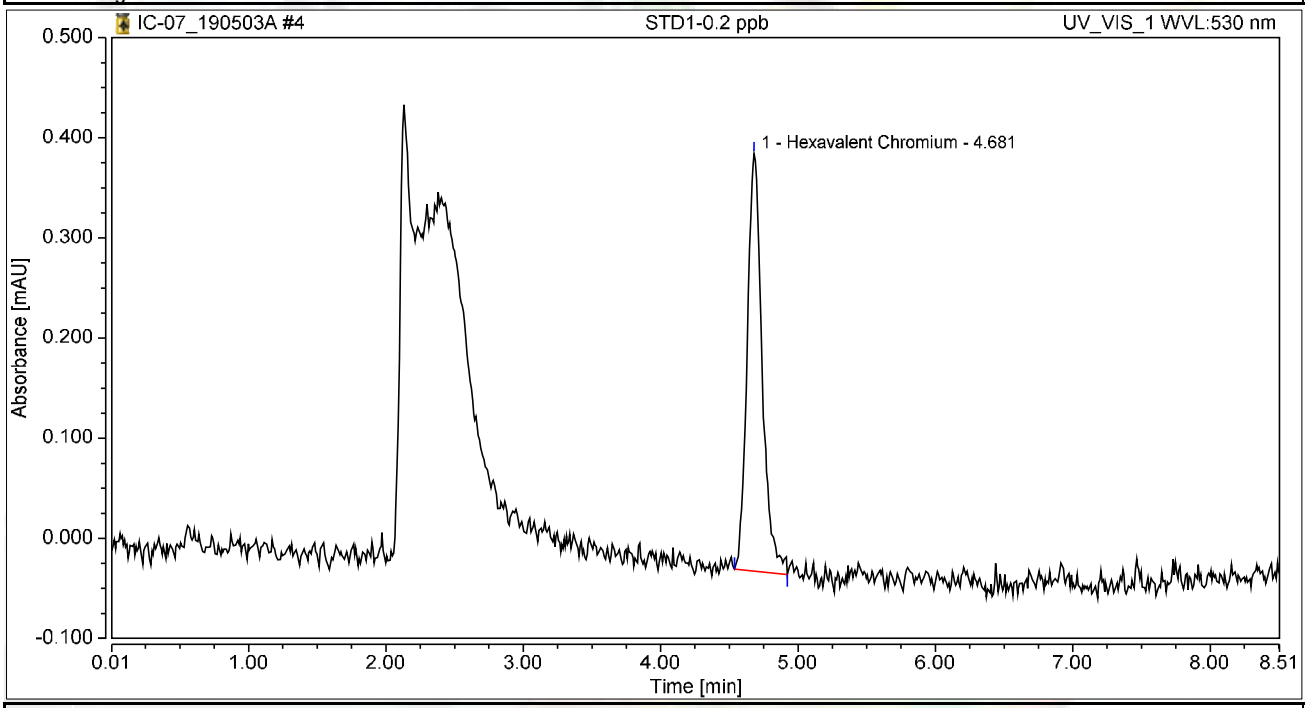
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

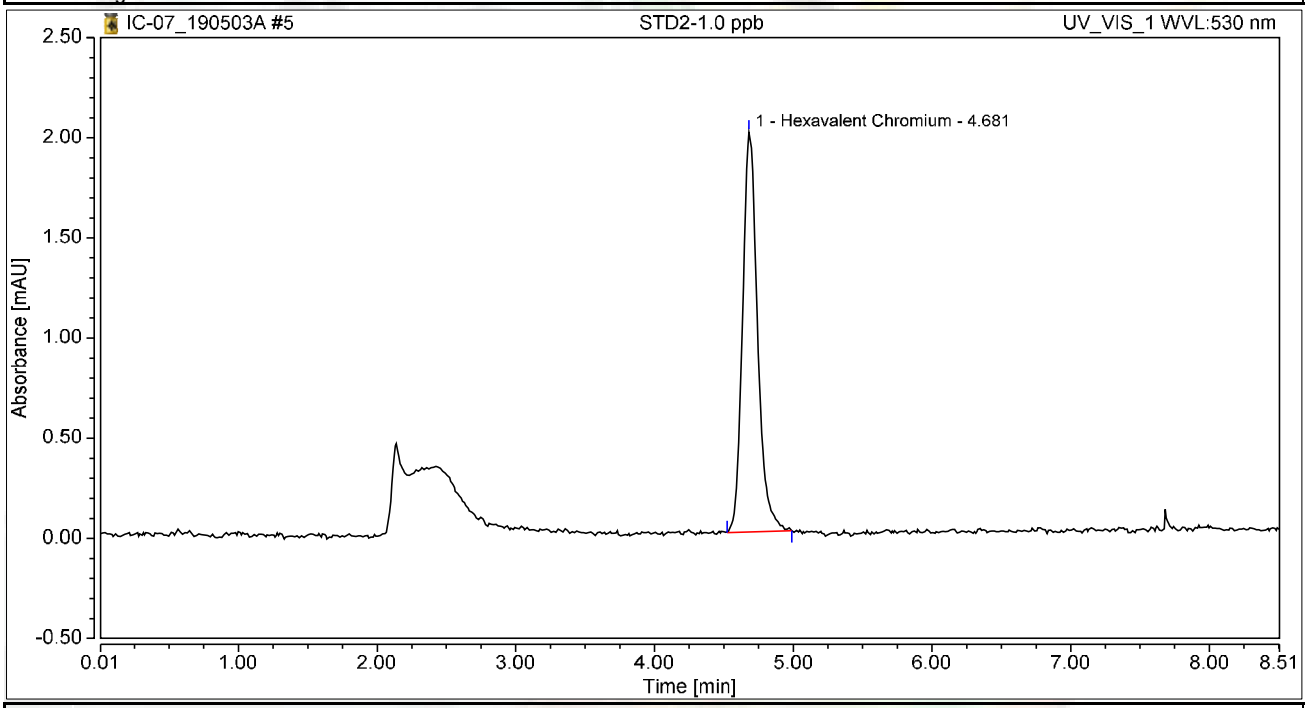
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.053	0.417	100.00	100.00	0.2092
Total:			**0.053**	**0.417**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

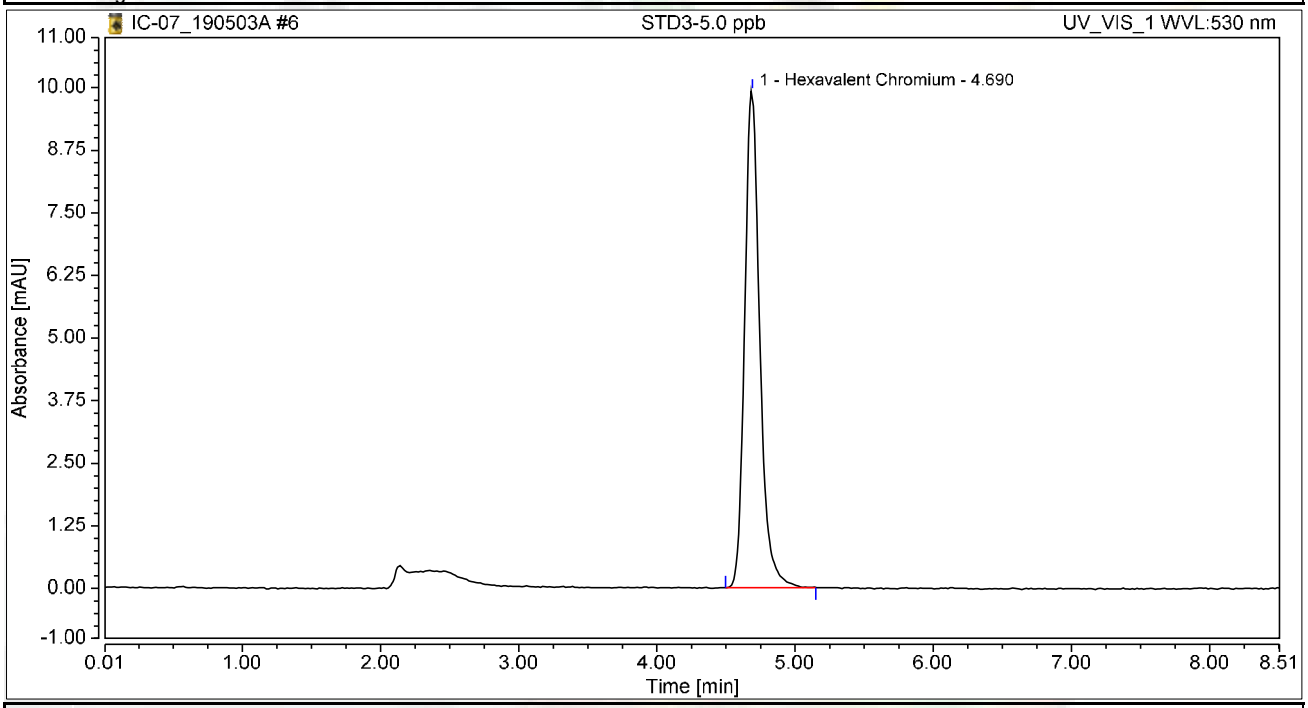
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.251	1.997	100.00	100.00	0.9971
Total:			**0.251**	**1.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

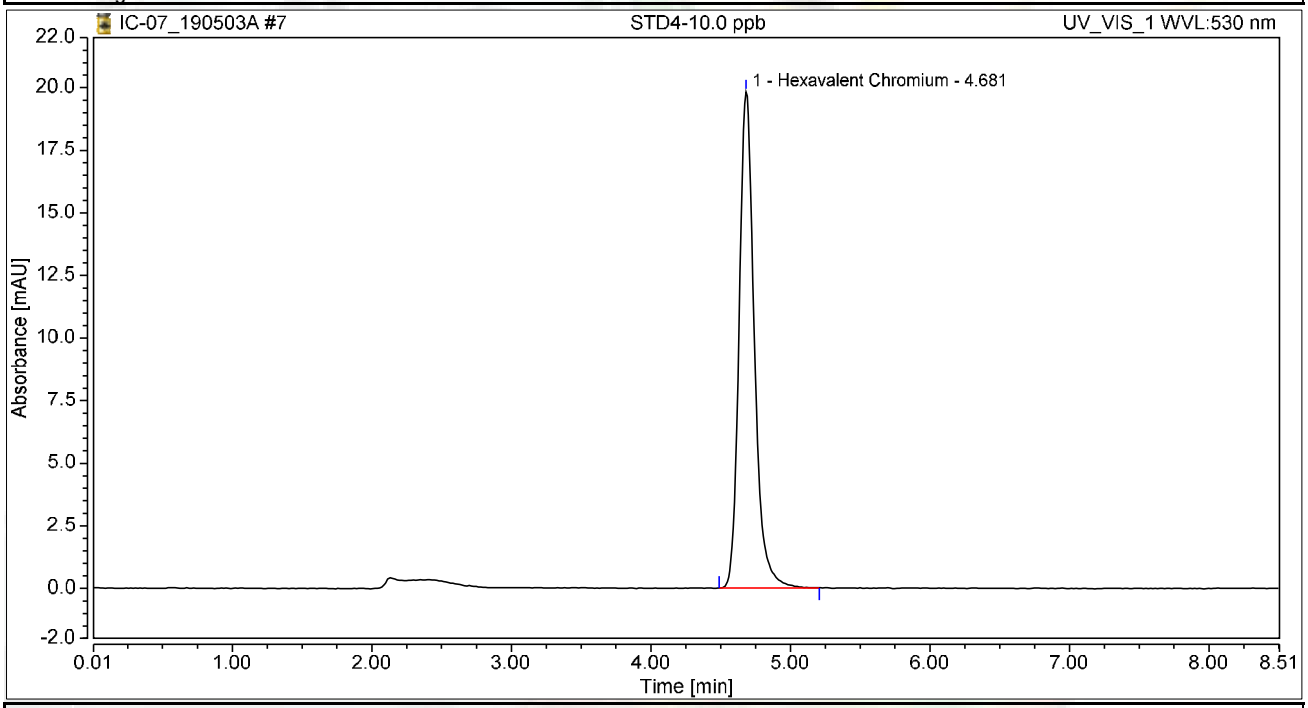
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.261	9.919	100.00	100.00	5.0034
Total:			**1.261**	**9.919**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

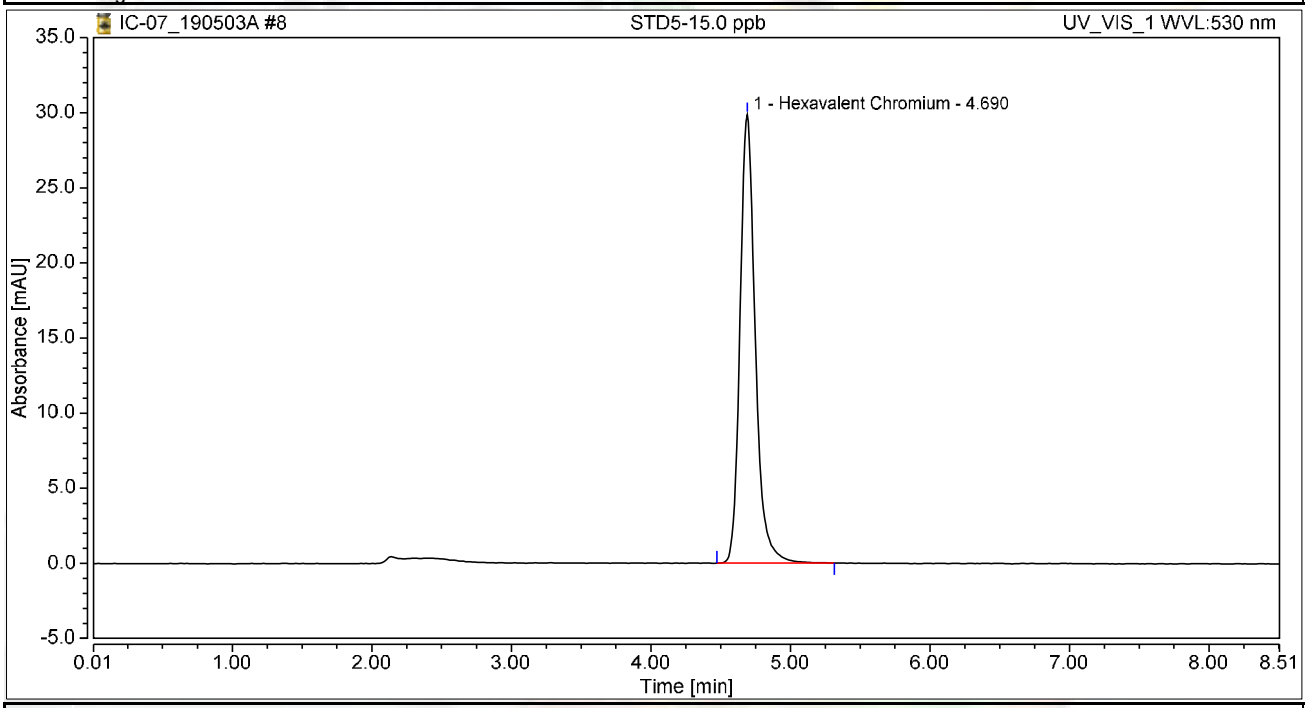
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	2.519	19.825	100.00	100.00	9.9901
Total:			**2.519**	**19.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

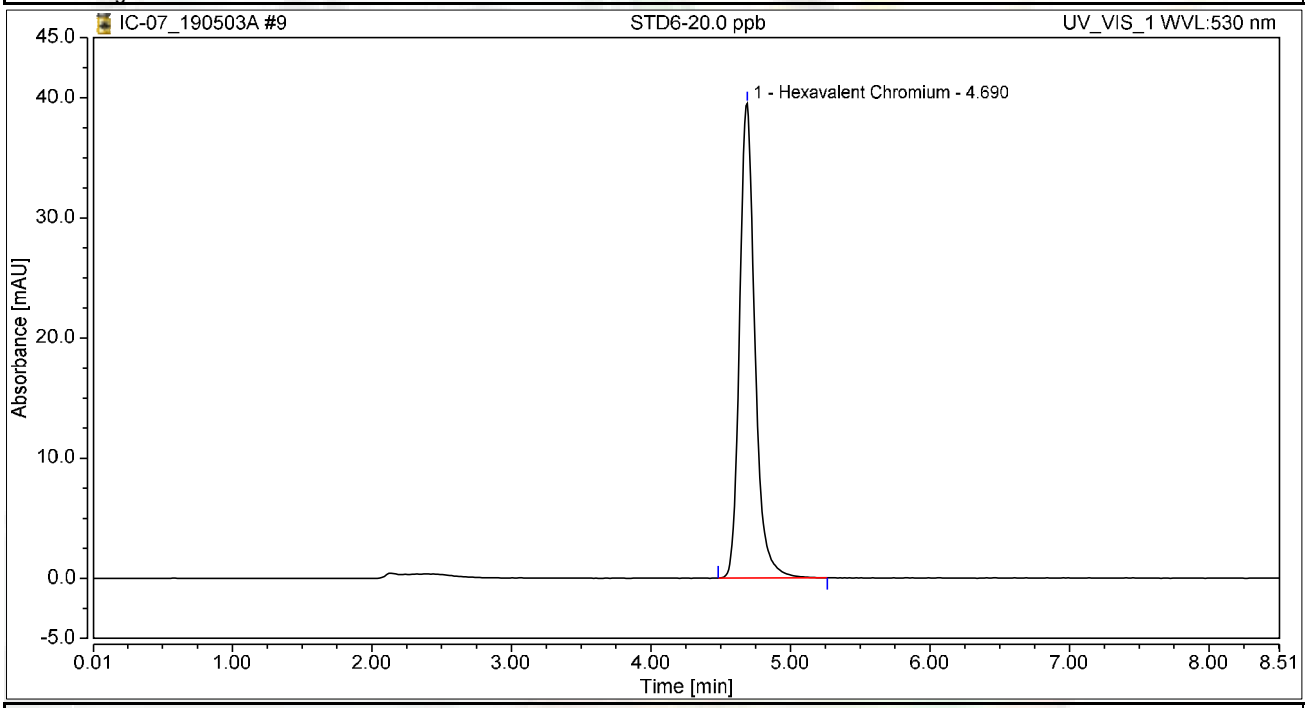
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.799	29.868	100.00	100.00	15.0660
Total:			**3.799**	**29.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



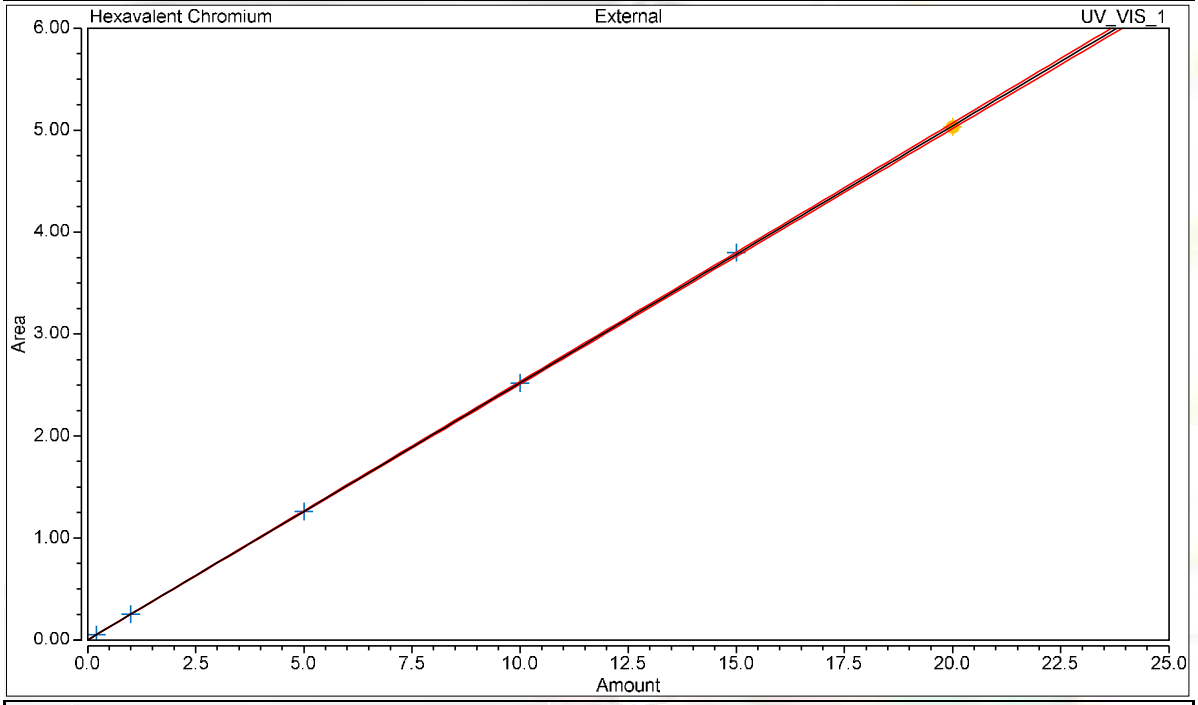
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	5.031	39.475	100.00	100.00	19.9546
Total:			**5.031**	**39.475**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2521
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

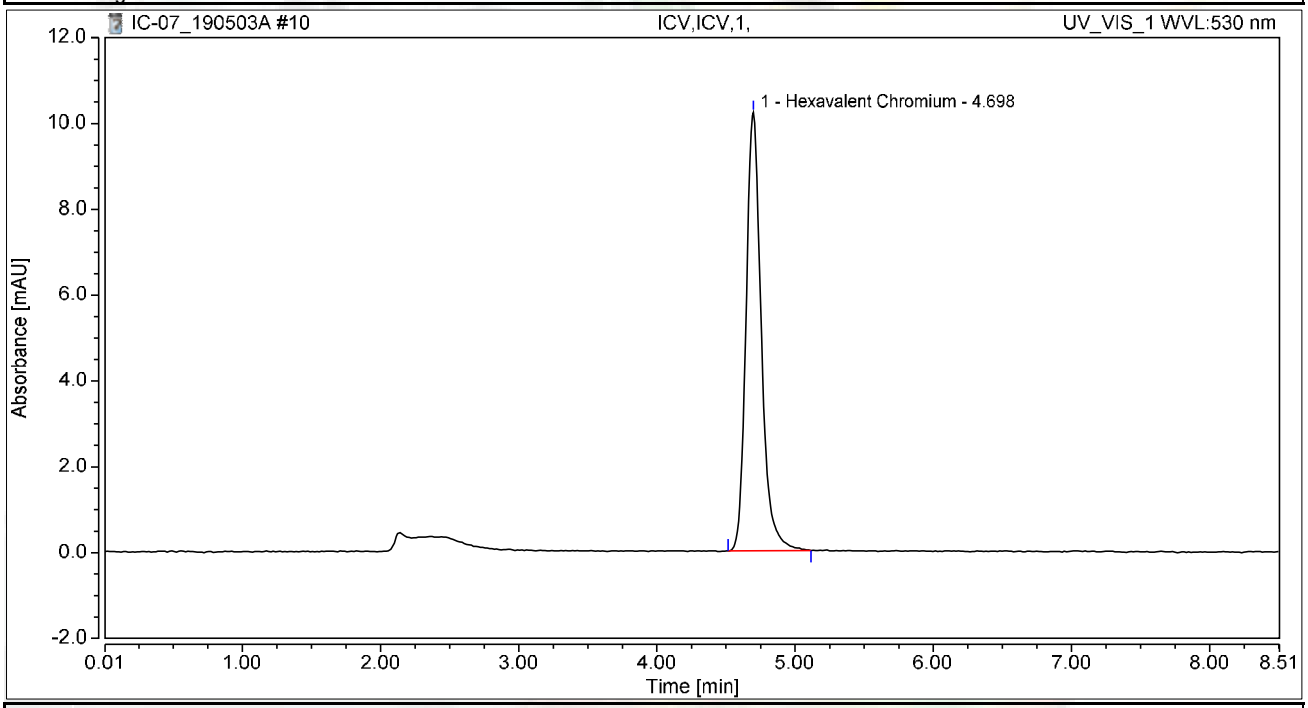
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.417
5	STD2-1.0 ppb	02	1.0000	0.2514	0.251	1.997
6	STD3-5.0 ppb	03	5.0000	1.2615	1.261	9.919
7	STD4-10.0 ppb	04	10.0000	2.5188	2.519	19.825
8	STD5-15.0 ppb	05	15.0000	3.7985	3.799	29.868
9	STD6-20.0 ppb	06	20.0000	5.0310	5.031	39.475

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

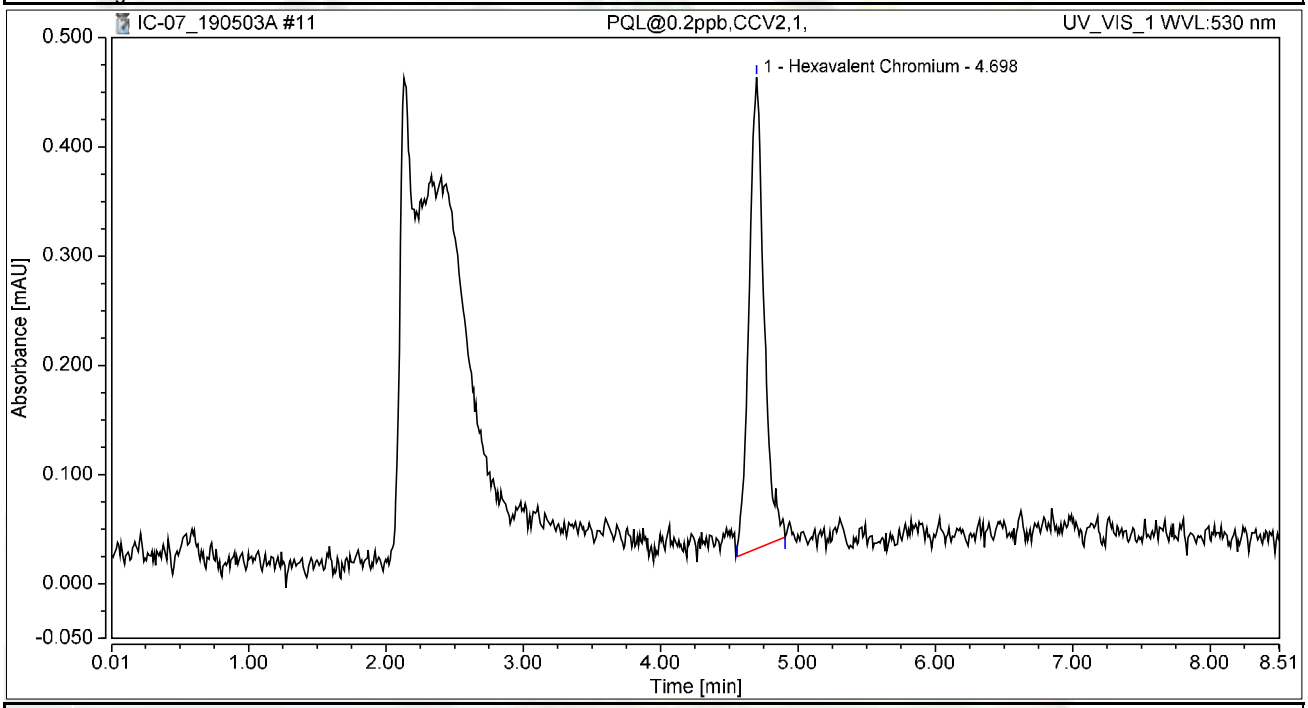
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.305	10.217	100.00	100.00	5.1753
Total:			**1.305**	**10.217**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

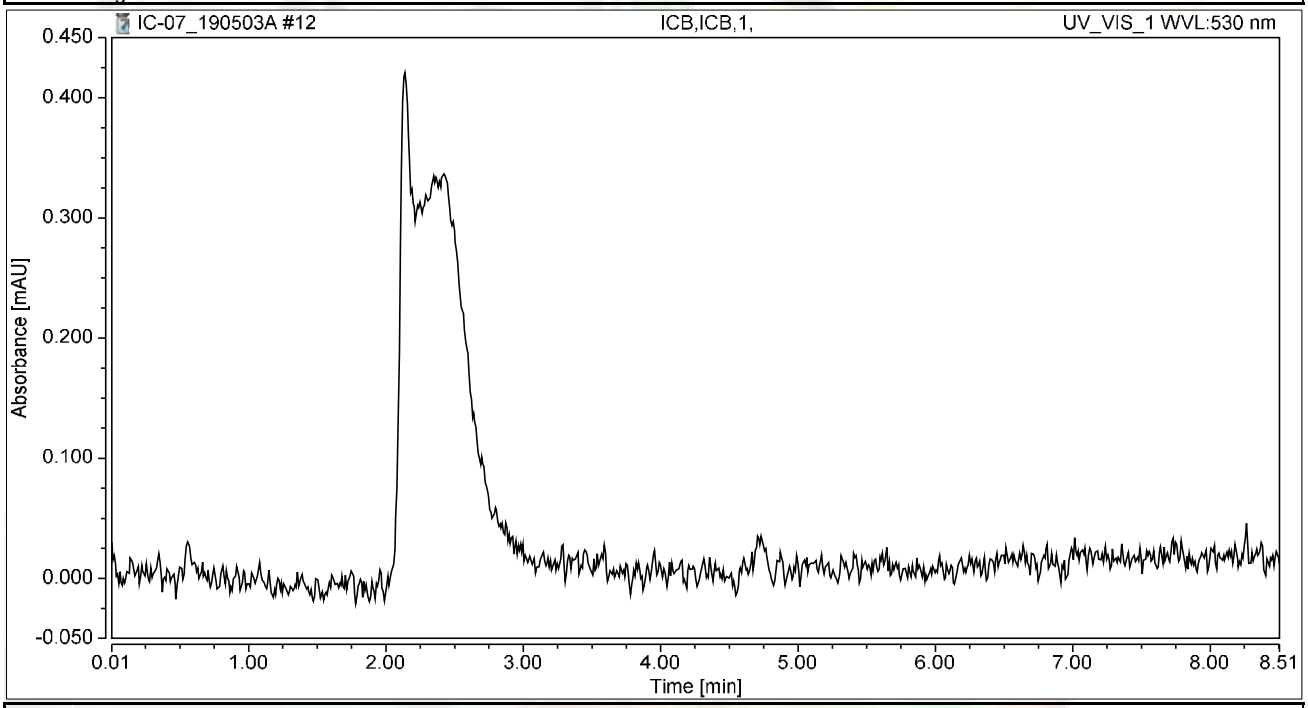
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.431	100.00	100.00	0.2143
Total:			**0.054**	**0.431**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190510A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/10/19 8:29 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/10/19 8:40 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/10/19 8:49 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/10/19 8:59 AM	Reported
14	MB-R133820	MBLK	1	Hexavalent Chromium	05/10/19 9:08 AM	Reported
15	LCS-R133820	LCS	1	Hexavalent Chromium	05/10/19 9:18 AM	Reported
16	N035482-001A	SAMP	1	Hexavalent Chromium	05/10/19 9:35 AM	Reported
17	N035482-002A	SAMP	1	Hexavalent Chromium	05/10/19 9:46 AM	Reported
18	N035483-002A	SAMP	1	Hexavalent Chromium	05/10/19 9:56 AM	Reported
19	N035487-001A	SAMP	1	Hexavalent Chromium	05/10/19 10:05 AM	Reported
20	N035482-001AMS	MS	1	Hexavalent Chromium	05/10/19 10:15 AM	Reported
21	N035482-002AMS	MS	1	Hexavalent Chromium	05/10/19 10:24 AM	Reported
22	N035483-002AMS	MS	1	Hexavalent Chromium	05/10/19 10:33 AM	Reported
23	N035487-001AMS	MS	1	Hexavalent Chromium	05/10/19 10:43 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	05/10/19 10:52 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/10/19 11:02 AM	Reported
26	N035482-001AMSD	MSD	1	Hexavalent Chromium	05/10/19 11:11 AM	Reported
27	N035487-001ADUP	DUP	1	Hexavalent Chromium	05/10/19 11:21 AM	Reported
28	N035484-001A	SAMP	1	Hexavalent Chromium	05/10/19 11:30 AM	Reported
29	N035484-001AMS	MS	1	Hexavalent Chromium	05/10/19 11:40 AM	Reported
30	N035484-002A	SAMP	100	Hexavalent Chromium	05/10/19 11:49 AM	Reported
31	N035484-002AMS	MS	100	Hexavalent Chromium	05/10/19 11:59 AM	Reported
32	N035486-001A	SAMP	10	Hexavalent Chromium	05/10/19 12:08 PM	Reported
33	N035486-002A	SAMP	100	Hexavalent Chromium	05/10/19 12:18 PM	Reported
34	N035486-003A	SAMP	10	Hexavalent Chromium	05/10/19 12:27 PM	Reported
35	N035486-004A	SAMP	10	Hexavalent Chromium	05/10/19 12:36 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	05/10/19 12:46 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/10/19 12:55 PM	Reported
38	N035485-001A	SAMP	5	Hexavalent Chromium	05/10/19 1:05 PM	Not Reported
39	N035485-002A	SAMP	1	Hexavalent Chromium	05/10/19 1:14 PM	Reported
40	N035485-003A	SAMP	1	Hexavalent Chromium	05/10/19 1:24 PM	Reported
41	N035485-004A	SAMP	1	Hexavalent Chromium	05/10/19 1:33 PM	Reported
42	N035485-005A	SAMP	1	Hexavalent Chromium	05/10/19 1:43 PM	Reported

INJECTION LOG: 190510A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035485-006A	SAMP	1	Hexavalent Chromium	05/10/19 1:52 PM	Reported
44	N035485-007A	SAMP	1	Hexavalent Chromium	05/10/19 2:02 PM	Not Reported
45	N035485-008A	SAMP	1	Hexavalent Chromium	05/10/19 2:11 PM	Not Reported
46	N035485-009A	SAMP	1	Hexavalent Chromium	05/10/19 2:21 PM	Reported
47	N035485-001A	SAMP	1	Hexavalent Chromium	05/10/19 2:30 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	05/10/19 2:39 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	05/10/19 2:49 PM	Reported
50	N035240-003A	SAMP	1	Hexavalent Chromium	05/10/19 2:58 PM	Not Reported
51	N035240-003AMS	MS	1	Hexavalent Chromium	05/10/19 3:08 PM	Not Reported
52	N035442-001A	SAMP	1	Hexavalent Chromium	05/10/19 3:17 PM	Not Reported
53	N035442-001AMS	MS	1	Hexavalent Chromium	05/10/19 3:27 PM	Not Reported
54	N035483-002A	SAMP	1	Hexavalent Chromium	05/10/19 3:36 PM	Not Reported
55	N035485-007A	SAMP	5	Hexavalent Chromium	05/10/19 3:46 PM	Reported
56	N035485-008A	SAMP	20	Hexavalent Chromium	05/10/19 3:55 PM	Reported
57	CCV-5	CCV	1	Hexavalent Chromium	05/10/19 4:05 PM	Reported
58	CCB-5	CCB	1	Hexavalent Chromium	05/10/19 4:14 PM	Reported
59	BLANK	BLANK	1	Hexavalent Chromium	05/10/19 4:24 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190510A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**10/May/19 16:54:20**
No. of Injections:	**62**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/10/2019 08:29	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/10/2019 08:40	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/10/2019 08:49	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/10/2019 08:59	Finished	CCB R190411C
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/10/2019 09:08	Finished	MB R190411C
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/10/2019 09:18	Finished	LCS @5ppb, IWST-190423B
16	N035482-001A,SAMP	1	1000	Unknown		05/10/2019 09:35	Finished	SAMP, 10mL
17	N035482-002A,SAMP	2	1000	Unknown		05/10/2019 09:46	Finished	SAMP, 10mL
18	N035483-002A,SAMP	3	1000	Unknown		05/10/2019 09:56	Finished	SAMP, 10mL
19	N035487-001A,SAMP	5	1000	Unknown		05/10/2019 10:05	Finished	SAMP, 10mL
20	N035482-001AMS,MS	6	1000	Unknown		05/10/2019 10:15	Finished	MS (1ppb), IWST-190423B,10
21	N035482-002AMS,MS	7	1000	Unknown		05/10/2019 10:24	Finished	MS (1ppb), IWST-190423B,10
22	N035483-002AMS,MS	8	1000	Unknown		05/10/2019 10:33	Finished	MS (1ppb), IWST-190423B,10
23	N035487-001AMS,MS	9	1000	Unknown		05/10/2019 10:43	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	10	1000	Unknown		05/10/2019 10:52	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	11	1000	Unknown		05/10/2019 11:02	Finished	CCB R190411C
26	N035482-001AMSD,M	12	1000	Unknown		05/10/2019 11:11	Finished	MSD (1ppb), IWST-190423B,1
27	N035487-001ADUP,D	13	1000	Unknown		05/10/2019 11:21	Finished	DUP, 10mL
28	N035484-001A,SAMP	14	1000	Unknown		05/10/2019 11:30	Finished	SAMP, 10mL
29	N035484-001AMS,MS	15	1000	Unknown		05/10/2019 11:40	Finished	MS (1ppb), IWST-190423B,10
30	N035484-002A,SAMP	16	1000	Unknown		05/10/2019 11:49	Finished	SAMP, 0.1>10mL
31	N035484-002AMS,MS	17	1000	Unknown		05/10/2019 11:59	Finished	MS (5ppb), IWST-190423B,0.1
32	N035486-001A,SAMP	18	1000	Unknown		05/10/2019 12:08	Finished	SAMP, 1>10mL
33	N035486-002A,SAMP	19	1000	Unknown		05/10/2019 12:18	Finished	SAMP, 0.1>10mL
34	N035486-003A,SAMP	20	1000	Unknown		05/10/2019 12:27	Finished	SAMP, 1>10mL
35	N035486-004A,SAMP	21	1000	Unknown		05/10/2019 12:36	Finished	SAMP, 1>10mL
36	CCV-3,CCV,1,	22	1000	Unknown		05/10/2019 12:46	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	23	1000	Unknown		05/10/2019 12:55	Finished	CCB R190411C
38	N035485-001A,SAMP	24	1000	Unknown		05/10/2019 13:05	Finished	SAMP,2>10mL
39	N035485-002A,SAMP	25	1000	Unknown		05/10/2019 13:14	Finished	SAMP, 10mL
40	N035485-003A,SAMP	26	1000	Unknown		05/10/2019 13:24	Finished	SAMP, 10mL
41	N035485-004A,SAMP	27	1000	Unknown		05/10/2019 13:33	Finished	SAMP, 10mL
42	N035485-005A,SAMP	28	1000	Unknown		05/10/2019 13:43	Finished	SAMP, 10mL
43	N035485-006A,SAMP	29	1000	Unknown		05/10/2019 13:52	Finished	SAMP, 10mL
44	N035485-007A,SAMP	30	1000	Unknown		05/10/2019 14:02	Finished	SAMP, 10mL
45	N035485-008A,SAMP	31	1000	Unknown		05/10/2019 14:11	Finished	SAMP, 10mL
46	N035485-009A,SAMP	32	1000	Unknown		05/10/2019 14:21	Finished	SAMP,5>10mL
47	N035485-001A,SAMP	33	1000	Unknown		05/10/2019 14:30	Finished	SAMP, 10mL
48	CCV-4,CCV1,1,	34	1000	Unknown		05/10/2019 14:39	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	35	1000	Unknown		05/10/2019 14:49	Finished	CCB R190411C
50	N035240-003A,SAMP	36	1000	Unknown		05/10/2019 14:58	Finished	SAMP, 10mL
51	N035240-003AMS,MS	37	1000	Unknown		05/10/2019 15:08	Finished	MS (1ppb), IWST-190423B,10
52	N035442-001A,SAMP	38	1000	Unknown		05/10/2019 15:17	Finished	SAMP, 10mL
53	N035442-001AMS,MS	39	1000	Unknown		05/10/2019 15:27	Finished	MS (1ppb), IWST-190423B,10
54	N035483-002A,SAMP	40	1000	Unknown		05/10/2019 15:36	Finished	SAMP, 10mL
55	N035485-007A,SAMP	41	1000	Unknown		05/10/2019 15:46	Finished	SAMP,2>10mL
56	N035485-008A,SAMP	42	1000	Unknown		05/10/2019 15:55	Finished	SAMP,0.5>10mL
57	CCV-5,CCV,1,	43	1000	Unknown		05/10/2019 16:05	Finished	CCV @5ppb, IWST-190423A
58	CCB-5,CCB,1,	44	1000	Unknown		05/10/2019 16:14	Finished	CCB R190411C
59	BLANK	45	1000	Unknown		05/10/2019 16:24	Finished	BLANK
60	SHUTDOWN	46	1000	Unknown		05/10/2019 16:33	Finished	

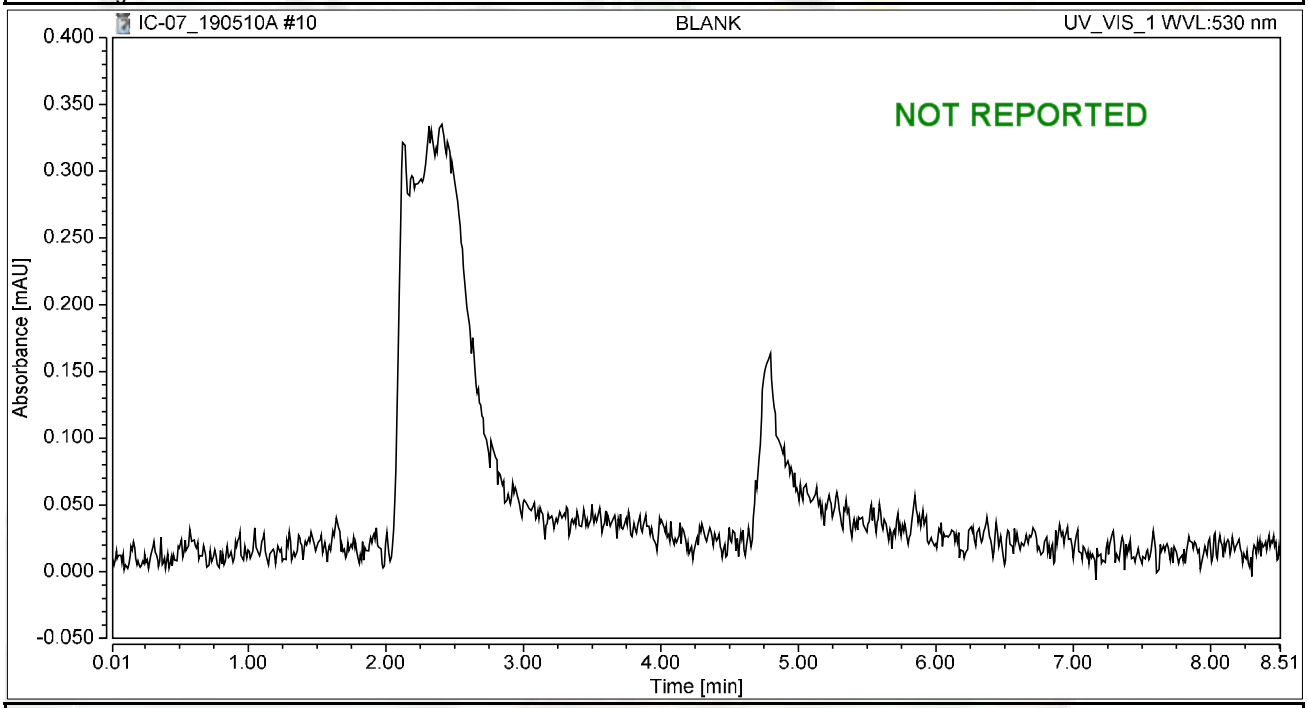
61	Eluent: R190509D	47	1000	Unknown		n.a.	Finished	Eluent
62	PCR: R190509E	48	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 08:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

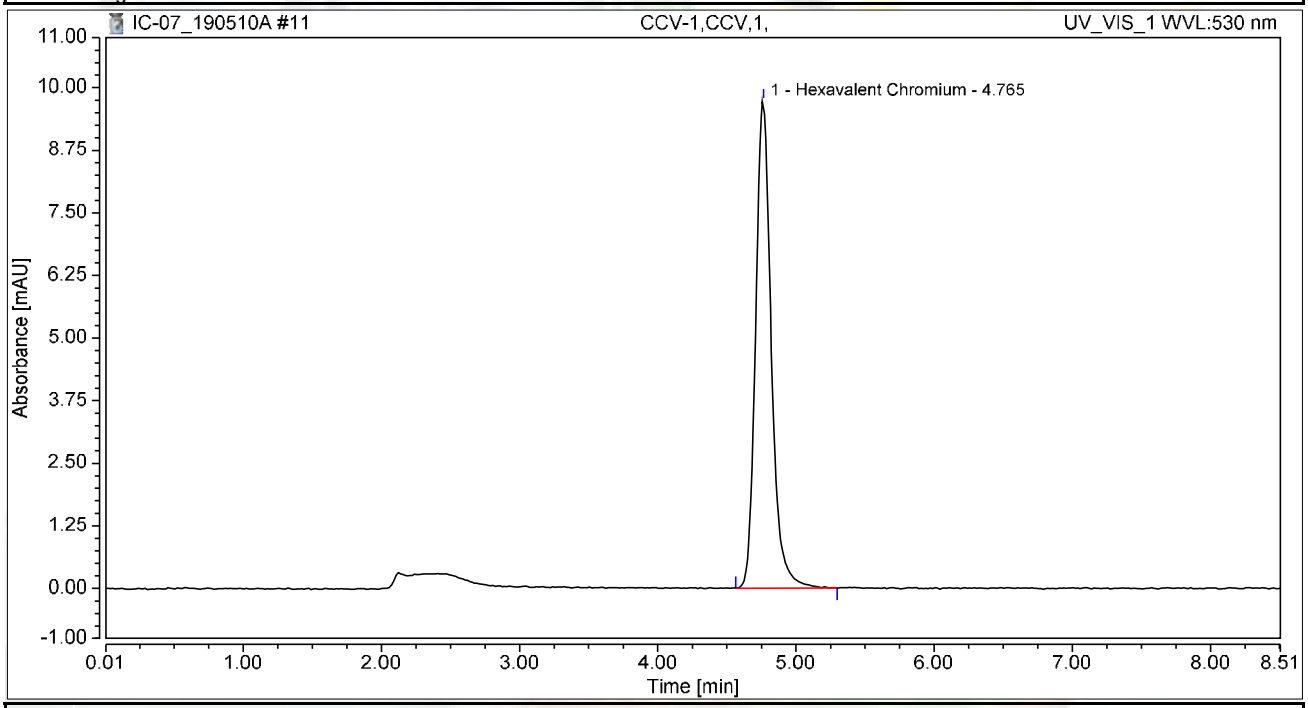
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 08:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

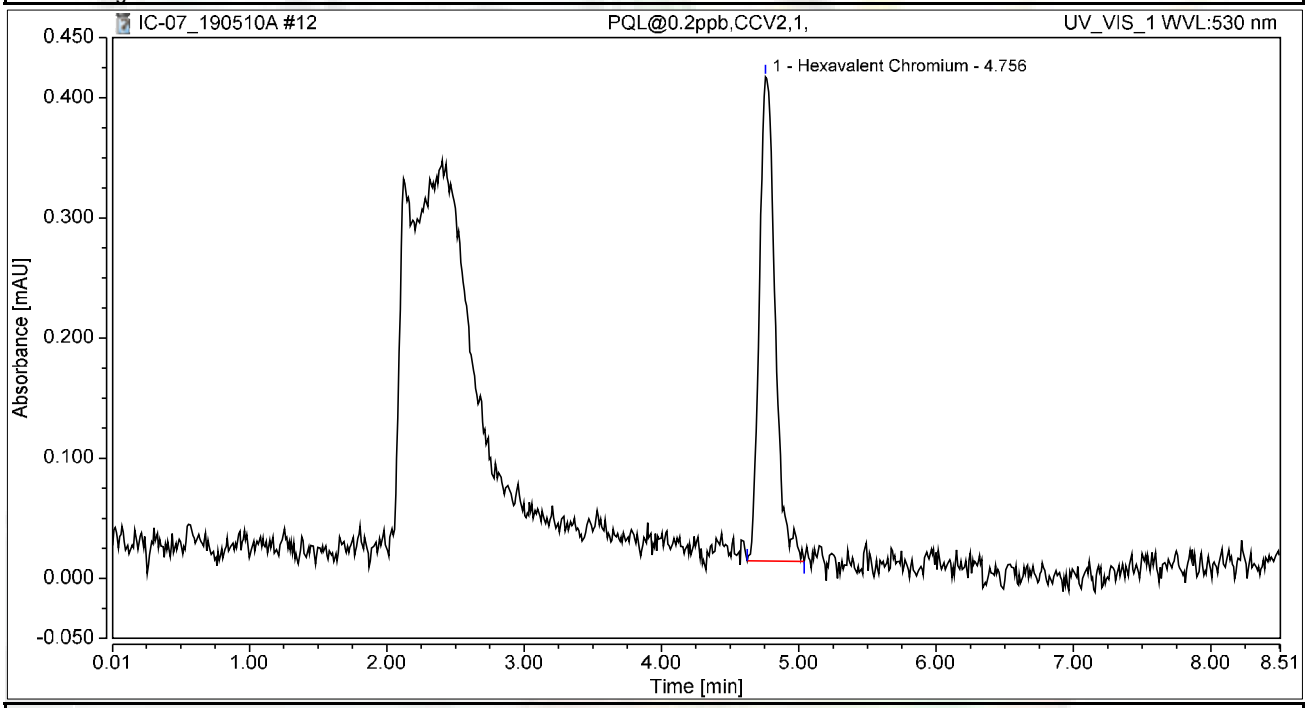
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	1.285	9.733	100.00	100.00	5.0951
Total:			**1.285**	**9.733**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 08:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

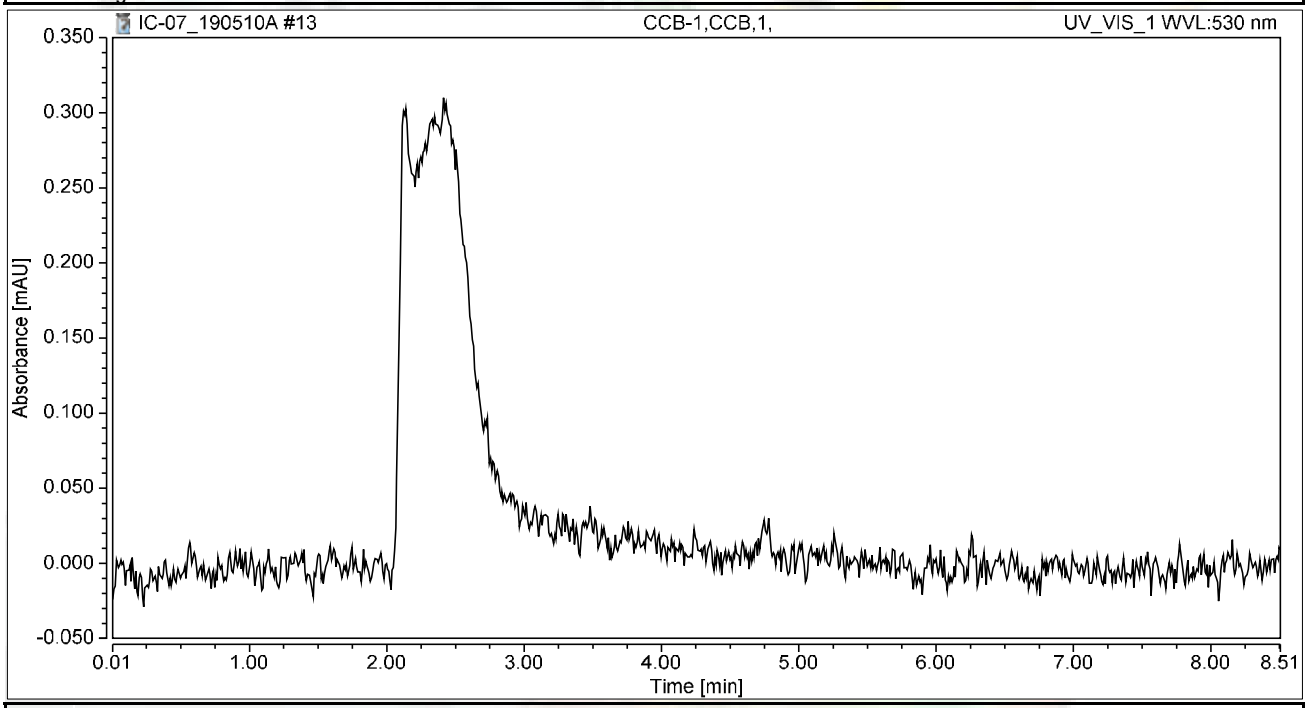
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.054	0.403	100.00	100.00	0.2138
Total:			**0.054**	**0.403**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 08:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

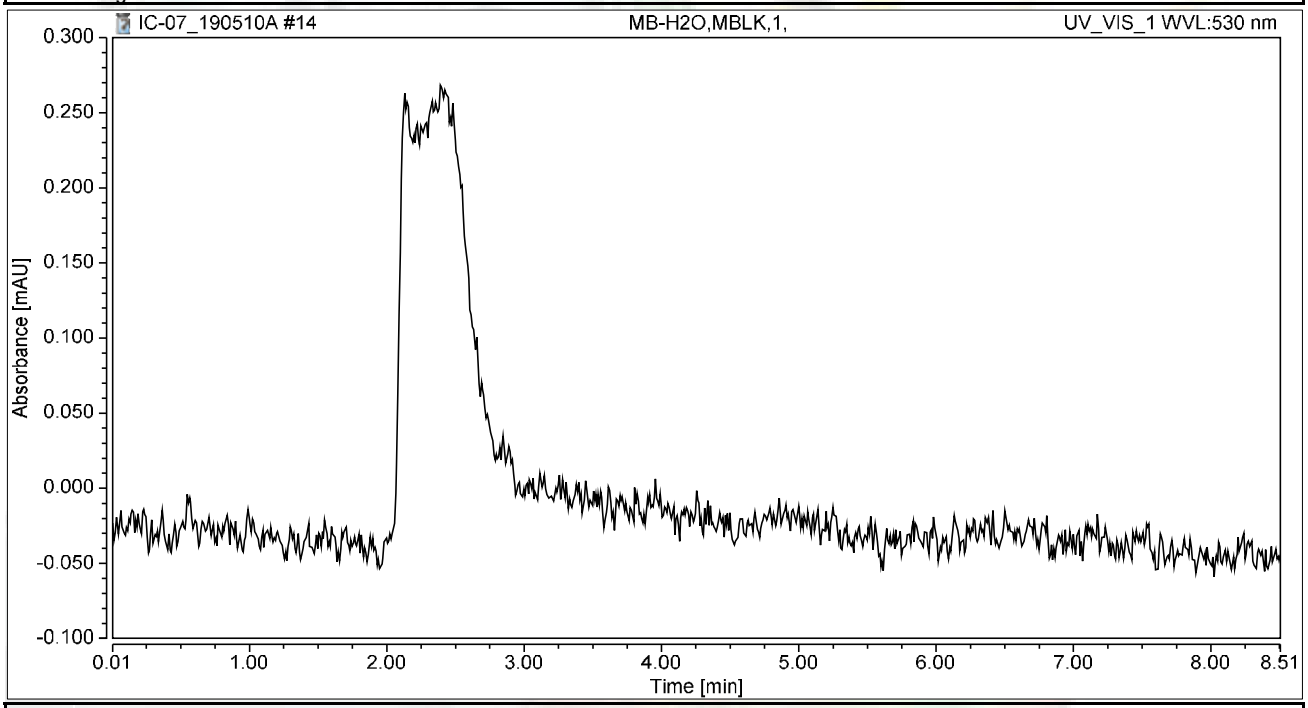
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 09:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

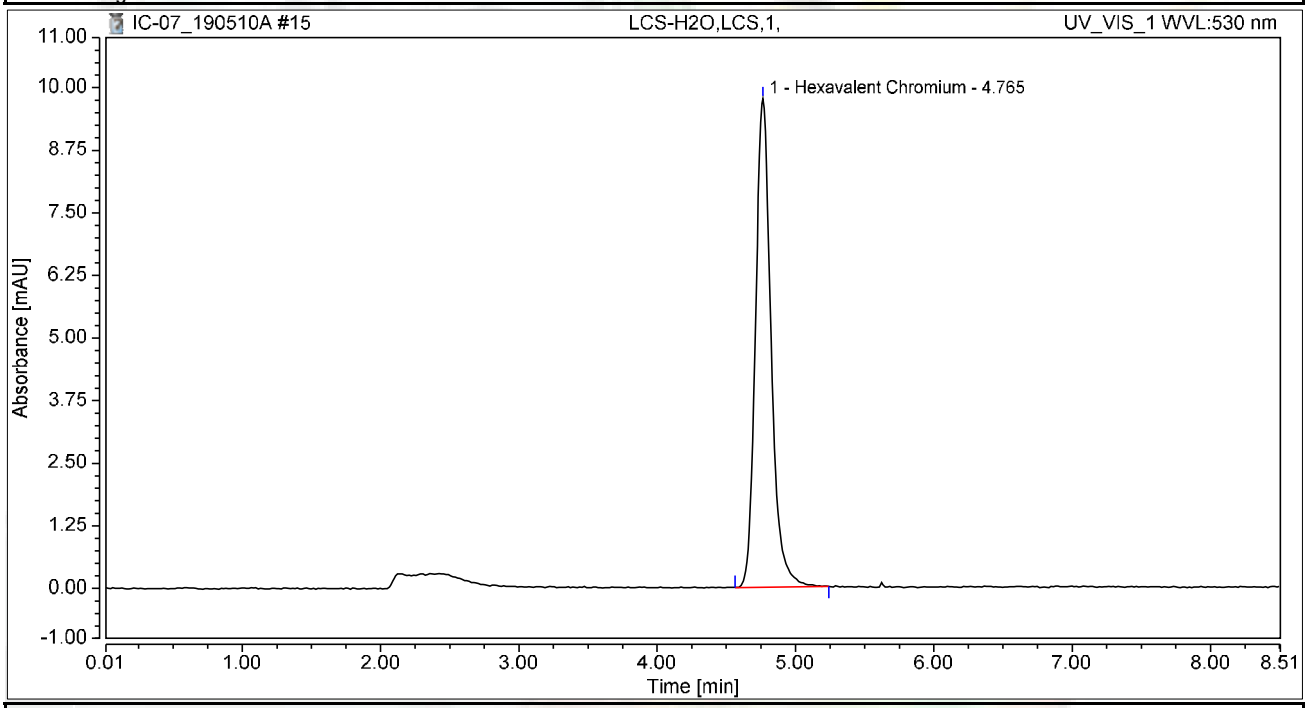
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 09:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

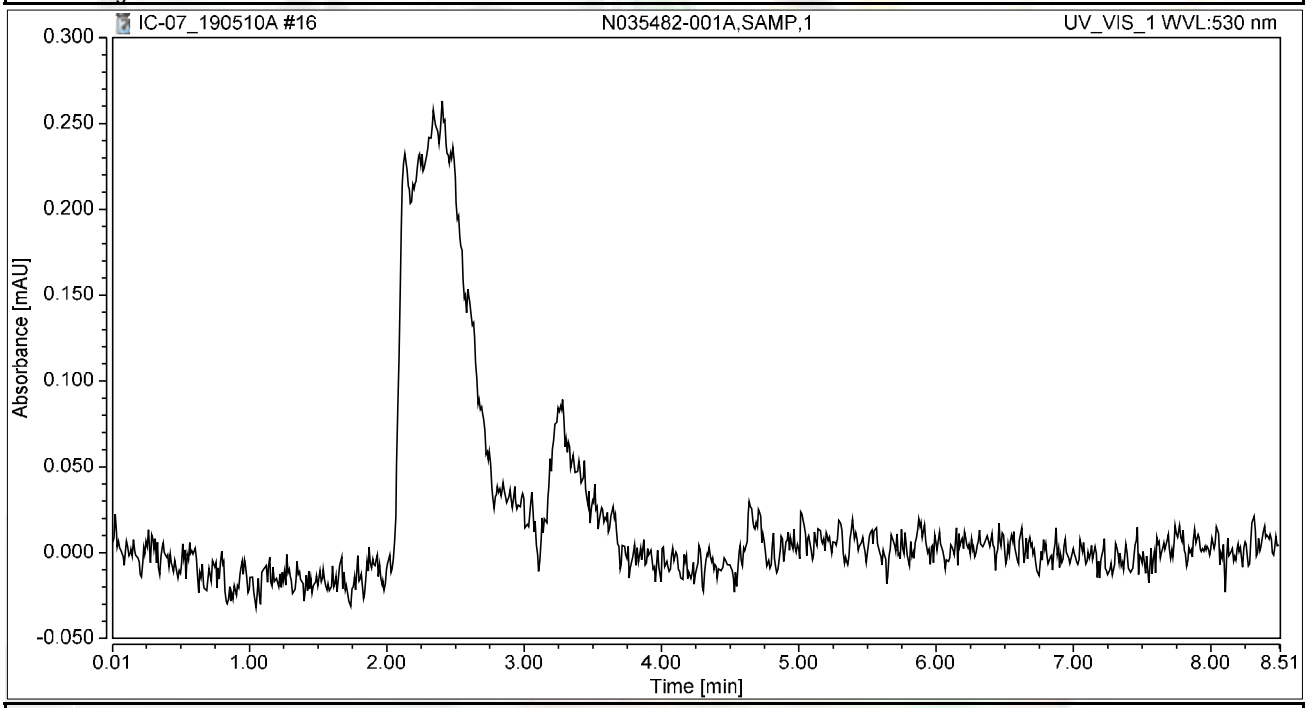
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	1.275	9.757	100.00	100.00	5.0565
Total:			**1.275**	**9.757**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035482-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 09:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

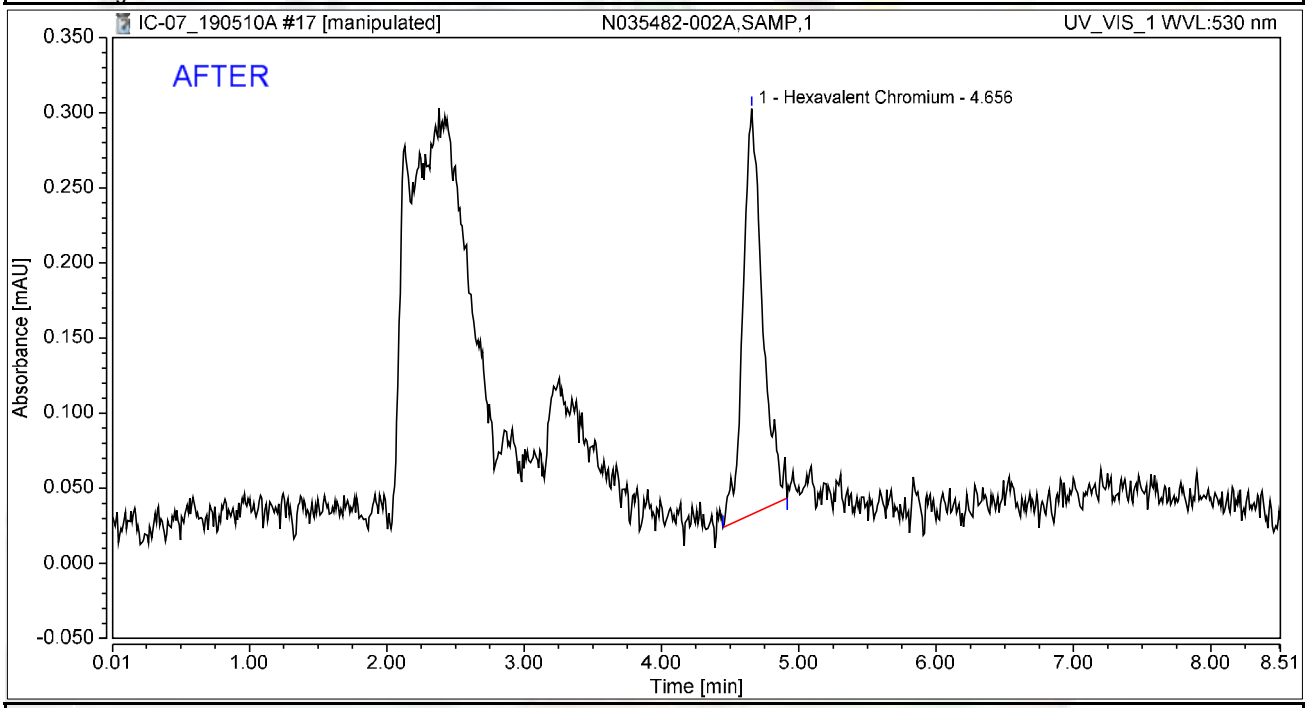
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035482-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 09:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.045	0.270	100.00	100.00	0.1777
Total:			**0.045**	**0.270**	**100.00**	**100.00**	

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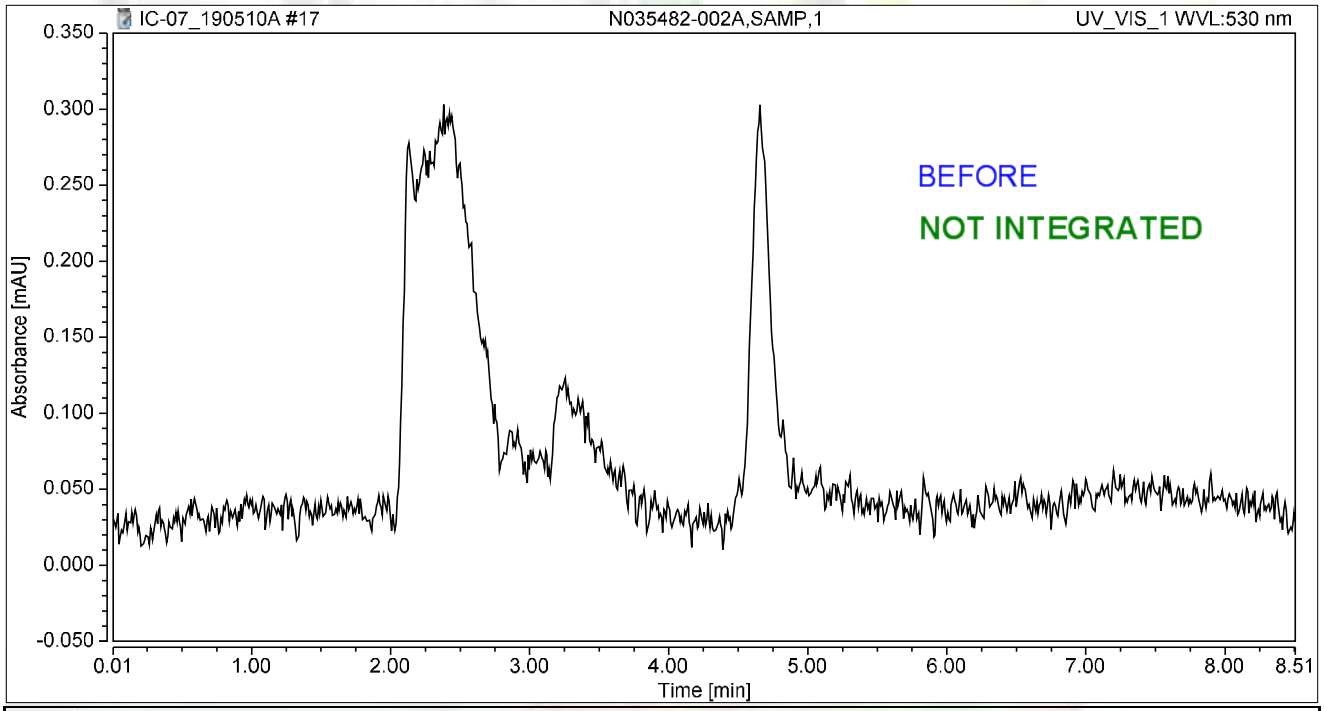
Chromatogram and Results

Injection Details

Injection Name:	**N035482-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 09:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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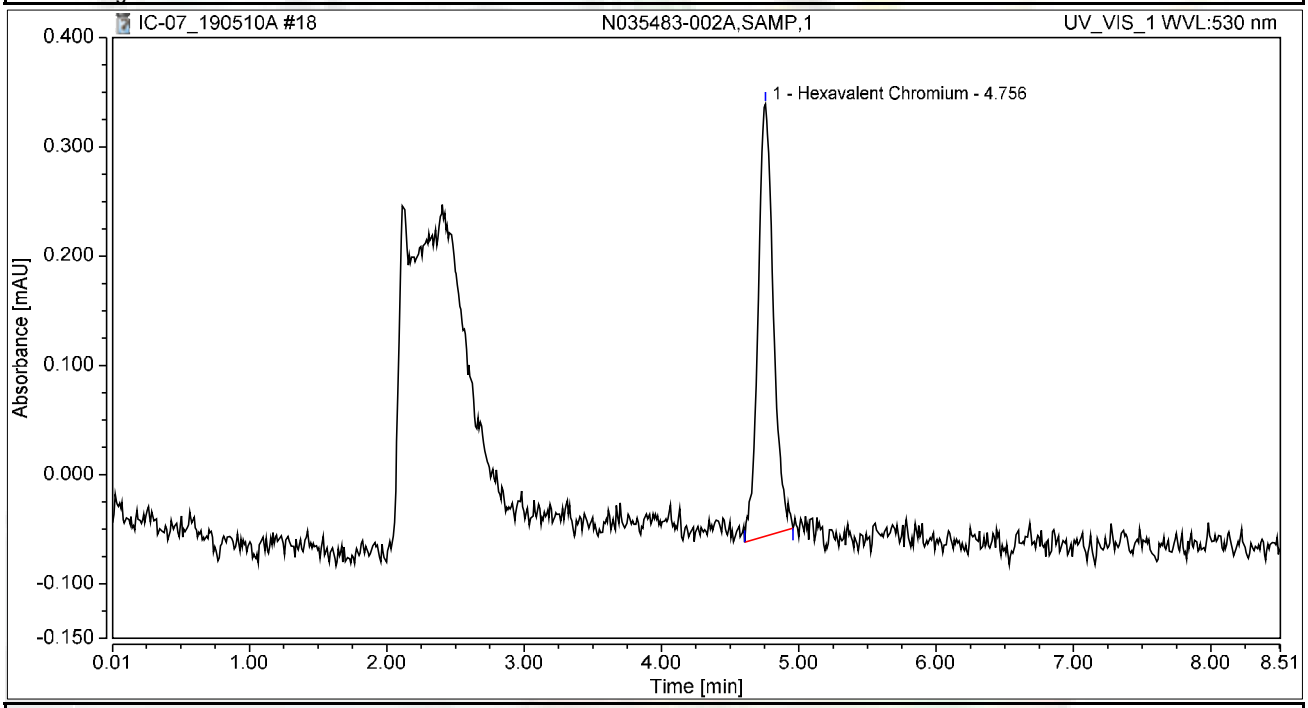
Chromatogram and Results

Injection Details

Injection Name:	**N035483-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 09:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

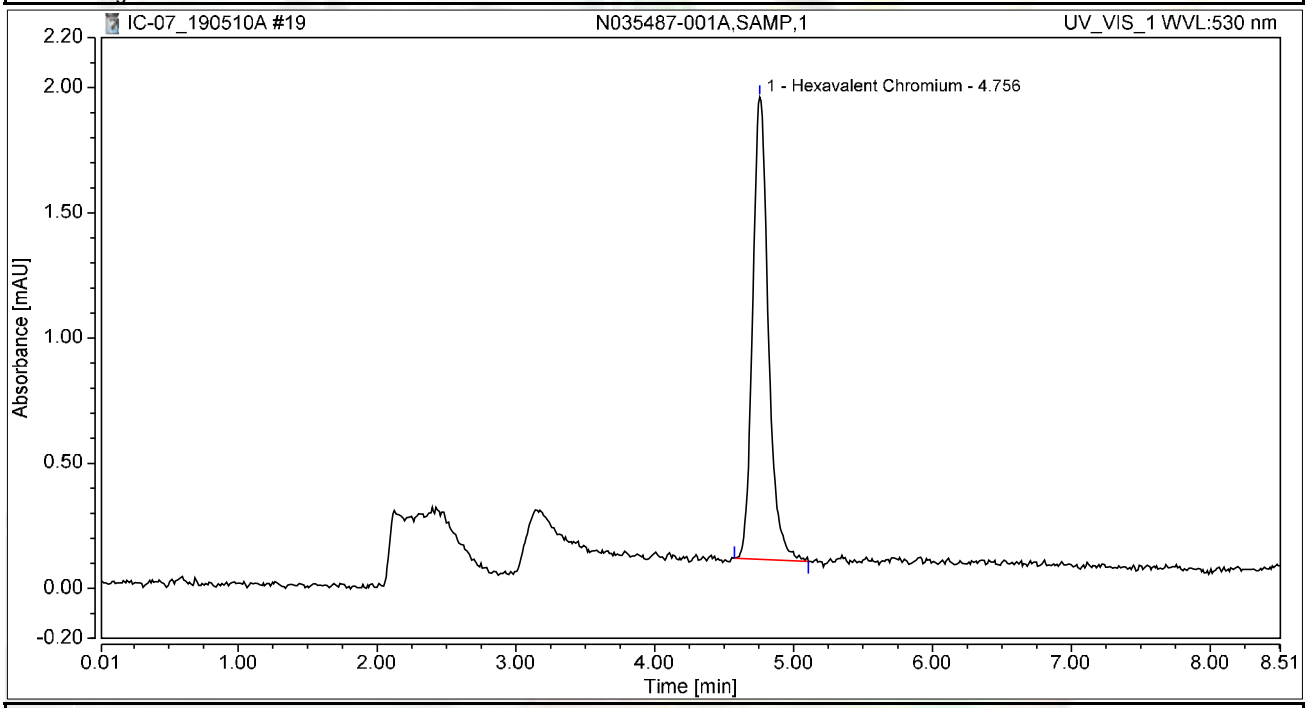
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.051	0.396	100.00	100.00	0.2033
Total:			**0.051**	**0.396**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035487-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 10:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

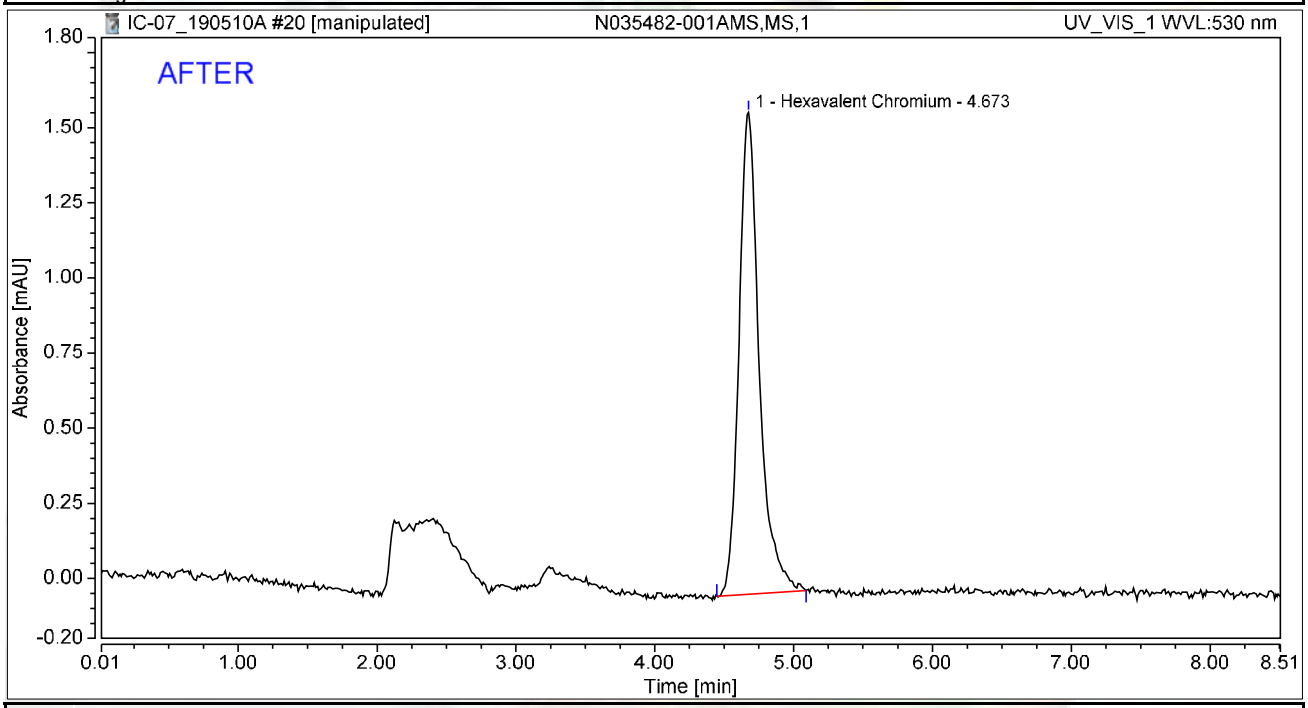
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.242	1.846	100.00	100.00	0.9612
Total:			**0.242**	**1.846**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035482-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 10:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.272	1.604	100.00	100.00	1.0782
Total:			**0.272**	**1.604**	**100.00**	**100.00**	

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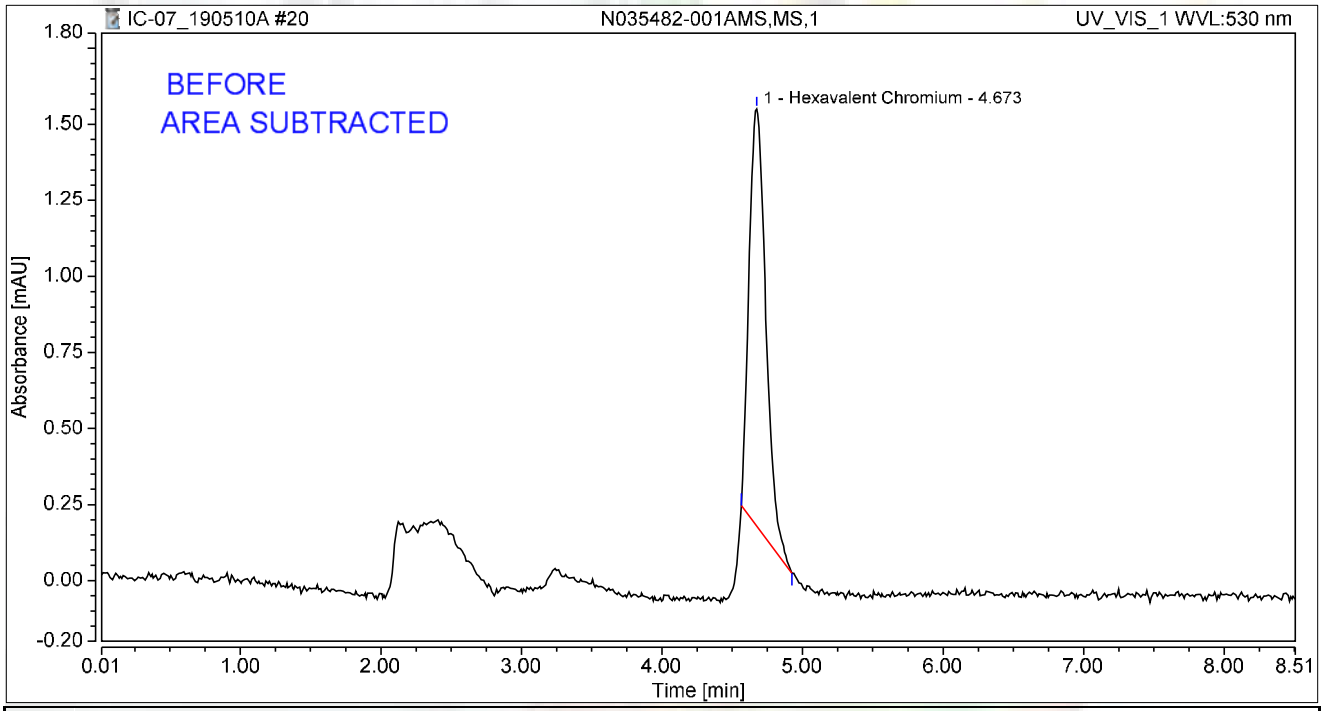
Reviewed by:
Nancy 5/23/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035482-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 10:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.191	1.372	100.00	100.00	0.7580
Total:			**0.191**	**1.372**	**100.00**	**100.00**	

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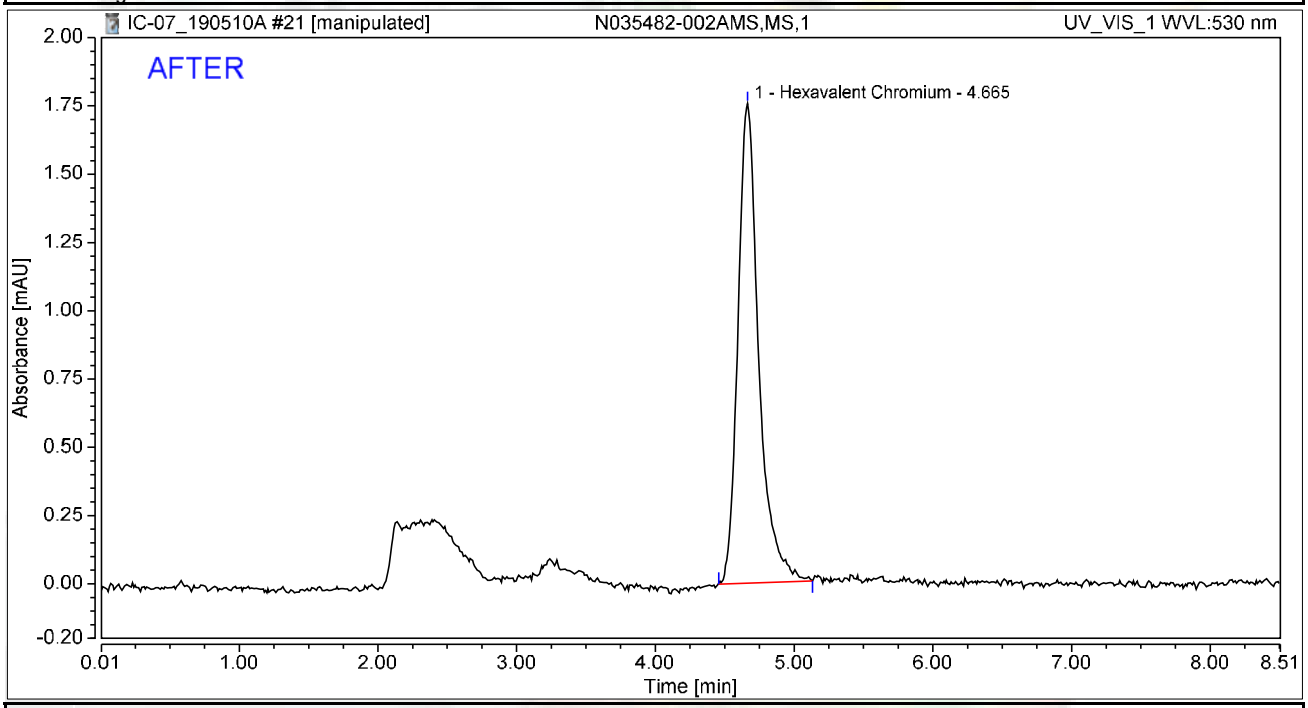
Chromatogram and Results

Injection Details

Injection Name:	**N035482-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 10:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.305	1.757	100.00	100.00	1.2108
Total:			**0.305**	**1.757**	**100.00**	**100.00**	

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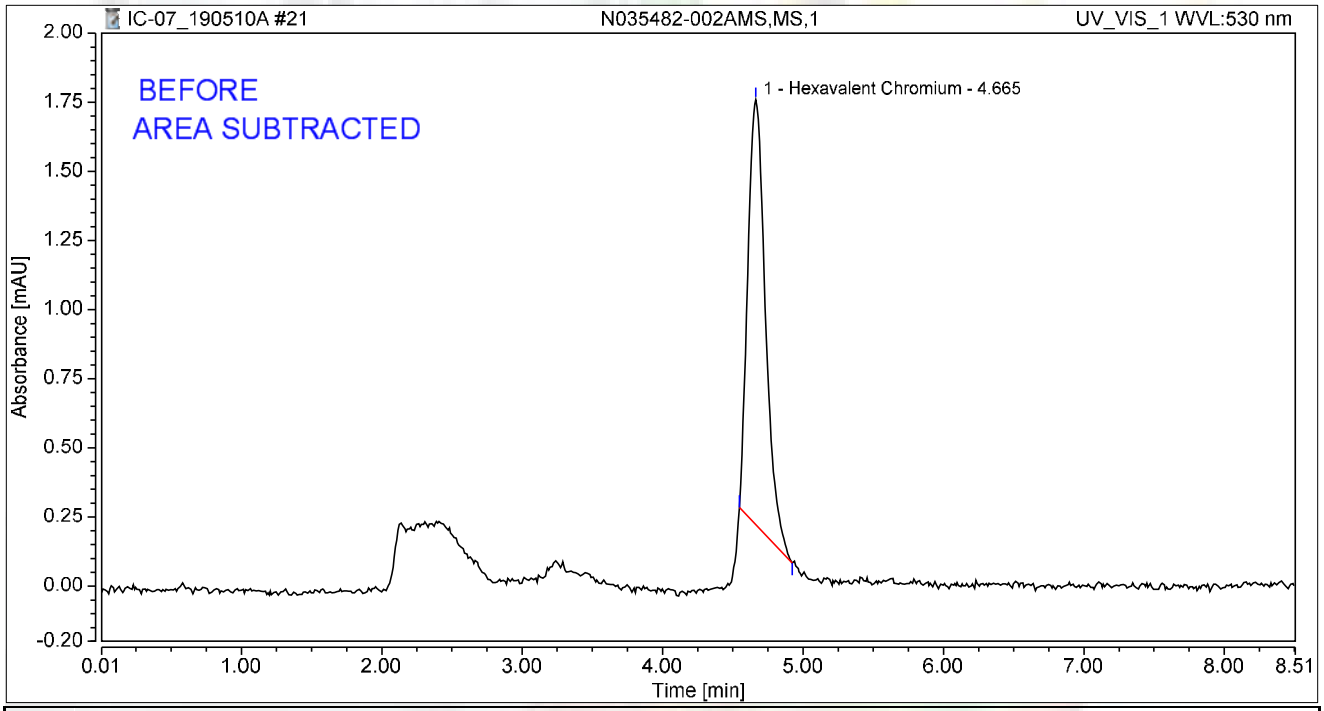
Reviewed by:
5/23/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035482-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 10:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.224	1.537	100.00	100.00	0.8870
Total:			**0.224**	**1.537**	**100.00**	**100.00**	

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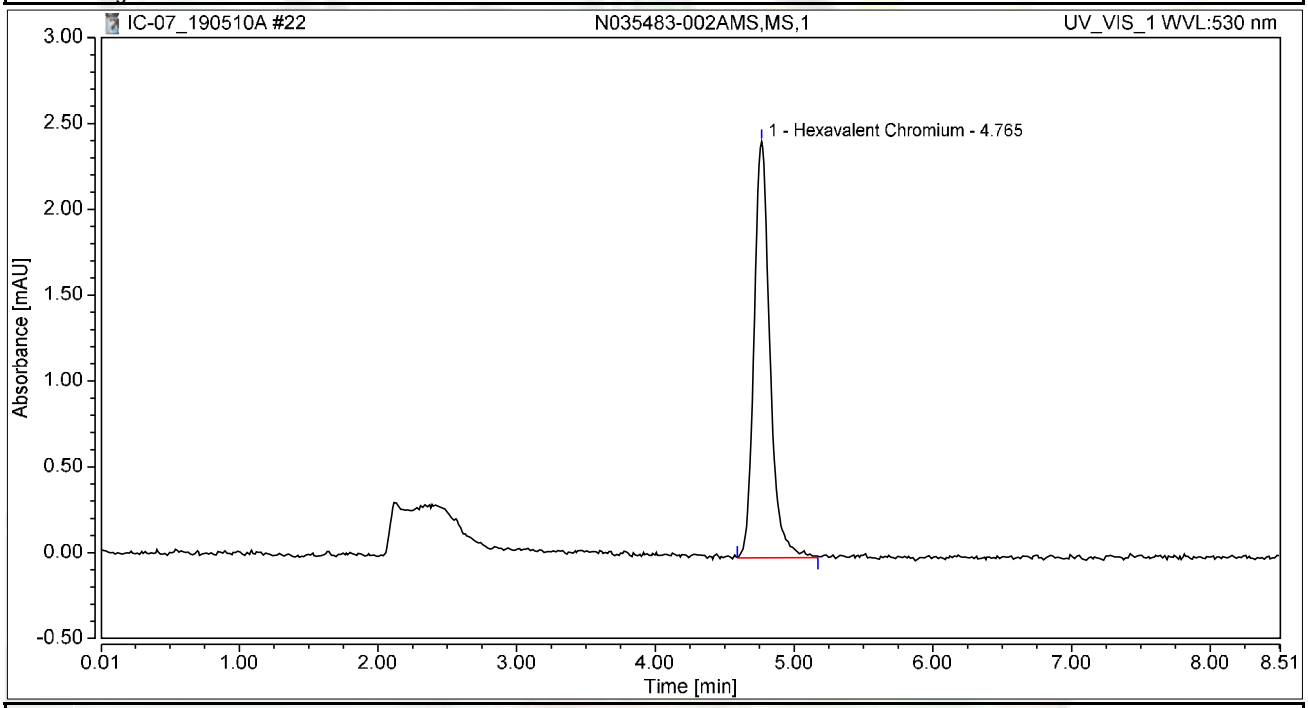
Chromatogram and Results

Injection Details

Injection Name:	**N035483-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 10:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

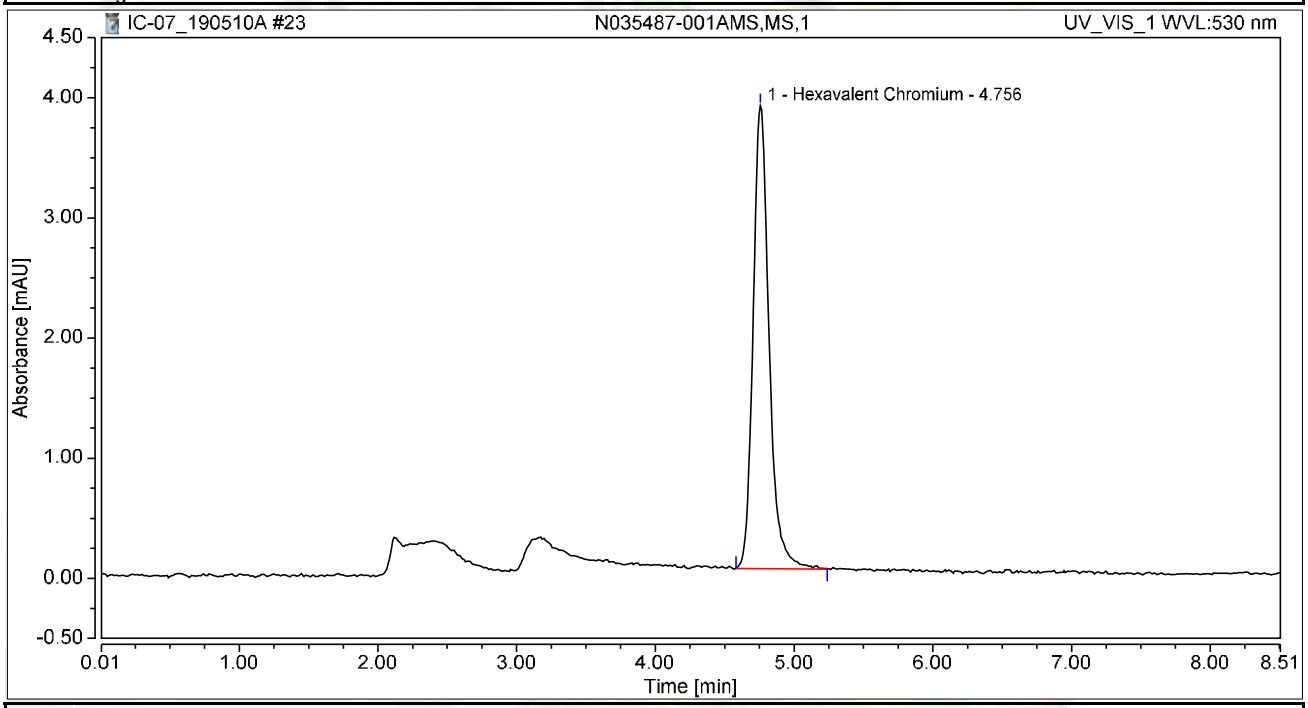
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	0.321	2.425	100.00	100.00	1.2747
Total:			**0.321**	**2.425**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035487-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 10:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

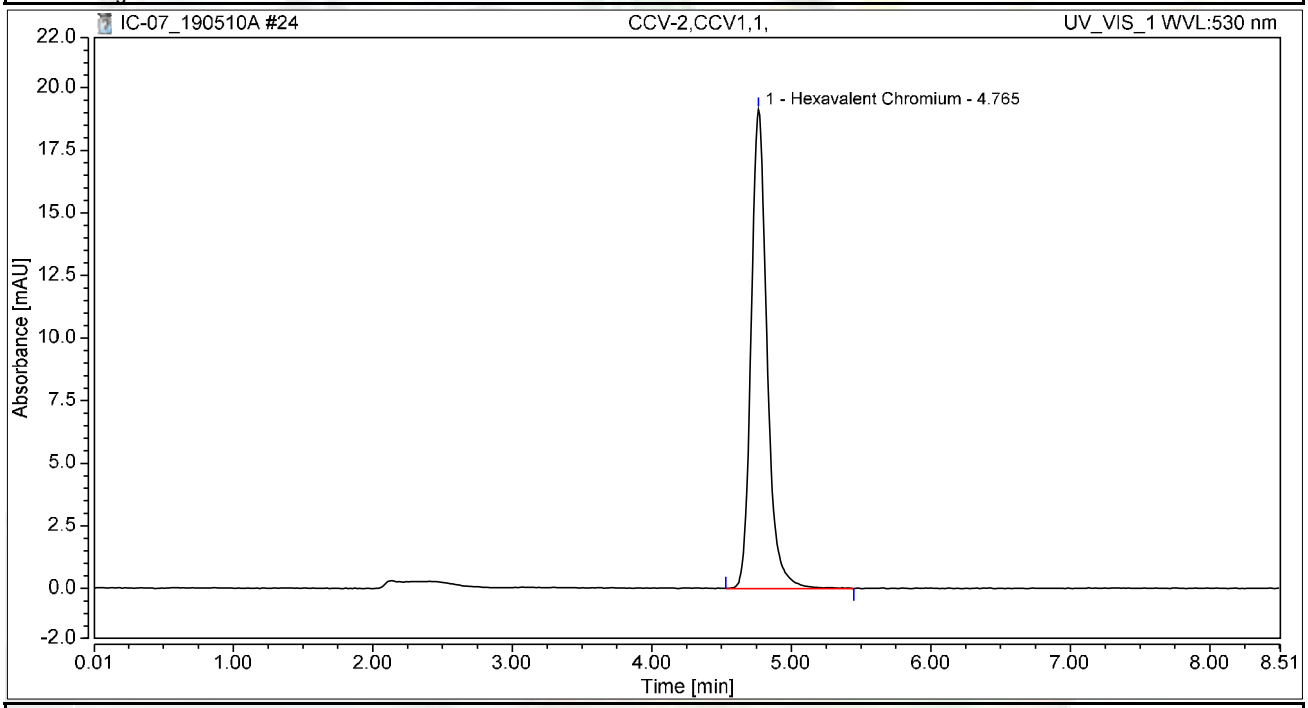
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.513	3.853	100.00	100.00	2.0355
Total:			**0.513**	**3.853**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 10:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

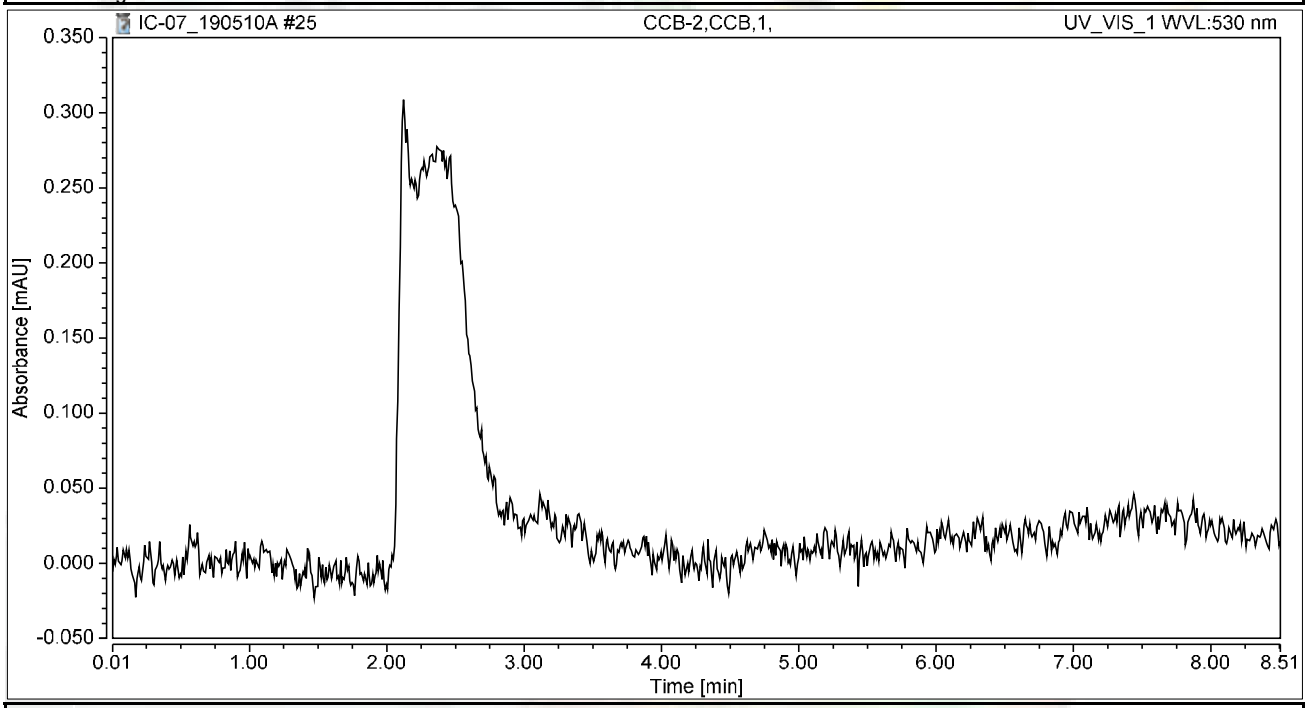
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	2.536	19.138	100.00	100.00	10.0581
Total:			**2.536**	**19.138**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 11:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

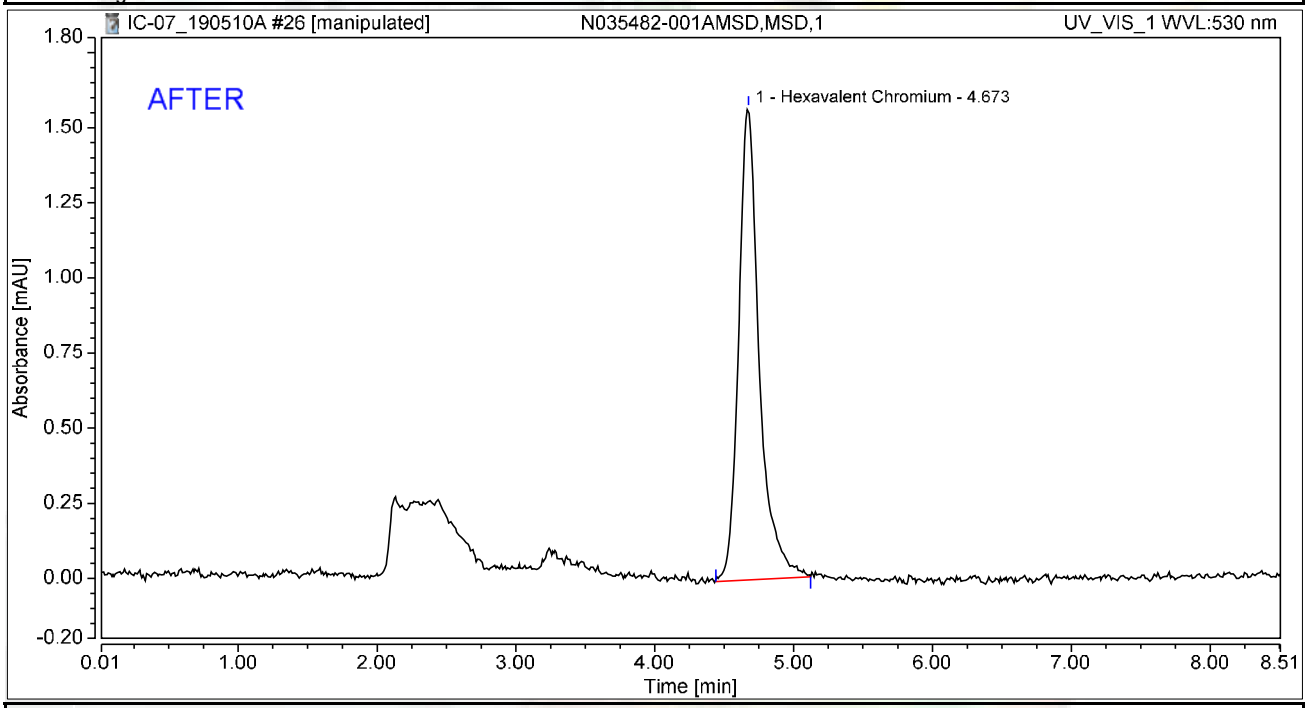
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035482-001AMSD,MSD,1**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 11:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.270	1.570	100.00	100.00	1.0713
Total:			**0.270**	**1.570**	**100.00**	**100.00**	

rba 5/13/2019

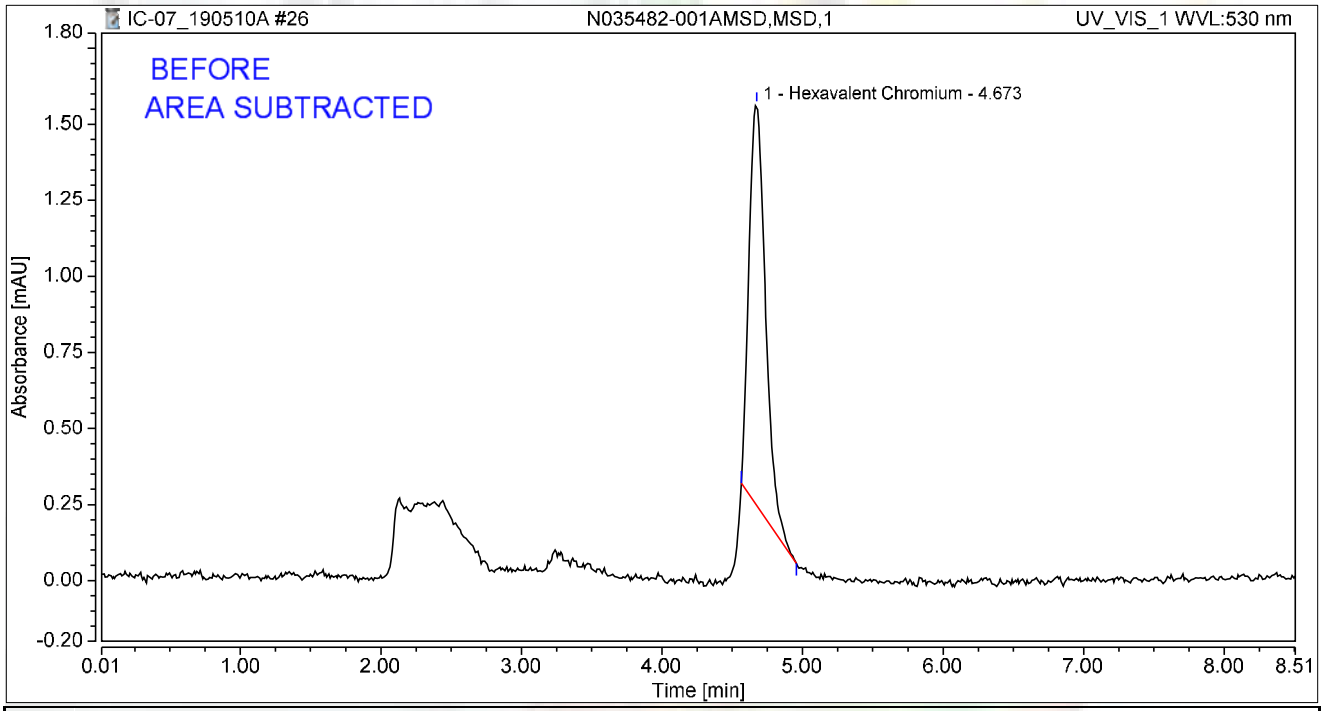
Reviewed by:
Nancy 5/23/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035482-001AMSD,MSD,1**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 11:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.181	1.318	100.00	100.00	0.7177
Total:			**0.181**	**1.318**	**100.00**	**100.00**	

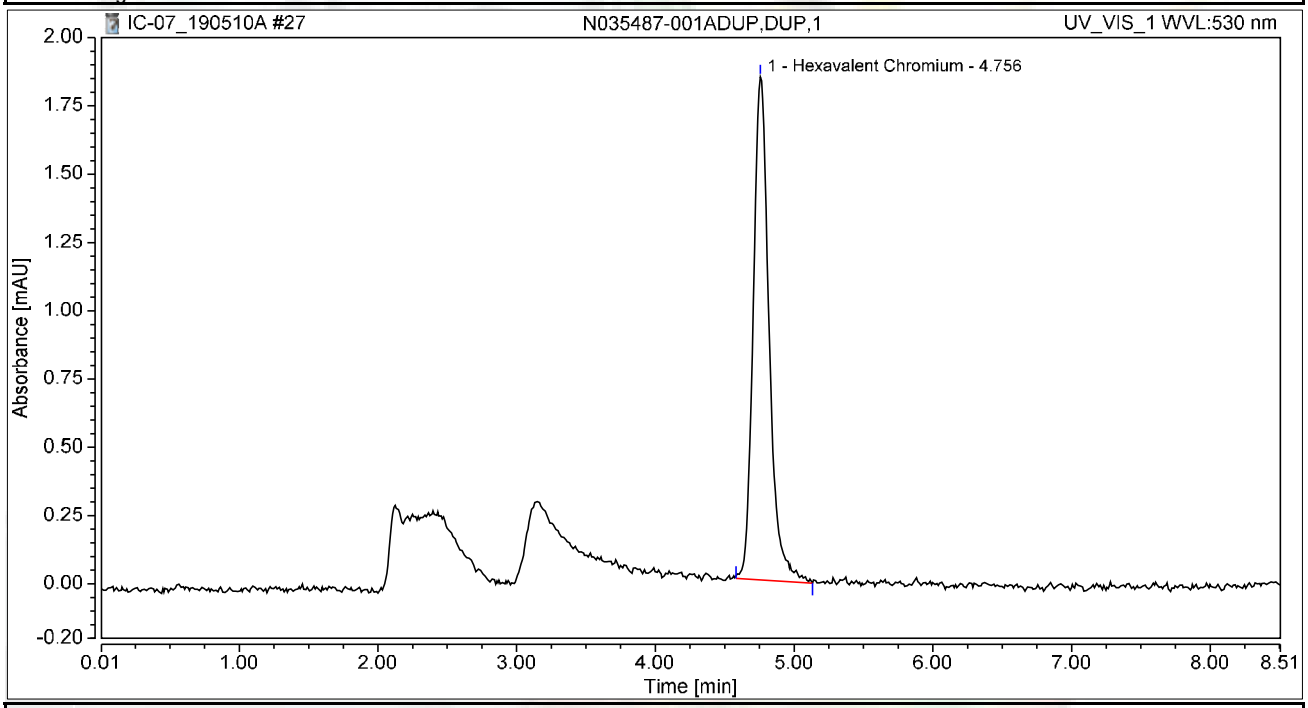
rba 5/13/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035487-001ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

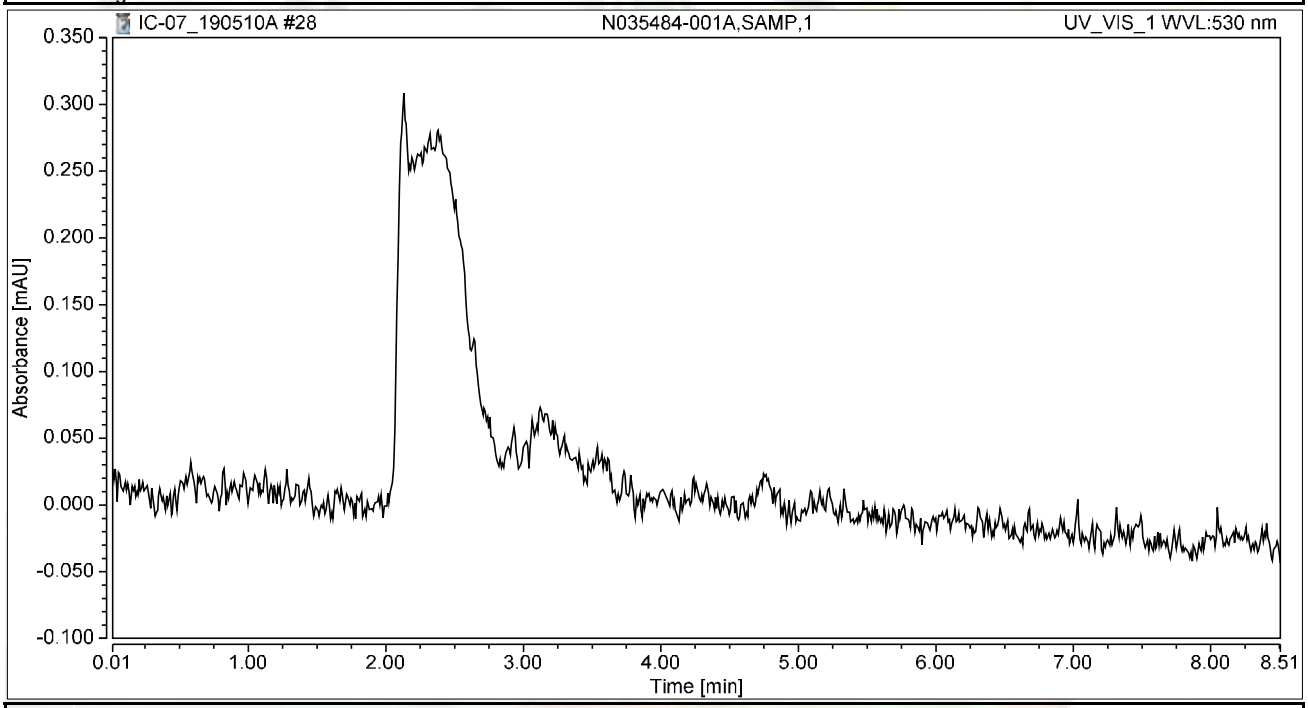
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.244	1.841	100.00	100.00	0.9689
Total:			**0.244**	**1.841**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035484-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 11:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

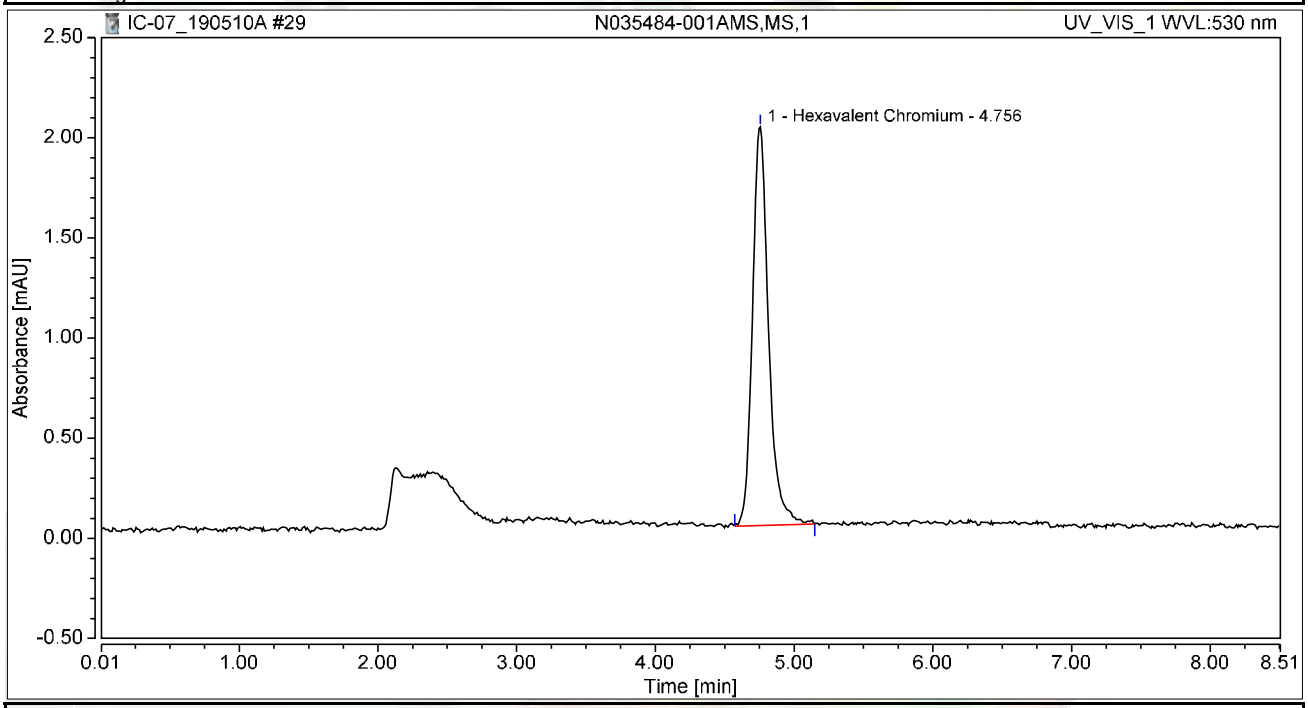
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035484-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 11:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

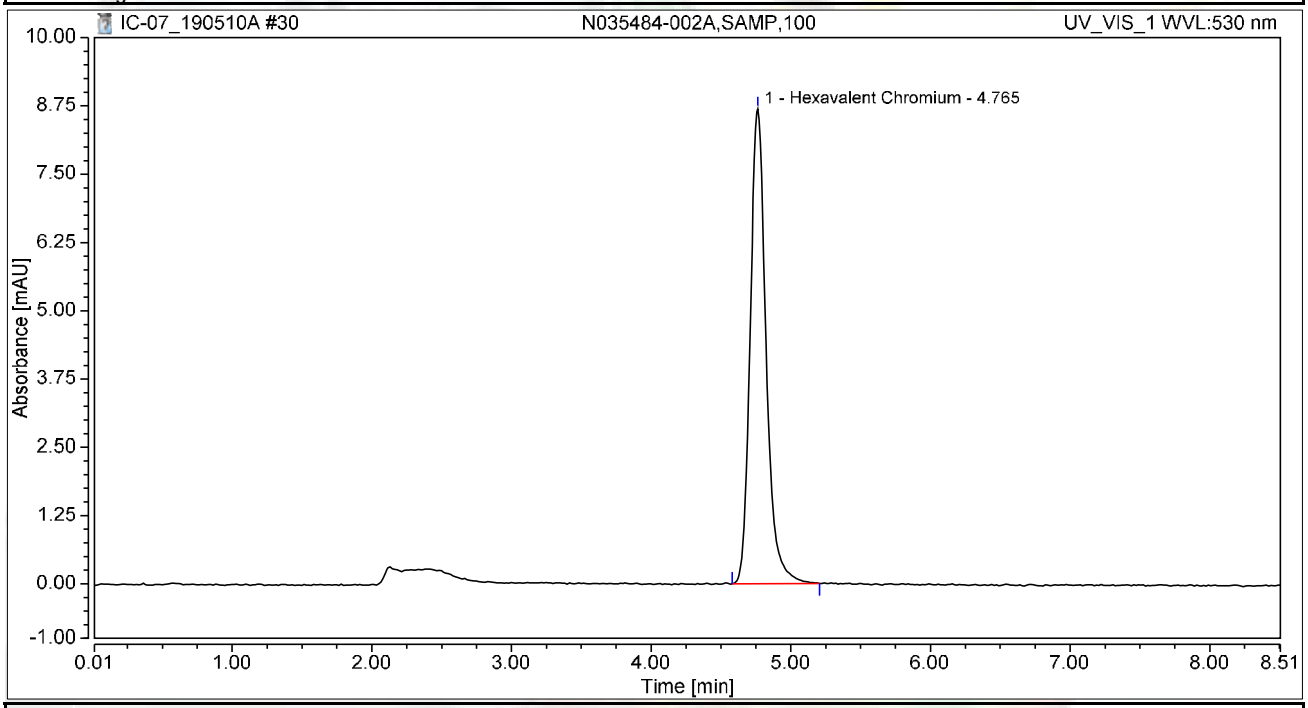
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.268	1.990	100.00	100.00	1.0615
Total:			**0.268**	**1.990**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035484-002A,SAMP,100**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 11:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

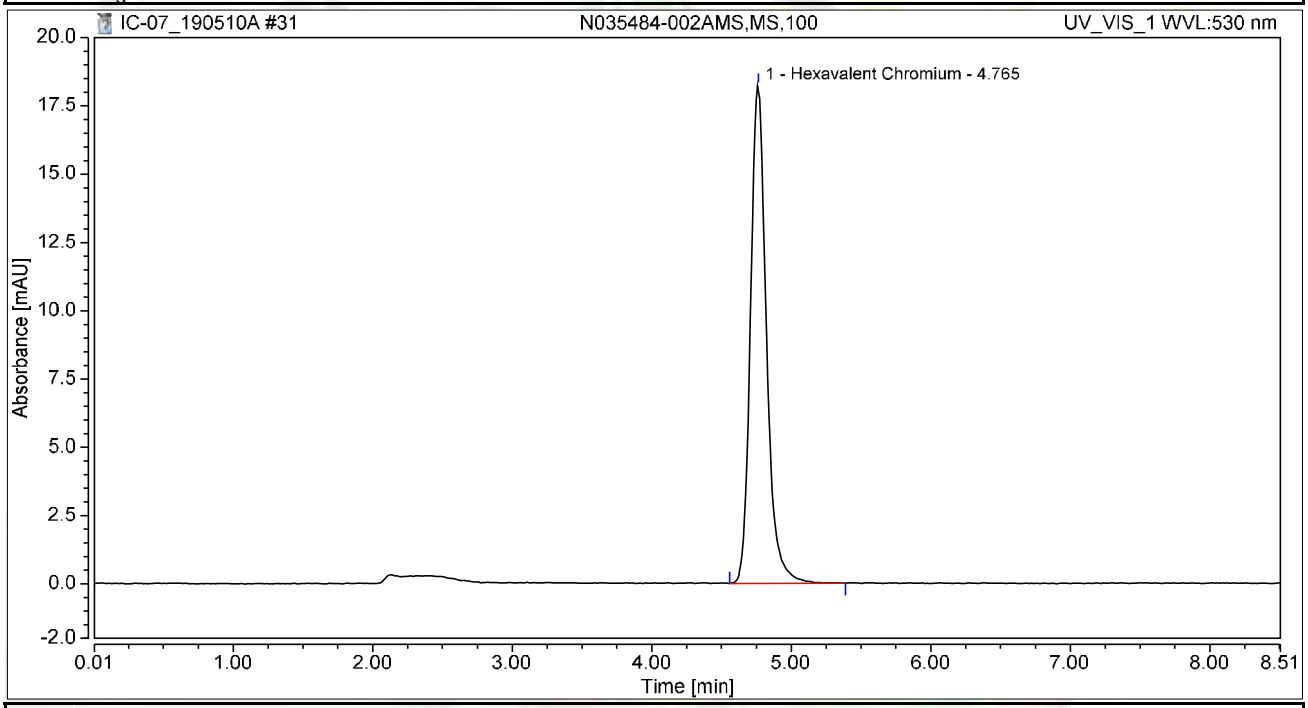
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	1.149	8.694	100.00	100.00	4.5564
Total:			**1.149**	**8.694**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035484-002AMS,MS,100**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 11:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

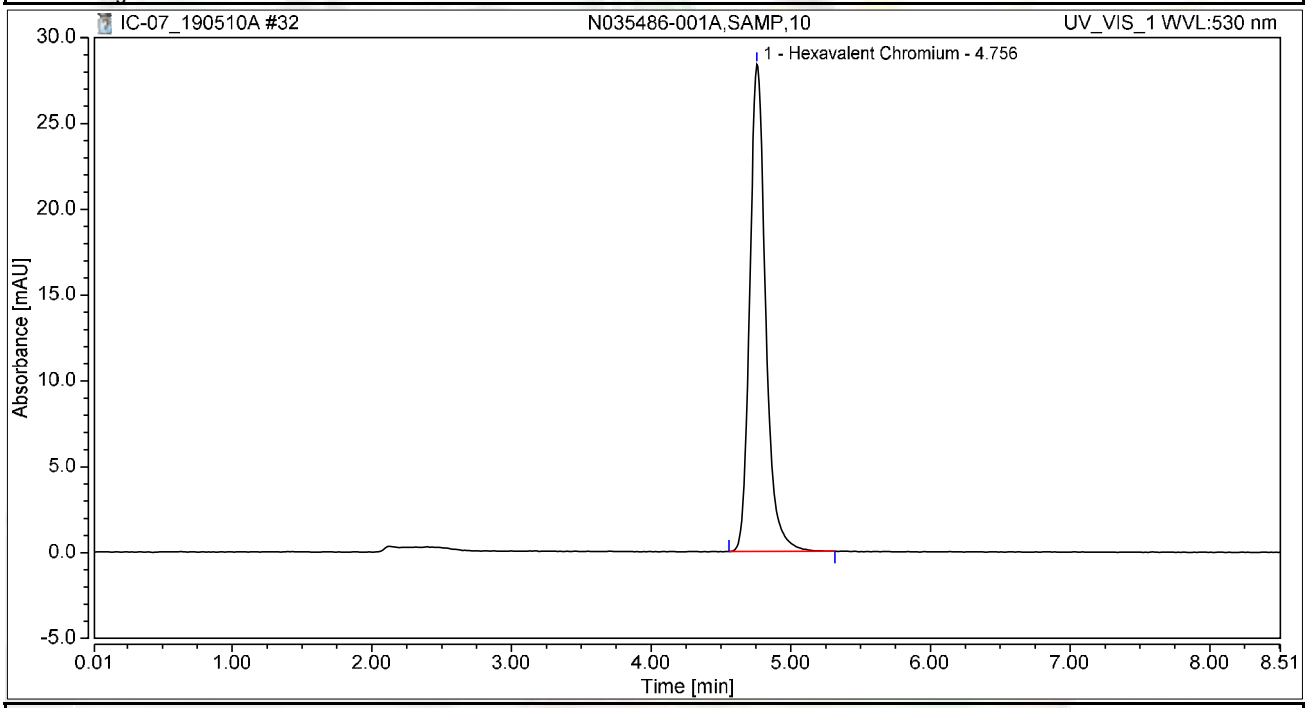
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	2.424	18.249	100.00	100.00	9.6131
Total:			**2.424**	**18.249**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035486-001A,SAMP,10**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 12:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

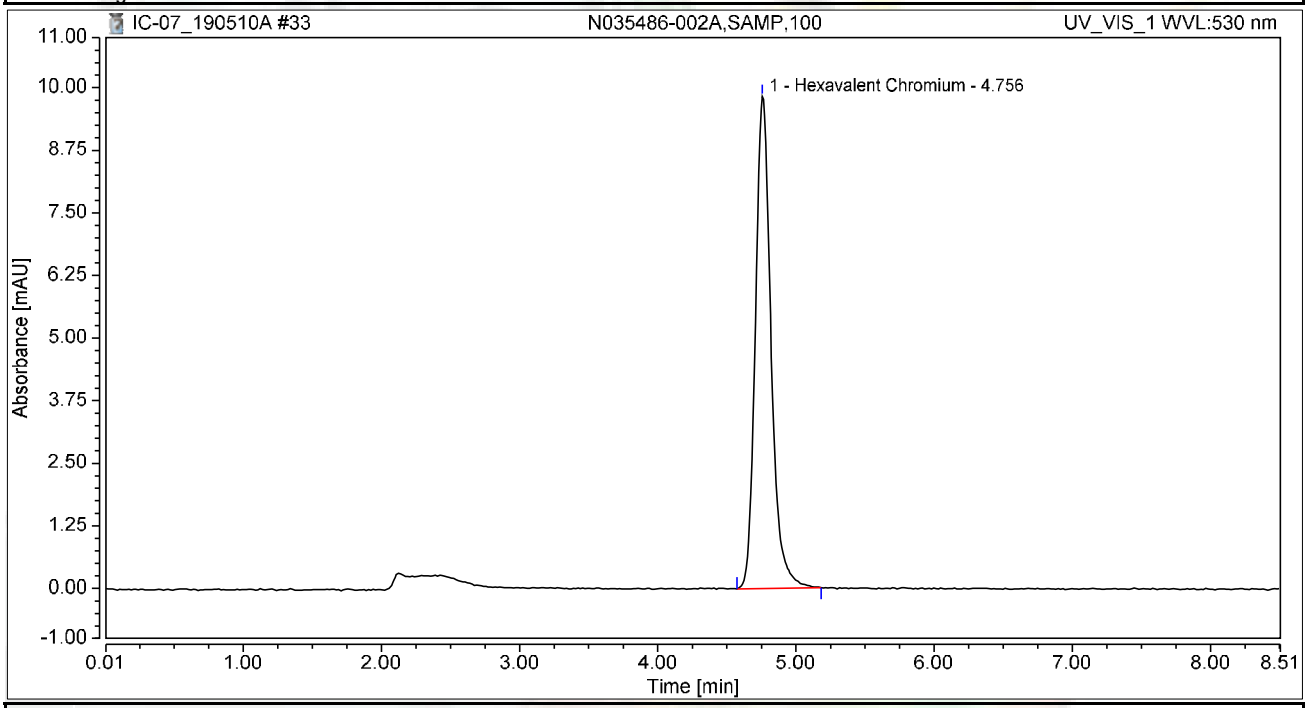
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	3.747	28.390	100.00	100.00	14.8635
Total:			**3.747**	**28.390**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035486-002A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 12:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

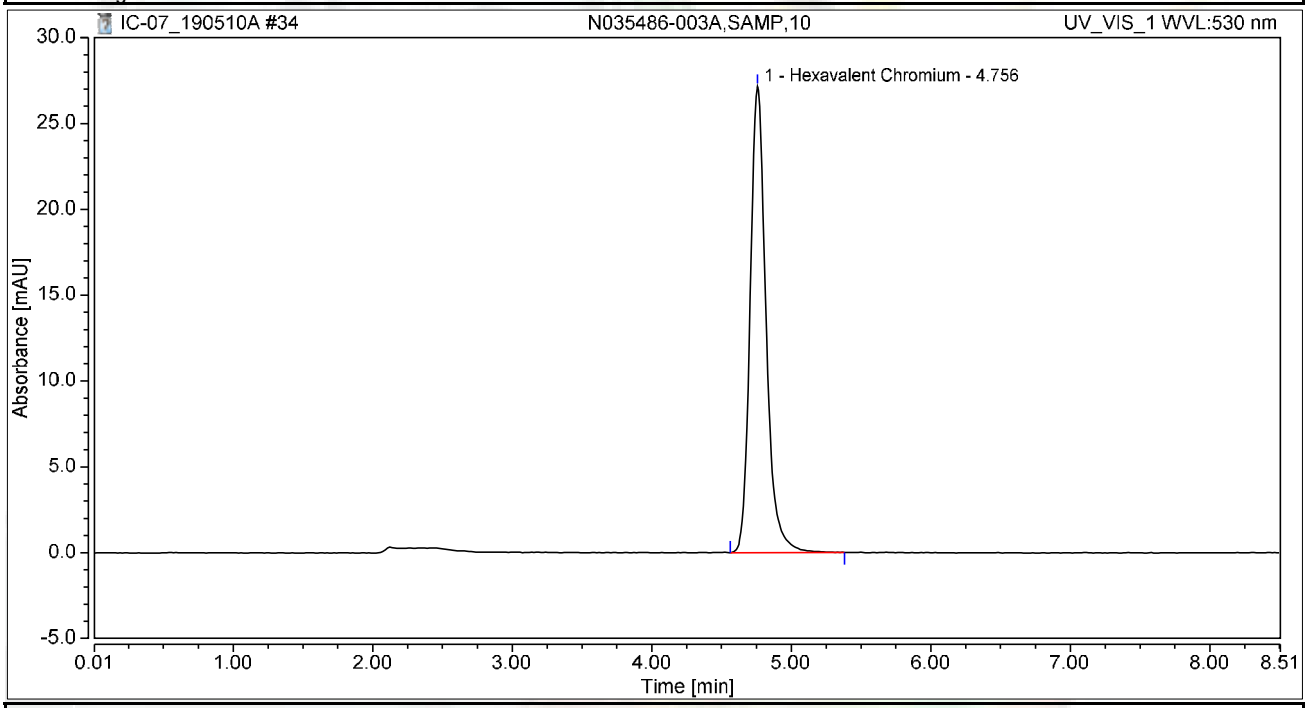
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	1.293	9.825	100.00	100.00	5.1274
Total:			**1.293**	**9.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035486-003A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 12:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

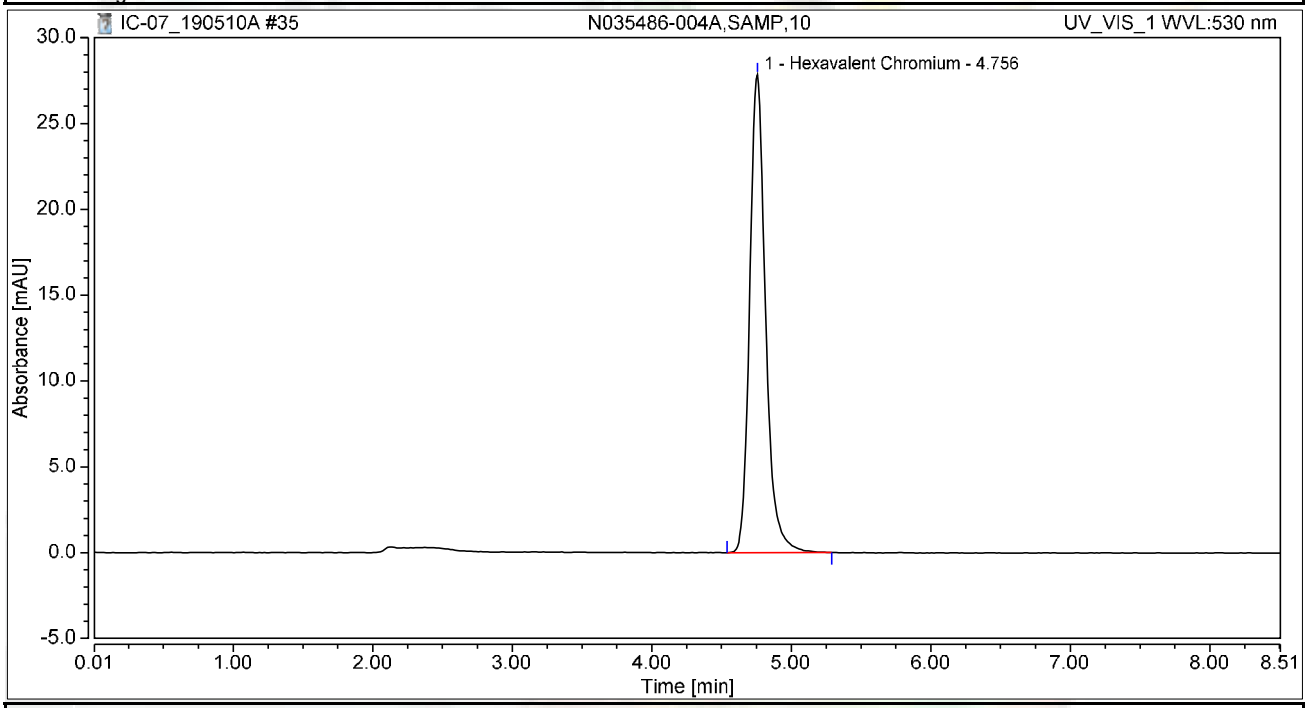
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	3.588	27.156	100.00	100.00	14.2307
Total:			**3.588**	**27.156**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035486-004A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 12:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

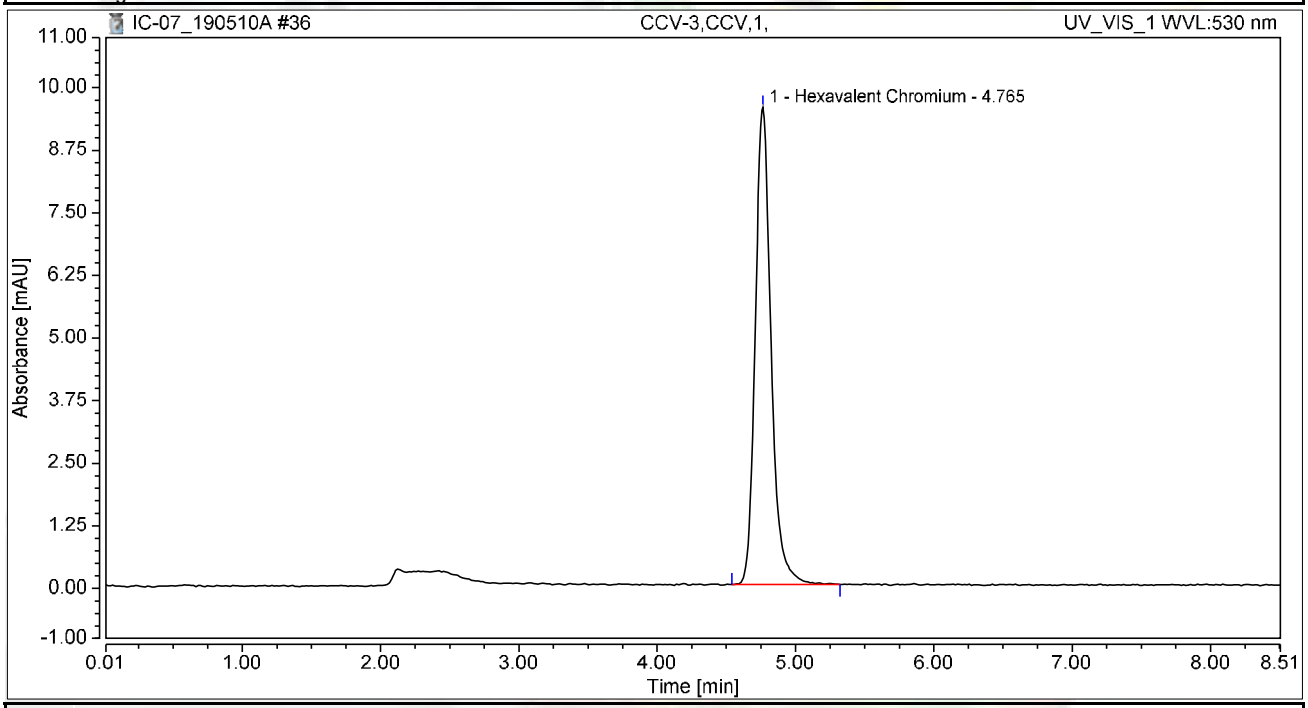
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	3.679	27.846	100.00	100.00	14.5931
Total:			**3.679**	**27.846**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 12:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

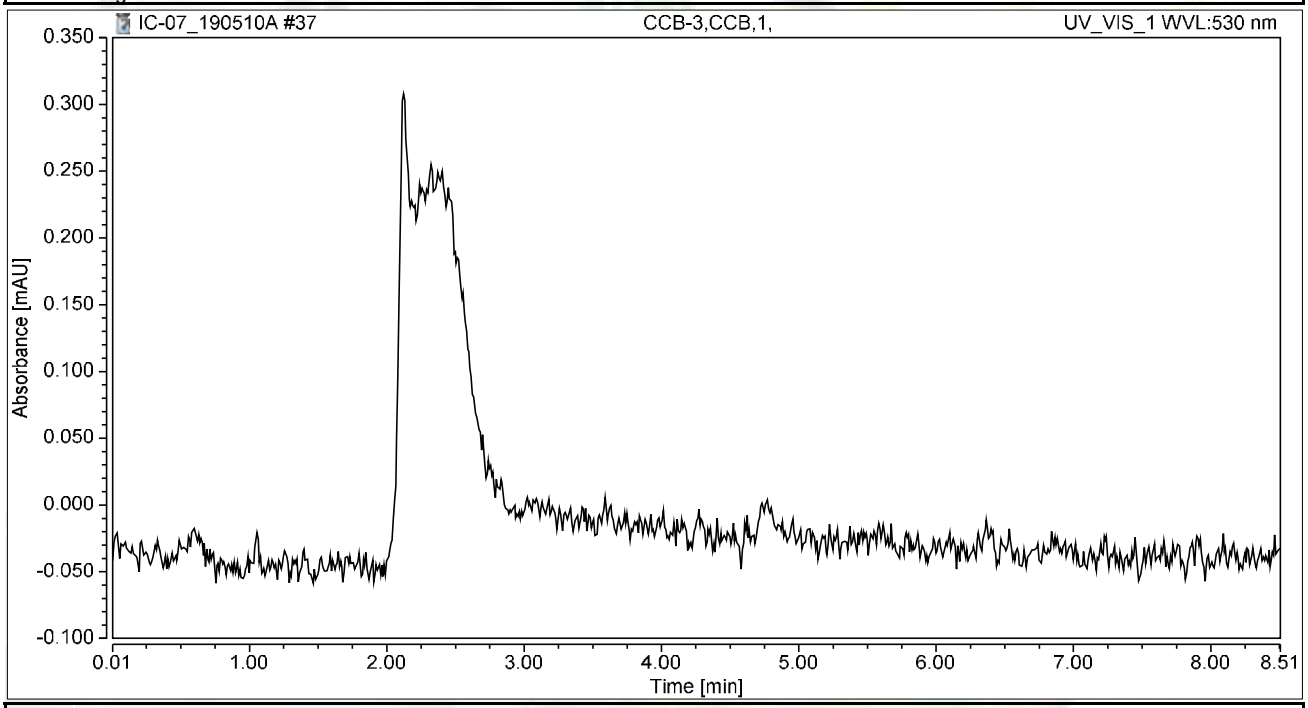
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	1.262	9.530	100.00	100.00	5.0062
Total:			**1.262**	**9.530**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 12:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

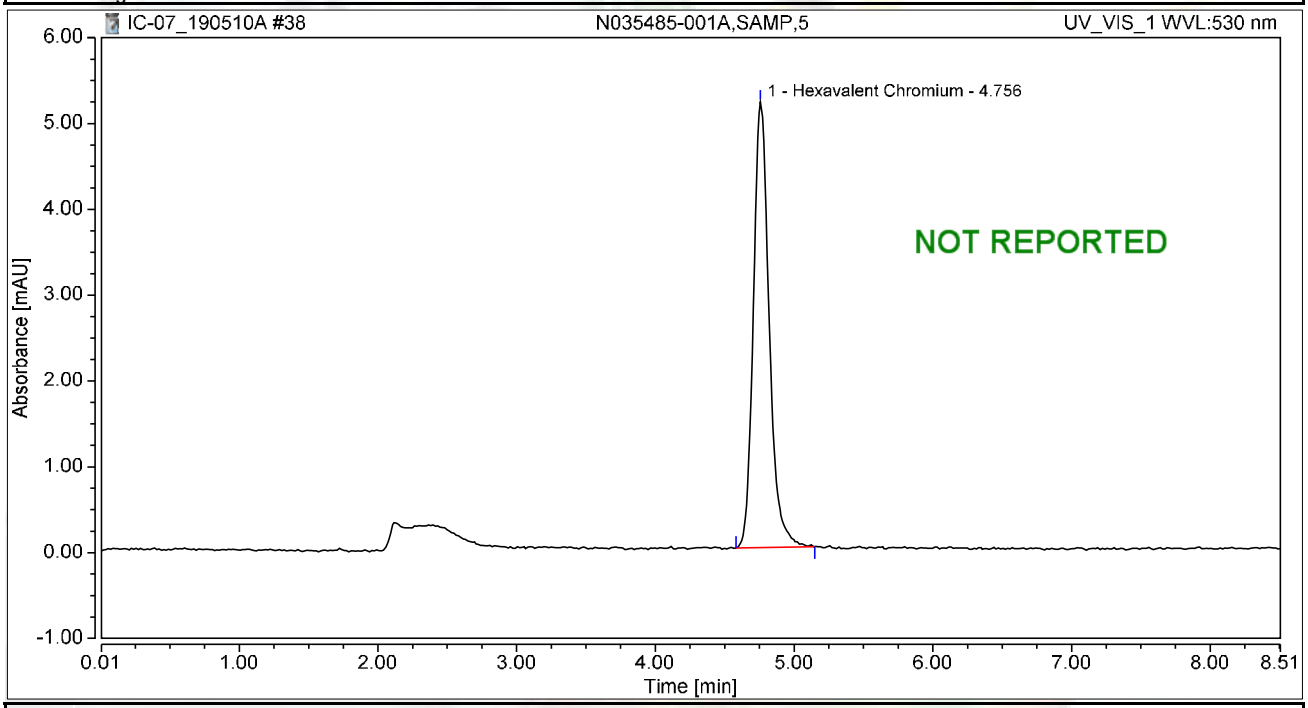
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 13:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

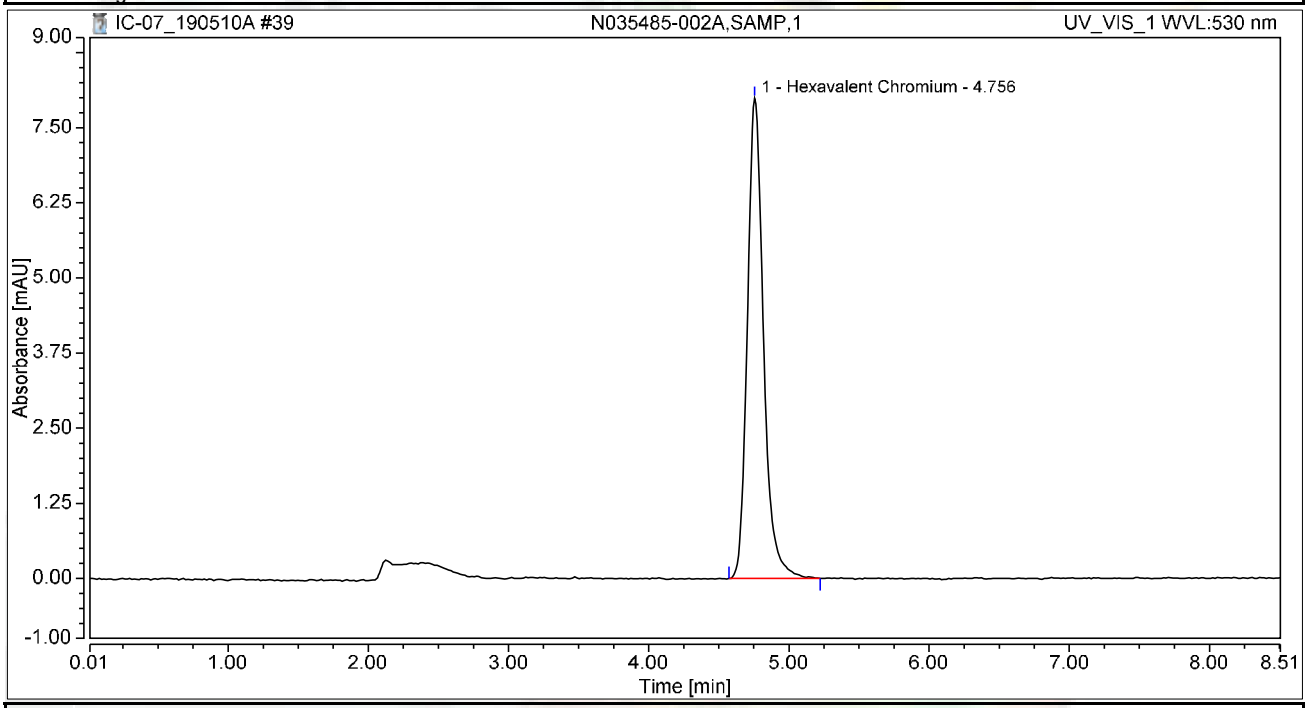
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.687	5.193	100.00	100.00	2.7247
Total:			**0.687**	**5.193**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 13:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

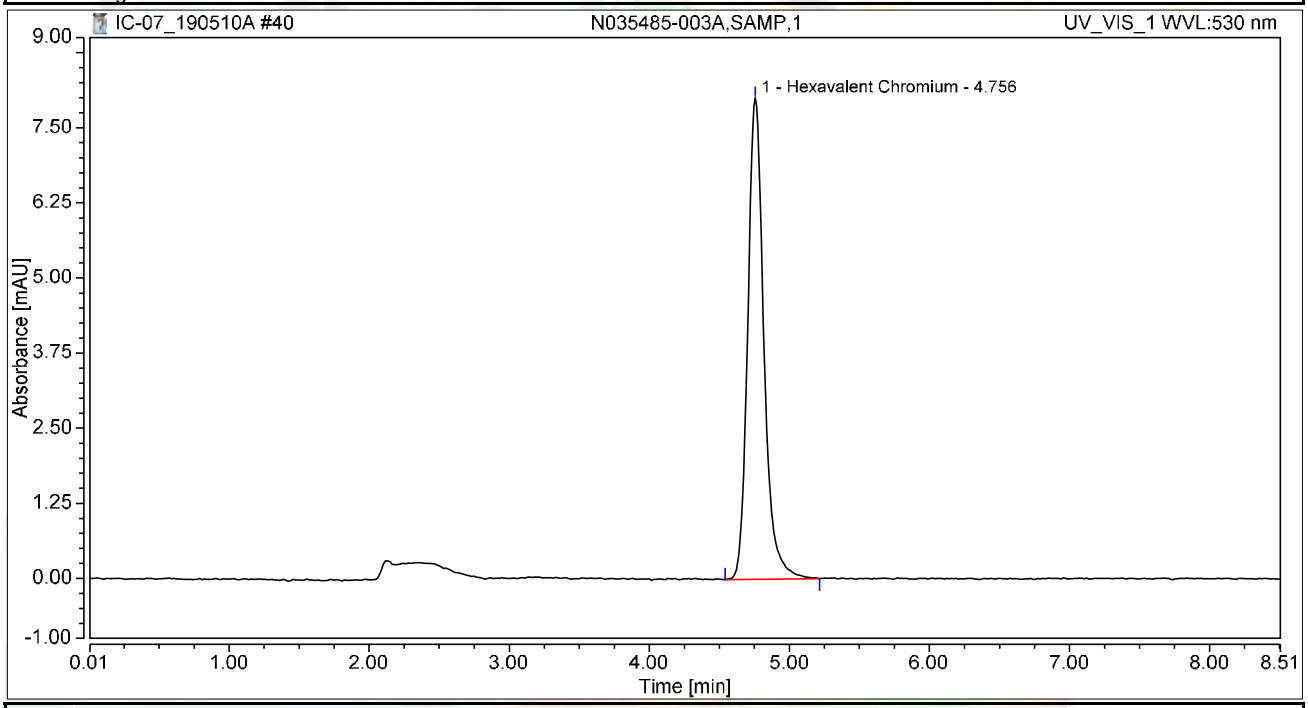
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	1.067	7.993	100.00	100.00	4.2324
Total:			**1.067**	**7.993**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 13:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

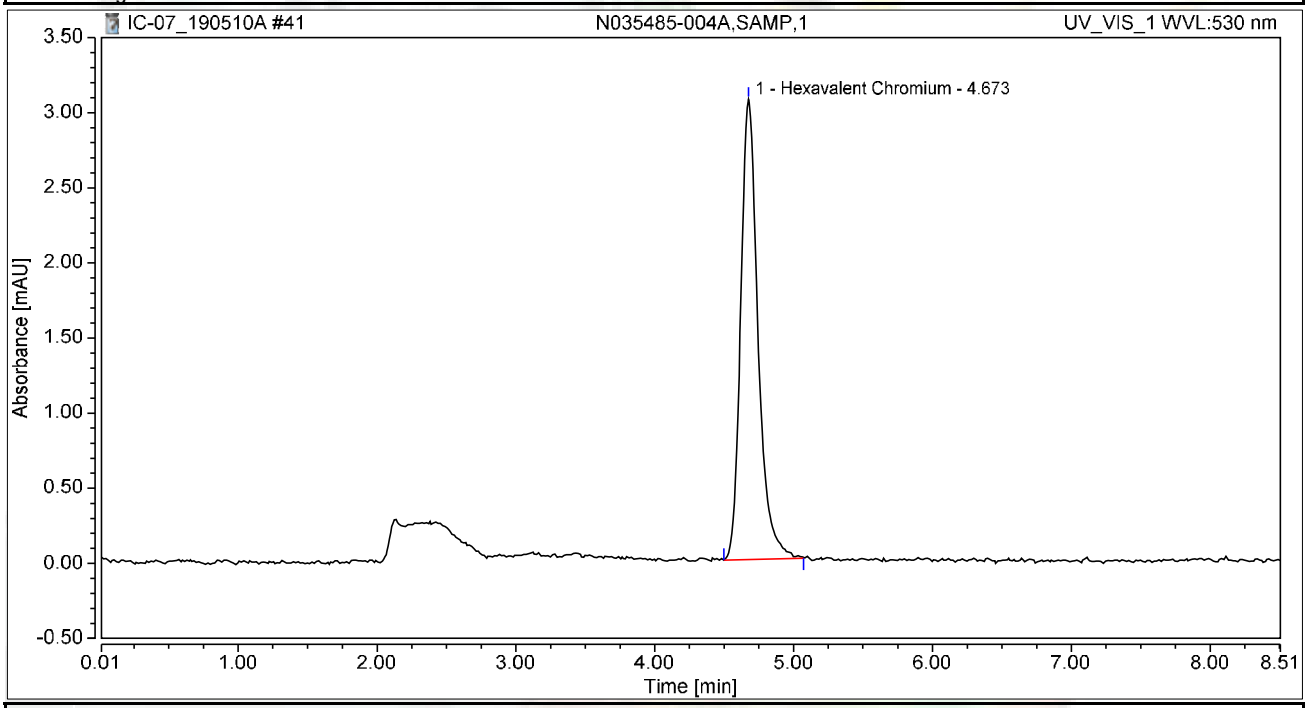
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	1.073	8.006	100.00	100.00	4.2559
Total:			**1.073**	**8.006**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 13:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

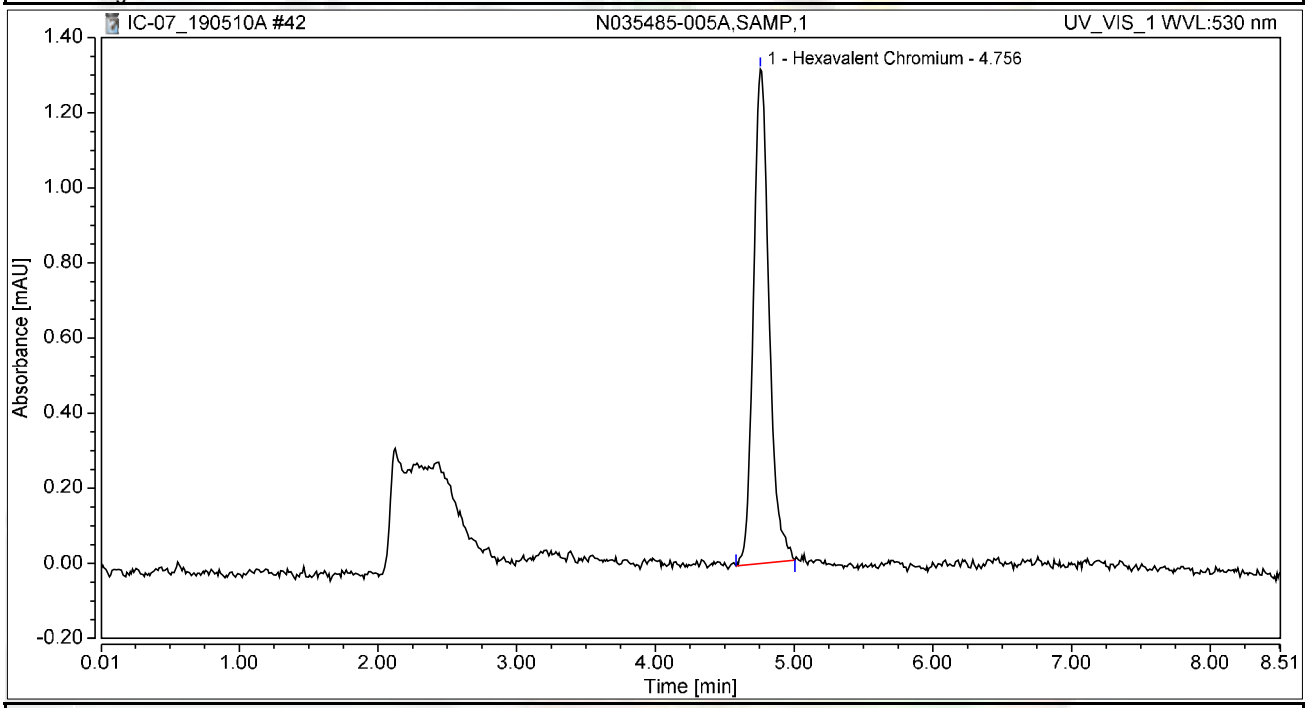
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.443	3.065	100.00	100.00	1.7562
Total:			**0.443**	**3.065**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 13:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

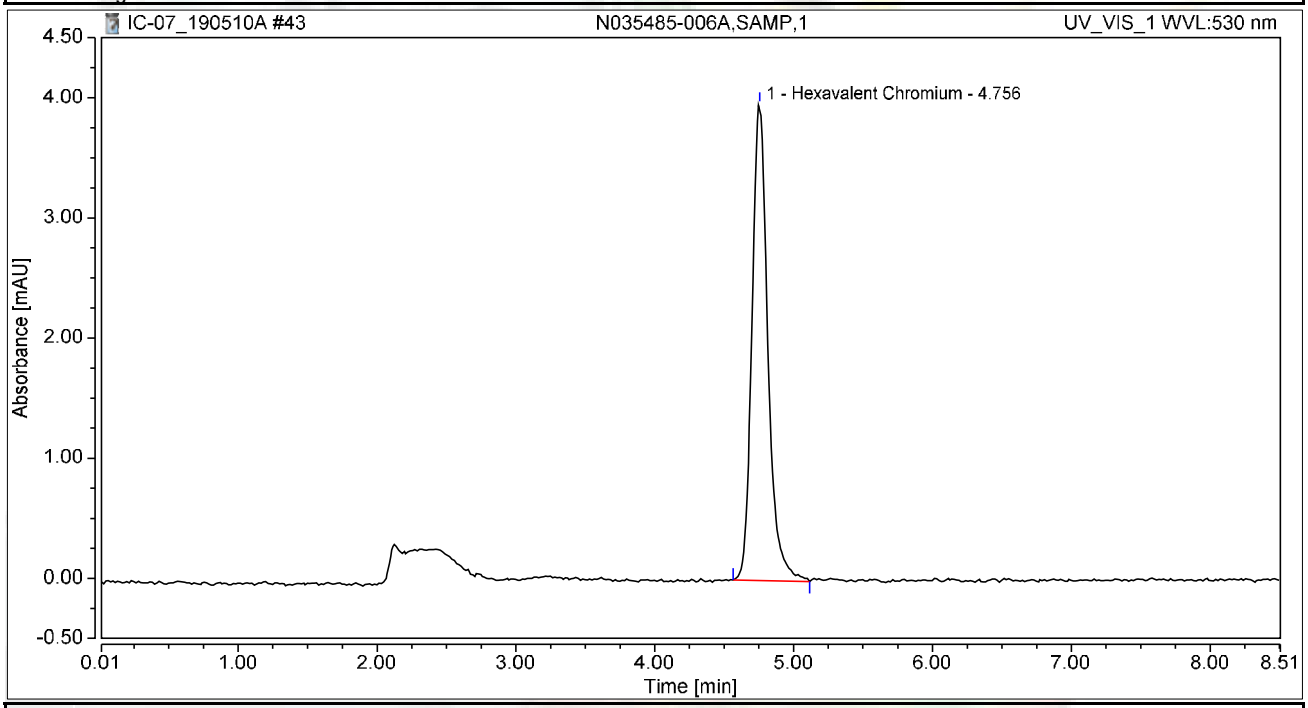
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.172	1.316	100.00	100.00	0.6824
Total:			**0.172**	**1.316**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-006A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 13:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

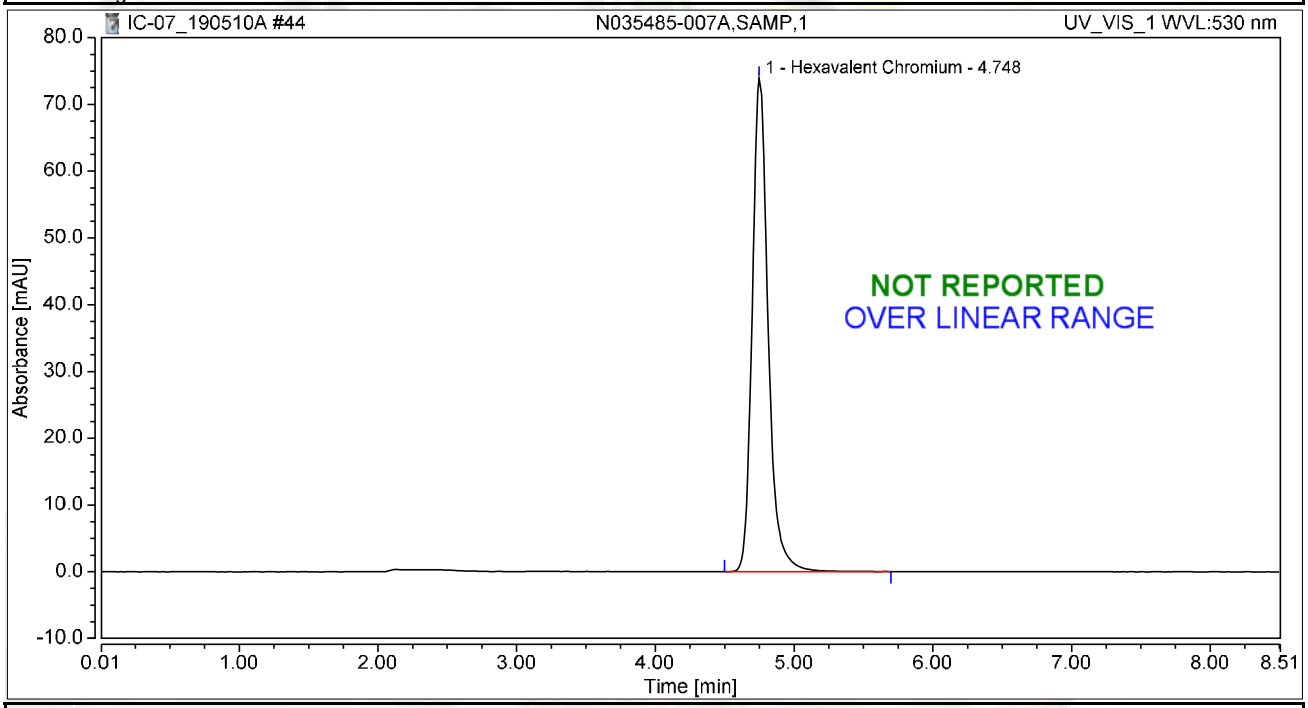
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.528	3.963	100.00	100.00	2.0942
Total:			**0.528**	**3.963**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 14:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

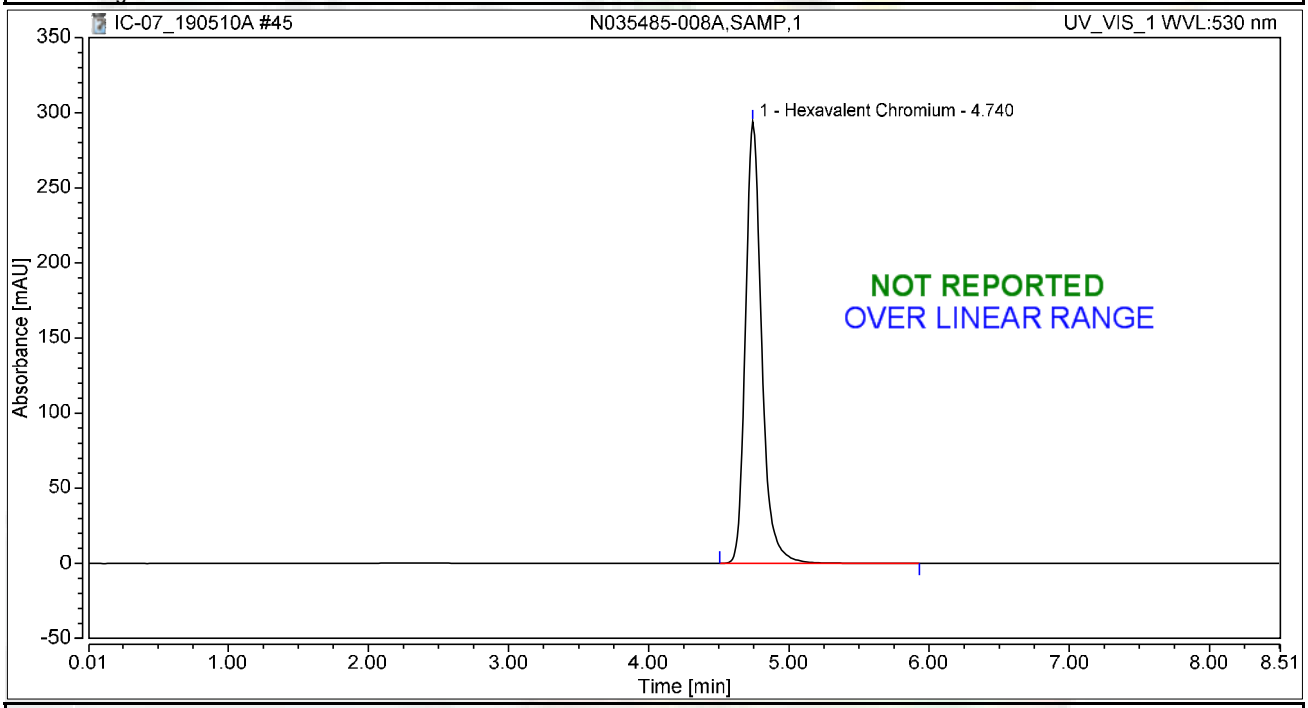
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	9.861	73.880	100.00	100.00	39.1127
Total:			**9.861**	**73.880**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-008A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 14:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

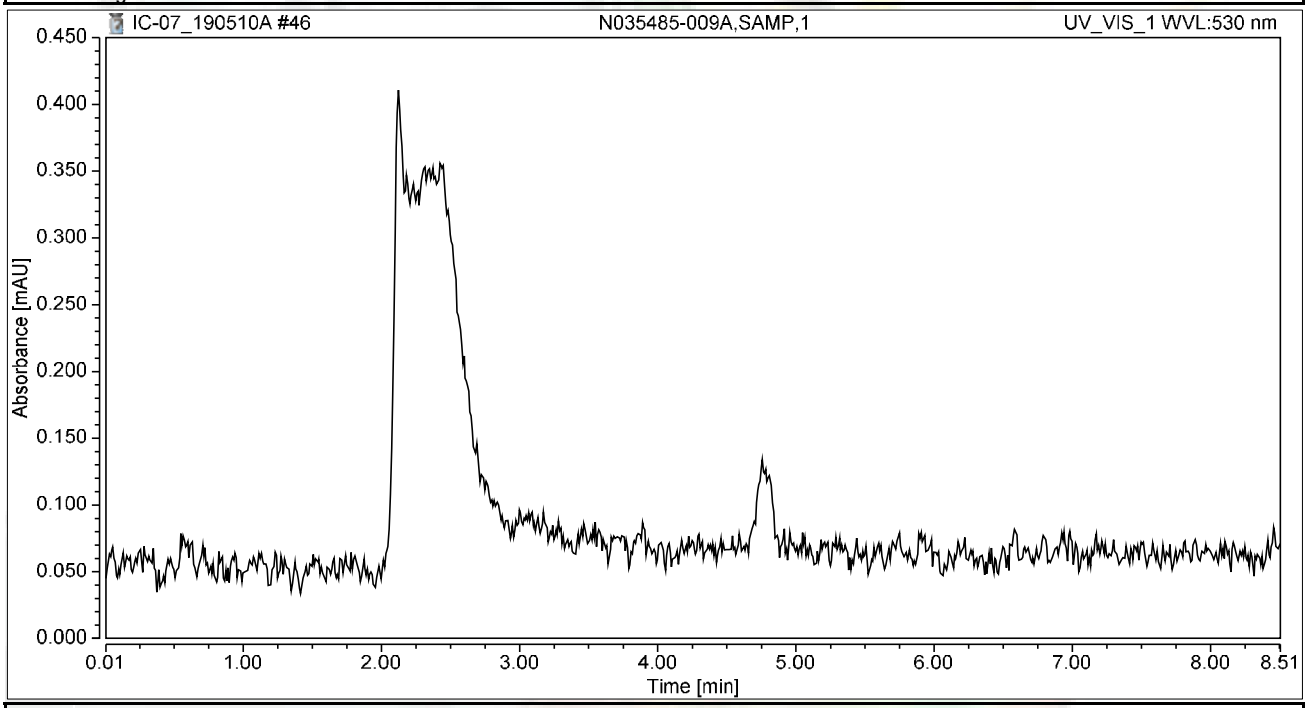
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	39.278	294.077	100.00	100.00	155.7893
Total:			**39.278**	**294.077**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-009A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 14:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

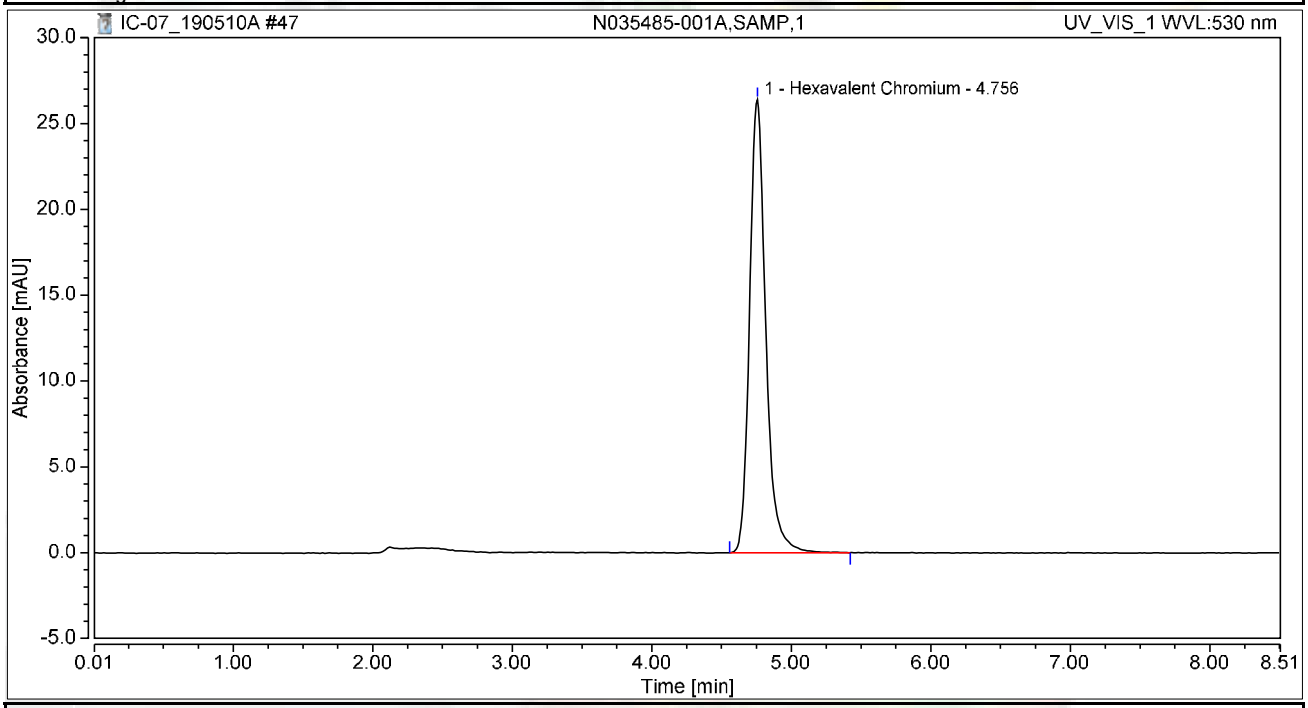
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 14:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

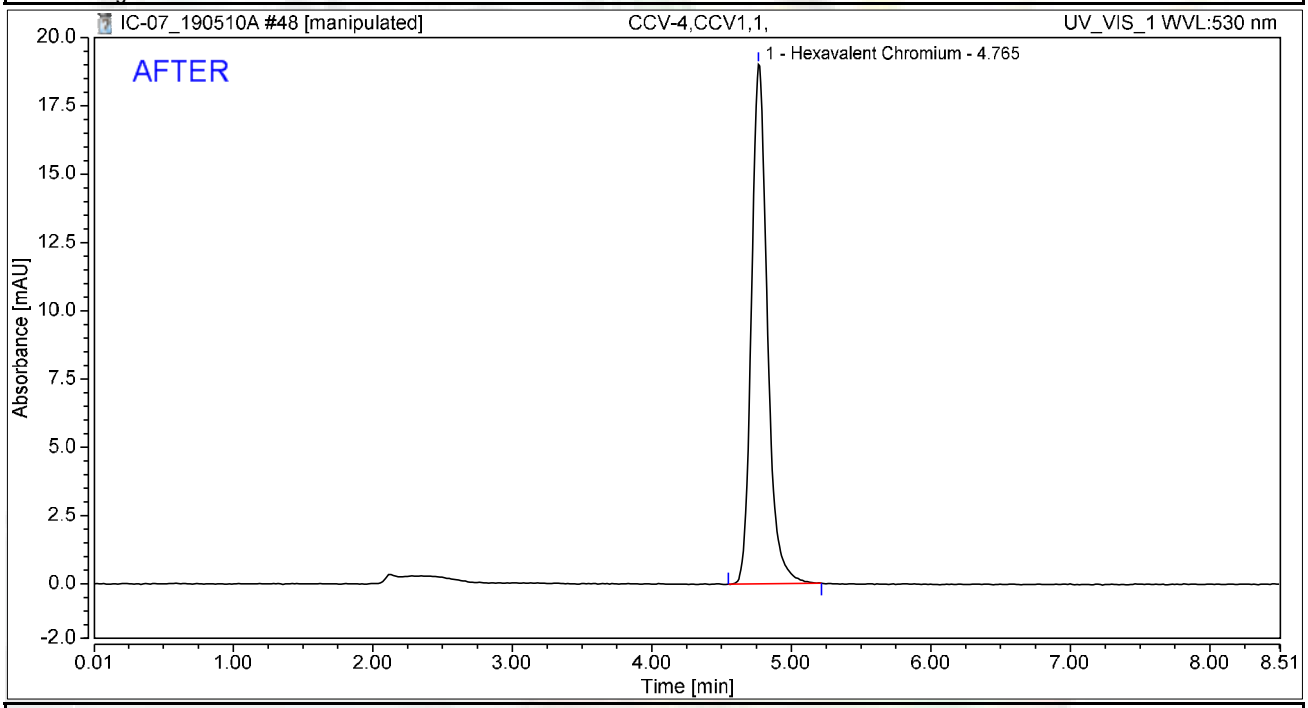
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	3.553	26.413	100.00	100.00	14.0903
Total:			**3.553**	**26.413**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 14:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	2.519	19.033	100.00	100.00	9.9896
Total:			**2.519**	**19.033**	**100.00**	**100.00**	

rba 5/13/2019

Reviewed by:
Nancy 5/23/2019
My first report/Integration

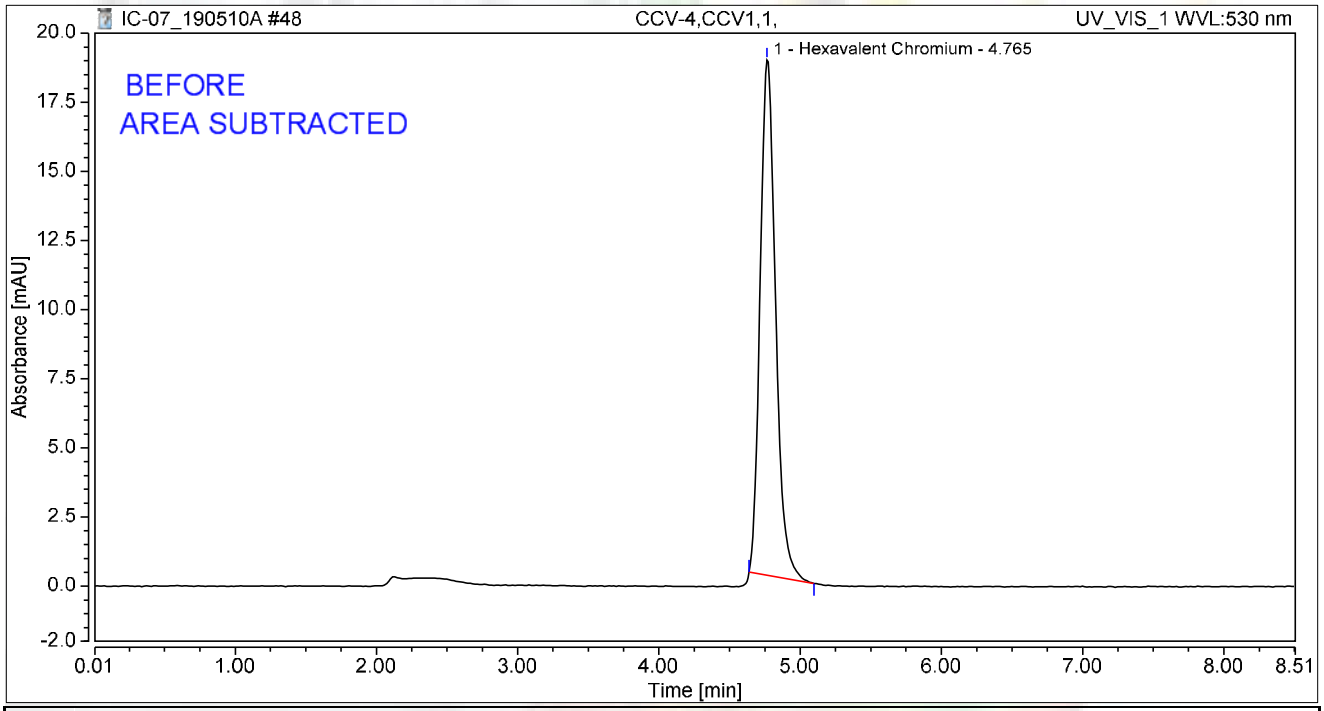
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 14:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	2.369	18.629	100.00	100.00	9.3949
Total:			**2.369**	**18.629**	**100.00**	**100.00**	

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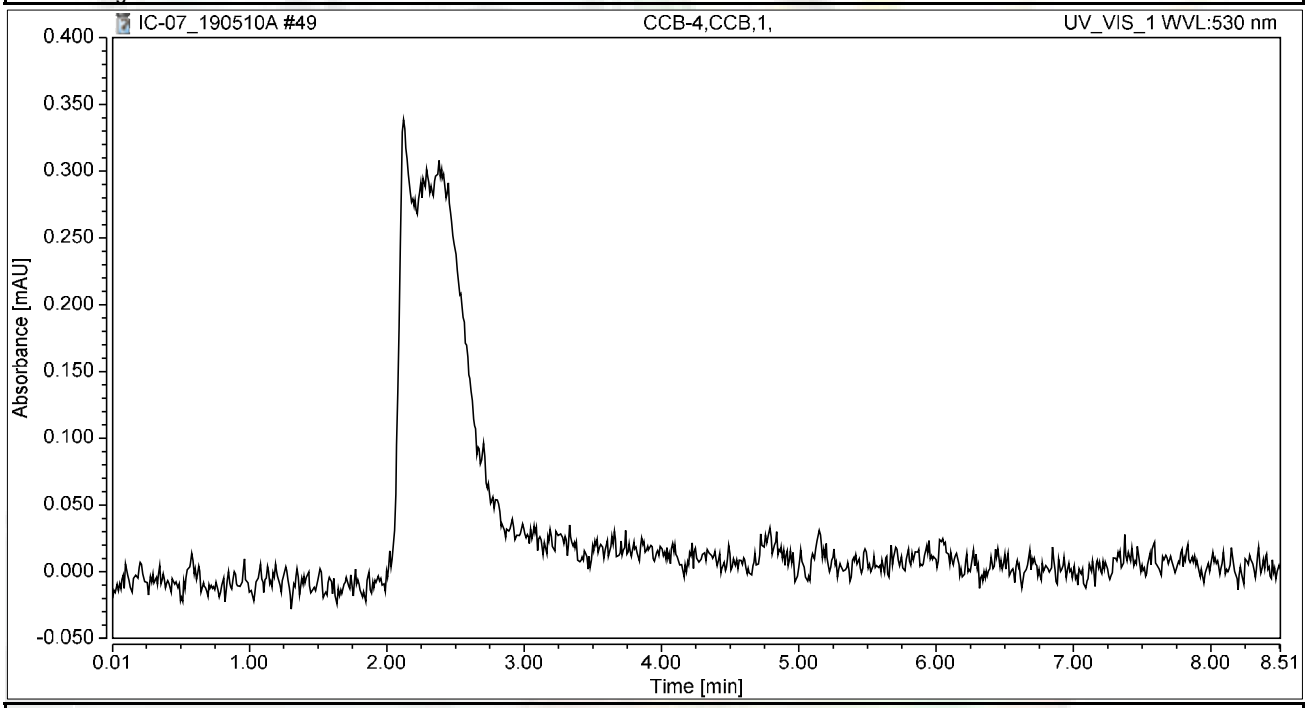
Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 14:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

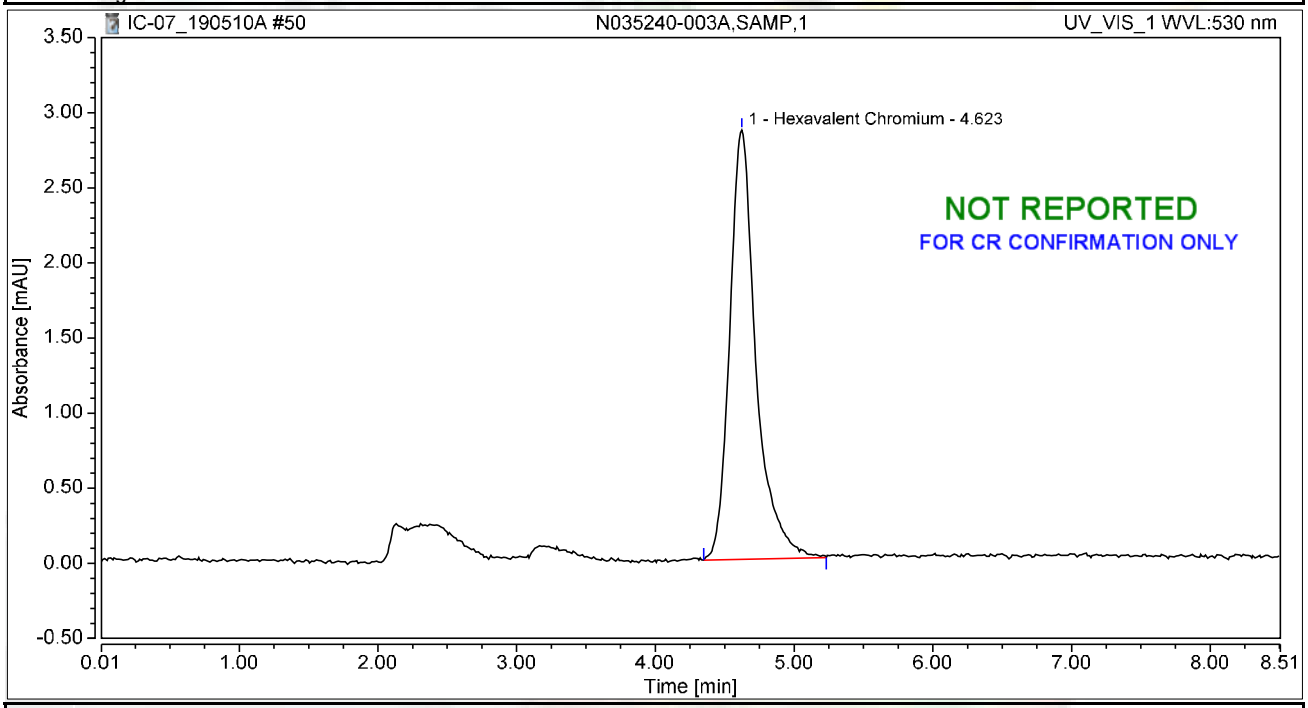
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 14:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

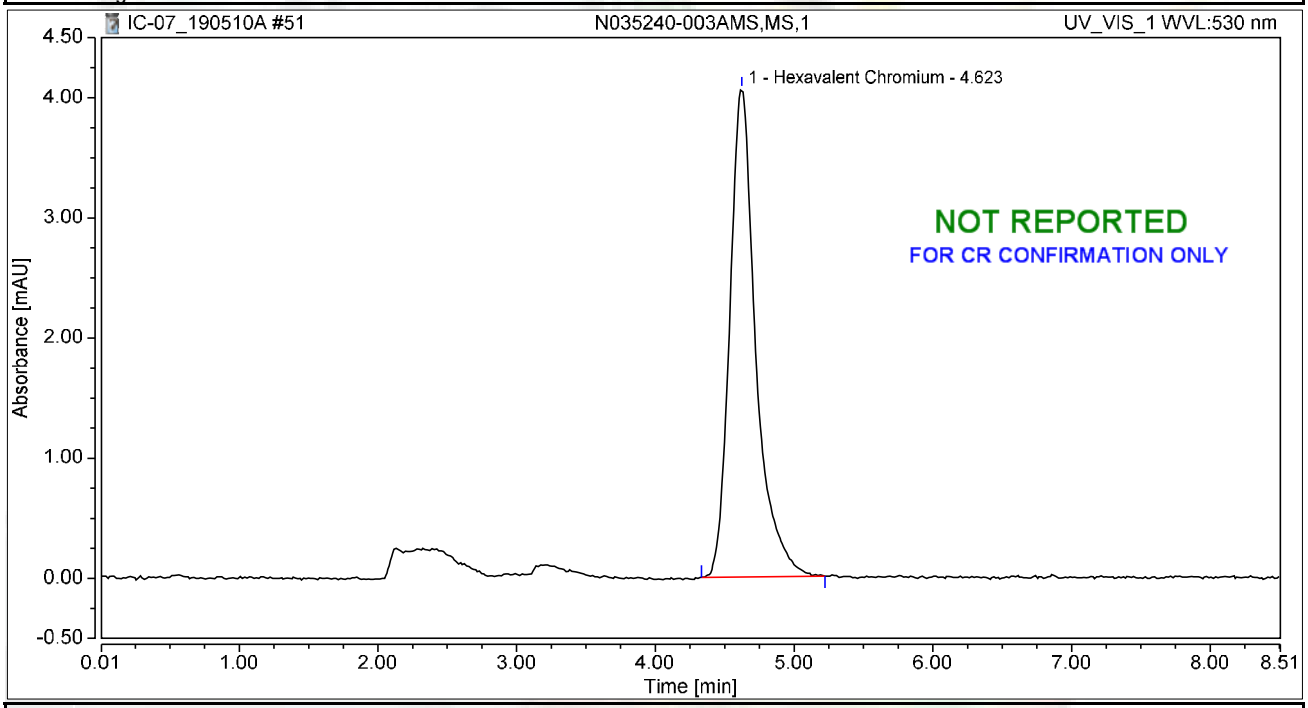
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.623	0.627	2.857	100.00	100.00	2.4880
Total:			**0.627**	**2.857**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035240-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 15:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

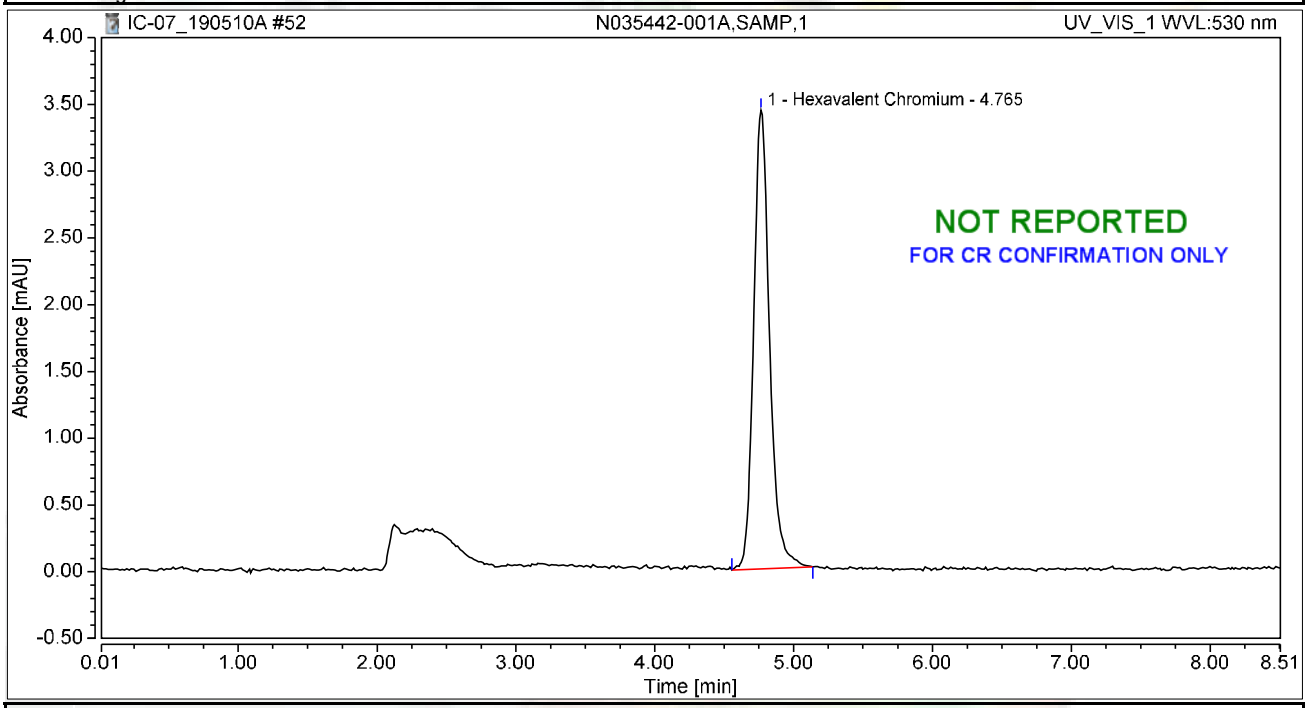
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.623	0.883	4.062	100.00	100.00	3.5018
Total:			**0.883**	**4.062**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035442-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 15:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

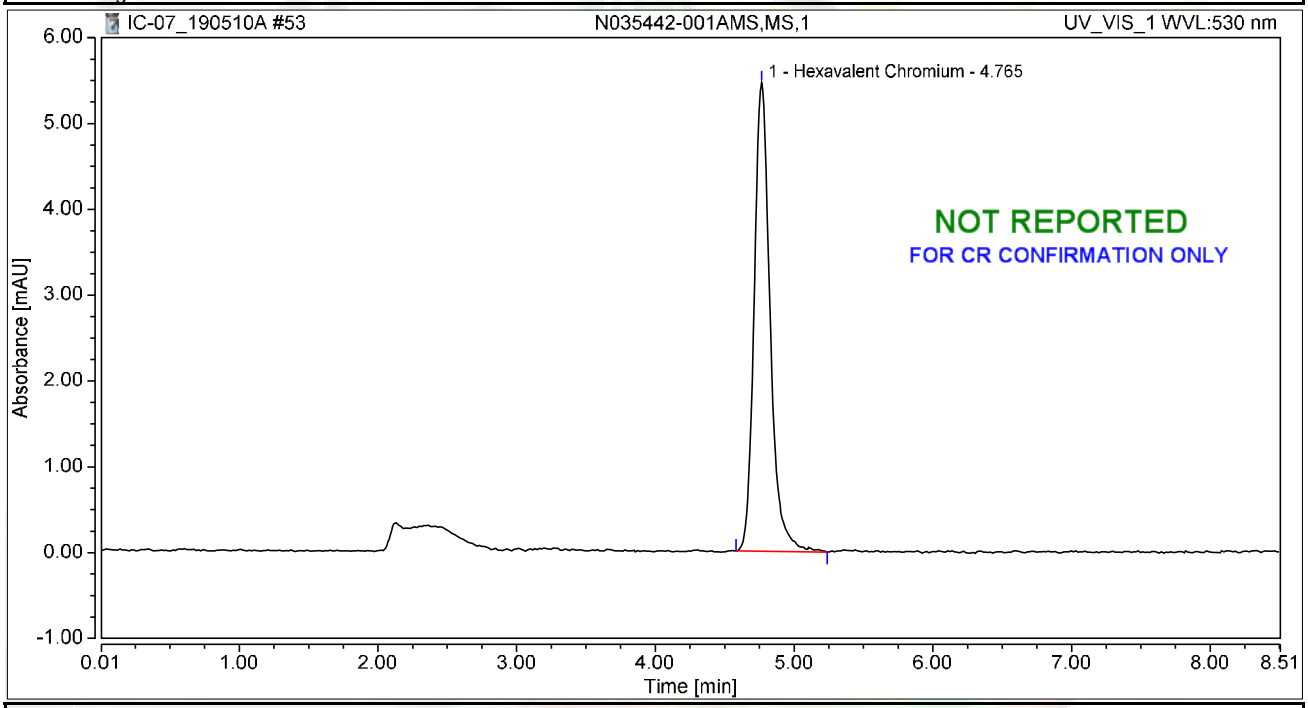
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	0.458	3.435	100.00	100.00	1.8167
Total:			**0.458**	**3.435**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035442-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 15:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

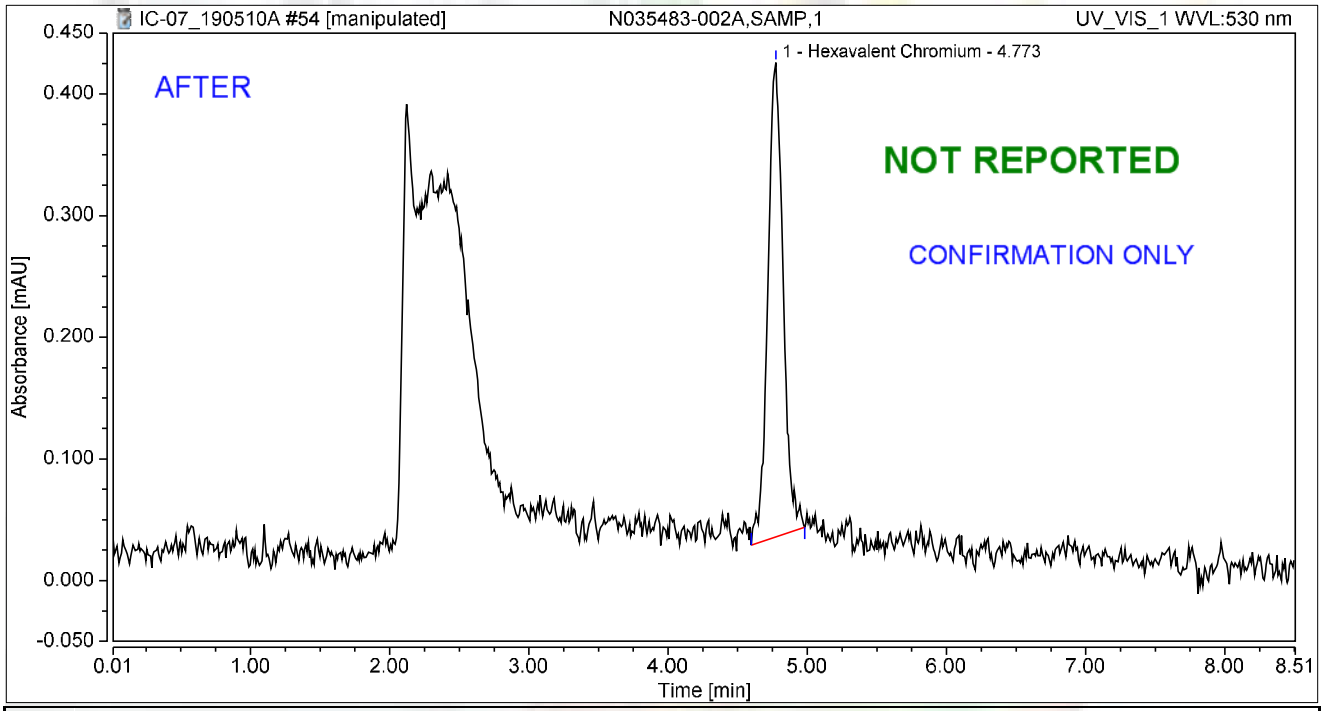
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	0.730	5.459	100.00	100.00	2.8943
Total:			**0.730**	**5.459**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035483-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 15:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	0.050	0.390	100.00	100.00	0.1973
Total:			**0.050**	**0.390**	**100.00**	**100.00**	

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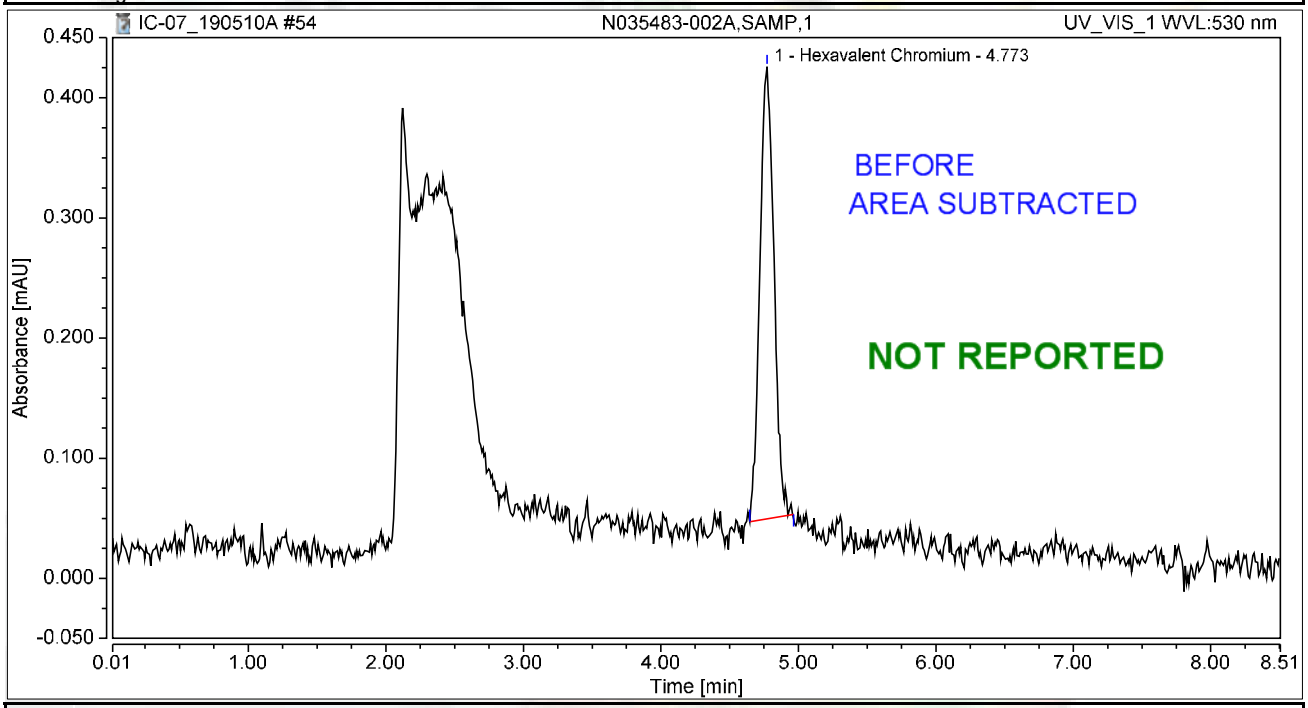
Chromatogram and Results

Injection Details

Injection Name:	**N035483-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 15:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.773	0.045	0.376	100.00	100.00	0.1773
Total:			**0.045**	**0.376**	**100.00**	**100.00**	

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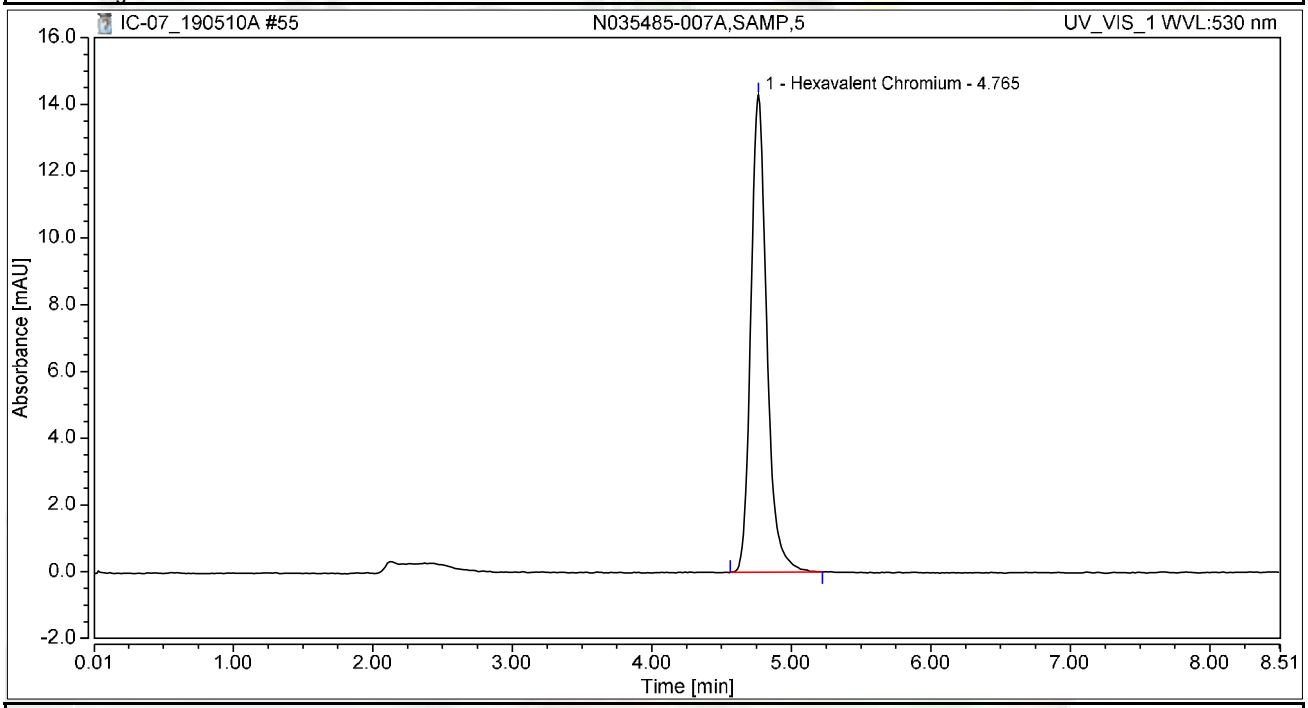
Chromatogram and Results

Injection Details

Injection Name:	**N035485-007A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 15:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

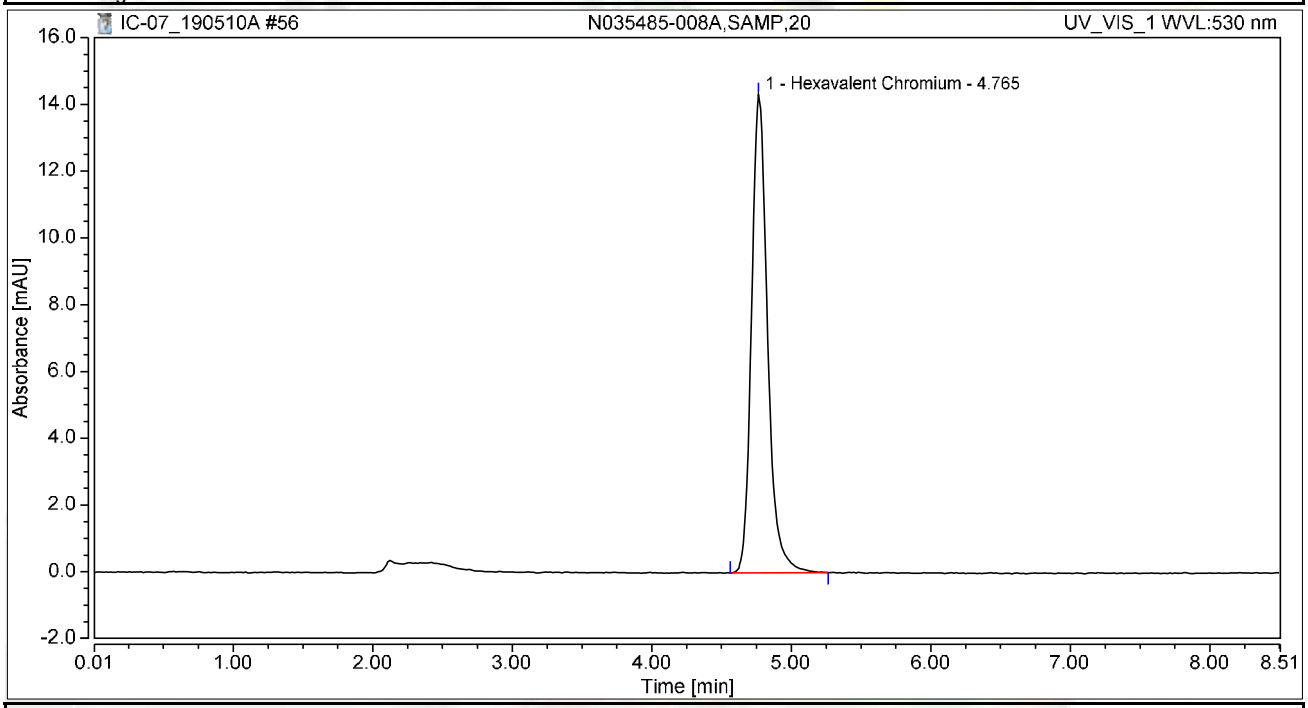
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	1.900	14.303	100.00	100.00	7.5353
Total:			**1.900**	**14.303**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035485-008A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 15:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

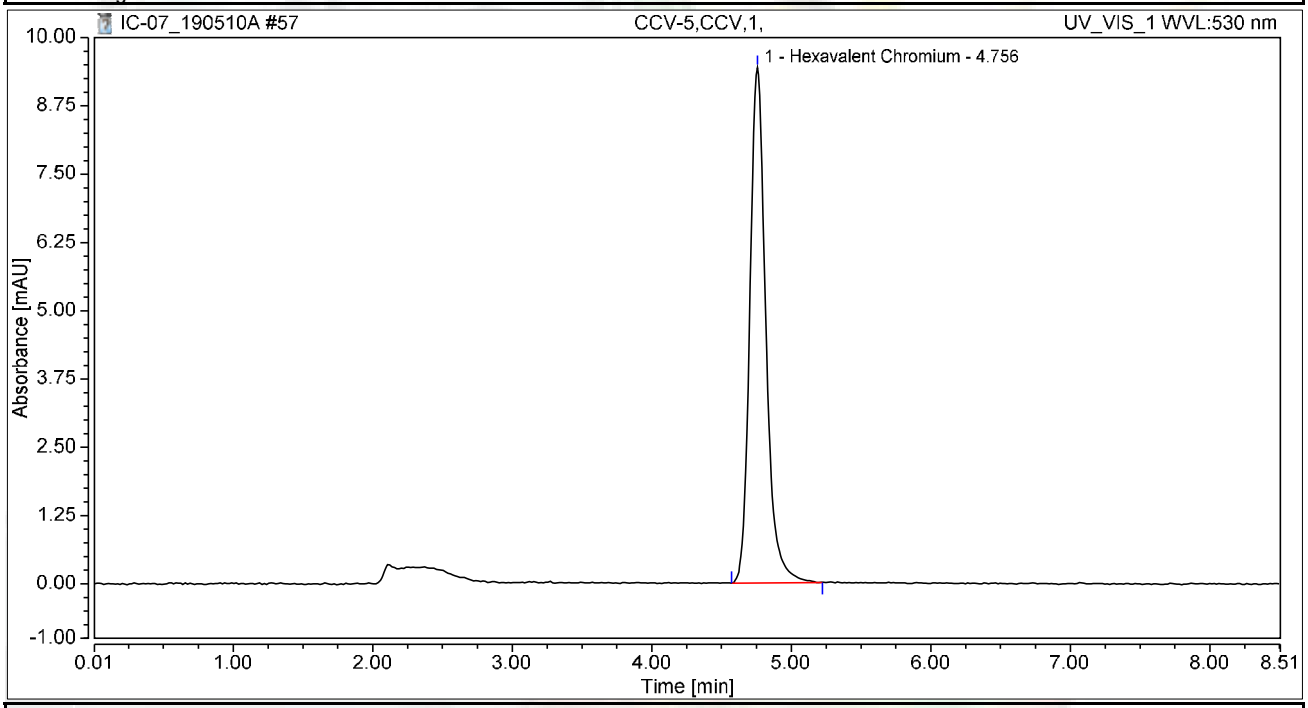
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.765	1.909	14.335	100.00	100.00	7.5730
Total:			**1.909**	**14.335**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 16:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

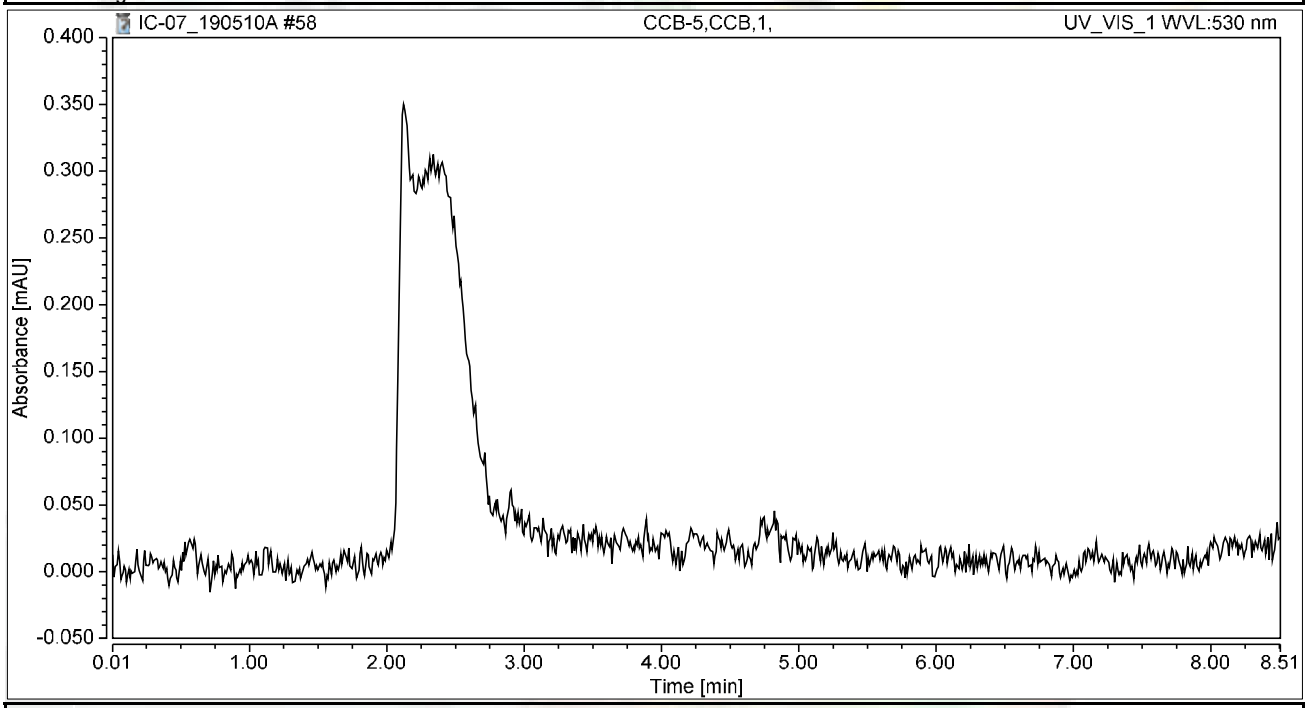
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	1.258	9.438	100.00	100.00	4.9891
Total:			**1.258**	**9.438**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**44**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 16:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

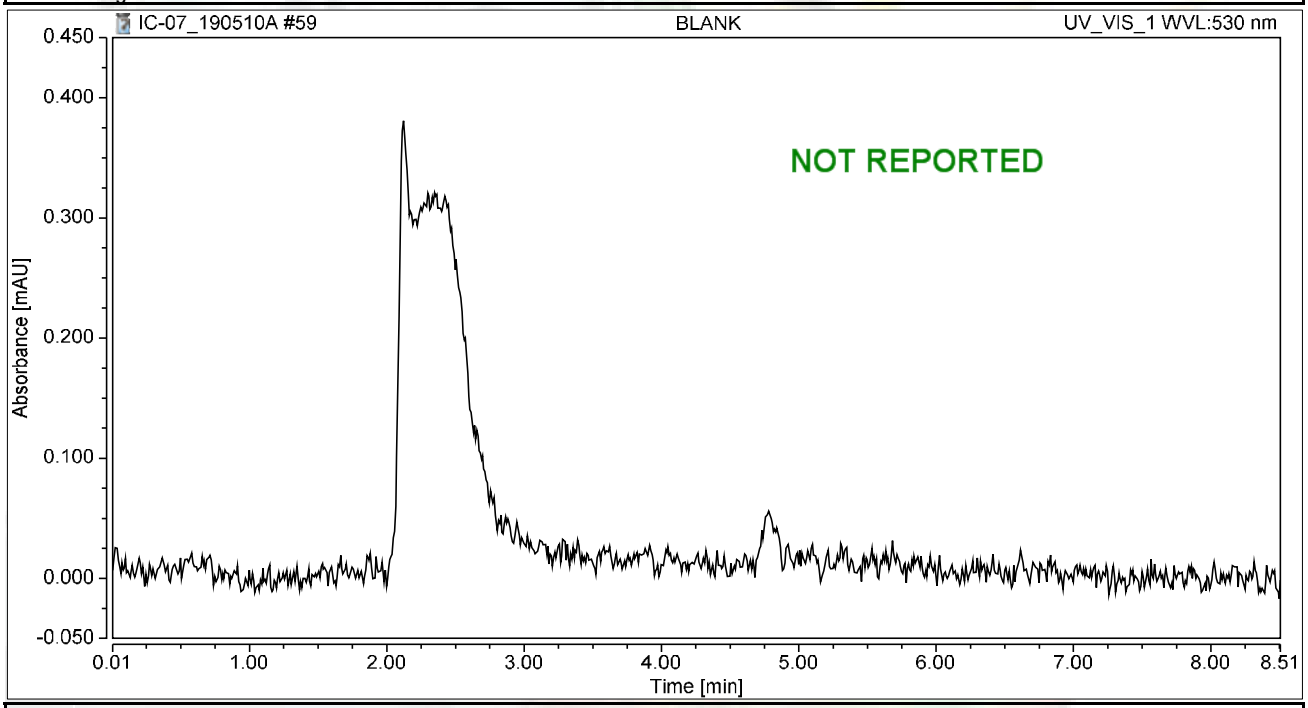
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**45**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**10/May/19 16:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 2320B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133860 **Analyst:** LSR

ASSET #: N035484 **Date Analyzed:** 13-May

Method: EPA 2320

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 5/16/2019

2nd Level Reviewer: Mary 5/23/2019 Date:

SAMPLE CALCULATION

Sample ID: **N035484-001C @ pH 7.81**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.875 mL)

= **0.02105 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (10.30) (0.02105 N) (1) * 1000

= 216.8150 mg**/L**

Reporting results in two significant figures,

= 220 as CaCO3

Julia Ramit 5/16/2019

C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0.00) (0.02105 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (10.30 mL) (0.02105) (1) * 1000

= 216.8150 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 216.8150 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **220 mg/L**

Shilpa Ramit 5/16/2019

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.75	50	0.00	0.050	MBLK
LCS-1	8.63	50	0.10	4.65	LCS
N035484-001C	7.81	50	0.00	10.30	SAMP
N035484-002C	7.88	50	0.00	7.65	SAMP
N035484-002CDUP	7.92	50	0.00	7.65	DUP
N035484-002CMS	7.96	50	0.00	12.25	MS
N035484-002CMSD	7.91	50	0.00	12.10	MSD

Standardization:		
Spike amt:	**5**	ml
Titrant used:	**11.875**	ml
N H2SO4	**0.02105**	Normal
Date Analyzed:	**5/13/19**	
Time:	**10:00 AM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-180510A**	
Sulfuric Acid:	**R190513A**	

Julia Ramit 5/16/2019

Date Analyzed:	5/13/19		**Reagents:**					**Standardization:**					**P = 0**
Time Started:	10:00 AM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	**mL**		**P < 1/2 T**
Analyzed By:	**LSR**			Hydrochloric Acid:		0			Titrant used:	11.875	**mL**		**P = 1/2 T**
				Sulfuric Acid:		R190513A							**P > 1/2 T**
									N H2SO4	0.02105	**N**		**P = T**

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.75				0.02105	0.00	0.05	0.05	1	0.00	1.05	
LCS-1	50	8.63				0.02105	0.10	4.55	4.65	1	2.11	97.89	
N035484-001C	50	7.81				0.02105	0.00	10.30	10.30	1	0.00	216.84	
N035484-002C	50	7.88				0.02105	0.00	7.65	7.65	1	0.00	161.05	
N035484-002CDU	50	7.92				0.02105	0.00	7.65	7.65	1	0.00	161.05	
N035484-002CMS	50	7.96				0.02105	0.00	12.25	12.25	1	0.00	257.89	
N035484-002CMS	50	7.91				0.02105	0.00	12.10	12.10	1	0.00	254.74	

Silvia Ramit 5/16/2019

Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	5/13/19
Time:	10:00 AM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.05	1.05	1.05		P = 0
LCS-1	0.00	4.21	93.68	97.89	97.89		P < 1/2 T
N035484-001C	0.00	0.00	216.84	216.84	216.84		P = 0
N035484-002C	0.00	0.00	161.05	161.05	161.05		P = 0
N035484-002CDUP	0.00	0.00	161.05	161.05	161.05		P = 0
N035484-002CMS	0.00	0.00	257.89	257.89	257.89		P = 0
N035484-002CMSD	0.00	0.00	254.74	254.74	254.74		P = 0

Julia Ramit 5/16/2019

Alkalinity Preparation and Runlog

Matrix: H_2O

Date Extracted: 5/13/19
Time Extracted: 1100
Extracted By: LR

Date Analyzed: 5/13/19
Time Analyzed: 1500
Analyzed By: LR

Reagent Lot # / Reagent ID
Sodium Carbonate: GIN—160205A
Hydrochloric Acid:
Sulfuric Acid: R190513A
Sodium Bicarbonate: GIN—160510A

pH meter calibration:
SLOPE: 96.8%
pH 7 - 7.03 GIN190107A
4 - 3.99 - B
10 - 9.98 - GIN190111G

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARDIZATION											
	#1	50mL	10.82	IWST190513A	5mL	0.05N	-	-	11.95	50/50	$N_{H_2SO_4} = \frac{(2.65\ g/L)(5mL)}{(53)(V\ titrant)}$	= 0.020920502
	#2	↓	10.81	↓	↓	↓	-	-	11.80	↓		= 0.021186944
1)	MBLK	50mL	5.74	-	-	-	0.02105	0	0.05	50/50		Ave: 0.021053471
2)	LCS		8.63	IWST190513B	1mL	0.05N		0.10	4.65			
3)	NO3SPK-IC		7.81					0	10.30			
4)	2C		7.88					0	7.65			
5)	2CDP		7.92					0	7.65			
6)	2CMS		7.96	IWST190513B	1mL	0.05N		0	12.25			
7)	2CMSD		7.91	↓	↓	↓		0	12.10			
8)												
9)												
10)												
11)												
12)												
13)												
14)												
15)				$P = \frac{(V\ pH\ 8.3)(N\ H_2SO_4)(50{,}000)}{VS}$								
16)												
17)												
18)												
19)				$T = \frac{(V\ pH\ 4.5)(N\ H_2SO_4)(50{,}000)}{VS}$								
20)												
	MS											
	MSD											
	LCS											

Julia Ramit 5/16/2019

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133848
ASSET #: N035484

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 5/10/2019

Method:

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)			X			X
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)		X			X	
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?			X			X
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?			X			X
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)			X			X
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)			X			X
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

Detection of Sulfate in CCB-4 was >1/2 PQL criteria. However, N035484 sample affected was ~~5X~~ >10x the CCB detection. Thus, the sample was reported.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 5/28/2019

2nd Level Reviewer: NS Date: 5/28/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the orignal sample as follows:

Sulfate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N035484-001C** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 5.4438 * 50

= 272.19

Reporting result in two significant values,

Sulfate, mg/L = 270

NS 5/28/2019

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 71
Created: 4/30/2019 8:21:43 AM by IC-05
Last Update: 4/30/2019 3:29:40 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
2	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
3	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
4	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
5	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
6	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
7	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
8	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
9	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
10	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
11	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
12	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
13	N035249-002B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
14	N035249-005B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
15	N035276-001B,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
16	N035249-002BMS,MS,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
17	N035249-002BMSD,MSD,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
18	N035276-001BMS,MS,2000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
19	N035249-005BDUP,DUP,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
20	N035249-006B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
21	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
22	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
23	N035249-001B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
24	N035249-001B,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
25	N035249-003B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
26	N035249-003B,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
27	N035249-004B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
28	N035249-004B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
29	N035249-007B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
30	N035249-007B,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
31	N035249-008B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
32	N035249-009B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
33	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
34	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
35	N035249-010B,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
36	N035249-010B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
37	N035249-011B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
38	N035249-011B,SAMP,10000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
39	LCS-2,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
40	MB-2,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
41	N035276-006B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 71
Created: 4/30/2019 8:21:43 AM by IC-05
Last Update: 4/30/2019 3:29:40 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK	4/30/2019 8:22:06 AM	BLANK
2	BLANK,BLANK	4/30/2019 8:36:54 AM	BLANK
3	Std - 0	4/30/2019 9:06:42 AM	IBLANK
4	Std - 1	4/30/2019 9:23:34 AM	STD-LOW
5	Std - 2	4/30/2019 9:41:28 AM	STD
6	Std - 3	4/30/2019 9:56:17 AM	STD
7	Std - 4	4/30/2019 10:11:05 AM	STD
8	Std - 5	4/30/2019 10:25:52 AM	STD-HIGH
9	ICV,ICV,1	4/30/2019 10:43:27 AM	ICV
10	ICB,ICB,1	4/30/2019 10:58:15 AM	ICB
11	MB-H2O,MBLK,1	4/30/2019 11:13:03 AM	METHOD BLANK
12	LCS-H2O,LCS,1	4/30/2019 11:27:51 AM	LCS
13	N035249-002B,SAMP,1000	4/30/2019 11:43:28 AM	SAMP,0.01>10mL 9056
14	N035249-005B,SAMP,500	4/30/2019 11:58:16 AM	SAMP,0.02>10mL 9056
15	N035276-001B,SAMP,2000	4/30/2019 12:13:04 PM	SAMP,0.005>10mL 9056
16	N035249-002BMS,MS,1000	4/30/2019 12:27:52 PM	MS,0.01>10mL 9056
17	N035249-002BMSD,MSD,1000	4/30/2019 12:42:40 PM	MSD,0.01>10mL 9056
18	N035276-001BMS,MS,2000	4/30/2019 12:57:28 PM	MS,0.005>10mL 9056
19	N035249-005BDUP,DUP,500	4/30/2019 1:12:16 PM	DUP,0.02>10mL 9056
20	N035249-006B,SAMP,1000	4/30/2019 1:38:37 PM	SAMP,0.01>10mL 9056
21	CCV-1,CCV,1	4/30/2019 1:53:24 PM	CCV
22	CCB-1,CCB,1	4/30/2019 2:08:12 PM	CCB
23	N035249-001B,SAMP,20	4/30/2019 2:23:00 PM	SAMP,0.5>10mL 9056
24	N035249-001B,SAMP,200	4/30/2019 2:37:48 PM	SAMP,0.05>10mL 9056
25	N035249-003B,SAMP,1000	4/30/2019 2:52:35 PM	SAMP,0.01>10mL 9056
26	N035249-003B,SAMP,2000	4/30/2019 3:07:23 PM	SAMP,0.005>10mL 9056
27	N035249-004B,SAMP,500	4/30/2019 3:22:11 PM	SAMP,0.02>10mL 9056
28	N035249-004B,SAMP,5000	4/30/2019 3:36:59 PM	SAMP,0.002>10mL 9056
29	N035249-007B,SAMP,50	4/30/2019 3:51:47 PM	SAMP,0.2>10mL 9056
30	N035249-007B,SAMP,200	4/30/2019 4:06:35 PM	SAMP,0.05>10mL 9056
31	N035249-008B,SAMP,500	4/30/2019 4:21:23 PM	SAMP,0.02>10mL 9056
32	N035249-009B,SAMP,500	4/30/2019 4:36:10 PM	SAMP,0.02>10mL 9056
33	CCV-2,CCV,1	4/30/2019 4:50:58 PM	CCV
34	CCB-2,CCB,1	4/30/2019 5:05:46 PM	CCB
35	N035249-010B,SAMP,2000	4/30/2019 5:20:34 PM	SAMP,0.005>10mL 9056
36	N035249-010B,SAMP,5000	4/30/2019 5:35:22 PM	SAMP,0.002>10mL 9056
37	N035249-011B,SAMP,5000	4/30/2019 5:50:09 PM	SAMP,0.002>10mL 9056
38	N035249-011B,SAMP,10000	4/30/2019 6:04:57 PM	SAMP,0.001>10mL 9056
39	LCS-2,LCS,1	4/30/2019 6:19:45 PM	LCS
40	MB-2,MBLK,1	4/30/2019 6:34:33 PM	METHOD BLANK
41	N035276-006B,SAMP,1000	4/30/2019 6:49:21 PM	SAMP,0.01>10mL 9056

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 71
Created: 4/30/2019 8:21:43 AM by IC-05
Last Update: 4/30/2019 3:29:40 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N035276-006BMS,MS,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
43	N035276-006BMSD,MSD,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
44	N035276-004B,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
45	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
46	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
47	N035276-004BDUP,DUP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
48	N035276-011B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
49	N035276-011BDUP,DUP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
50	N035276-004B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
51	N035276-011B,SAMP,10000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
52	N035276-002B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
53	N035276-002B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
54	N035276-003B,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
55	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
56	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
57	N035276-003B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
58	N035276-007B,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
59	N035276-007B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
60	N035276-005B,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
61	N035276-005B,SAMP,10000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
62	N035276-008B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
63	N035276-008B,SAMP,20000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
64	N035276-009B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
65	N035276-009B,SAMP,20000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
66	N035276-010B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
67	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
68	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
69	N035276-010B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
70	CCV-6,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
71	CCB-6,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished

jnba 5/6/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 71
Created: 4/30/2019 8:21:43 AM by IC-05
Last Update: 4/30/2019 3:29:40 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N035276-006BMS,MS,1000	4/30/2019 7:04:08 PM	MS,0.01>10mL 9056
43	N035276-006BMSD,MSD,1000	4/30/2019 7:18:56 PM	MSD,0.01>10mL 9056
44	N035276-004B,SAMP,2000	4/30/2019 7:33:44 PM	SAMP,0.005>10mL 9056
45	CCV-3,CCV,1	4/30/2019 7:48:31 PM	CCV
46	CCB-3,CCB,1	4/30/2019 8:03:19 PM	CCB
47	N035276-004BDUP,DUP,2000	4/30/2019 8:18:07 PM	DUP,0.005>10mL 9056
48	N035276-011B,SAMP,1000	4/30/2019 8:32:55 PM	SAMP,0.01>10mL 9056
49	N035276-011BDUP,DUP,1000	4/30/2019 8:47:43 PM	DUP,0.01>10mL 9056
50	N035276-004B,SAMP,1000	4/30/2019 9:02:31 PM	SAMP,0.01>10mL 9056
51	N035276-011B,SAMP,10000	4/30/2019 9:17:19 PM	SAMP,0.001>10mL 9056
52	N035276-002B,SAMP,500	4/30/2019 9:32:06 PM	SAMP,0.02>10mL 9056
53	N035276-002B,SAMP,5000	4/30/2019 9:46:54 PM	SAMP,0.002>10mL 9056
54	N035276-003B,SAMP,2000	4/30/2019 10:01:42 PM	SAMP,0.005>10mL 9056
55	CCV-4,CCV,1	4/30/2019 10:16:30 PM	CCV
56	CCB-4,CCB,1	4/30/2019 10:31:18 PM	CCB
57	N035276-003B,SAMP,500	4/30/2019 10:46:05 PM	SAMP,0.02>10mL 9056
58	N035276-007B,SAMP,500	4/30/2019 11:00:53 PM	SAMP,0.02>10mL 9056
59	N035276-007B,SAMP,5000	4/30/2019 11:15:41 PM	SAMP,0.002>10mL 9056
60	N035276-005B,SAMP,2000	4/30/2019 11:30:29 PM	SAMP,0.005>10mL 9056
61	N035276-005B,SAMP,10000	4/30/2019 11:45:17 PM	SAMP,0.001>10mL 9056
62	N035276-008B,SAMP,5000	5/1/2019 12:00:05 AM	SAMP,0.002>10mL 9056
63	N035276-008B,SAMP,20000	5/1/2019 12:14:52 AM	SAMP,0.0005>10mL 9056
64	N035276-009B,SAMP,5000	5/1/2019 12:29:40 AM	SAMP,0.002>10mL 9056
65	N035276-009B,SAMP,20000	5/1/2019 12:44:28 AM	SAMP,0.0005>10mL 9056
66	N035276-010B,SAMP,5000	5/1/2019 12:59:16 AM	SAMP,0.002>10mL 9056
67	CCV-5,CCV,1	5/1/2019 1:14:03 AM	CCV
68	CCB-5,CCB,1	5/1/2019 1:28:51 AM	CCB
69	N035276-010B,SAMP,1000	5/1/2019 1:43:39 AM	SAMP,0.001>10mL 9056
70	CCV-6,CCV,1	5/1/2019 1:58:27 AM	CCV
71	CCB-6,CCB,1	5/1/2019 2:13:15 AM	CCB

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 69
Created: 5/10/2019 8:26:19 AM by IC-05
Last Update: 5/11/2019 12:10:02 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
2	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
3	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
4	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
5	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
6	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
7	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
8	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190430	Finished
9	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
10	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
11	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
12	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
13	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
14	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
15	N035486-001D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
16	N035486-002D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
17	N035486-003D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
18	N035486-004D,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
19	N035485-007C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
20	N035485-008C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
21	N035485-001C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
22	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
23	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
24	N035485-002C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
25	N035485-003C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
26	N035485-004C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
27	N035485-005C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
28	N035485-006C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
29	N035485-007C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
30	N035485-008C,SAMP,10	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
31	N035484-001C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
32	N035485-001CMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
33	N035485-001CMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
34	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
35	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
36	N035486-003DMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
37	N035485-007CDUP,DUP,10	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
38	N035511-006CMS,MS,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
39	N035511-006CMSD,MSD,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
40	N035511-006C,SAMP,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
41	N035511-001C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 69
Created: 5/10/2019 8:26:19 AM by IC-05
Last Update: 5/11/2019 12:10:02 AM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK	4/30/2019 8:22:06 AM	BLANK
2	BLANK,BLANK	4/30/2019 8:36:54 AM	BLANK
3	Std - 0	4/30/2019 9:06:42 AM	IBLANK
4	Std - 1	4/30/2019 9:23:34 AM	STD-LOW
5	Std - 2	4/30/2019 9:41:28 AM	STD
6	Std - 3	4/30/2019 9:56:17 AM	STD
7	Std - 4	4/30/2019 10:11:05 AM	STD
8	Std - 5	4/30/2019 10:25:52 AM	STD-HIGH
9	BLANK,BLANK	5/10/2019 8:26:42 AM	BLANK
10	CCV-1,CCV,1	5/10/2019 8:41:29 AM	CCV
11	CCB-1,CCB,1	5/10/2019 8:56:17 AM	CCB
12	MB-H2O,MBLK,1	5/10/2019 9:11:05 AM	METHOD BLANK
13	LCS-H2O,LCS,1	5/10/2019 9:25:53 AM	LCS
14	MB-H2O,MBLK,1	5/10/2019 9:40:59 AM	METHOD BLANK
15	N035486-001D,SAMP,5	5/10/2019 10:15:02 AM	SAMP,2>10mL
16	N035486-002D,SAMP,5	5/10/2019 10:29:50 AM	SAMP,2>10mL
17	N035486-003D,SAMP,5	5/10/2019 10:44:37 AM	SAMP,2>10mL
18	N035486-004D,SAMP,5	5/10/2019 10:59:25 AM	SAMP,2>10mL
19	N035485-007C,SAMP,5	5/10/2019 11:14:13 AM	SAMP,2>10mL
20	N035485-008C,SAMP,5	5/10/2019 11:29:02 AM	SAMP,2>10mL
21	N035485-001C,SAMP,5	5/10/2019 11:43:50 AM	SAMP,2>10mL
22	CCV-2,CCV,1	5/10/2019 12:10:34 PM	CCV
23	CCB-2,CCB,1	5/10/2019 12:25:22 PM	CCB
24	N035485-002C,SAMP,5	5/10/2019 12:40:10 PM	SAMP,2>10mL
25	N035485-003C,SAMP,5	5/10/2019 12:54:58 PM	SAMP,2>10mL
26	N035485-004C,SAMP,50	5/10/2019 1:09:46 PM	SAMP,0.2>10mL
27	N035485-005C,SAMP,5	5/10/2019 1:24:34 PM	SAMP,2>10mL
28	N035485-006C,SAMP,10	5/10/2019 1:39:21 PM	SAMP,1>10mL
29	N035485-007C,SAMP,10	5/10/2019 1:54:10 PM	SAMP,1>10mL
30	N035485-008C,SAMP,10	5/10/2019 2:08:58 PM	SAMP,2>10mL
31	N035484-001C,SAMP,50	5/10/2019 2:23:46 PM	SAMP,0.2>10mL
32	N035485-001CMS,MS,5	5/10/2019 2:38:34 PM	MS,2>10mL
33	N035485-001CMSD,MSD,5	5/10/2019 2:53:21 PM	MSD,2>10mL
34	CCV-3,CCV,1	5/10/2019 3:08:09 PM	CCV
35	CCB-3,CCB,1	5/10/2019 3:22:57 PM	CCB
36	N035486-003DMS,MS,5	5/10/2019 3:37:45 PM	MS,2>10mL
37	N035485-007CDUP,DUP,10	5/10/2019 3:52:33 PM	DUP,1>10mL
38	N035511-006CMS,MS,1	5/10/2019 4:07:20 PM	MS,10mL
39	N035511-006CMSD,MSD,1	5/10/2019 4:30:25 PM	MSD,10mL
40	N035511-006C,SAMP,1	5/10/2019 4:45:12 PM	SAMP,10mL
41	N035511-001C,SAMP,2	5/10/2019 5:00:00 PM	SAMP,5>10mL

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 69
Created: 5/10/2019 8:26:19 AM by IC-05
Last Update: 5/11/2019 12:10:02 AM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N035511-002C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
43	N035511-003C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
44	N035511-004C,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
45	N035511-005C,SAMP,2	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
46	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
47	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
48	N035511-006CDUP,DUP,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
49	LCS-2,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
50	MB-2,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
51	N035484-001C,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
52	N035484-001CDUP,DUP,100	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
53	N035484-001C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
54	N035484-001CDUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
55	N035484-002C,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
56	N035484-002CMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
57	N035484-002CMSD,MSD,500	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
58	CCV-5,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
59	CCB-5,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
60	N035484-002C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
61	N035490-002B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
62	N035490-002BMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
63	N035490-002BMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
64	N035490-002B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
65	N035490-002BDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
66	N035490-002BMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
67	N035490-002BMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
68	CCV-6,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished
69	CCB-6,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190430	Finished

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 69
Created: 5/10/2019 8:26:19 AM by IC-05
Last Update: 5/11/2019 12:10:02 AM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N035511-002C,SAMP,2	5/10/2019 5:14:48 PM	SAMP,5>10mL
43	N035511-003C,SAMP,2	5/10/2019 5:29:36 PM	SAMP,5>10mL
44	N035511-004C,SAMP,5	5/10/2019 5:44:24 PM	SAMP,2>10mL
45	N035511-005C,SAMP,2	5/10/2019 5:59:11 PM	SAMP,5>10mL
46	CCV-4,CCV,1	5/10/2019 6:14:00 PM	CCV
47	CCB-4,CCB,1	5/10/2019 6:28:48 PM	CCB
48	N035511-006CDUP,DUP,1	5/10/2019 6:43:35 PM	DUP,10mL
49	LCS-2,LCS,1	5/10/2019 6:58:23 PM	LCS
50	MB-2,MBLK,1	5/10/2019 7:13:11 PM	METHOD BLANK
51	N035484-001C,SAMP,100	5/10/2019 7:27:59 PM	SAMP,0.1>10mL
52	N035484-001CDUP,DUP,100	5/10/2019 7:42:47 PM	DUP,0.1>10mL
53	N035484-001C,SAMP,50	5/10/2019 7:57:35 PM	SAMP,0.2>10mL
54	N035484-001CDUP,DUP,50	5/10/2019 8:12:22 PM	DUP,0.2>10mL
55	N035484-002C,SAMP,500	5/10/2019 8:27:10 PM	SAMP,0.02>10mL
56	N035484-002CMS,MS,500	5/10/2019 8:41:59 PM	MS,0.02>10mL
57	N035484-002CMSD,MSD,500	5/10/2019 8:56:47 PM	MSD,0.02>10mL
58	CCV-5,CCV,1	5/10/2019 9:11:34 PM	CCV
59	CCB-5,CCB,1	5/10/2019 9:26:22 PM	CCB
60	N035484-002C,SAMP,50	5/10/2019 9:41:11 PM	SAMP,0.2>10mL
61	N035490-002B,SAMP,50	5/10/2019 9:55:59 PM	SAMP,0.2>10mL
62	N035490-002BMS,MS,50	5/10/2019 10:10:47 PM	MS,0.2>10mL
63	N035490-002BMSD,MSD,50	5/10/2019 10:25:35 PM	MSD,0.2>10mL
64	N035490-002B,SAMP,5	5/10/2019 10:40:23 PM	SAMP,2>10mL
65	N035490-002BDUP,DUP,5	5/10/2019 10:55:11 PM	DUP,2>10mL
66	N035490-002BMS,MS,5	5/10/2019 11:09:59 PM	MS,2>10mL
67	N035490-002BMSD,MSD,5	5/10/2019 11:24:47 PM	MSD,2>10mL
68	CCV-6,CCV,1	5/10/2019 11:39:36 PM	CCV
69	CCB-6,CCB,1	5/10/2019 11:54:23 PM	CCB

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INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 4/30/2019

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0762	0.1518	0.3098	0.7870	1.6716	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 4/30/2019

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0572	0.2272	0.4673	1.1877	2.4992	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914G

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **ICV**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **4/30/2019**	SeqNo: **3383590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.026	0.50	2.000	0	101	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCV**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.947	0.50	2.000	0	97.3	90	110				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCV**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.950	0.50	2.000	0	97.5	90	110				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCV**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.882	0.50	2.000	0	94.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **ICV**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **4/30/2019**	SeqNo: **3383605**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.004	0.50	4.000	0	100	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCV**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.954	0.50	4.000	0	98.8	90	110				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCV**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.007	0.50	4.000	0	100	90	110				

Sample ID **CCV-6**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCV**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.944	0.50	4.000	0	98.6	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **ICB**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **4/30/2019**	SeqNo: **3383591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCB**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383593**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.152	0.50									

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCB**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCB**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383604**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.138	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **ICB**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **4/30/2019**	SeqNo: **3383606**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCB**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383608**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	0.252	0.50									

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCB**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383614**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **133848**
Client ID: **CCB**	Batch ID: **R133848**	TestNo: **EPA 300.0**		Analysis Date: **5/10/2019**	SeqNo: **3383620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

Detection of Sulfate in CCB-4 is > 1//2 RL. However, affected sample has result >10x the CCB detection.

NS 5/28/2019

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 5/10/2019

Sample Name		Retention Time	Evaluation
ICV	Chloride	4.090	
CCV-4	Chloride	4.103	
CCV-5	Chloride	4.103	
CCV-6	Chloride	4.100	
	Average	4.102	
	Applied RT Window	3.902 - 4.302	
LCS-R133848_CL	Chloride	4.103	PASS
MB-R133848_CL	Chloride	N.A.	N.A.
N035484-001C	Chloride	4.103	PASS
N035484-001CDUP	Chloride	4.103	PASS
N035484-002C	Chloride	4.104	PASS
N035484-002CMS	Chloride	4.104	PASS
N035484-002CMSD	Chloride	4.104	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 5/10/2019

Sample Name		Retention Time	Evaluation
ICV	Sulfate	9.067	
CCV-4	Sulfate	9.217	
CCV-5	Sulfate	9.207	
CCV-6	Sulfate	9.197	
	Average	9.207	
	Applied RT Window	9.007 - 9.407	
LCS-R133848_SO4	Sulfate	9.217	PASS
MB-R133848_SO4	Sulfate	N.A.	N.A.
N035484-001C	Sulfate	9.210	PASS
N035484-001CDUP	Sulfate	9.207	PASS
N035484-002C	Sulfate	9.207	PASS
N035490-002BMS	Sulfate	9.207	PASS
N035490-002BMSD	Sulfate	9.207	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	170523A D36	170523A D37	170523A D38	170524A D17	170524A D18	170525A D45	170525A D46					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.020	0.022	0.021	0.020	0.023	0.026	0.024	0.020	0.0021	**0.0065**	0.020	0.10
Chloride	0.133	0.136	0.136	0.133	0.141	0.133	0.136	0.025	0.0029	**0.0091**	0.020	0.50
Nitrite	0.030	0.028	0.027	0.028	0.028	0.027	0.027	0.020	0.0010	**0.0030**	0.010	0.05
Bromide	0.037	0.042	0.043	0.038	0.040	0.032	0.025	0.040	0.0062	**0.0196**	0.040	0.20
Nitrate	0.035	0.034	0.033	0.033	0.033	0.031	0.030	0.020	0.0016	**0.0050**	0.010	0.05
Phosphate	0.047	0.051	0.049	0.046	0.052	0.047	0.059	0.040	0.0043	**0.0135**	0.030	0.10
Sulfate	0.213	0.199	0.208	0.216	0.199	0.201	0.198	0.050	0.0073	**0.0229**	0.050	0.50

MDL/LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 3/29-30/2018
Analyst: Ria B. Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD Actual Conc., mg/L	PQL Spike Conc., mg/L	PQL Actual Conc., mg/L	%Recovery
Fluoride	**0.0065**	0.020	0.0252	0.10	0.087	**87**
Chloride	**0.0091**	0.020	0.1193	0.50	0.5757	**115**
Nitrite	**0.0030**	0.010	0.0237	0.05	0.0638	**128**
Bromide	**0.0196**	0.040	0.0405	0.20	0.1993	**100**
Nitrate	**0.0050**	0.010	0.0191	0.05	0.0561	**112**
Phosphate	**0.0135**	0.030	0.0415	0.10	0.1216	**122**
Sulfate	**0.0229**	0.050	0.3682	0.50	0.6549	**131**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133920 **Analyst:** QBM

ASSET #: N035532, 484, 490 **Date Analyzed:** 5/15/2019

Method: 4500_N03

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 5/28/2019

2nd Level Reviewer NS Date: 5/28/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N035484-002D**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.5337	*	5
	=	2.6685	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 2.7 mg/L

NS 5/28/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

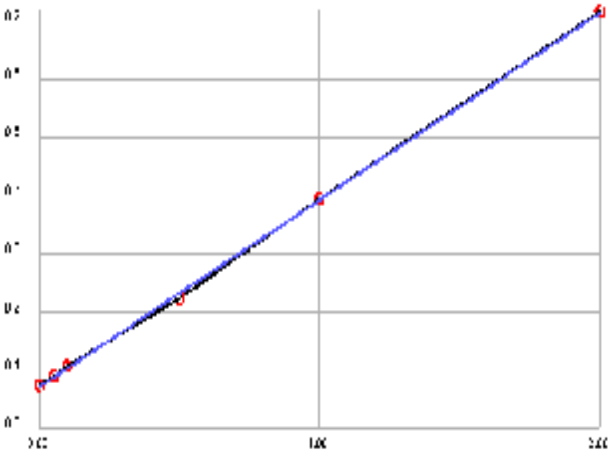
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3213x + 0.0711
Correlation	.999867

Calibrant	Energy	Set	Conc
1	0.0736	0.0000	0.0077
2	0.0889	0.0500	0.0553
3	0.1050	0.1000	0.1054
4	0.2235	0.5000	0.4743
5	0.3932	1.0000	1.0025
6	0.7152	2.0000	2.0048

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **ICV**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.546	0.050	0.5000	0	109	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **CCV**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386166**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.510	0.050	0.5000	0	102	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **CCV**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386173**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.479	0.050	0.5000	0	95.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035484
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **ICB**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386156**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **CCB**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386167**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **133920**
Client ID: **CCB**	Batch ID: **R133920**	TestNo: **SM4500-NO3**		Analysis Date: **5/15/2019**	SeqNo: **3386174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 05-15-2019 16:37
Time end: 05-15-2019 18:39

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	18:12:50	0.0077		0.0736
2	<BLANK>	18:13:45	0.0086		0.0739
3	<CAL1>	18:14:45	0.0077	[0]	0.0736
4	<CAL2>	18:15:40	0.0553	[0.05]	0.0889
5	<CAL3>	18:16:36	0.1054	[0.1]	0.1050
6	<CAL4>	18:17:37	0.4743	[0.5]	0.2235
7	<CAL5>	18:18:31	1.0025	[1]	0.3932
8	<CAL6>	18:19:27	2.0048	[2]	0.7152
9	,BLANK,BLANK,1, NOT REPORTED	18:20:22	0.0317		0.0813
10	,ICV,ICV,1,	18:21:22	0.5462		0.2466
11	,ICB,ICB,1,	18:22:17	0.0211		0.0779
12	,MB-H2O,MBLK,1,	18:23:13	0.0161		0.0763
13	,LCS-H2O,LCS,1,	18:24:01	0.5194		0.2380
14	,N035484-001D,SAMP,1,	18:24:44	0.0388		0.0836
15	,N035484-002D,SAMP,5,	18:25:33	0.5337		0.2426
16	,N035484-002DDUP,DUP,5,	18:26:15	0.5160		0.2369
17	,N035490-002D,SAMP,5,	18:26:59	0.5316		0.2419
18	,N035490-002DMS,MS,5,	18:27:47	1.0492		0.4082
19	,N035490-002DMSD,MSD,5,	18:28:30	1.0037		0.3936
20	,N035532-001B,SAMP,10,	18:29:18	0.9294		0.3697
21	,BLANK, NOT REPORTED	18:30:02	0.0183		0.0770
22	,CCV-1,CCV,1,	18:30:44	0.5101		0.2350
23	,CCB-1,CCB,1,	18:31:27	0.0105		0.0745
24	,N035532-002B,SAMP,10,	18:32:16	0.9088		0.3631
25	,N035532-003B,SAMP,20,	18:32:58	0.8889		0.3567
26	,N035532-004B,SAMP,10,	18:33:42	0.6284		0.2730

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035532-005B,SAMP,5,	18:34:30	0.5848		0.2590
28	,N035532-006B,SAMP,5,	18:35:13	0.6112		0.2675
29	,BLANK, NOT REPORTED	18:35:55	0.0074		0.0735
30	,CCV-2,CCV,1,	18:36:45	0.4786		0.2249
31	,CCB-2,CCB,1,	18:37:28	0.0061		0.0731

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 5/15/2019
Time Analyzed: 4:37 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190424E
Color reagent: R190424F
2% Copper Sulfate: R190424D
Ammonium Hydroxide: CINV-190402B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035484-001D		7.99							
N035484-002D		7.66							
N035490-002D		8.27							
N035532-001B		7.44							
N035532-002B		8.08							
N035532-003B		7.81							
N035532-004B		7.17							
N035532-005B		8.51							
N035532-006B		7.11							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

June 16, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035599

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 15, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035599

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N035599-004 due to matrix interference. Sample was analyzed at lower dilution however matrix spike's retention time criteria was not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N035599-001B-MS and N035599-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035599
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035599-001A	MW-19-Q219	Groundwater	5/15/2019 3:16:00 PM	5/15/2019	6/16/2019
N035599-001B	MW-19-Q219	Groundwater	5/15/2019 3:16:00 PM	5/15/2019	6/16/2019
N035599-001C	MW-19-Q219	Groundwater	5/15/2019 3:16:00 PM	5/15/2019	6/16/2019
N035599-002A	MW-14-Q219	Groundwater	5/15/2019 1:15:00 PM	5/15/2019	6/16/2019
N035599-002B	MW-14-Q219	Groundwater	5/15/2019 1:15:00 PM	5/15/2019	6/16/2019
N035599-002C	MW-14-Q219	Groundwater	5/15/2019 1:15:00 PM	5/15/2019	6/16/2019
N035599-002D	MW-14-Q219	Groundwater	5/15/2019 1:15:00 PM	5/15/2019	6/16/2019
N035599-003A	MW-25-Q219	Groundwater	5/15/2019 2:24:00 PM	5/15/2019	6/16/2019
N035599-003B	MW-25-Q219	Groundwater	5/15/2019 2:24:00 PM	5/15/2019	6/16/2019
N035599-003C	MW-25-Q219	Groundwater	5/15/2019 2:24:00 PM	5/15/2019	6/16/2019
N035599-003D	MW-25-Q219	Groundwater	5/15/2019 2:24:00 PM	5/15/2019	6/16/2019
N035599-004A	MW-41D-Q219	Groundwater	5/15/2019 11:50:00 AM	5/15/2019	6/16/2019
N035599-004B	MW-41D-Q219	Groundwater	5/15/2019 11:50:00 AM	5/15/2019	6/16/2019
N035599-004C	MW-41D-Q219	Groundwater	5/15/2019 11:50:00 AM	5/15/2019	6/16/2019
N035599-004D	MW-41D-Q219	Groundwater	5/15/2019 11:50:00 AM	5/15/2019	6/16/2019
N035599-005A	MW-708-Q219	Groundwater	5/15/2019 4:00:00 PM	5/15/2019	6/16/2019
N035599-006A	MW-709-Q219	Groundwater	5/15/2019 3:30:00 PM	5/15/2019	6/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-19-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 3:16:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190516A**	QC Batch: **R133942**			PrepDate:			Analyst: **LR**
Specific Conductance	2000	0.10	0.10		umhos/cm	1	5/16/2019 10:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-14-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190516A**	QC Batch: **R133942**			PrepDate:			Analyst: **LR**
Specific Conductance	2800	0.10	0.10		umhos/cm	1	5/16/2019 10:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-25-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190516A**	QC Batch: **R133942**			PrepDate:			Analyst: **LR**
Specific Conductance	2000	0.10	0.10		umhos/cm	1	5/16/2019 10:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-41D-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 11:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190516A**	QC Batch: **R133942**			PrepDate:			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	5/16/2019 10:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N035599-004DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**133942**
Client ID:	**ZZZZZZ**	Batch ID:	**R133942**	TestNo:	**EPA 120.1**			Analysis Date:	**5/16/2019**	SeqNo:	**3387590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18090.000	0.10						18110	0.110	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-19-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 3:16:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A**	QC Batch: **R133937**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	250	1.7	10		µg/L	50	5/16/2019 04:28 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	250	0.65	5.0		µg/L	5	6/13/2019 05:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-14-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A** QC Batch: **R133937**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	14	0.17	1.0		µg/L	5	5/16/2019 04:00 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	13	0.13	1.0		µg/L	1	6/13/2019 06:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-25-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A** QC Batch: **R133937**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	68	0.66	4.0		µg/L	20	5/16/2019 04:09 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	66	0.13	1.0		µg/L	1	6/13/2019 06:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-41D-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 11:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A**	QC Batch: **R133937**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/16/2019 05:25 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/13/2019 07:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-708-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A**	QC Batch: **R133937**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/16/2019 02:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-709-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A**	QC Batch: **R133937**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/16/2019 03:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R133937**	SampType:	**MBLK**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133937**
Client ID:	**PBW**	Batch ID:	**R133937**	TestNo:	**EPA 218.6**			Analysis Date:	**5/16/2019**	SeqNo:	**3386726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-R133937**	SampType:	**LCS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133937**
Client ID:	**LCSW**	Batch ID:	**R133937**	TestNo:	**EPA 218.6**			Analysis Date:	**5/16/2019**	SeqNo:	**3386727**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.151	0.20	5.000	0	103	90	110				

Sample ID	**N035595-001AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133937**
Client ID:	**ZZZZZZ**	Batch ID:	**R133937**	TestNo:	**EPA 218.6**			Analysis Date:	**5/16/2019**	SeqNo:	**3386729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.097	0.20	1.000	0	110	90	110				

Sample ID	**N035597-003AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133937**
Client ID:	**ZZZZZZ**	Batch ID:	**R133937**	TestNo:	**EPA 218.6**			Analysis Date:	**5/16/2019**	SeqNo:	**3386732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11917.300	200	5000	6900	100	90	110				

Sample ID	**N035597-004AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133937**
Client ID:	**ZZZZZZ**	Batch ID:	**R133937**	TestNo:	**EPA 218.6**			Analysis Date:	**5/16/2019**	SeqNo:	**3386734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	6182.700	100	2500	3623	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035597-004ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3575.400	100						3623	1.32	20	

Sample ID **N035597-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387562**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5123.400	100	2500	2621	100	90	110				

Sample ID **N035597-005AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387563**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5140.400	100	2500	2621	101	90	110	5123	0.331	20	

Sample ID **N035597-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2329.720	40	1000	1337	99.3	90	110				

Sample ID **N035597-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387567**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2601.840	40	1000	1597	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035597-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387568**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2982.860	40	1000	1970	101	90	110				

Sample ID **N035597-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.177	0.20	5.000	5.737	109	90	110				

Sample ID **N035597-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.451	0.20	1.000	0.4012	105	90	110				

Sample ID **N035596-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID **N035599-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387575**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.992	0.20	1.000	0	99.2	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035599-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.973	0.20	1.000	0	97.3	90	110				

Sample ID **N035599-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	496.055	10	250.0	245.4	100	90	110				

Sample ID **N035599-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3389067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	38.981	1.0	25.00	13.53	102	90	110				

Sample ID **N035599-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3389068**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	168.680	4.0	100.0	67.96	101	90	110				

Sample ID **N035599-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3389070**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.017	1.0	5.000	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-73911	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134492
Client ID:	PBW	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409719

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-73911	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134492
Client ID:	LCSW	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409720

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.182	1.0	10.00	0	102	85	115				

Sample ID	N035599-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409731

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	254.086	5.0	10.00	250.9	32.2	75	125				S

Sample ID	N035599-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409732

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	256.706	5.0	10.00	250.9	58.4	75	125	254.1	1.03	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N035599-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	250.406	5.0	10.00	250.9	-4.62	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-14-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	3.1	0.16	0.25		mg/L	5	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-25-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	12	0.63	1.0		mg/L	20	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-41D-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 11:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134092	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	PBW	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393904

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R134092	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	LCSW	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393905

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.478	0.050	0.5000	0	95.6	85	115				

Sample ID	N035599-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	ZZZZZZ	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393908

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	3.158	0.25						3.060	3.15	20	

Sample ID	N035599-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	ZZZZZZ	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393910

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	21.010	1.0	10.00	11.71	93.0	75	125				

Sample ID	N035599-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	ZZZZZZ	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393911

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	20.988	1.0	10.00	11.71	92.8	75	125	21.01	0.105	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035599
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035599-002

Client Sample ID: MW-14-Q219
Collection Date: 5/15/2019 1:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	0.70	0.081	0.10		µg/L	1	6/13/2019 06:51 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 06:51 AM
Molybdenum	11	0.21	0.50		µg/L	1	6/13/2019 06:51 AM
Selenium	2.0	0.36	0.50		µg/L	1	6/13/2019 06:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-25-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**				PrepDate:	**5/18/2019**	Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	6/13/2019 06:56 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 06:56 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	6/13/2019 06:56 AM
Selenium	8.4	0.36	0.50		µg/L	1	6/13/2019 06:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-41D-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 11:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	6/13/2019 07:00 AM
Manganese	180	0.26	0.50		µg/L	1	6/13/2019 07:00 AM
Molybdenum	73	1.1	2.5		µg/L	5	6/13/2019 07:05 AM
Selenium	ND	0.36	0.50		µg/L	1	6/13/2019 07:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-73911**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **PBW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-73911**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **LCSW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.864	0.10	10.00	0	98.6	85	115				
Manganese	105.130	0.50	100.0	0	105	85	115				
Molybdenum	9.633	0.50	10.00	0	96.3	85	115				
Selenium	9.526	0.50	10.00	0	95.3	85	115				

Sample ID **N035599-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.010	0.10	10.00	0.9424	101	75	125				
Manganese	95.212	0.50	100.0	0	95.2	75	125				
Molybdenum	18.696	0.50	10.00	7.569	111	75	125				
Selenium	13.222	0.50	10.00	3.812	94.1	75	125				

Sample ID **N035599-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.176	0.10	10.00	0.9424	102	75	125	11.01	1.49	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035599-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134493
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409854

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	94.234	0.50	100.0	0	94.2	75	125	95.21	1.03	20	
Molybdenum	18.789	0.50	10.00	7.569	112	75	125	18.70	0.495	20	
Selenium	13.391	0.50	10.00	3.812	95.8	75	125	13.22	1.28	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@arcadis-us.com	Address:	Sample Receipt Condition: 1. Chilled Y; 2. Headspace; 3. Container Intact Y; 4. Seal Present Y; 5. IR number 2; 6. Method of Cooling: Ice
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		Global ID: Specify State:
Signature: Date: 5/15/2019	Sampled By: Jason Mahn		Sample Temp: 3.1 / 3.8 / 4.4
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Courier:
Project Name: PG&E Topock - GMP	Signature: Date: 5/15/2019		Tracking No.:
Project Number: RC000753.801D			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Metals Dissolved (6020AFF) Manganese; HNO3 (500 mL poly)	Metals Dissolved (SW6020) Cr; HNO3 (500 mL poly)	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF (As,Mo, Se, Mn); HNO3 (500 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035599-01	MW-19-Q219	5/15/2019	15:16		X			X					X						E	3	P	BNS	
2	-02	MW-14-Q219	5/15/2019	13:15		X			X		X	X		X						E	4	P	BNS	
3	-03	MW-25-Q219	5/15/2019	14:24		X			X		X	X		X						E	4	P	BNS	
4	-04	MW-41D-Q219	5/15/2019	11:50		X			X		X	X		X						E	4	P	BNS	
5	-05	MW-708-Q219	5/15/2019	16:00		X														E	1	P	B	
6	-06	MW-709-Q219	5/15/2019	15:30		X														E	1	P	B	
7																								
8																								
9																								
10																								

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Jason Mahn	5/15/19 1035	JORDAN IGS	5-15-19 1635
JORDAN IGS	5-15-19 1808	JORDAN IGS	5-15-19 1808

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/15/2019	Workorder:	N035599
Rep sample Temp (Deg C):	3.1/3.8/4.4	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 5/16/2019

Reviewed By: LG 052919

ASSET Laboratories

WORK ORDER Summary

16-May-19

WorkOrder: N035599

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/15/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035599-001A	MW-19-Q219	5/15/2019 3:16:00 PM	5/30/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-001B			5/30/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035599-001C			5/30/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035599-002A	MW-14-Q219	5/15/2019 1:15:00 PM	5/30/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-002B			5/30/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035599-002C			5/30/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035599-002D			5/30/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035599-003A	MW-25-Q219	5/15/2019 2:24:00 PM	5/30/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-003B			5/30/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035599-003C			5/30/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035599-003D			5/30/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035599-004A	MW-41D-Q219	5/15/2019 11:50:00 AM	5/30/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-004B			5/30/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035599-004C			5/30/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

16-May-19

WorkOrder: N035599

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/15/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035599-004D	MW-41D-Q219	5/15/2019 11:50:00 AM	5/30/2019	Groundwater	EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035599-005A	MW-708-Q219	5/15/2019 4:00:00 PM	5/30/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-006A	MW-709-Q219	5/15/2019 3:30:00 PM	5/30/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-007A	FOLDER	5/30/2019	5/30/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/30/2019		Folder	Folder	☐	☐	☐	LAB
			5/30/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035599

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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June 16, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035599

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 15, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucan for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035599

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for sample N035599-004 due to matrix interference. Sample was analyzed at lower dilution however matrix spike's retention time criteria was not met indicating possible matrix interference. Sample was reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N035599-001B-MS and N035599-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *16-Jun-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035599
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035599-001A	MW-19-Q219	Groundwater	5/15/2019 3:16:00 PM	5/15/2019	6/16/2019
N035599-001B	MW-19-Q219	Groundwater	5/15/2019 3:16:00 PM	5/15/2019	6/16/2019
N035599-001C	MW-19-Q219	Groundwater	5/15/2019 3:16:00 PM	5/15/2019	6/16/2019
N035599-002A	MW-14-Q219	Groundwater	5/15/2019 1:15:00 PM	5/15/2019	6/16/2019
N035599-002B	MW-14-Q219	Groundwater	5/15/2019 1:15:00 PM	5/15/2019	6/16/2019
N035599-002C	MW-14-Q219	Groundwater	5/15/2019 1:15:00 PM	5/15/2019	6/16/2019
N035599-002D	MW-14-Q219	Groundwater	5/15/2019 1:15:00 PM	5/15/2019	6/16/2019
N035599-003A	MW-25-Q219	Groundwater	5/15/2019 2:24:00 PM	5/15/2019	6/16/2019
N035599-003B	MW-25-Q219	Groundwater	5/15/2019 2:24:00 PM	5/15/2019	6/16/2019
N035599-003C	MW-25-Q219	Groundwater	5/15/2019 2:24:00 PM	5/15/2019	6/16/2019
N035599-003D	MW-25-Q219	Groundwater	5/15/2019 2:24:00 PM	5/15/2019	6/16/2019
N035599-004A	MW-41D-Q219	Groundwater	5/15/2019 11:50:00 AM	5/15/2019	6/16/2019
N035599-004B	MW-41D-Q219	Groundwater	5/15/2019 11:50:00 AM	5/15/2019	6/16/2019
N035599-004C	MW-41D-Q219	Groundwater	5/15/2019 11:50:00 AM	5/15/2019	6/16/2019
N035599-004D	MW-41D-Q219	Groundwater	5/15/2019 11:50:00 AM	5/15/2019	6/16/2019
N035599-005A	MW-708-Q219	Groundwater	5/15/2019 4:00:00 PM	5/15/2019	6/16/2019
N035599-006A	MW-709-Q219	Groundwater	5/15/2019 3:30:00 PM	5/15/2019	6/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035599
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035599-001

Client Sample ID: MW-19-Q219
Collection Date: 5/15/2019 3:16:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190516A**	QC Batch: **R133942**			PrepDate:			Analyst: **LR**
Specific Conductance	2000	0.10	0.10		umhos/cm	1	5/16/2019 10:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035599
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035599-002

Client Sample ID: MW-14-Q219
Collection Date: 5/15/2019 1:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190516A**	QC Batch: **R133942**			PrepDate:			Analyst: **LR**
Specific Conductance	2800	0.10	0.10		umhos/cm	1	5/16/2019 10:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035599
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035599-003

Client Sample ID: MW-25-Q219
Collection Date: 5/15/2019 2:24:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190516A**	QC Batch: **R133942**			PrepDate:			Analyst: **LR**
Specific Conductance	2000	0.10	0.10		umhos/cm	1	5/16/2019 10:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-41D-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 11:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190516A**	QC Batch: **R133942**			PrepDate:			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	5/16/2019 10:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N035599-004DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133942**
Client ID: **ZZZZZZ** Batch ID: **R133942** TestNo: **EPA 120.1** Analysis Date: **5/16/2019** SeqNo: **3387590**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	18090.000	0.10						18110	0.110	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-19-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 3:16:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A**	QC Batch: **R133937**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	250	1.7	10		µg/L	50	5/16/2019 04:28 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	250	0.65	5.0		µg/L	5	6/13/2019 05:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035599
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035599-002

Client Sample ID: MW-14-Q219
Collection Date: 5/15/2019 1:15:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A** QC Batch: **R133937**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	14	0.17	1.0		µg/L	5	5/16/2019 04:00 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	13	0.13	1.0		µg/L	1	6/13/2019 06:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035599
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035599-003

Client Sample ID: MW-25-Q219
Collection Date: 5/15/2019 2:24:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A** QC Batch: **R133937**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	68	0.66	4.0		µg/L	20	5/16/2019 04:09 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	66	0.13	1.0		µg/L	1	6/13/2019 06:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-41D-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 11:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A**	QC Batch: **R133937**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/16/2019 05:25 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/13/2019 07:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-708-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A**	QC Batch: **R133937**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/16/2019 02:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-709-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190516A**	QC Batch: **R133937**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/16/2019 03:03 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R133937**	SampType:	**MBLK**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133937**
Client ID:	**PBW**	Batch ID:	**R133937**	TestNo:	**EPA 218.6**			Analysis Date:	**5/16/2019**	SeqNo:	**3386726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-R133937**	SampType:	**LCS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133937**
Client ID:	**LCSW**	Batch ID:	**R133937**	TestNo:	**EPA 218.6**			Analysis Date:	**5/16/2019**	SeqNo:	**3386727**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.151	0.20	5.000	0	103	90	110				

Sample ID	**N035595-001AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133937**
Client ID:	**ZZZZZZ**	Batch ID:	**R133937**	TestNo:	**EPA 218.6**			Analysis Date:	**5/16/2019**	SeqNo:	**3386729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.097	0.20	1.000	0	110	90	110				

Sample ID	**N035597-003AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133937**
Client ID:	**ZZZZZZ**	Batch ID:	**R133937**	TestNo:	**EPA 218.6**			Analysis Date:	**5/16/2019**	SeqNo:	**3386732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11917.300	200	5000	6900	100	90	110				

Sample ID	**N035597-004AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133937**
Client ID:	**ZZZZZZ**	Batch ID:	**R133937**	TestNo:	**EPA 218.6**			Analysis Date:	**5/16/2019**	SeqNo:	**3386734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	6182.700	100	2500	3623	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035597-004ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **133937**		
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**				SeqNo: **3387560**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3575.400	100						3623	1.32	20	

Sample ID **N035597-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **133937**		
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**				SeqNo: **3387562**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5123.400	100	2500	2621	100	90	110				

Sample ID **N035597-005AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **133937**		
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**				SeqNo: **3387563**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5140.400	100	2500	2621	101	90	110	5123	0.331	20	

Sample ID **N035597-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **133937**		
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**				SeqNo: **3387566**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2329.720	40	1000	1337	99.3	90	110				

Sample ID **N035597-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:				RunNo: **133937**		
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**				SeqNo: **3387567**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2601.840	40	1000	1597	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035597-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387568**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2982.860	40	1000	1970	101	90	110				

Sample ID **N035597-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387569**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.177	0.20	5.000	5.737	109	90	110				

Sample ID **N035597-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387571**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.451	0.20	1.000	0.4012	105	90	110				

Sample ID **N035596-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387573**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.017	0.20	1.000	0	102	90	110				

Sample ID **N035599-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387575**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.992	0.20	1.000	0	99.2	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035599-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.973	0.20	1.000	0	97.3	90	110				

Sample ID **N035599-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3387583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	496.055	10	250.0	245.4	100	90	110				

Sample ID **N035599-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3389067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	38.981	1.0	25.00	13.53	102	90	110				

Sample ID **N035599-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3389068**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	168.680	4.0	100.0	67.96	101	90	110				

Sample ID **N035599-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133937**
Client ID: **ZZZZZZ** Batch ID: **R133937** TestNo: **EPA 218.6** Analysis Date: **5/16/2019** SeqNo: **3389070**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.017	1.0	5.000	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **MB-73911**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134492**
Client ID: **PBW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **LCS-73911**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134492**
Client ID: **LCSW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.182	1.0	10.00	0	102	85	115				

Sample ID **N035599-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	254.086	5.0	10.00	250.9	32.2	75	125				S

Sample ID **N035599-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	256.706	5.0	10.00	250.9	58.4	75	125	254.1	1.03	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N035599-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	250.406	5.0	10.00	250.9	-4.62	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-14-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	3.1	0.16	0.25		mg/L	5	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-25-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	12	0.63	1.0		mg/L	20	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-41D-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 11:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-R134092	**MBLK**	**4500N03F_W**	**mg/L**		**134092**
Client ID: **PBW**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-R134092	**LCS**	**4500N03F_W**	**mg/L**		**134092**
Client ID: **LCSW**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393905**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.478	0.050	0.5000	0	95.6	85	115				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N035599-002CDUP	**DUP**	**4500N03F_W**	**mg/L**		**134092**
Client ID: **ZZZZZZ**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	3.158	0.25						3.060	3.15	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N035599-003CMS	**MS**	**4500N03F_W**	**mg/L**		**134092**
Client ID: **ZZZZZZ**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	21.010	1.0	10.00	11.71	93.0	75	125				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N035599-003CMSD	**MSD**	**4500N03F_W**	**mg/L**		**134092**
Client ID: **ZZZZZZ**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	20.988	1.0	10.00	11.71	92.8	75	125	21.01	0.105	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-14-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-002		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190613C** QC Batch: **73911** PrepDate: **5/18/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	0.70	0.081	0.10		µg/L	1	6/13/2019 06:51 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 06:51 AM
Molybdenum	11	0.21	0.50		µg/L	1	6/13/2019 06:51 AM
Selenium	2.0	0.36	0.50		µg/L	1	6/13/2019 06:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-25-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**				PrepDate:	**5/18/2019**	Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	6/13/2019 06:56 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 06:56 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	6/13/2019 06:56 AM
Selenium	8.4	0.36	0.50		µg/L	1	6/13/2019 06:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-41D-Q219
Lab Order:	N035599	**Collection Date:**	5/15/2019 11:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035599-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**				PrepDate:	**5/18/2019**	Analyst: **CEI**
Arsenic	2.4	0.081	0.10		µg/L	1	6/13/2019 07:00 AM
Manganese	180	0.26	0.50		µg/L	1	6/13/2019 07:00 AM
Molybdenum	73	1.1	2.5		µg/L	5	6/13/2019 07:05 AM
Selenium	ND	0.36	0.50		µg/L	1	6/13/2019 07:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-73911**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **PBW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-73911**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **LCSW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.864	0.10	10.00	0	98.6	85	115				
Manganese	105.130	0.50	100.0	0	105	85	115				
Molybdenum	9.633	0.50	10.00	0	96.3	85	115				
Selenium	9.526	0.50	10.00	0	95.3	85	115				

Sample ID **N035599-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.010	0.10	10.00	0.9424	101	75	125				
Manganese	95.212	0.50	100.0	0	95.2	75	125				
Molybdenum	18.696	0.50	10.00	7.569	111	75	125				
Selenium	13.222	0.50	10.00	3.812	94.1	75	125				

Sample ID **N035599-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.176	0.10	10.00	0.9424	102	75	125	11.01	1.49	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035599-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134493
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409854

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	94.234	0.50	100.0	0	94.2	75	125	95.21	1.03	20	
Molybdenum	18.789	0.50	10.00	7.569	112	75	125	18.70	0.495	20	
Selenium	13.391	0.50	10.00	3.812	95.8	75	125	13.22	1.28	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@arcadis.com	Address:	Global ID:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		Specify State:
Signature: Date: 5/15/2019	Sampled By: Jason Mahn		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - GMP	Signature: Date: 5/15/2019		
Project Number: RC000753.801D			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Sample Receipt Condition

	Y	N
1. Chilled	✓	
2. Headspace		
3. Container Intact	✓	
4. Seal Present	✓	
5. IR number	2	
6. Method of Cooling: ICE		

Sample Temp: 3.1/3.8/4.4

Courier:

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Metals Dissolved (6020AFF) Manganese; HNO3 (500 mL poly)	Metals Dissolved (SW6020) Cr; HNO3 (500 mL poly)	Dissolved ICP metals (SW6010B/SW6020A) FF (Mo, Se); HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF (As,Mo, Se, Mn); HNO3 (500 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035599-01	MW-19-Q219	5/15/2019	15:16		X			X					X						E	3	P	BNS	
2	-02	MW-14-Q219	5/15/2019	13:15		X			X		X	X		X						E	4	P	BNS	
3	-03	MW-25-Q219	5/15/2019	14:24		X			X		X	X		X						E	4	P	BNS	
4	-04	MW-41D-Q219	5/15/2019	11:50		X			X		X	X		X						E	4	P	BNS	
5	-05	MW-708-Q219	5/15/2019	16:00		X														E	1	P	B	
6	-06	MW-709-Q219	5/15/2019	15:30		X														E	1	P	B	
7																								
8																								
9																								
10																								

Relinquished by (Signature and Printed Name): Jason Mahn	Date/Time: 5/15/19 1035	Relinquished by (Signature and Printed Name): JORDAN IGS	Date/Time: 5-15-19 1635
Relinquished by (Signature and Printed Name): JORDAN IGS	Date/Time: 5-15-19 1808	Relinquished by (Signature and Printed Name): JORDAN IGS	Date/Time: 5-15-19 1808
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/15/2019	Workorder:	N035599
Rep sample Temp (Deg C):	3.1/3.8/4.4	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 5/16/2019

Reviewed By: LG 052919

ASSET Laboratories

WORK ORDER Summary

16-May-19

WorkOrder: N035599

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/15/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035599-001A	MW-19-Q219	5/15/2019 3:16:00 PM	5/30/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-001B			5/30/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035599-001C			5/30/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035599-002A	MW-14-Q219	5/15/2019 1:15:00 PM	5/30/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-002B			5/30/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035599-002C			5/30/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035599-002D			5/30/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035599-003A	MW-25-Q219	5/15/2019 2:24:00 PM	5/30/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-003B			5/30/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035599-003C			5/30/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035599-003D			5/30/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035599-004A	MW-41D-Q219	5/15/2019 11:50:00 AM	5/30/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-004B			5/30/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/30/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035599-004C			5/30/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW

WORK ORDER Summary

16-May-19

WorkOrder: N035599

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/15/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035599-004D	MW-41D-Q219	5/15/2019 11:50:00 AM	5/30/2019	Groundwater	EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035599-005A	MW-708-Q219	5/15/2019 4:00:00 PM	5/30/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-006A	MW-709-Q219	5/15/2019 3:30:00 PM	5/30/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035599-007A	FOLDER	5/30/2019	5/30/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/30/2019		Folder	Folder	☐	☐	☐	LAB
			5/30/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035599

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133942 **Analyst:** LSR

ASSET #: N035599 **Date Analyzed:** 16-May

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: Silvia Ramit Date: 5/30/2019

2nd Level Reviewer: 6/13/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 5/16/19 1045
Analyst: LSR

Standard	Std ID	Reading	Comments
9.56 uS/cm	CINV- 181121A	9.69 @18.4C	% Rec: (90-110%)
1411	190425C	1420 @18.4C	
9965	190218B	9980 @18.4C	
100390	190218C	101600 @18.2C	

	Sample ID	Matrix	Reading	Comments
1	N035599-1C	H2O	2040 @17.5C	
2	2D		2770 @17.3C	
3	3D		1951 @17.5C	
4	4D		18110 @17.4C	
5	4D DUP		18090 @17.2C	
6				
7				
8				
9	1413 uS/cm	CINV-190313A	1418 @20.1C	
10	10000	190313B	9840 @20.3C	
Dup	99922	190111H	95300 @19.8C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 5/16/19 1600
Analyst: LSR

Silvia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
9.56 uS/cm	CINV-181121A	9.69 @18.4C	% Rec: (90-110%)
1411	190425C	1420 @18.4C	
9965	190218B	9980 @18.4C	
100390	190218C	101600 @18.2C	

	Sample ID	Matrix	Reading	Comments
1	N035608-1A	H2O	1139 @21.7C	
2	N035609-1A		1035 @19.8C	STD drift
3	N035610-1A		1208 @19.2C	1413 CINV 190313A
4	N035611-1A		1078 @19.2C	= 1462 @23.8C
5	N035612-1A		946 @19.5C	10,000 CINV 190313B
6	N035613-1A		927 @19.5C	= 10200 @23.7C
7	N035614-1A		1047 @19.1C	99922 CINV 190111H
8	N035615-1A		1148 @21.2C	= 95500 @23.7C
9	N035616-1A		1007 @19.6C	
10	N035618-1A		98700 @19.5C	
Dup	1A DUP		98460 @19.3C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133937
ASSET #: N035599

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 5/16/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments: Dilution was necessary in N035599-004A due to matrix interference.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 6/3/2019

2nd Level Reviewer: NS Date: 6/3/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035599-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.9074 * 50$$

$$Cr^{+6}, \mu g/L = 245.3700$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 250}$$

NS 6/3/2019

ANALYSIS RUN LOG

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

jrba 5/11/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 5/11/2019

INJECTION LOG: 190516A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/16/19 8:06 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	05/16/19 8:17 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	05/16/19 8:26 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/16/19 8:36 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	05/16/19 8:45 AM	Reported
15	MB-R133937	MBLK	1	Hexavalent Chromium	05/16/19 8:55 AM	Reported
16	LCS-R133937	LCS	1	Hexavalent Chromium	05/16/19 9:04 AM	Reported
17	N035595-001A	SAMP	1	Hexavalent Chromium	05/16/19 9:14 AM	Reported
18	N035595-001AMS	MS	1	Hexavalent Chromium	05/16/19 9:35 AM	Reported
19	N035597-001A	SAMP	1	Hexavalent Chromium	05/16/19 9:47 AM	Reported
20	N035597-002A	SAMP	5	Hexavalent Chromium	05/16/19 9:56 AM	Not Reported
21	N035597-003A	SAMP	1000	Hexavalent Chromium	05/16/19 10:05 AM	Reported
22	N035597-003AMS	MS	1000	Hexavalent Chromium	05/16/19 10:15 AM	Reported
23	N035597-004A	SAMP	500	Hexavalent Chromium	05/16/19 10:24 AM	Reported
24	N035597-004AMS	MS	500	Hexavalent Chromium	05/16/19 10:34 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	05/16/19 10:43 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	05/16/19 10:53 AM	Reported
27	N035487-001A	SAMP	1	Hexavalent Chromium	05/16/19 11:02 AM	Not Reported
28	N035487-001AMS	MS	1	Hexavalent Chromium	05/16/19 11:12 AM	Not Reported
29	N035597-005A	SAMP	200	Hexavalent Chromium	05/16/19 11:21 AM	Not Reported
30	N035597-006A	SAMP	200	Hexavalent Chromium	05/16/19 11:31 AM	Reported
31	N035597-007A	SAMP	200	Hexavalent Chromium	05/16/19 11:40 AM	Reported
32	N035597-008A	SAMP	200	Hexavalent Chromium	05/16/19 11:50 AM	Reported
33	N035597-004ADUP	DUP	500	Hexavalent Chromium	05/16/19 11:59 AM	Reported
34	N035597-005A	SAMP	500	Hexavalent Chromium	05/16/19 12:08 PM	Reported
35	N035597-005AMS	MS	500	Hexavalent Chromium	05/16/19 12:18 PM	Reported
36	N035597-005AMSD	MSD	500	Hexavalent Chromium	05/16/19 12:27 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	05/16/19 12:37 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	05/16/19 12:46 PM	Reported
39	N035597-006AMS	MS	200	Hexavalent Chromium	05/16/19 12:56 PM	Reported
40	N035597-007AMS	MS	200	Hexavalent Chromium	05/16/19 1:05 PM	Reported
41	N035597-008AMS	MS	200	Hexavalent Chromium	05/16/19 1:15 PM	Reported
42	N035597-001AMS	MS	1	Hexavalent Chromium	05/16/19 1:24 PM	Reported

INJECTION LOG: 190516A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035597-002A	SAMP	1	Hexavalent Chromium	05/16/19 1:34 PM	Reported
44	N035597-002AMS	MS	1	Hexavalent Chromium	05/16/19 1:43 PM	Reported
45	N035596-002A	SAMP	1	Hexavalent Chromium	05/16/19 1:52 PM	Reported
46	N035596-002AMS	MS	1	Hexavalent Chromium	05/16/19 2:02 PM	Reported
47	N035599-005A	SAMP	1	Hexavalent Chromium	05/16/19 2:24 PM	Reported
48	N035599-005AMS	MS	1	Hexavalent Chromium	05/16/19 2:35 PM	Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	05/16/19 2:44 PM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	05/16/19 2:54 PM	Reported
51	N035599-006A	SAMP	1	Hexavalent Chromium	05/16/19 3:03 PM	Reported
52	N035599-006AMS	MS	1	Hexavalent Chromium	05/16/19 3:13 PM	Reported
53	N035597-002AMS	MS	5	Hexavalent Chromium	05/16/19 3:22 PM	Not Reported
54	N035599-001A	SAMP	100	Hexavalent Chromium	05/16/19 3:49 PM	Not Reported
55	N035599-002A	SAMP	5	Hexavalent Chromium	05/16/19 4:00 PM	Reported
56	N035599-003A	SAMP	20	Hexavalent Chromium	05/16/19 4:09 PM	Reported
57	N035599-004AMS	MS	1	Hexavalent Chromium	05/16/19 4:19 PM	Not Reported
58	N035599-001A	SAMP	50	Hexavalent Chromium	05/16/19 4:28 PM	Reported
59	N035599-001AMS	MS	50	Hexavalent Chromium	05/16/19 4:38 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	05/16/19 4:47 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	05/16/19 4:57 PM	Reported
62	N035599-002AMS	MS	5	Hexavalent Chromium	05/16/19 5:06 PM	Reported
63	N035599-003AMS	MS	20	Hexavalent Chromium	05/16/19 5:16 PM	Reported
64	N035599-004A	SAMP	5	Hexavalent Chromium	05/16/19 5:25 PM	Reported
65	N035599-004AMS	MS	5	Hexavalent Chromium	05/16/19 5:34 PM	Reported
66	N035599-004A	SAMP	1	Hexavalent Chromium	05/16/19 5:44 PM	Not Reported
67	BLANK	BLANK	1	Hexavalent Chromium	05/16/19 5:53 PM	Not Reported
68	CCV-6	CCV1	1	Hexavalent Chromium	05/16/19 6:03 PM	Reported
69	CCB-6	CCB	1	Hexavalent Chromium	05/16/19 6:12 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190516A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**16/May/19 18:43:06**
No. of Injections:	**72**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/16/2019 08:06	Finished	BLANK
11	BLANK	2	1000	Unknown		05/16/2019 08:17	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		05/16/2019 08:26	Finished	CCV @5ppb, IWST-190423A
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		05/16/2019 08:36	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		05/16/2019 08:45	Finished	CCB R190411C
15	MB-H2O,MBLK,1,	6	1000	Unknown		05/16/2019 08:55	Finished	MB R190411C
16	LCS-H2O,LCS,1,	7	1000	Unknown		05/16/2019 09:04	Finished	LCS @5ppb, IWST-190423B
17	N035595-001A,SAMP	1	1000	Unknown		05/16/2019 09:14	Finished	SAMP, 10mL
18	N035595-001AMS,MS	3	1000	Unknown		05/16/2019 09:35	Finished	MS (1ppb), IWST-190423B,10
19	N035597-001A,SAMP	4	1000	Unknown		05/16/2019 09:47	Finished	SAMP, 10mL
20	N035597-002A,SAMP	5	1000	Unknown		05/16/2019 09:56	Finished	SAMP, 2>10mL
21	N035597-003A,SAMP	6	1000	Unknown		05/16/2019 10:05	Finished	SAMP, 0.01>10mL
22	N035597-003AMS,MS	7	1000	Unknown		05/16/2019 10:15	Finished	MS (5ppb), IWST-190423B,0.0
23	N035597-004A,SAMP	8	1000	Unknown		05/16/2019 10:24	Finished	SAMP, 0.02>10mL
24	N035597-004AMS,MS	9	1000	Unknown		05/16/2019 10:34	Finished	MS (5ppb), IWST-190423B,0.0
25	CCV-2,CCV1,1,	10	1000	Unknown		05/16/2019 10:43	Finished	CCV @10ppb, IWST-190423A
26	CCB-2,CCB,1,	11	1000	Unknown		05/16/2019 10:53	Finished	CCB R190411C
27	N035487-001A,SAMP	12	1000	Unknown		05/16/2019 11:02	Finished	SAMP, 10mL
28	N035487-001AMS,MS	13	1000	Unknown		05/16/2019 11:12	Finished	MS (1ppb), IWST-190423B,10
29	N035597-005A,SAMP	14	1000	Unknown		05/16/2019 11:21	Finished	SAMP, 0.05>10mL
30	N035597-006A,SAMP	15	1000	Unknown		05/16/2019 11:31	Finished	SAMP, 0.05>10mL
31	N035597-007A,SAMP	16	1000	Unknown		05/16/2019 11:40	Finished	SAMP, 0.05>10mL
32	N035597-008A,SAMP	17	1000	Unknown		05/16/2019 11:50	Finished	SAMP, 0.05>10mL
33	N035597-004ADUP,D	18	1000	Unknown		05/16/2019 11:59	Finished	DUP, 0.02>10mL
34	N035597-005A,SAMP	19	1000	Unknown		05/16/2019 12:08	Finished	SAMP, 0.02>10mL
35	N035597-005AMS,MS	20	1000	Unknown		05/16/2019 12:18	Finished	MS (5ppb), IWST-190423B,0.0
36	N035597-005AMSD,M	21	1000	Unknown		05/16/2019 12:27	Finished	MSD (5ppb), IWST-190423B,0
37	CCV-3,CCV,1,	22	1000	Unknown		05/16/2019 12:37	Finished	CCV @5ppb, IWST-190423A
38	CCB-3,CCB,1,	23	1000	Unknown		05/16/2019 12:46	Finished	CCB R190411C
39	N035597-006AMS,MS	24	1000	Unknown		05/16/2019 12:56	Finished	MS (5ppb), IWST-190423B,0.0
40	N035597-007AMS,MS	25	1000	Unknown		05/16/2019 13:05	Finished	MS (5ppb), IWST-190423B,0.0
41	N035597-008AMS,MS	26	1000	Unknown		05/16/2019 13:15	Finished	MS (5ppb), IWST-190423B,0.0
42	N035597-001AMS,MS	27	1000	Unknown		05/16/2019 13:24	Finished	MS (1ppb), IWST-190423B,10
43	N035597-002A,SAMP	28	1000	Unknown		05/16/2019 13:34	Finished	SAMP, 10mL
44	N035597-002AMS,MS	29	1000	Unknown		05/16/2019 13:43	Finished	MS (1ppb), IWST-190423B,10
45	N035596-002A,SAMP	30	1000	Unknown		05/16/2019 13:52	Finished	SAMP, 10mL
46	N035596-002AMS,MS	31	1000	Unknown		05/16/2019 14:02	Finished	MS (1ppb), IWST-190423B,10
47	N035599-005A,SAMP	1	1000	Unknown		05/16/2019 14:24	Finished	SAMP, 10mL
48	N035599-005AMS,MS	2	1000	Unknown		05/16/2019 14:35	Finished	MS (1ppb), IWST-190423B,10
49	CCV-4,CCV1,1,	3	1000	Unknown		05/16/2019 14:44	Finished	CCV @10ppb, IWST-190423A
50	CCB-4,CCB,1,	4	1000	Unknown		05/16/2019 14:54	Finished	CCB R190411C
51	N035599-006A,SAMP	5	1000	Unknown		05/16/2019 15:03	Finished	SAMP, 10mL
52	N035599-006AMS,MS	6	1000	Unknown		05/16/2019 15:13	Finished	MS (1ppb), IWST-190423B,10
53	N035597-002AMS,MS	7	1000	Unknown		05/16/2019 15:22	Finished	MS (1ppb), IWST-190423B,2>1
54	N035599-001A,SAMP	1	1000	Unknown		05/16/2019 15:49	Finished	SAMP, 0.1>10mL
55	N035599-002A,SAMP	2	1000	Unknown		05/16/2019 16:00	Finished	SAMP, 2>10mL
56	N035599-003A,SAMP	3	1000	Unknown		05/16/2019 16:09	Finished	SAMP, 0.5>10mL
57	N035599-004AMS,MS	4	1000	Unknown		05/16/2019 16:19	Finished	MS (1ppb), IWST-190423B,10
58	N035599-001A,SAMP	5	1000	Unknown		05/16/2019 16:28	Finished	SAMP,0.2> 10mL
59	N035599-001AMS,MS	6	1000	Unknown		05/16/2019 16:38	Finished	MS (5ppb), IWST-190423B,0.2
60	CCV-5,CCV,1,	7	1000	Unknown		05/16/2019 16:47	Finished	CCV @5ppb, IWST-190423A

61	CCB-5,CCB,1,	8	1000	Unknown		05/16/2019 16:57	Finished	CCB R190411C
62	N035599-002AMS,MS	9	1000	Unknown		05/16/2019 17:06	Finished	MS (5ppb), IWST-190423B,2>1
63	N035599-003AMS,MS	10	1000	Unknown		05/16/2019 17:16	Finished	MS (5ppb), IWST-190423B,0.5
64	N035599-004A,SAMP	11	1000	Unknown		05/16/2019 17:25	Finished	SAMP, 2>10mL
65	N035599-004AMS,MS	12	1000	Unknown		05/16/2019 17:34	Finished	MS (1ppb), IWST-190423B,2>1
66	N035599-004A,SAMP	13	1000	Unknown		05/16/2019 17:44	Finished	SAMP, 10mL
67	BLANK	14	1000	Unknown		05/16/2019 17:53	Finished	BLANK
68	CCV-6,CCV1,1,	15	1000	Unknown		05/16/2019 18:03	Finished	CCV @10ppb, IWST-190423A
69	CCB-6,CCB,1,	16	1000	Unknown		05/16/2019 18:12	Finished	CCB R190411C
70	SHUTDOWN	17	1000	Unknown		05/16/2019 18:22	Finished	
71	Eluent: R190513D	18	1000	Unknown		n.a.	Finished	Eluent
72	PCR: R190513E	19	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 5/15/19
Time Prepared: 0906H
Prepared By: MSA

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190328A
NH4OH + NH4SO4 eluent: MG05130
NH4OH + NH4SO4 buffer: MG04116

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	MW5562-1A	9.28	-	~250.0	~250		
2)	" 4A	9.35	-	"	"		
3)	MW5567-5A	9.64	-	"	"		
4)							
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 5/16/19
Time Prepared: 0849H
Prepared By: MSA

Slope: 95.92
pH4: 4.02
7: 7.01
10: 9.98
MSA 10.00

Reagent ID:
Sulfuric Acid: W901
Diphenylcarbazide: CLNV-190328A
NH4OH + NH4SO4 eluent: MG05130
NH4OH + NH4SO4 buffer: MG04116

6N NaOH MG03218

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	MW5595-W1A	9.62	-	~250mL	~250mL		
2)	MW5596-2A	9.67	-				
3)	MW5597-1A	9.53	-				
4)	2A	9.60	-				
5)	3A	9.59	-				
6)	4A	9.62	-				
7)	5A	9.52	-				
8)	6A	9.57	-				
9)	7A	9.56	-				
10)	8A	9.54	-				
11)	MW5599-1A	9.20	-				
12)	2A	9.21	-				
13)	3A	9.21	9.21			+2 drops NaOH	
14)	4A	9.33	-				
15)	5A	9.64	-				
	6A	9.48	-				

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 5/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2514	1.2615	2.5188	3.7985	5.0310	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ICV**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3386720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.175	0.20	5.000	0	104	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3386721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **CCV**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3386723**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.044	0.20	5.000	0	101	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3386724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.224	0.20	0.2000	0	112	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3386735**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.205	0.20	10.00	0	102	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **CCV**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387564**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.108	0.20	5.000	0	102	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387576**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.098	0.20	10.00	0	101	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **CCV**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.036	0.20	5.000	0	101	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ZZZZZZ**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3389071**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.874	0.20	10.00	0	98.7	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **ICB**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3386722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **CCB**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3386725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **CCB**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3386736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **CCB**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **CCB**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **CCB**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3387585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133937**
Client ID: **CCB**	Batch ID: **R133937**	TestNo: **EPA 218.6**		Analysis Date: **5/16/2019**	SeqNo: **3389072**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/16/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.748	
CCV-2	4.740	
CCV-3	4.740	
CCV-4	4.748	
CCV-5	4.748	
CCV-6	4.748	

Average	4.745
Actual RT Window	4.665 - 4.825
Applied RT Window	4.545 - 4.945

MB-R133937	N.A.	N.A.
LCS-R133937	4.740	PASS
N035595-001A	N.A.	N.A.
N035595-001AMS	4.615	PASS
N035597-001A	4.690	PASS
N035597-002A	4.690	PASS
N035597-003A	4.740	PASS
N035597-003AMS	4.740	PASS
N035597-004A	4.740	PASS
N035597-004AMS	4.740	PASS
N035487-001A	4.740	PASS
N035487-001AMS	4.740	PASS
N035597-005A	4.740	PASS
N035597-006A	4.740	PASS
N035597-007A	4.740	PASS
N035597-008A	4.740	PASS
N035597-004ADUP	4.740	PASS
N035597-005A	4.740	PASS
N035597-005AMS	4.748	PASS
N035597-005AMSD	4.740	PASS
N035597-006AMS	4.740	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/16/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.748	
CCV-2	4.740	
CCV-3	4.740	
CCV-4	4.748	
CCV-5	4.748	
CCV-6	4.748	
Average	4.745	
Actual RT Window	4.665 - 4.825	
Applied RT Window	4.545 - 4.945	
N035597-007AMS	4.748	PASS
N035597-008AMS	4.748	PASS
N035597-001AMS	4.681	PASS
N035597-002A	4.573	PASS
N035597-002AMS	4.556	PASS
N035596-002A	N.A.	N.A.
N035596-002AMS	4.748	PASS
N035599-005A	N.A.	N.A.
N035599-005AMS	4.748	PASS
N035599-006A	N.A.	N.A.
N035599-006AMS	4.748	PASS
N035597-002AMS	4.715	PASS
N035599-001A	4.748	PASS
N035599-002A	4.731	PASS
N035599-003A	4.748	PASS
N035599-004AMS	4.240	FAIL
N035599-001A	4.731	PASS
N035599-001AMS	4.748	PASS
N035599-002AMS	4.740	PASS
N035599-003AMS	4.748	PASS
N035599-004A	N.A.	N.A.
N035599-004AMS	4.681	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/16/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.748	
CCV-2	4.740	
CCV-3	4.740	
CCV-4	4.748	
CCV-5	4.748	
CCV-6	4.748	
Average	4.745	
Actual RT Window	4.665 - 4.825	
Applied RT Window	4.545 - 4.945	
N035599-004A	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

rba 5/11/2019

5/15/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

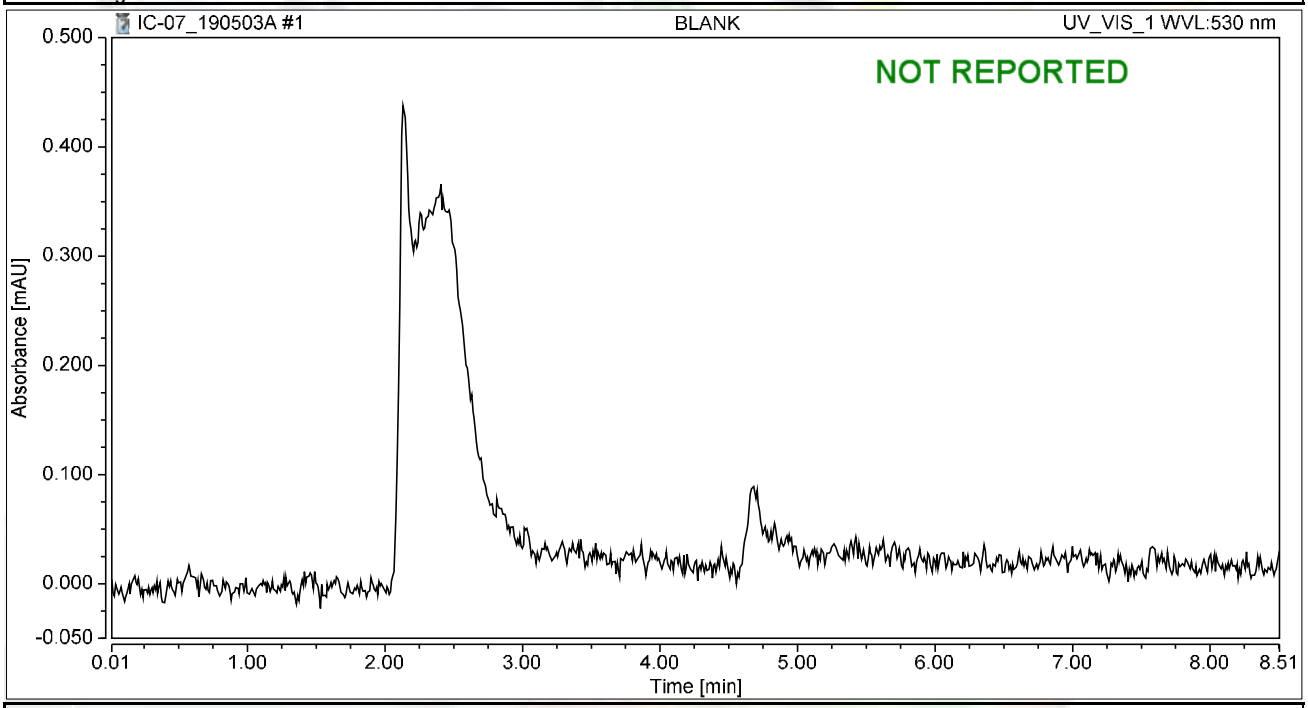
rba 5/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 09:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

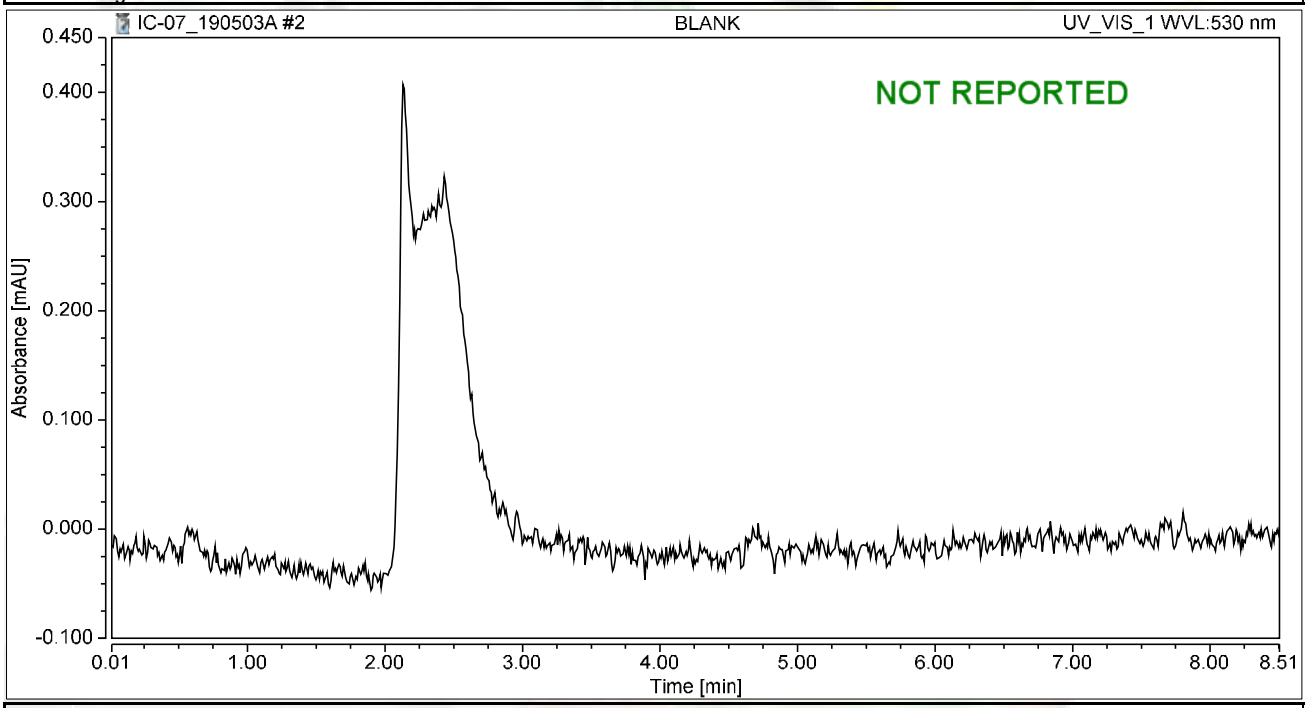
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

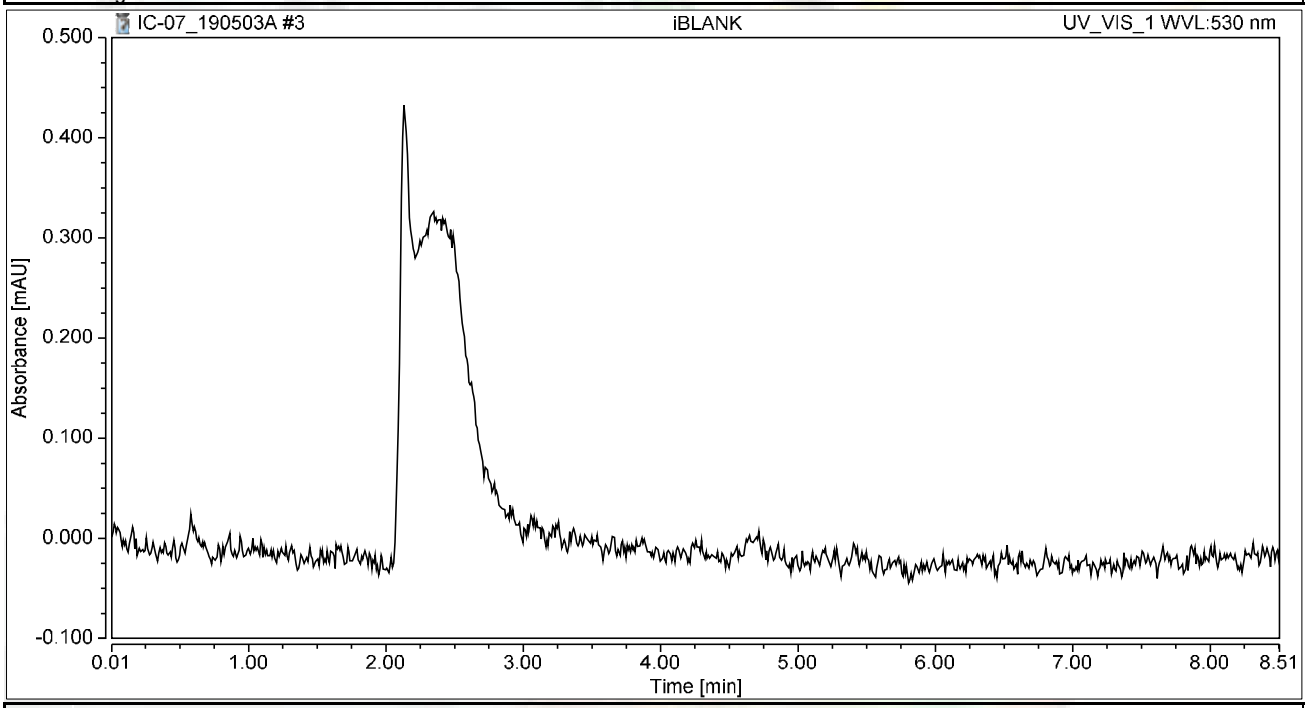
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

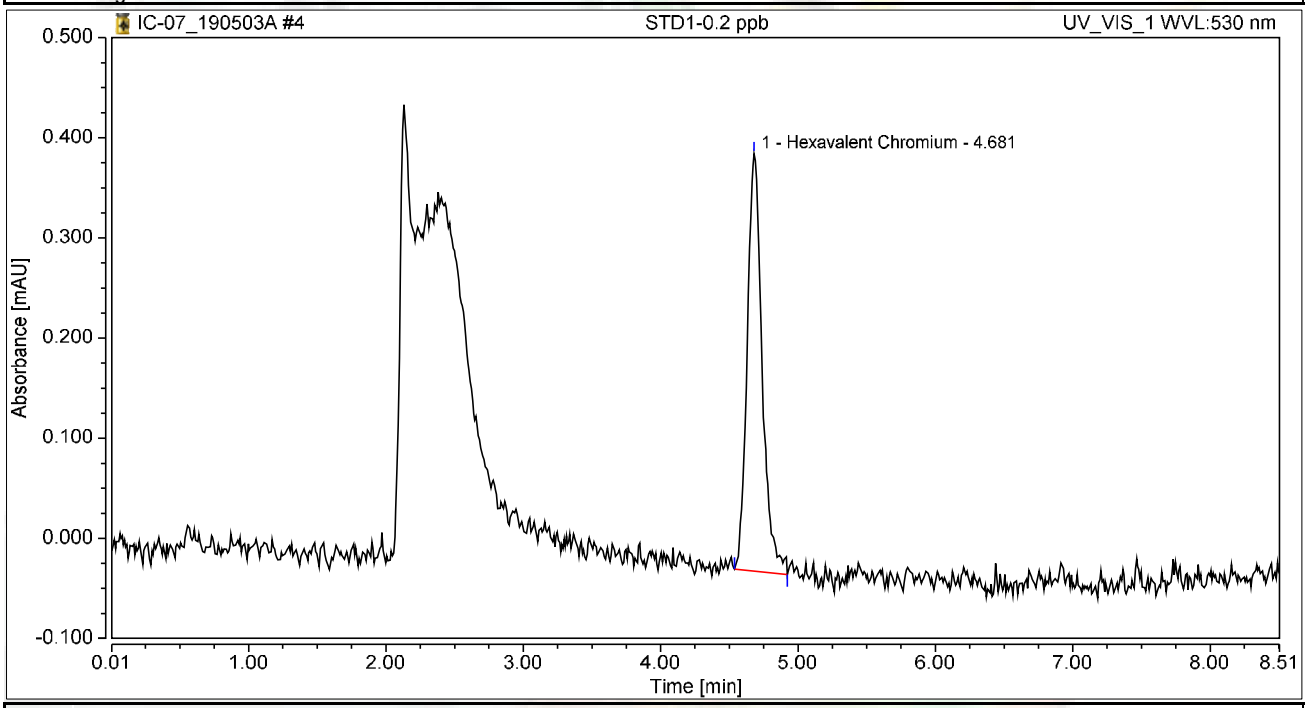
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

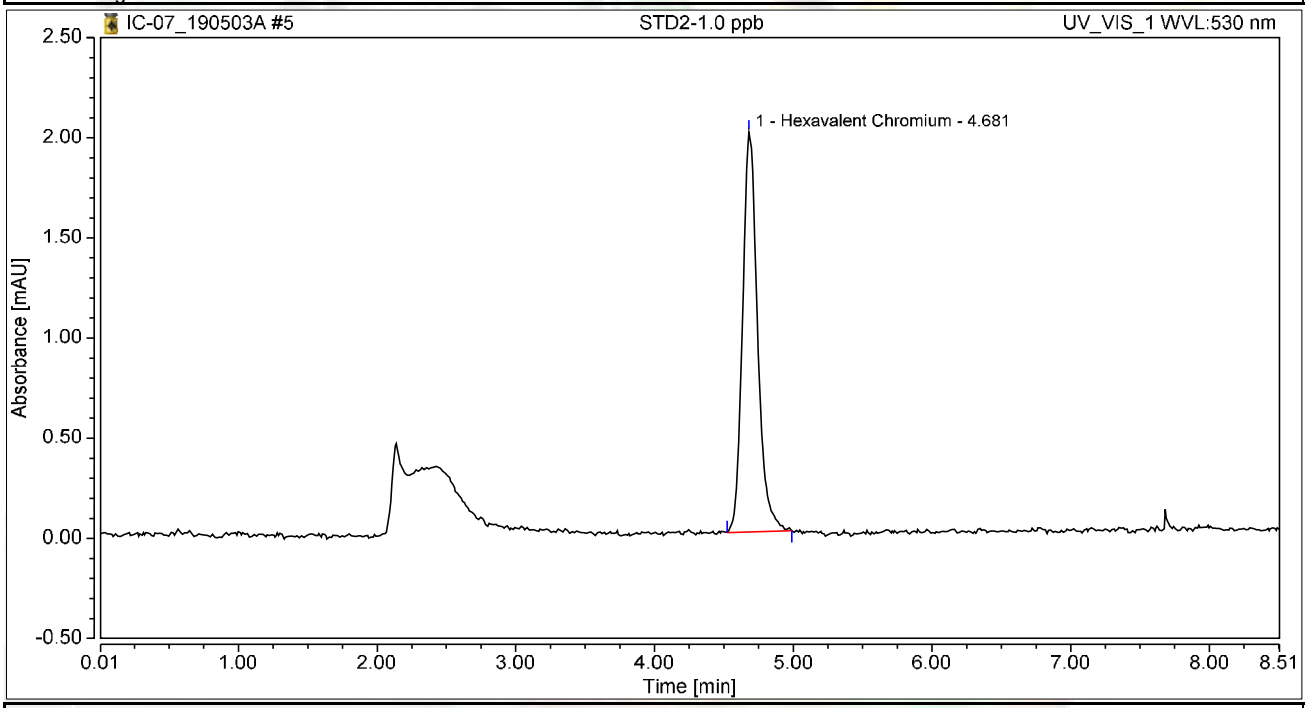
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.053	0.417	100.00	100.00	0.2092
Total:			**0.053**	**0.417**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

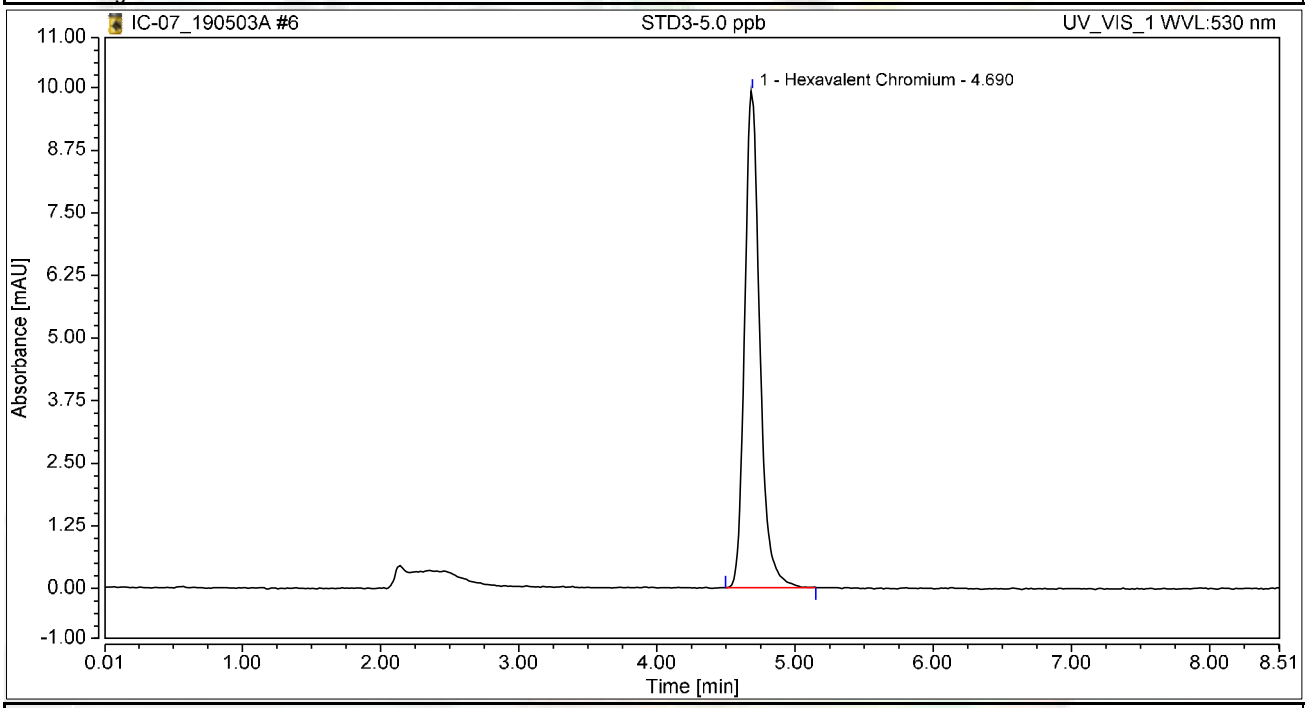
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.251	1.997	100.00	100.00	0.9971
Total:			**0.251**	**1.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

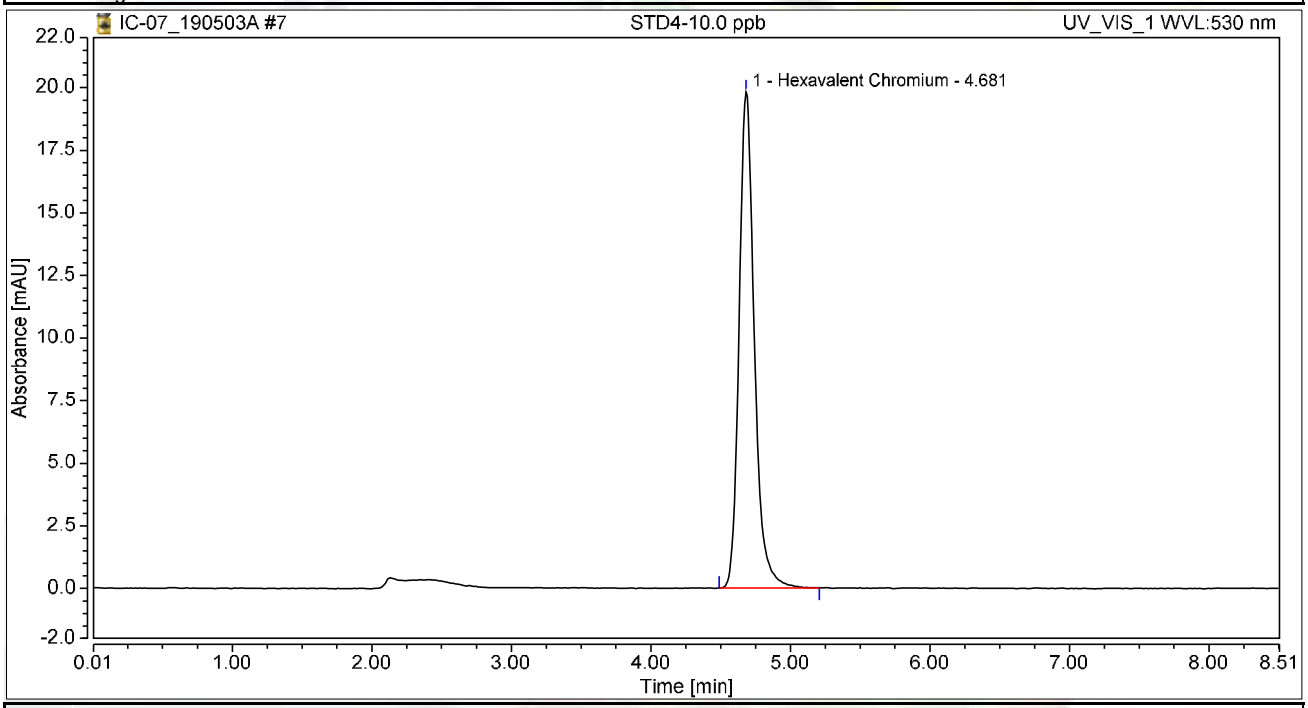
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.261	9.919	100.00	100.00	5.0034
Total:			**1.261**	**9.919**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

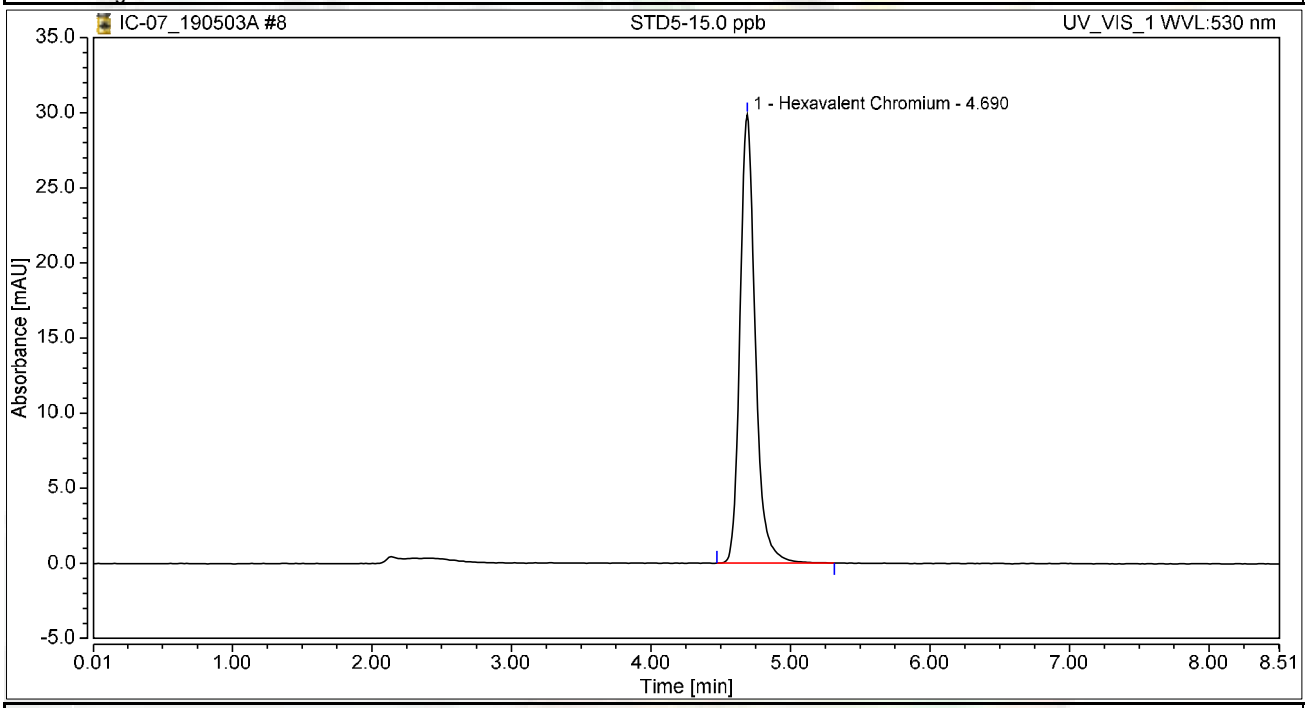
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	2.519	19.825	100.00	100.00	9.9901
Total:			**2.519**	**19.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

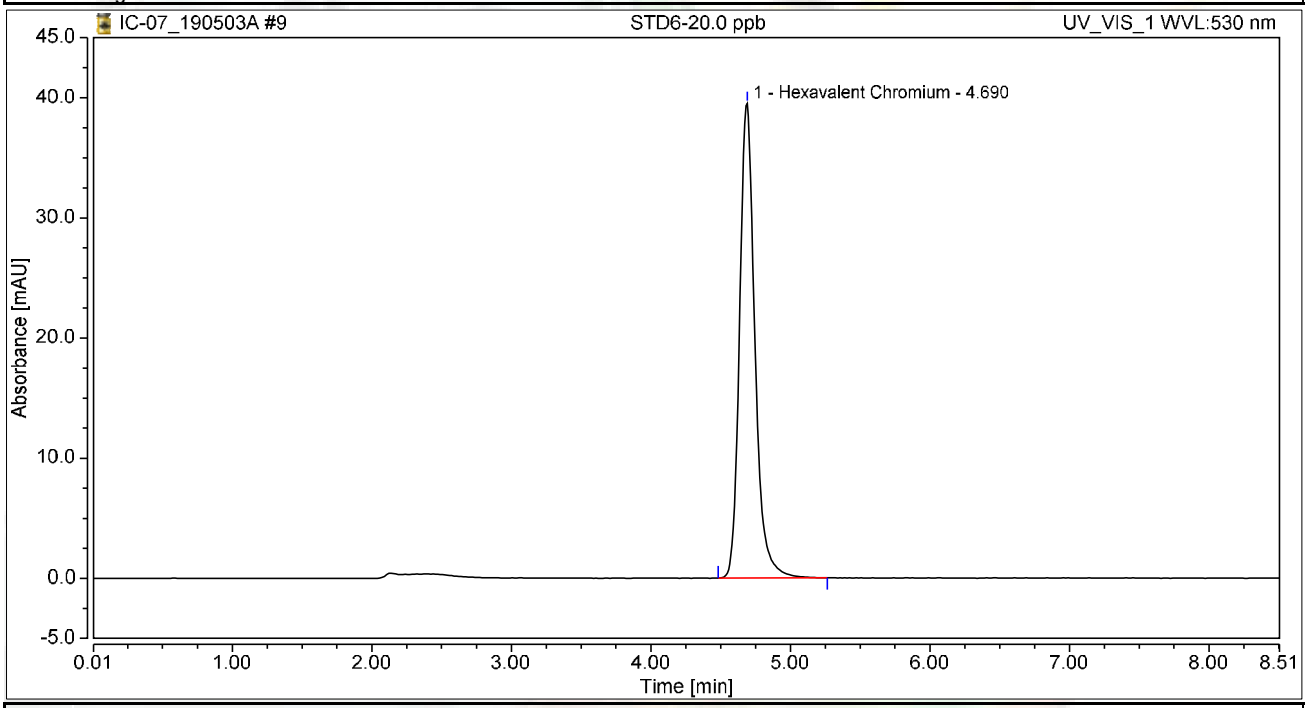
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.799	29.868	100.00	100.00	15.0660
Total:			**3.799**	**29.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



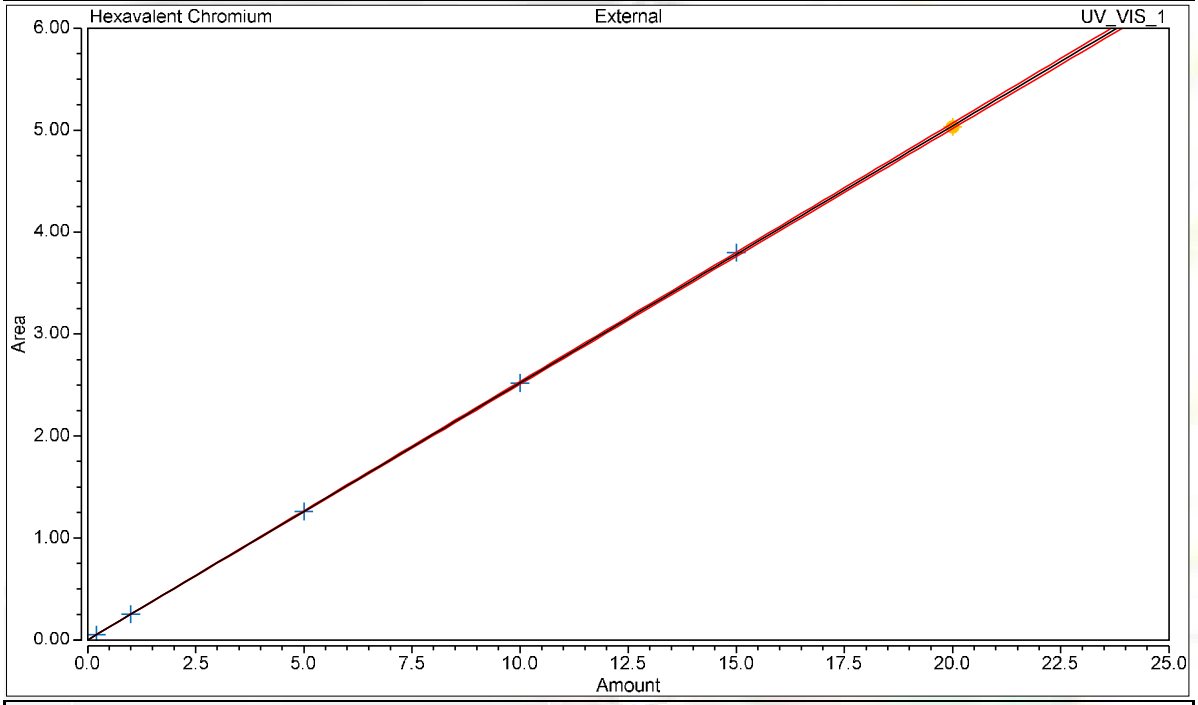
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	5.031	39.475	100.00	100.00	19.9546
Total:			**5.031**	**39.475**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2521
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

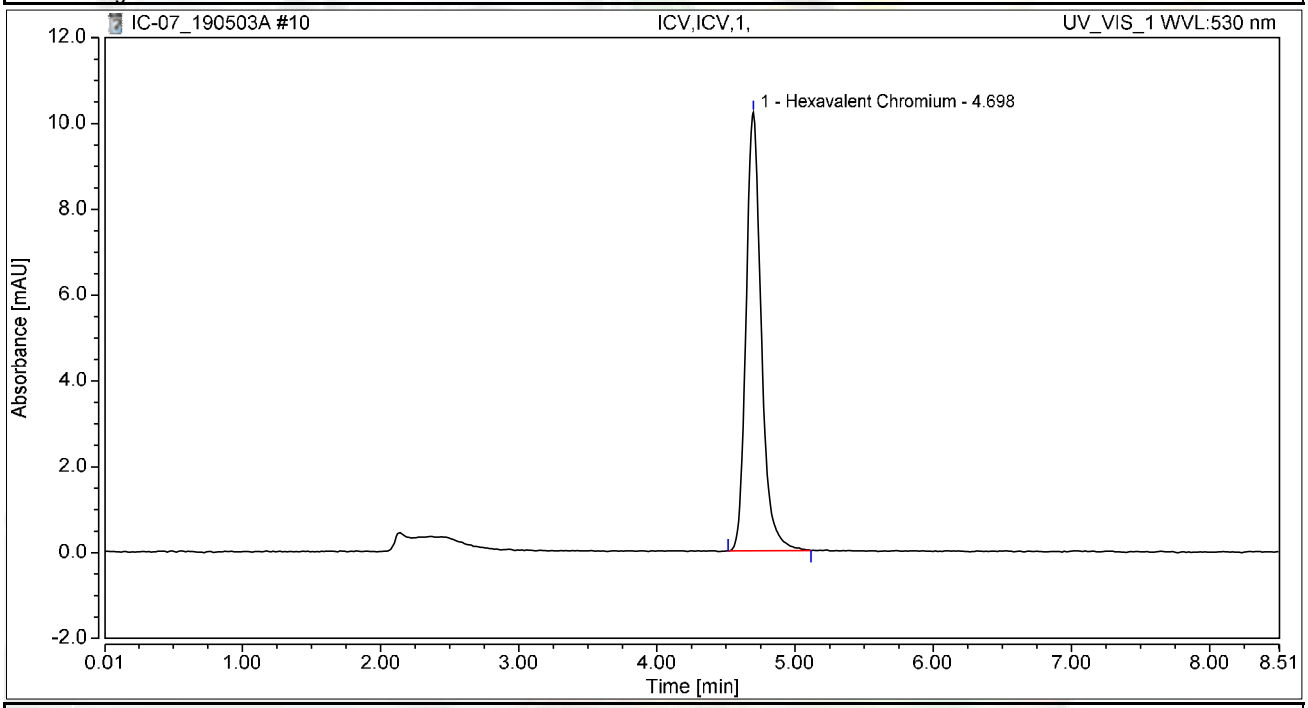
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.417
5	STD2-1.0 ppb	02	1.0000	0.2514	0.251	1.997
6	STD3-5.0 ppb	03	5.0000	1.2615	1.261	9.919
7	STD4-10.0 ppb	04	10.0000	2.5188	2.519	19.825
8	STD5-15.0 ppb	05	15.0000	3.7985	3.799	29.868
9	STD6-20.0 ppb	06	20.0000	5.0310	5.031	39.475

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

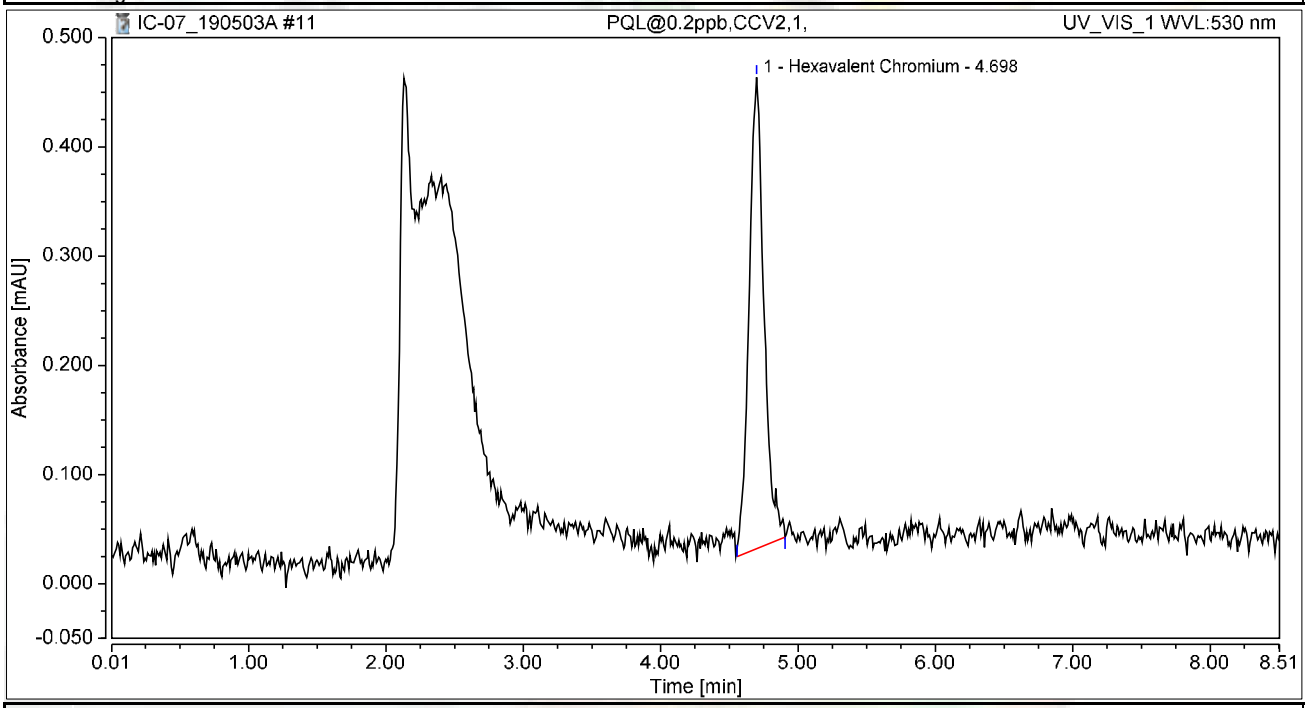
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.305	10.217	100.00	100.00	5.1753
Total:			**1.305**	**10.217**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

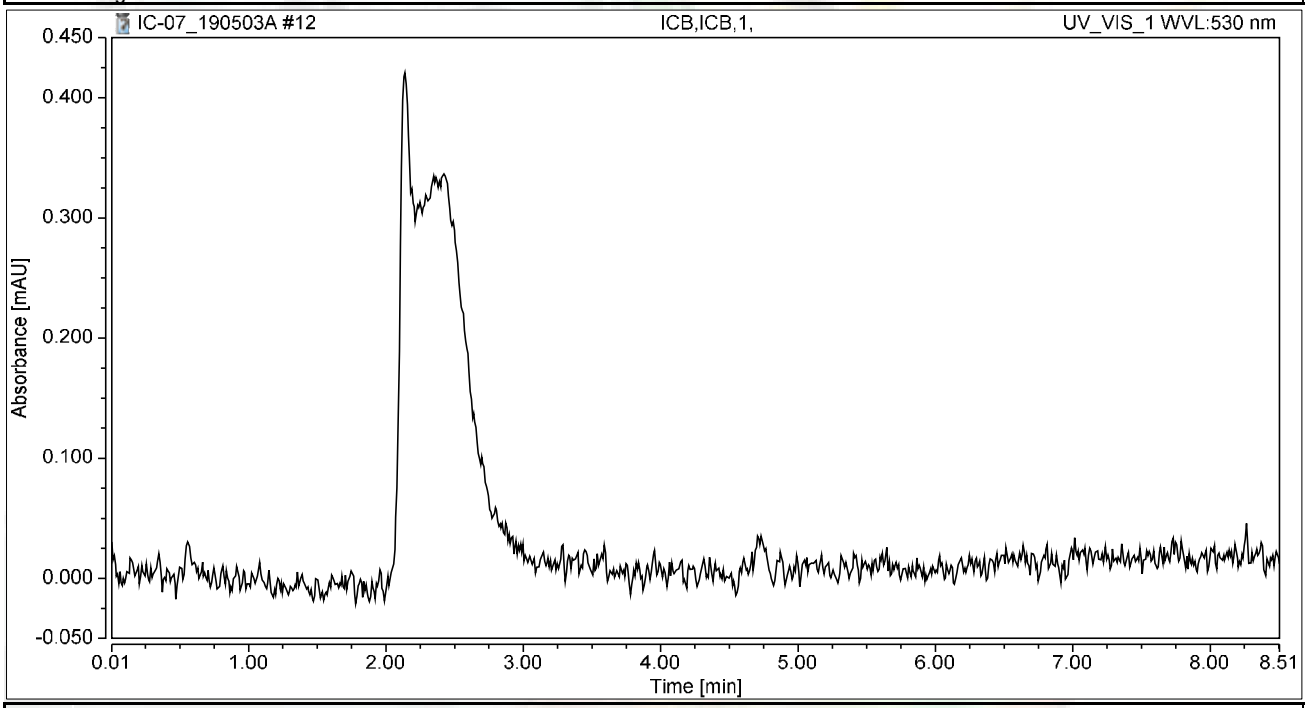
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.431	100.00	100.00	0.2143
Total:			**0.054**	**0.431**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190516A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/16/19 8:06 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	05/16/19 8:17 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	05/16/19 8:26 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/16/19 8:36 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	05/16/19 8:45 AM	Reported
15	MB-R133937	MBLK	1	Hexavalent Chromium	05/16/19 8:55 AM	Reported
16	LCS-R133937	LCS	1	Hexavalent Chromium	05/16/19 9:04 AM	Reported
17	N035595-001A	SAMP	1	Hexavalent Chromium	05/16/19 9:14 AM	Reported
18	N035595-001AMS	MS	1	Hexavalent Chromium	05/16/19 9:35 AM	Reported
19	N035597-001A	SAMP	1	Hexavalent Chromium	05/16/19 9:47 AM	Reported
20	N035597-002A	SAMP	5	Hexavalent Chromium	05/16/19 9:56 AM	Not Reported
21	N035597-003A	SAMP	1000	Hexavalent Chromium	05/16/19 10:05 AM	Reported
22	N035597-003AMS	MS	1000	Hexavalent Chromium	05/16/19 10:15 AM	Reported
23	N035597-004A	SAMP	500	Hexavalent Chromium	05/16/19 10:24 AM	Reported
24	N035597-004AMS	MS	500	Hexavalent Chromium	05/16/19 10:34 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	05/16/19 10:43 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	05/16/19 10:53 AM	Reported
27	N035487-001A	SAMP	1	Hexavalent Chromium	05/16/19 11:02 AM	Not Reported
28	N035487-001AMS	MS	1	Hexavalent Chromium	05/16/19 11:12 AM	Not Reported
29	N035597-005A	SAMP	200	Hexavalent Chromium	05/16/19 11:21 AM	Not Reported
30	N035597-006A	SAMP	200	Hexavalent Chromium	05/16/19 11:31 AM	Reported
31	N035597-007A	SAMP	200	Hexavalent Chromium	05/16/19 11:40 AM	Reported
32	N035597-008A	SAMP	200	Hexavalent Chromium	05/16/19 11:50 AM	Reported
33	N035597-004ADUP	DUP	500	Hexavalent Chromium	05/16/19 11:59 AM	Reported
34	N035597-005A	SAMP	500	Hexavalent Chromium	05/16/19 12:08 PM	Reported
35	N035597-005AMS	MS	500	Hexavalent Chromium	05/16/19 12:18 PM	Reported
36	N035597-005AMSD	MSD	500	Hexavalent Chromium	05/16/19 12:27 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	05/16/19 12:37 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	05/16/19 12:46 PM	Reported
39	N035597-006AMS	MS	200	Hexavalent Chromium	05/16/19 12:56 PM	Reported
40	N035597-007AMS	MS	200	Hexavalent Chromium	05/16/19 1:05 PM	Reported
41	N035597-008AMS	MS	200	Hexavalent Chromium	05/16/19 1:15 PM	Reported
42	N035597-001AMS	MS	1	Hexavalent Chromium	05/16/19 1:24 PM	Reported

INJECTION LOG: 190516A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035597-002A	SAMP	1	Hexavalent Chromium	05/16/19 1:34 PM	Reported
44	N035597-002AMS	MS	1	Hexavalent Chromium	05/16/19 1:43 PM	Reported
45	N035596-002A	SAMP	1	Hexavalent Chromium	05/16/19 1:52 PM	Reported
46	N035596-002AMS	MS	1	Hexavalent Chromium	05/16/19 2:02 PM	Reported
47	N035599-005A	SAMP	1	Hexavalent Chromium	05/16/19 2:24 PM	Reported
48	N035599-005AMS	MS	1	Hexavalent Chromium	05/16/19 2:35 PM	Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	05/16/19 2:44 PM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	05/16/19 2:54 PM	Reported
51	N035599-006A	SAMP	1	Hexavalent Chromium	05/16/19 3:03 PM	Reported
52	N035599-006AMS	MS	1	Hexavalent Chromium	05/16/19 3:13 PM	Reported
53	N035597-002AMS	MS	5	Hexavalent Chromium	05/16/19 3:22 PM	Not Reported
54	N035599-001A	SAMP	100	Hexavalent Chromium	05/16/19 3:49 PM	Not Reported
55	N035599-002A	SAMP	5	Hexavalent Chromium	05/16/19 4:00 PM	Reported
56	N035599-003A	SAMP	20	Hexavalent Chromium	05/16/19 4:09 PM	Reported
57	N035599-004AMS	MS	1	Hexavalent Chromium	05/16/19 4:19 PM	Not Reported
58	N035599-001A	SAMP	50	Hexavalent Chromium	05/16/19 4:28 PM	Reported
59	N035599-001AMS	MS	50	Hexavalent Chromium	05/16/19 4:38 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	05/16/19 4:47 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	05/16/19 4:57 PM	Reported
62	N035599-002AMS	MS	5	Hexavalent Chromium	05/16/19 5:06 PM	Reported
63	N035599-003AMS	MS	20	Hexavalent Chromium	05/16/19 5:16 PM	Reported
64	N035599-004A	SAMP	5	Hexavalent Chromium	05/16/19 5:25 PM	Reported
65	N035599-004AMS	MS	5	Hexavalent Chromium	05/16/19 5:34 PM	Reported
66	N035599-004A	SAMP	1	Hexavalent Chromium	05/16/19 5:44 PM	Not Reported
67	BLANK	BLANK	1	Hexavalent Chromium	05/16/19 5:53 PM	Not Reported
68	CCV-6	CCV1	1	Hexavalent Chromium	05/16/19 6:03 PM	Reported
69	CCB-6	CCB	1	Hexavalent Chromium	05/16/19 6:12 PM	Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190516A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**16/May/19 18:43:06**
No. of Injections:	**72**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/16/2019 08:06	Finished	BLANK
11	BLANK	2	1000	Unknown		05/16/2019 08:17	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		05/16/2019 08:26	Finished	CCV @5ppb, IWST-190423A
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		05/16/2019 08:36	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		05/16/2019 08:45	Finished	CCB R190411C
15	MB-H2O,MBLK,1,	6	1000	Unknown		05/16/2019 08:55	Finished	MB R190411C
16	LCS-H2O,LCS,1,	7	1000	Unknown		05/16/2019 09:04	Finished	LCS @5ppb, IWST-190423B
17	N035595-001A,SAMF	1	1000	Unknown		05/16/2019 09:14	Finished	SAMP, 10mL
18	N035595-001AMS,MS	3	1000	Unknown		05/16/2019 09:35	Finished	MS (1ppb), IWST-190423B,10
19	N035597-001A,SAMF	4	1000	Unknown		05/16/2019 09:47	Finished	SAMP, 10mL
20	N035597-002A,SAMF	5	1000	Unknown		05/16/2019 09:56	Finished	SAMP, 2>10mL
21	N035597-003A,SAMF	6	1000	Unknown		05/16/2019 10:05	Finished	SAMP, 0.01>10mL
22	N035597-003AMS,MS	7	1000	Unknown		05/16/2019 10:15	Finished	MS (5ppb), IWST-190423B,0.0
23	N035597-004A,SAMF	8	1000	Unknown		05/16/2019 10:24	Finished	SAMP, 0.02>10mL
24	N035597-004AMS,MS	9	1000	Unknown		05/16/2019 10:34	Finished	MS (5ppb), IWST-190423B,0.0
25	CCV-2,CCV1,1,	10	1000	Unknown		05/16/2019 10:43	Finished	CCV @10ppb, IWST-190423A
26	CCB-2,CCB,1,	11	1000	Unknown		05/16/2019 10:53	Finished	CCB R190411C
27	N035487-001A,SAMF	12	1000	Unknown		05/16/2019 11:02	Finished	SAMP, 10mL
28	N035487-001AMS,MS	13	1000	Unknown		05/16/2019 11:12	Finished	MS (1ppb), IWST-190423B,10
29	N035597-005A,SAMF	14	1000	Unknown		05/16/2019 11:21	Finished	SAMP, 0.05>10mL
30	N035597-006A,SAMF	15	1000	Unknown		05/16/2019 11:31	Finished	SAMP, 0.05>10mL
31	N035597-007A,SAMF	16	1000	Unknown		05/16/2019 11:40	Finished	SAMP, 0.05>10mL
32	N035597-008A,SAMF	17	1000	Unknown		05/16/2019 11:50	Finished	SAMP, 0.05>10mL
33	N035597-004ADUP,D	18	1000	Unknown		05/16/2019 11:59	Finished	DUP, 0.02>10mL
34	N035597-005A,SAMF	19	1000	Unknown		05/16/2019 12:08	Finished	SAMP, 0.02>10mL
35	N035597-005AMS,MS	20	1000	Unknown		05/16/2019 12:18	Finished	MS (5ppb), IWST-190423B,0.0
36	N035597-005AMSD,M	21	1000	Unknown		05/16/2019 12:27	Finished	MSD (5ppb), IWST-190423B,0.
37	CCV-3,CCV,1,	22	1000	Unknown		05/16/2019 12:37	Finished	CCV @5ppb, IWST-190423A
38	CCB-3,CCB,1,	23	1000	Unknown		05/16/2019 12:46	Finished	CCB R190411C
39	N035597-006AMS,MS	24	1000	Unknown		05/16/2019 12:56	Finished	MS (5ppb), IWST-190423B,0.0
40	N035597-007AMS,MS	25	1000	Unknown		05/16/2019 13:05	Finished	MS (5ppb), IWST-190423B,0.0
41	N035597-008AMS,MS	26	1000	Unknown		05/16/2019 13:15	Finished	MS (5ppb), IWST-190423B,0.0
42	N035597-001AMS,MS	27	1000	Unknown		05/16/2019 13:24	Finished	MS (1ppb), IWST-190423B,10
43	N035597-002A,SAMF	28	1000	Unknown		05/16/2019 13:34	Finished	SAMP, 10mL
44	N035597-002AMS,MS	29	1000	Unknown		05/16/2019 13:43	Finished	MS (1ppb), IWST-190423B,10
45	N035596-002A,SAMF	30	1000	Unknown		05/16/2019 13:52	Finished	SAMP, 10mL
46	N035596-002AMS,MS	31	1000	Unknown		05/16/2019 14:02	Finished	MS (1ppb), IWST-190423B,10
47	N035599-005A,SAMF	1	1000	Unknown		05/16/2019 14:24	Finished	SAMP, 10mL
48	N035599-005AMS,MS	2	1000	Unknown		05/16/2019 14:35	Finished	MS (1ppb), IWST-190423B,10
49	CCV-4,CCV1,1,	3	1000	Unknown		05/16/2019 14:44	Finished	CCV @10ppb, IWST-190423A
50	CCB-4,CCB,1,	4	1000	Unknown		05/16/2019 14:54	Finished	CCB R190411C
51	N035599-006A,SAMF	5	1000	Unknown		05/16/2019 15:03	Finished	SAMP, 10mL
52	N035599-006AMS,MS	6	1000	Unknown		05/16/2019 15:13	Finished	MS (1ppb), IWST-190423B,10
53	N035597-002AMS,MS	7	1000	Unknown		05/16/2019 15:22	Finished	MS (1ppb), IWST-190423B,2>1
54	N035599-001A,SAMF	1	1000	Unknown		05/16/2019 15:49	Finished	SAMP, 0.1>10mL
55	N035599-002A,SAMF	2	1000	Unknown		05/16/2019 16:00	Finished	SAMP, 2>10mL
56	N035599-003A,SAMF	3	1000	Unknown		05/16/2019 16:09	Finished	SAMP, 0.5>10mL
57	N035599-004AMS,MS	4	1000	Unknown		05/16/2019 16:19	Finished	MS (1ppb), IWST-190423B,10
58	N035599-001A,SAMF	5	1000	Unknown		05/16/2019 16:28	Finished	SAMP,0.2> 10mL
59	N035599-001AMS,MS	6	1000	Unknown		05/16/2019 16:38	Finished	MS (5ppb), IWST-190423B,0.2
60	CCV-5,CCV,1,	7	1000	Unknown		05/16/2019 16:47	Finished	CCV @5ppb, IWST-190423A

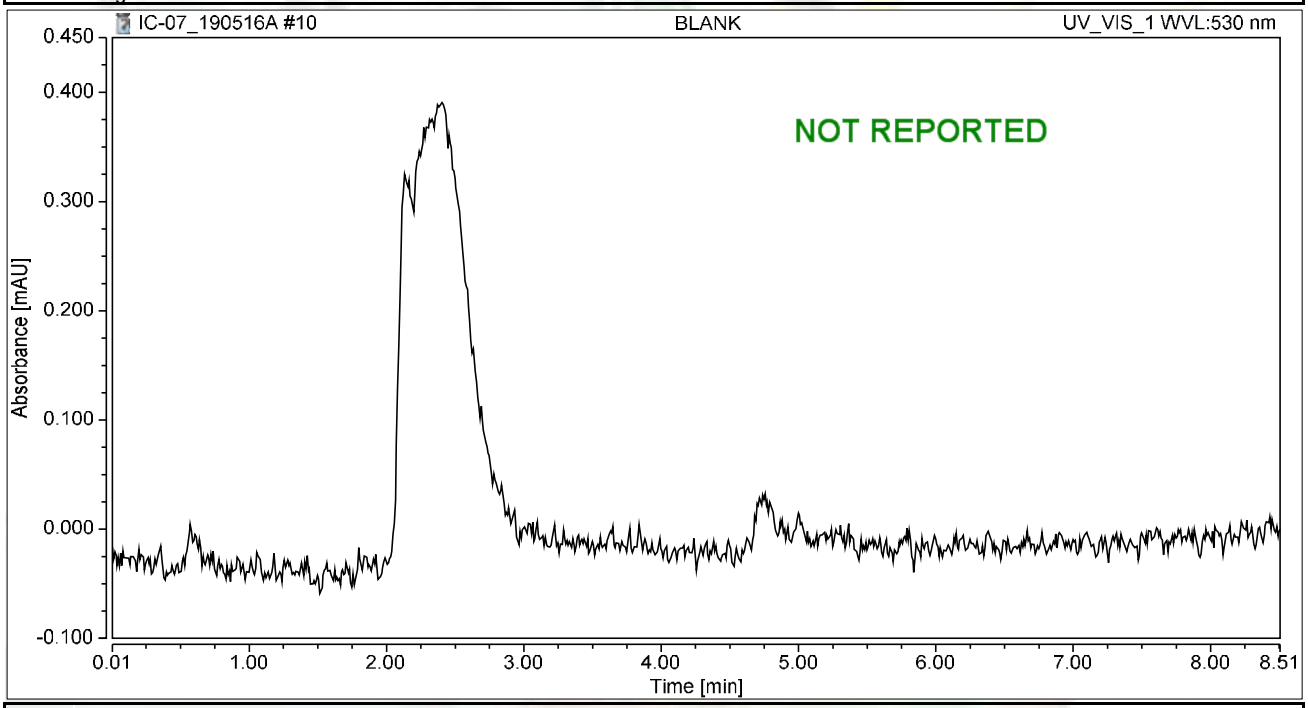
61	CCB-5,CCB,1,	8	1000	Unknown		05/16/2019 16:57	Finished	CCB R190411C
62	N035599-002AMS,MS	9	1000	Unknown		05/16/2019 17:06	Finished	MS (5ppb), IWST-190423B,2>1
63	N035599-003AMS,MS	10	1000	Unknown		05/16/2019 17:16	Finished	MS (5ppb), IWST-190423B,0.5
64	N035599-004A,SAMP	11	1000	Unknown		05/16/2019 17:25	Finished	SAMP, 2>10mL
65	N035599-004AMS,MS	12	1000	Unknown		05/16/2019 17:34	Finished	MS (1ppb), IWST-190423B,2>1
66	N035599-004A,SAMP	13	1000	Unknown		05/16/2019 17:44	Finished	SAMP, 10mL
67	BLANK	14	1000	Unknown		05/16/2019 17:53	Finished	BLANK
68	CCV-6,CCV1,1,	15	1000	Unknown		05/16/2019 18:03	Finished	CCV @10ppb, IWST-190423A
69	CCB-6,CCB,1,	16	1000	Unknown		05/16/2019 18:12	Finished	CCB R190411C
70	SHUTDOWN	17	1000	Unknown		05/16/2019 18:22	Finished	
71	Eluent: R190513D	18	1000	Unknown		n.a.	Finished	Eluent
72	PCR: R190513E	19	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 08:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

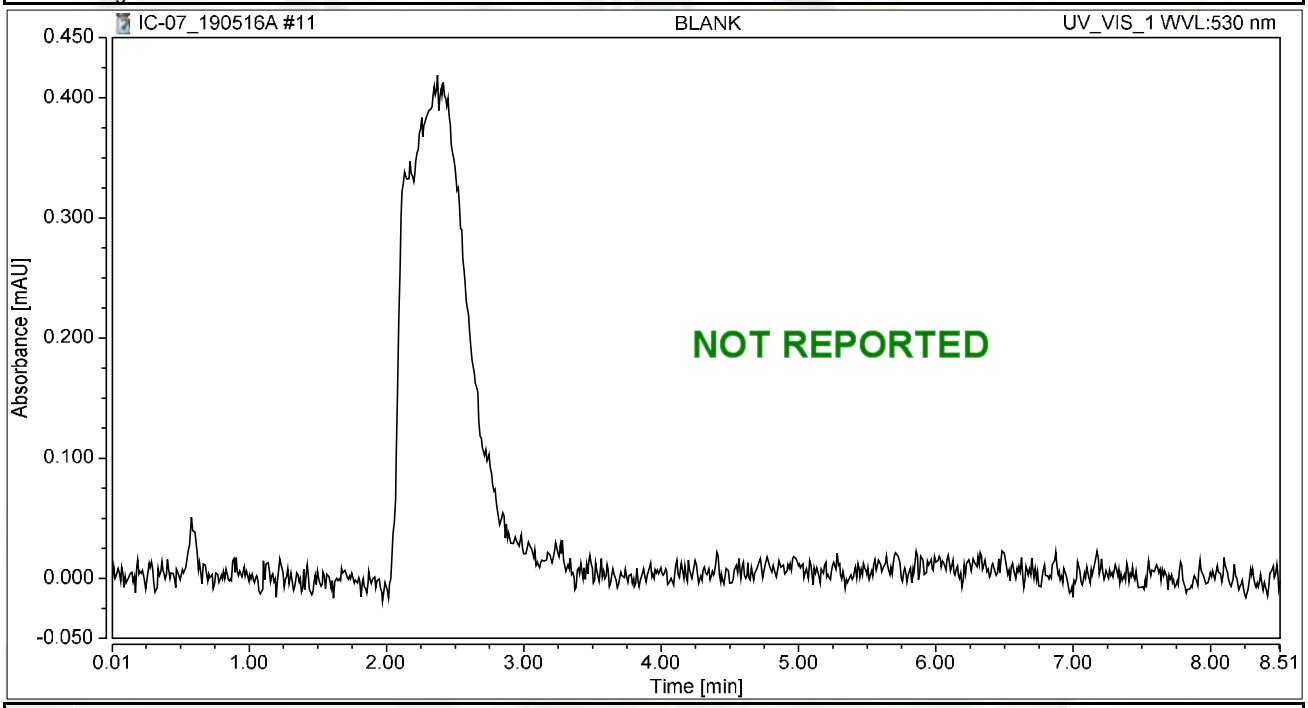
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 08:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

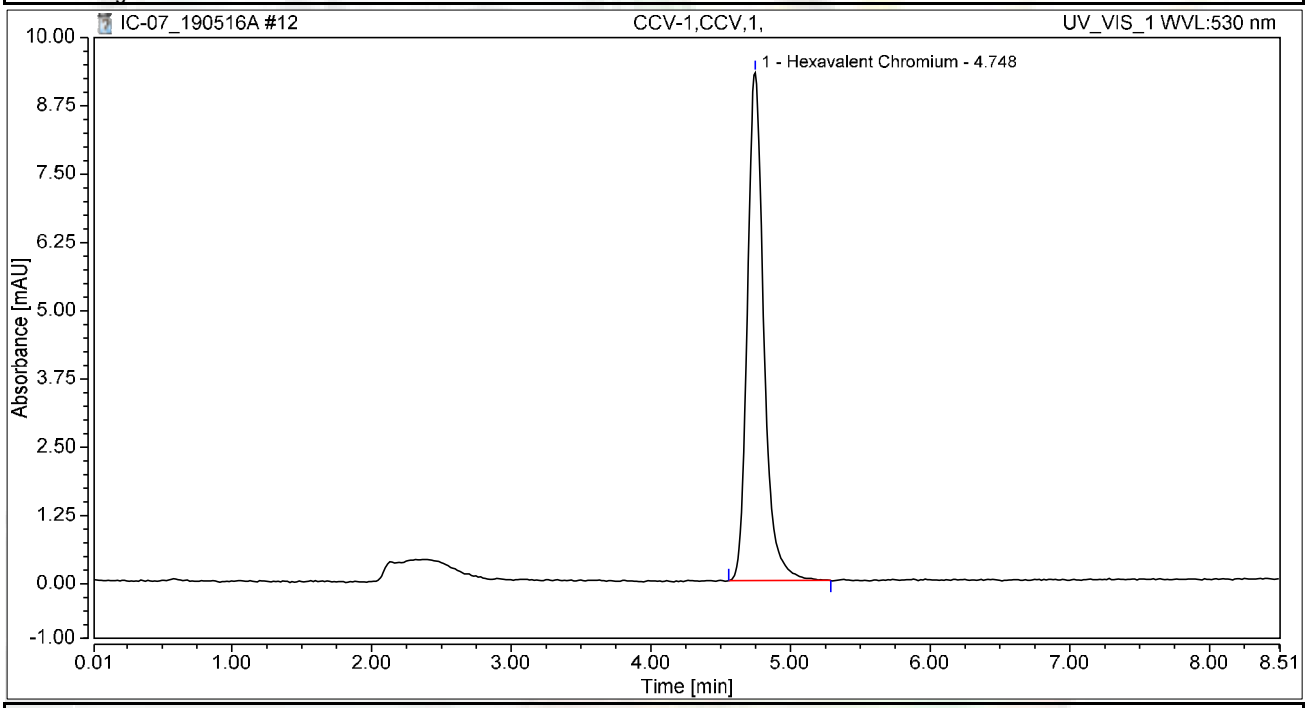
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 08:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

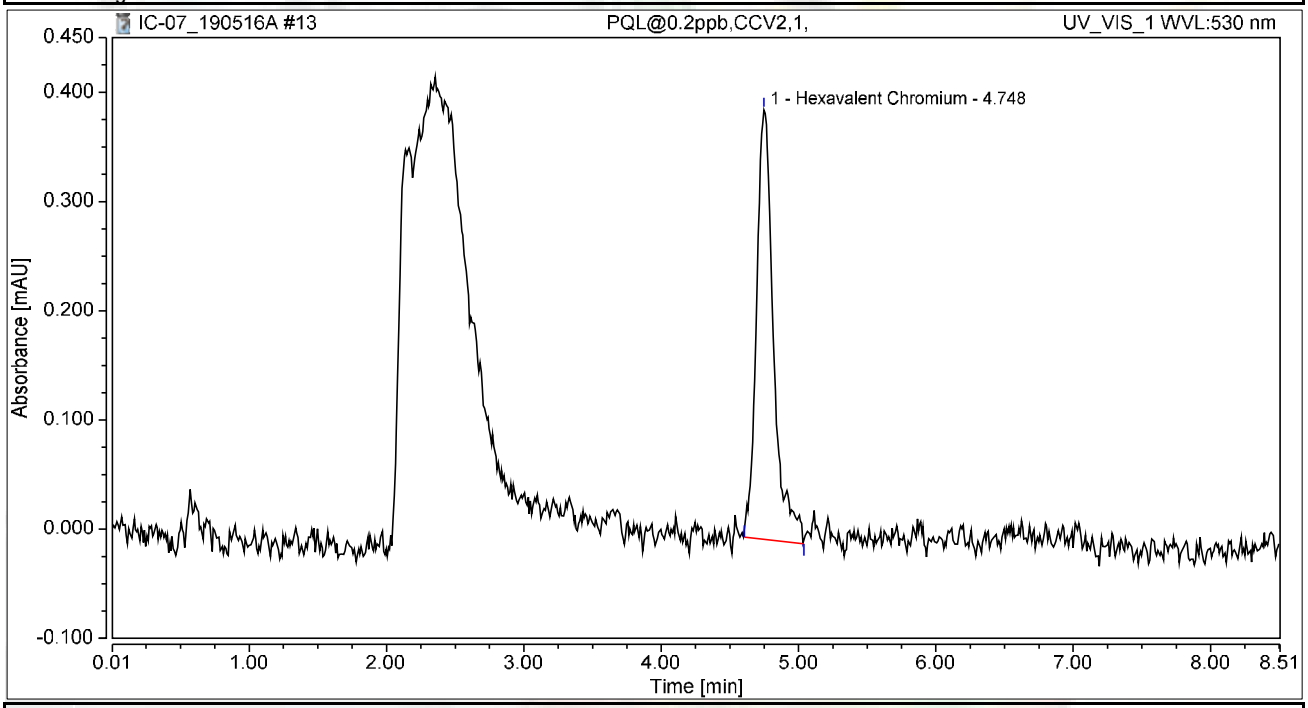
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	1.272	9.297	100.00	100.00	5.0442
Total:			**1.272**	**9.297**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 08:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

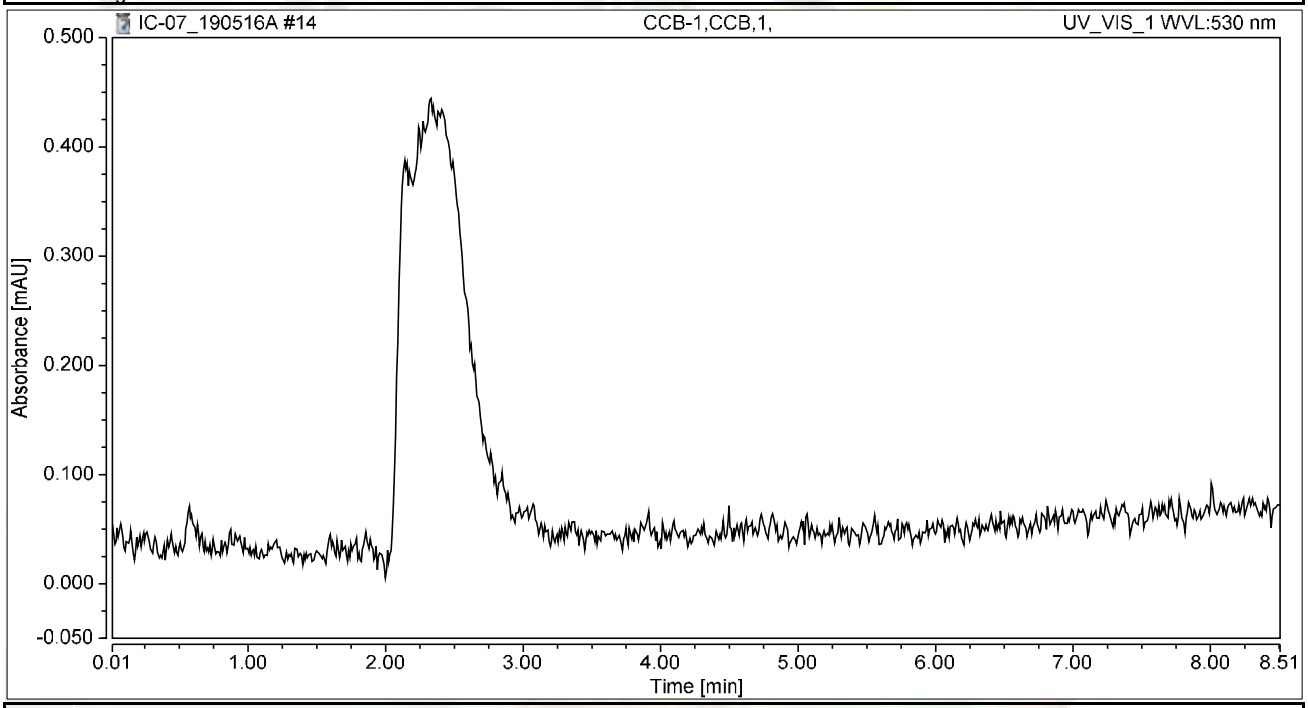
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.056	0.393	100.00	100.00	0.2238
Total:			**0.056**	**0.393**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 08:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

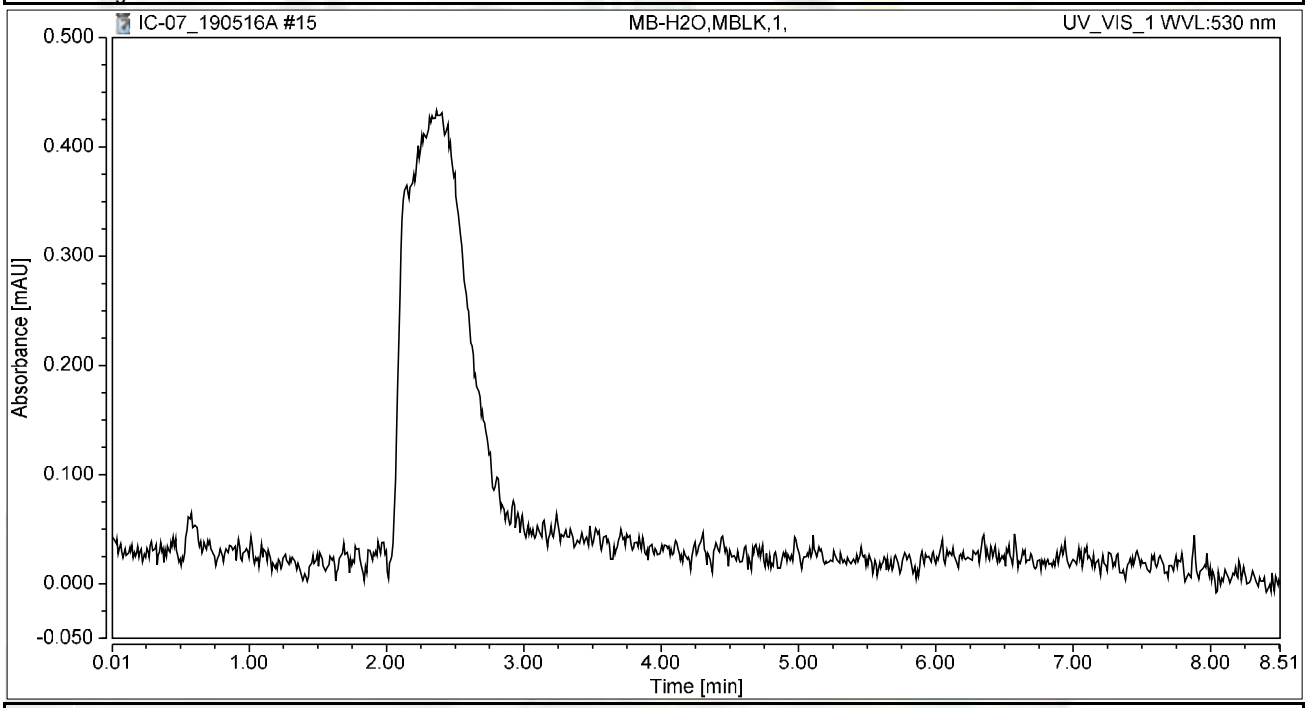
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 08:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

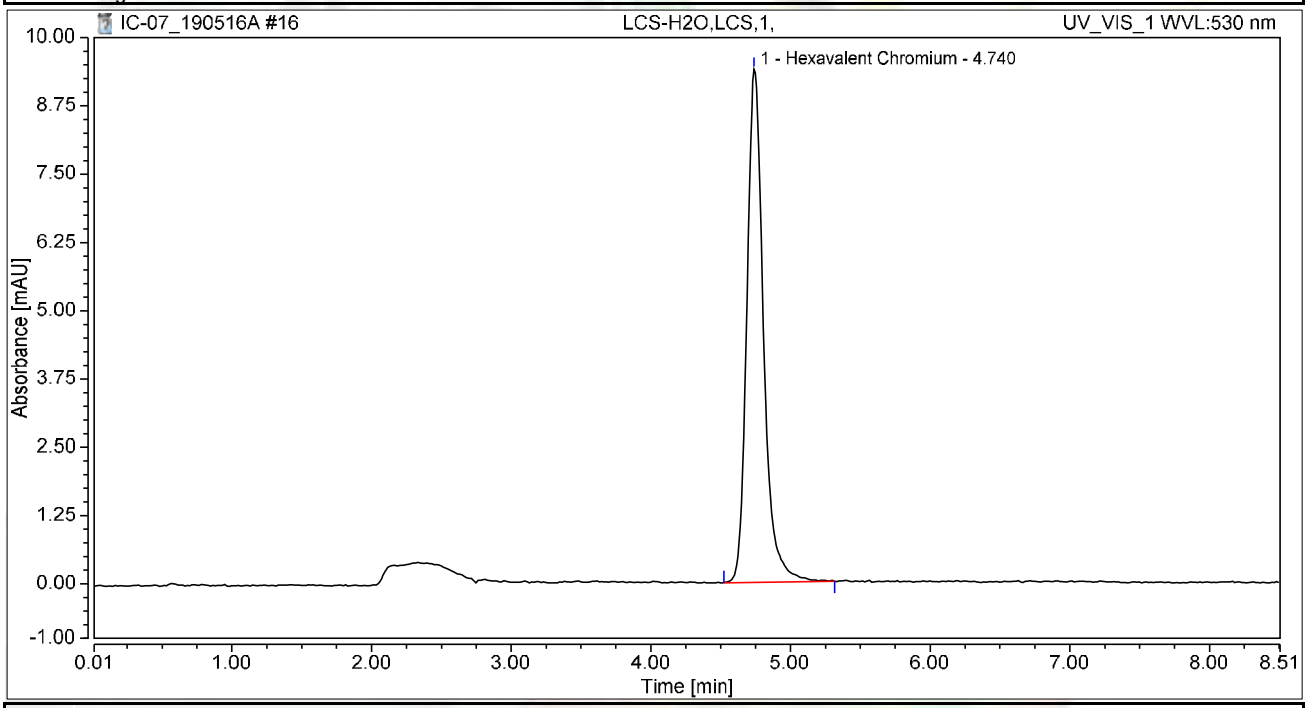
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 09:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

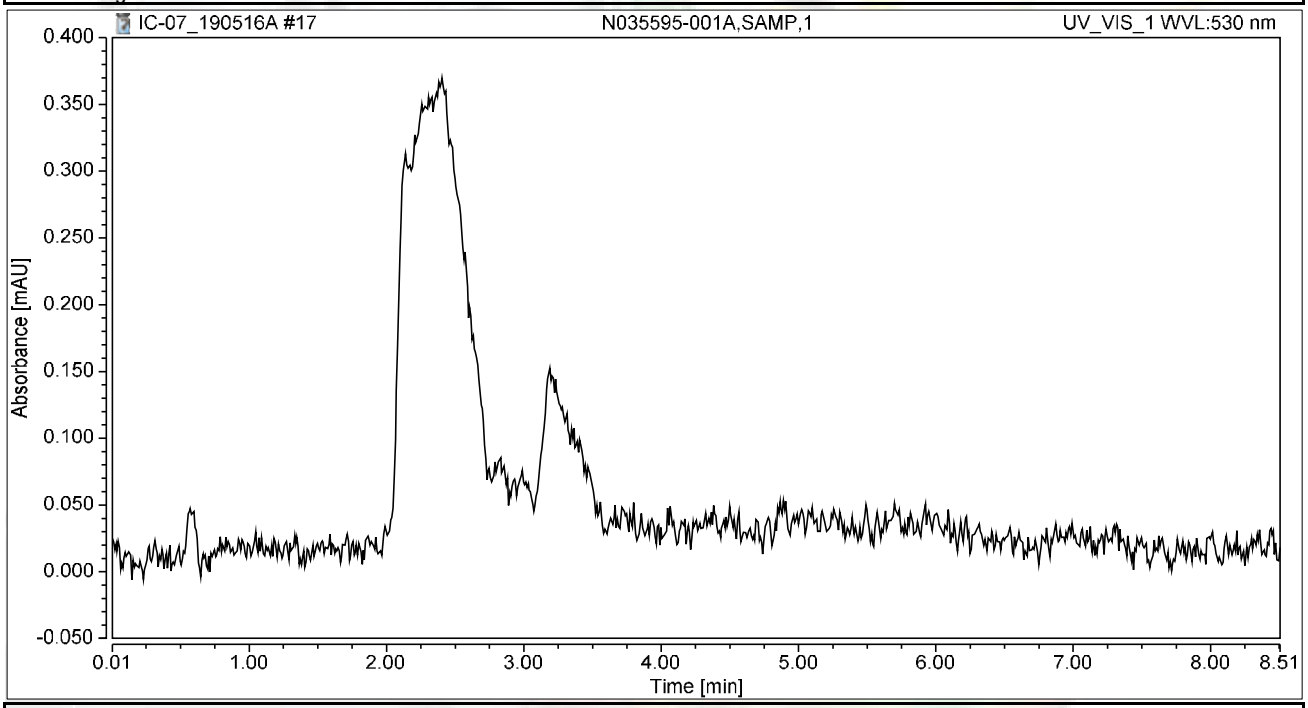
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.299	9.393	100.00	100.00	5.1505
Total:			**1.299**	**9.393**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035595-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 09:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

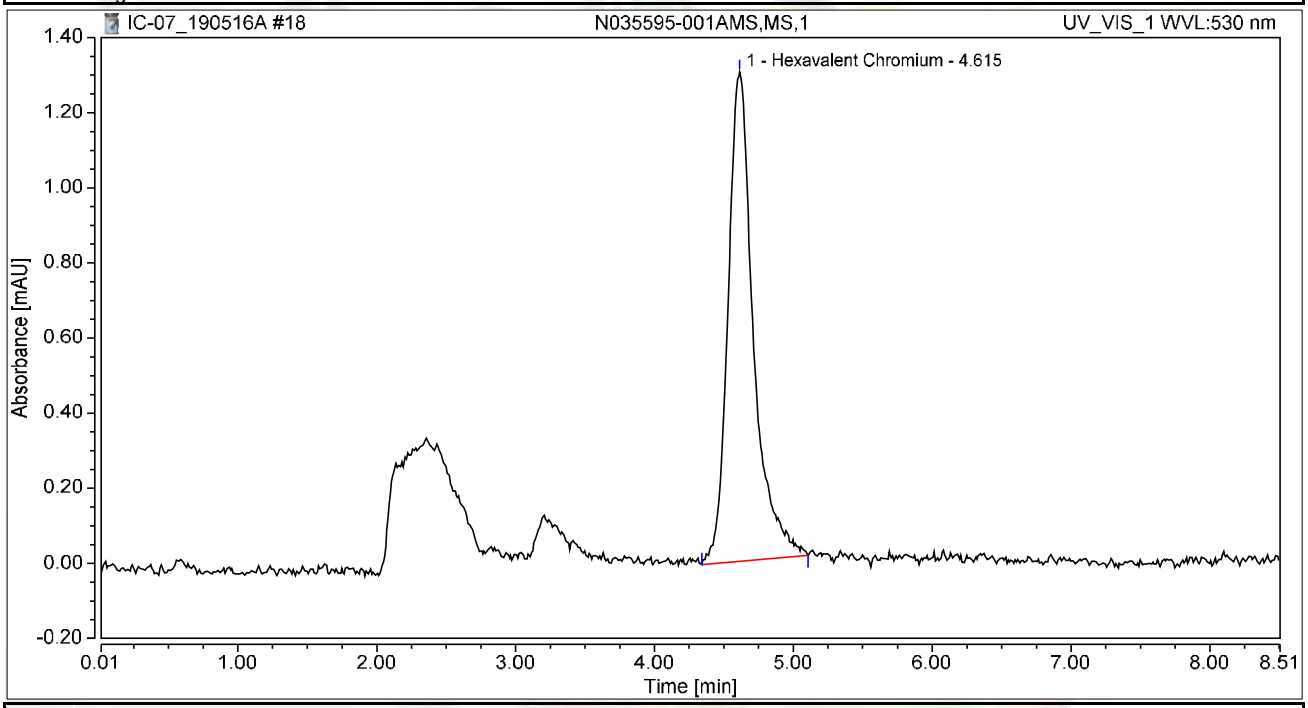
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035595-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 09:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

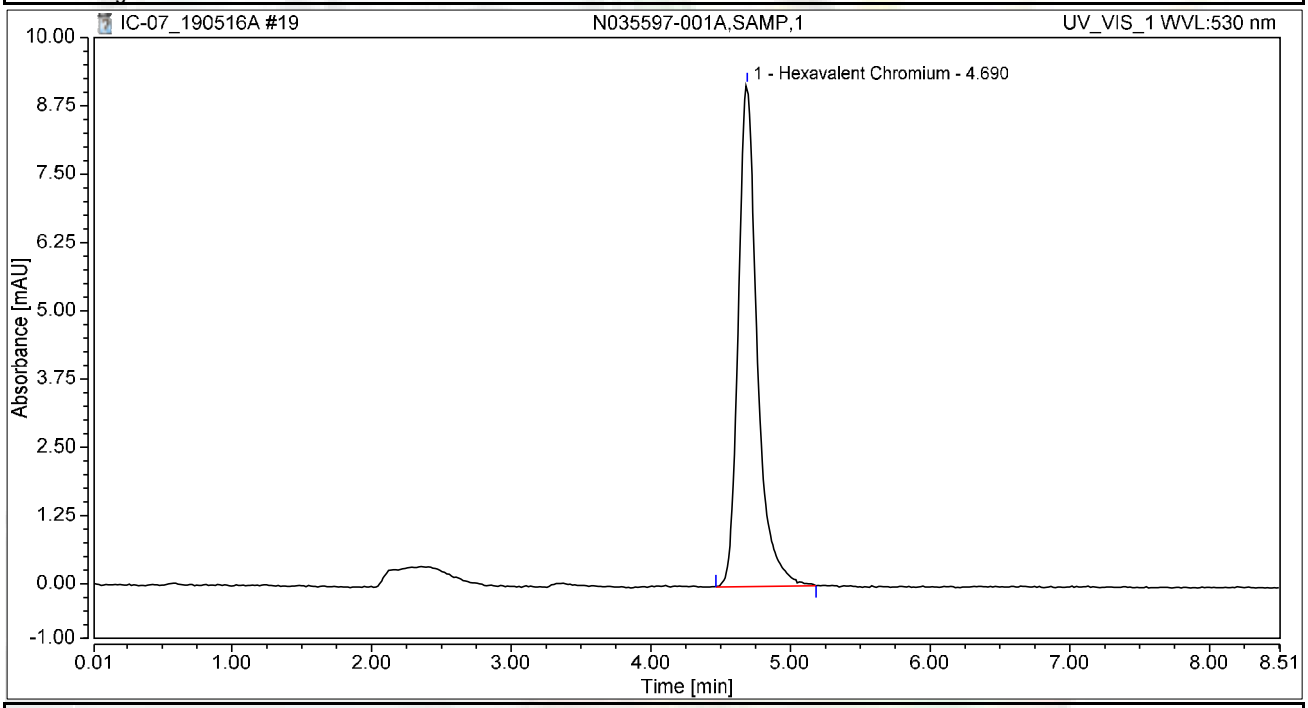
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.615	0.277	1.304	100.00	100.00	1.0968
Total:			**0.277**	**1.304**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 09:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

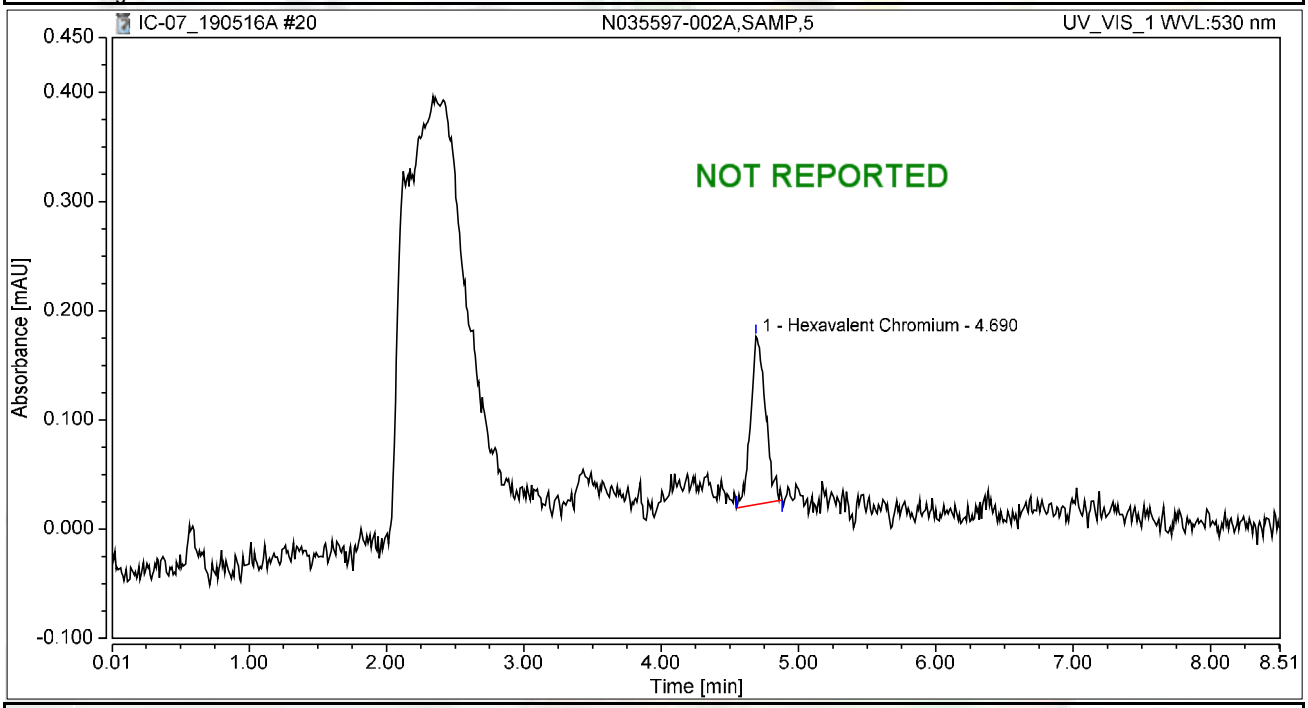
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.446	9.190	100.00	100.00	5.7371
Total:			**1.446**	**9.190**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 09:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

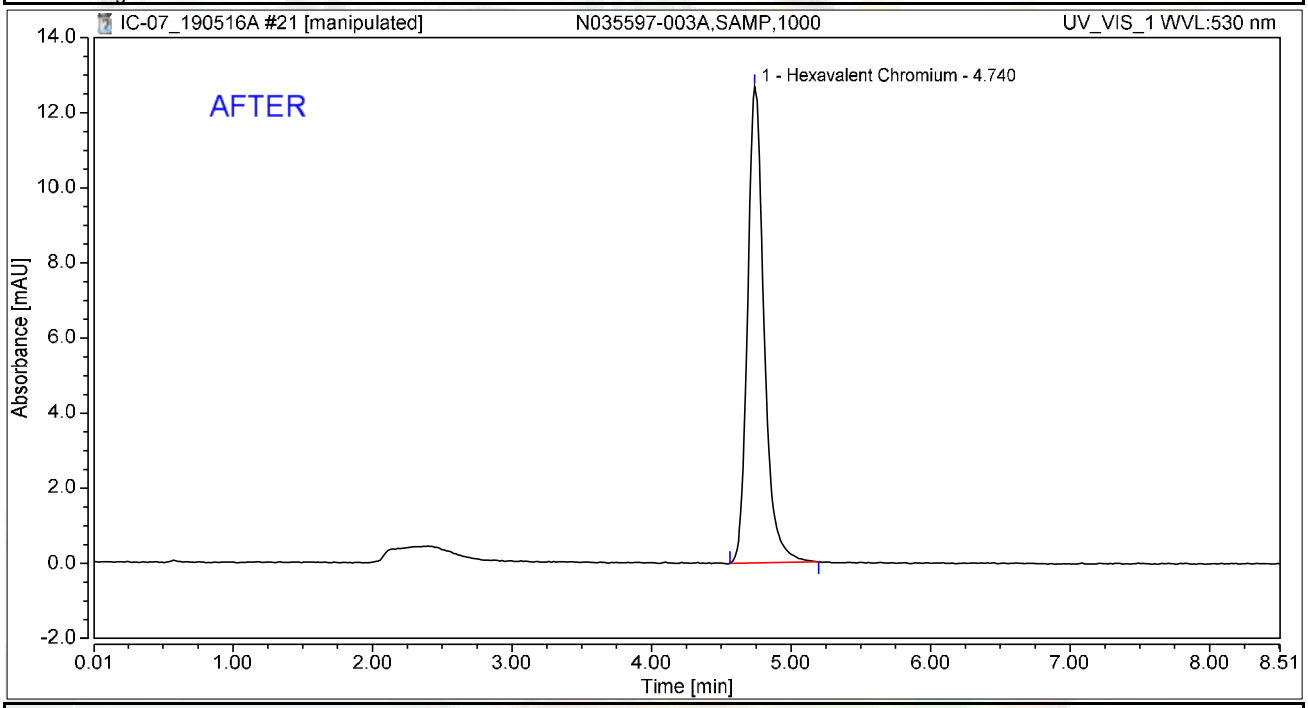
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.019	0.154	100.00	100.00	0.0772
Total:			**0.019**	**0.154**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-003A,SAMP,1000**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 10:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.740	12.685	100.00	100.00	6.8995
Total:			**1.740**	**12.685**	**100.00**	**100.00**	

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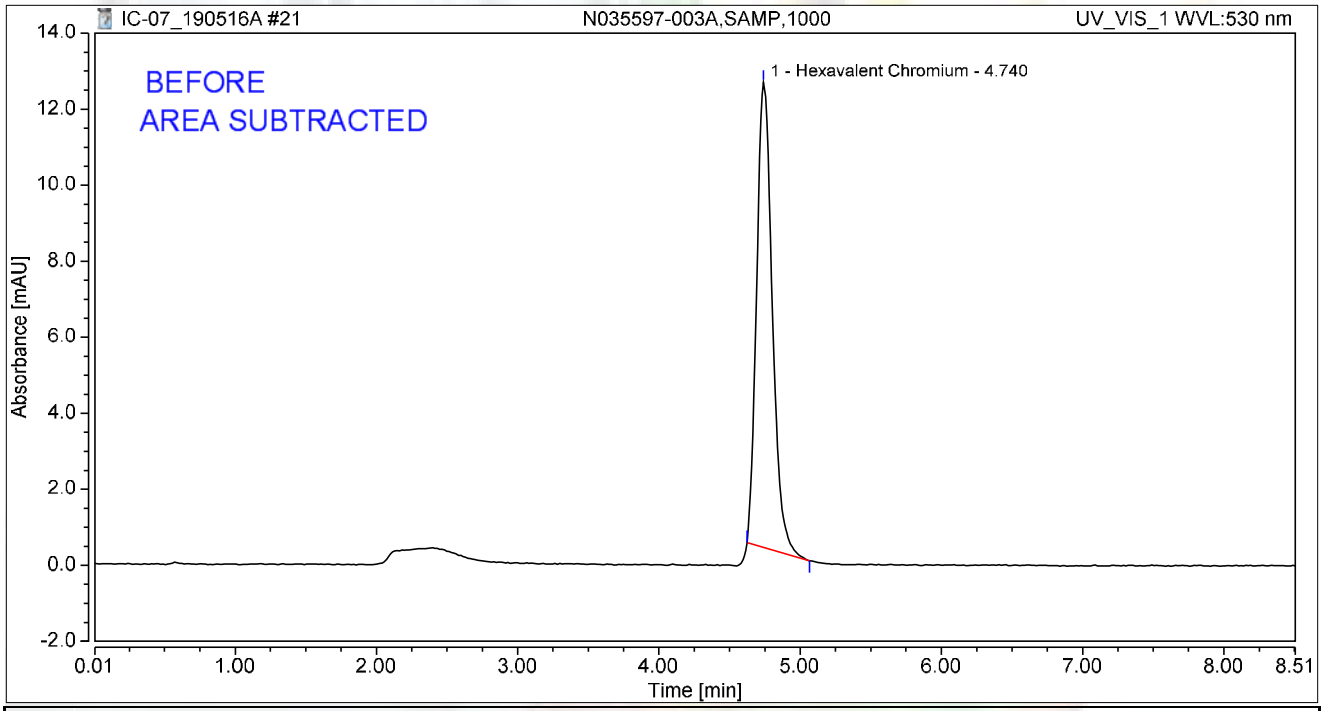
Chromatogram and Results

Injection Details

Injection Name:	**N035597-003A,SAMP,1000**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 10:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.574	12.225	100.00	100.00	6.2413
Total:			**1.574**	**12.225**	**100.00**	**100.00**	

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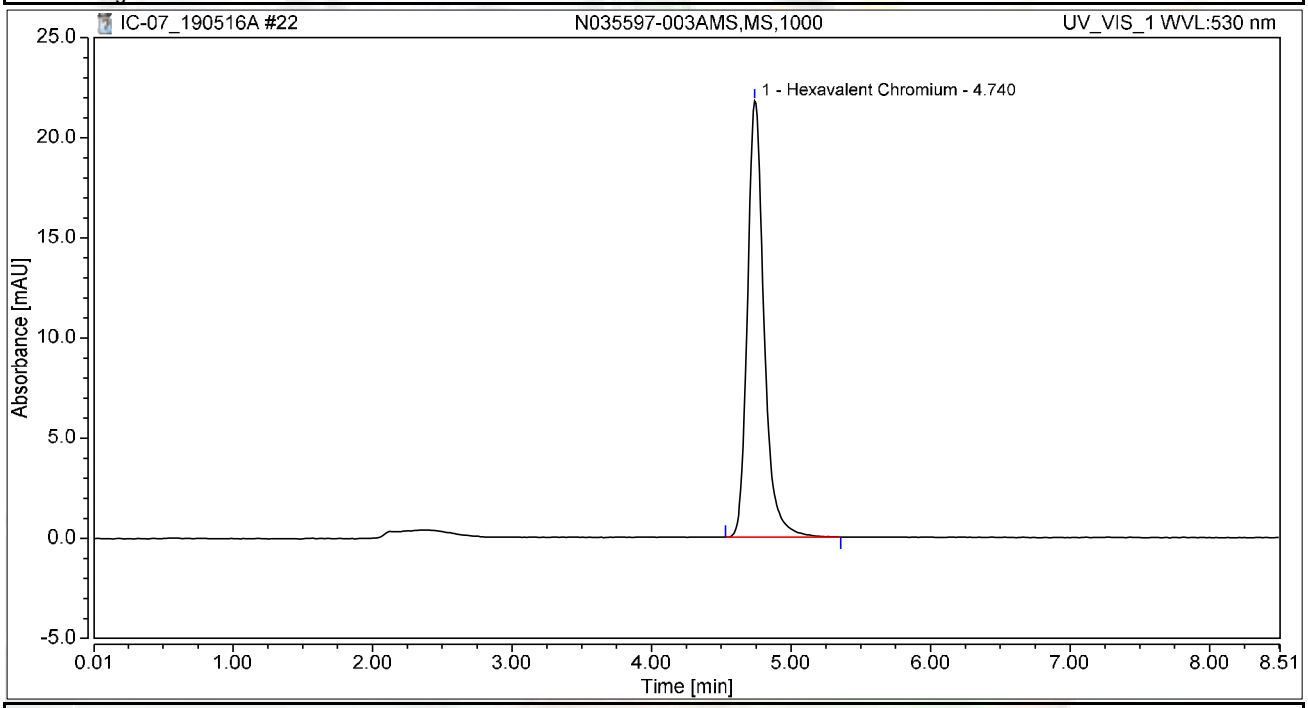
Chromatogram and Results

Injection Details

Injection Name:	**N035597-003AMS,MS,1000**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 10:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

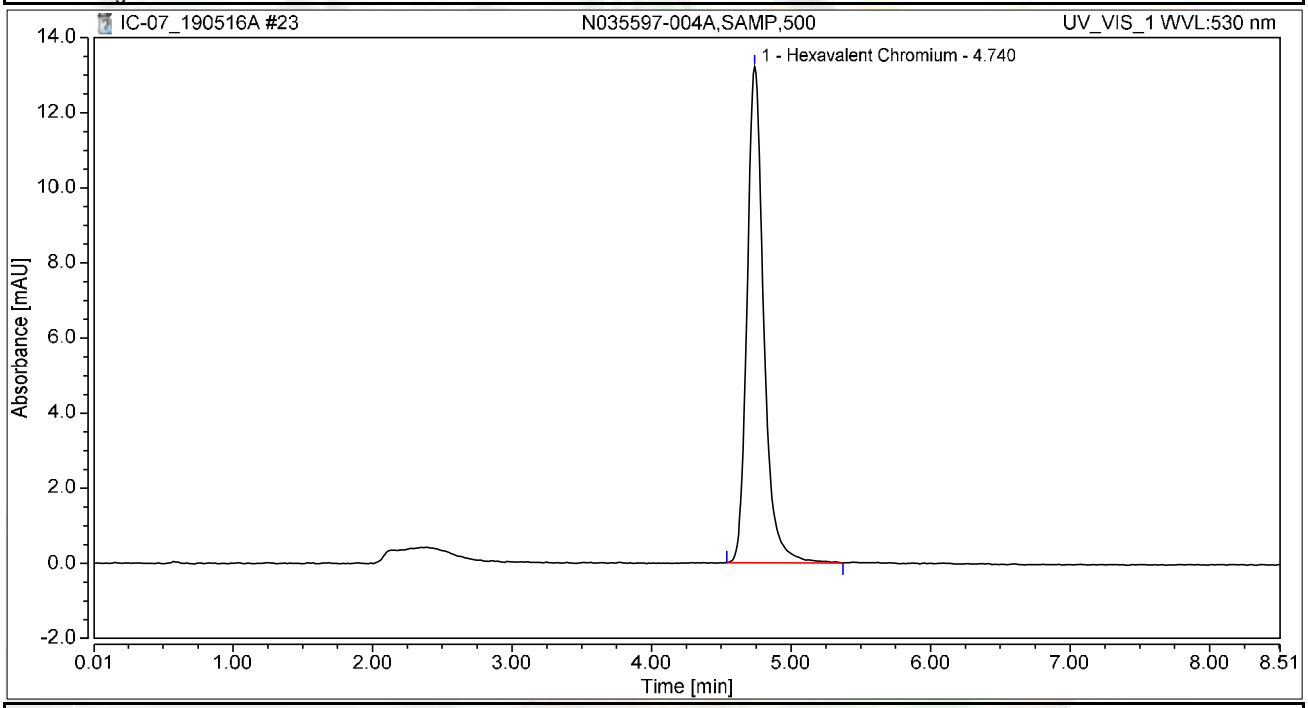
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.005	21.776	100.00	100.00	11.9173
Total:			**3.005**	**21.776**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-004A,SAMP,500**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 10:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

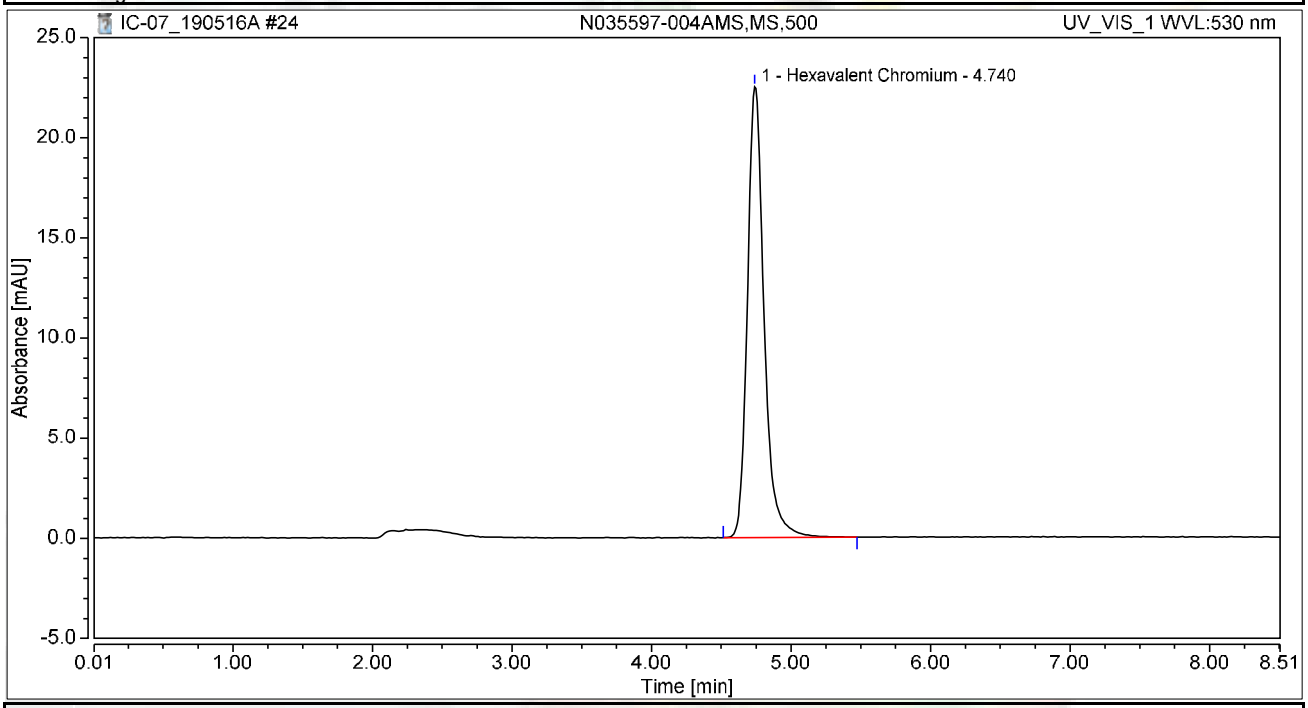
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.827	13.211	100.00	100.00	7.2456
Total:			**1.827**	**13.211**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-004AMS,MS,500**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 10:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

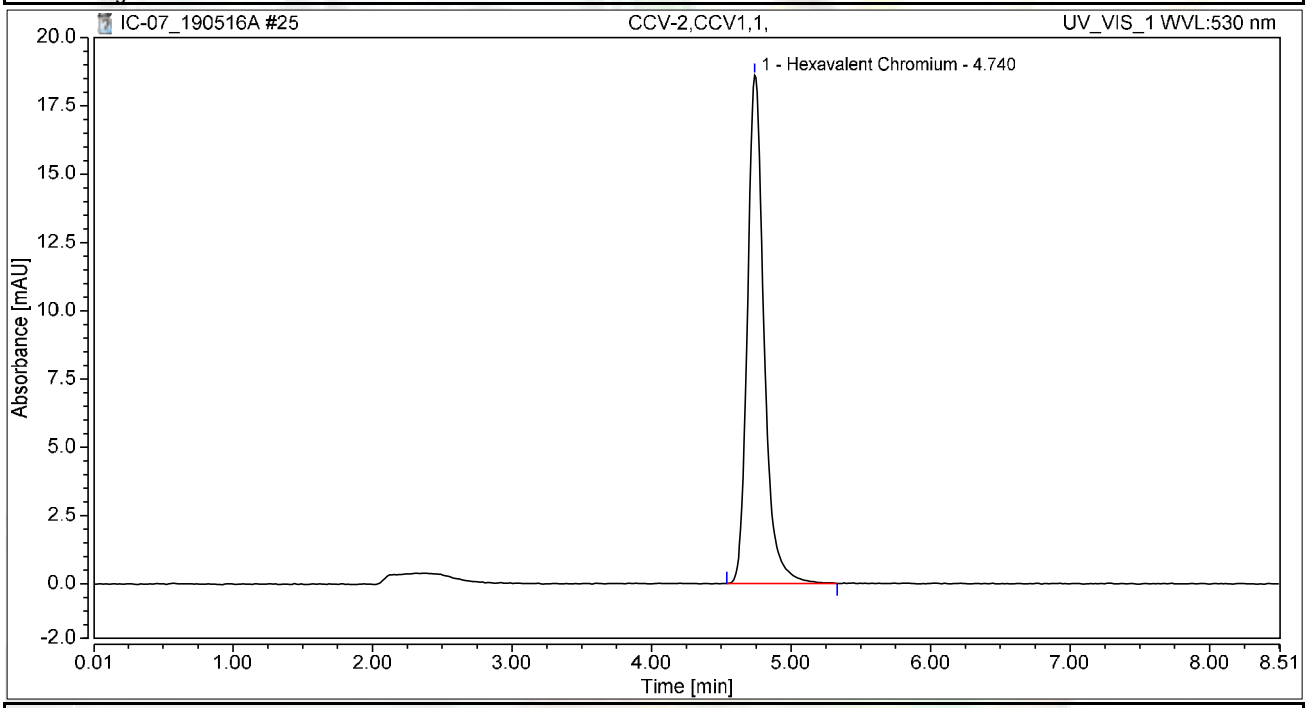
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.118	22.522	100.00	100.00	12.3654
Total:			**3.118**	**22.522**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 10:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

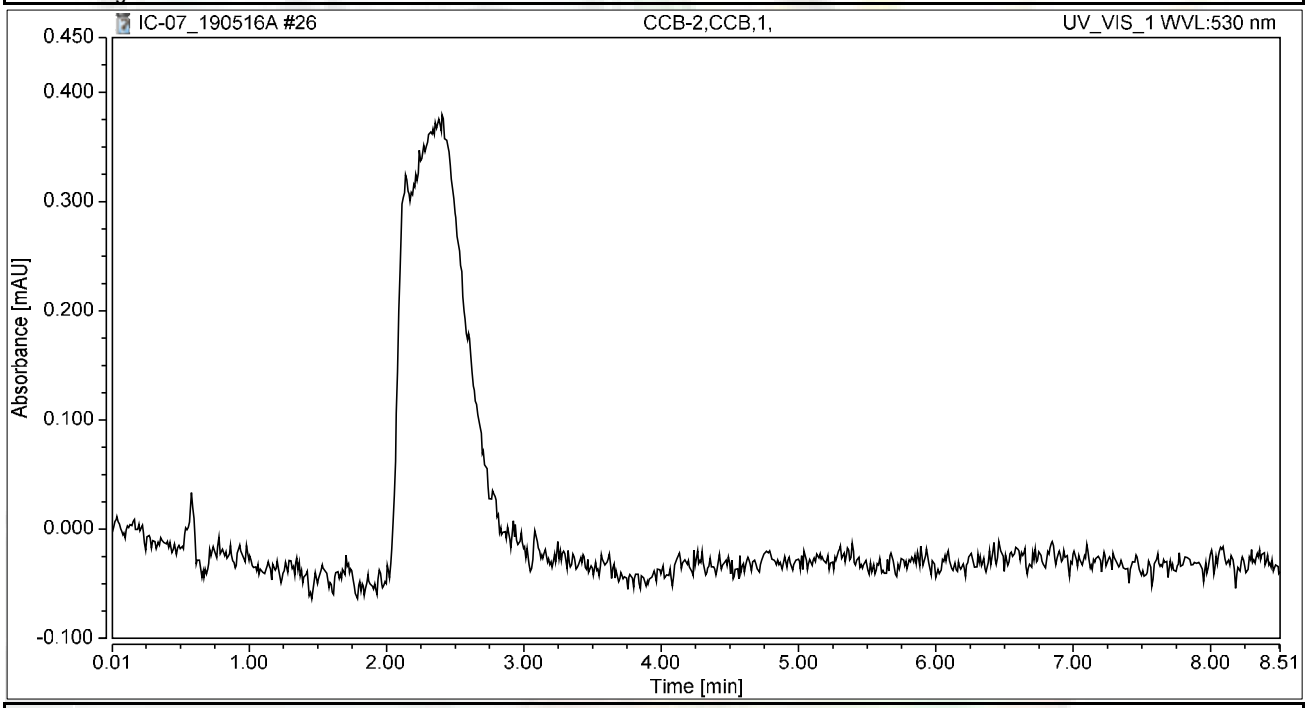
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.573	18.611	100.00	100.00	10.2045
Total:			**2.573**	**18.611**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 10:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

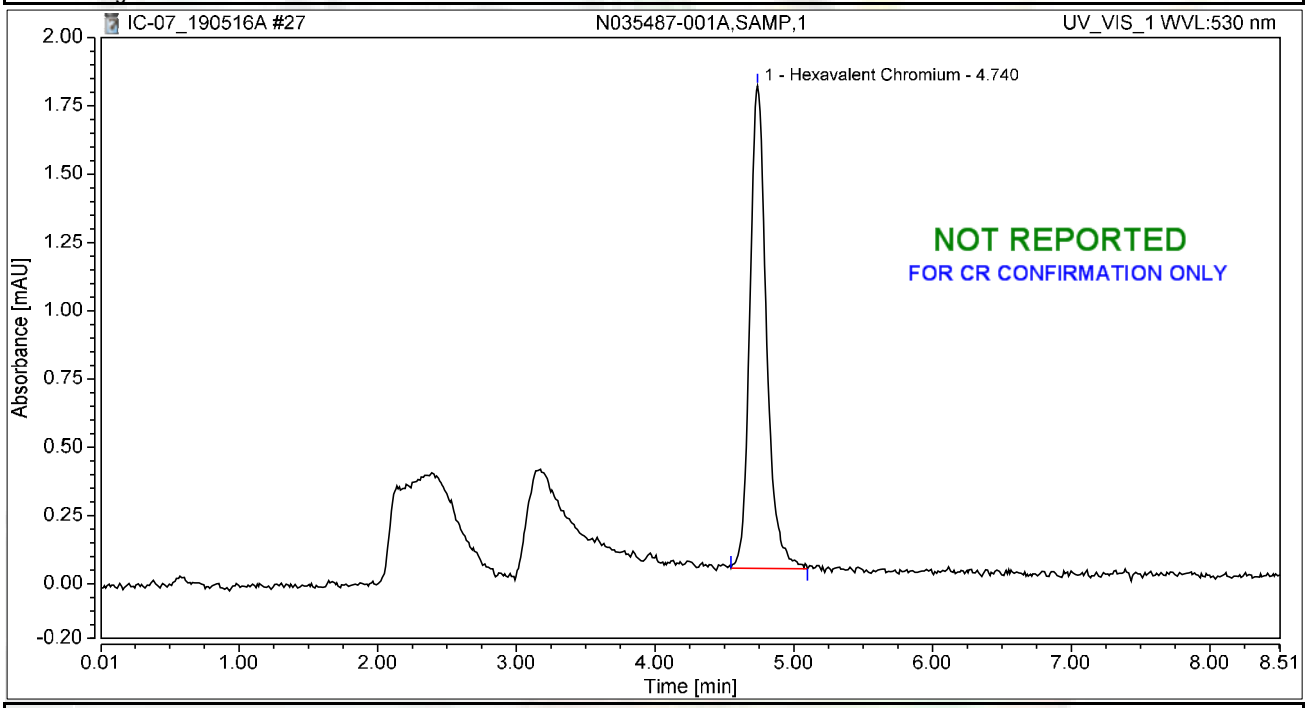
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035487-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 11:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

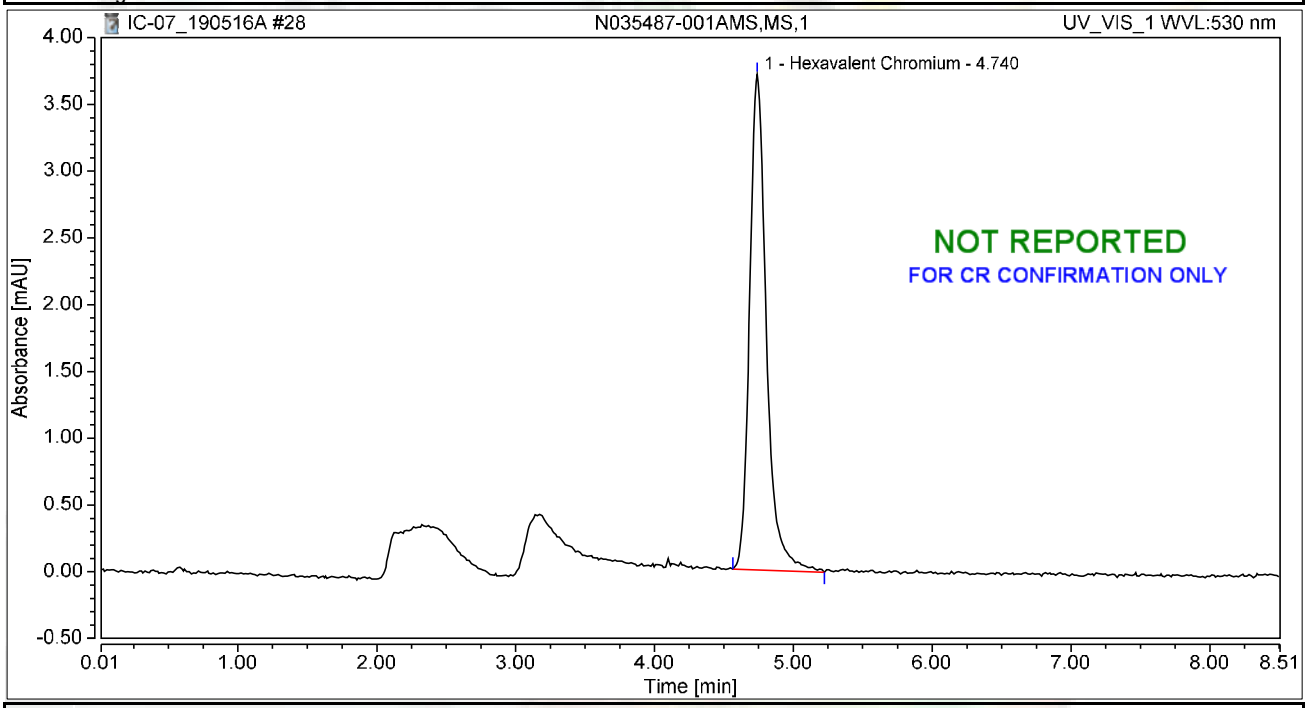
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.246	1.767	100.00	100.00	0.9746
Total:			**0.246**	**1.767**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035487-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 11:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

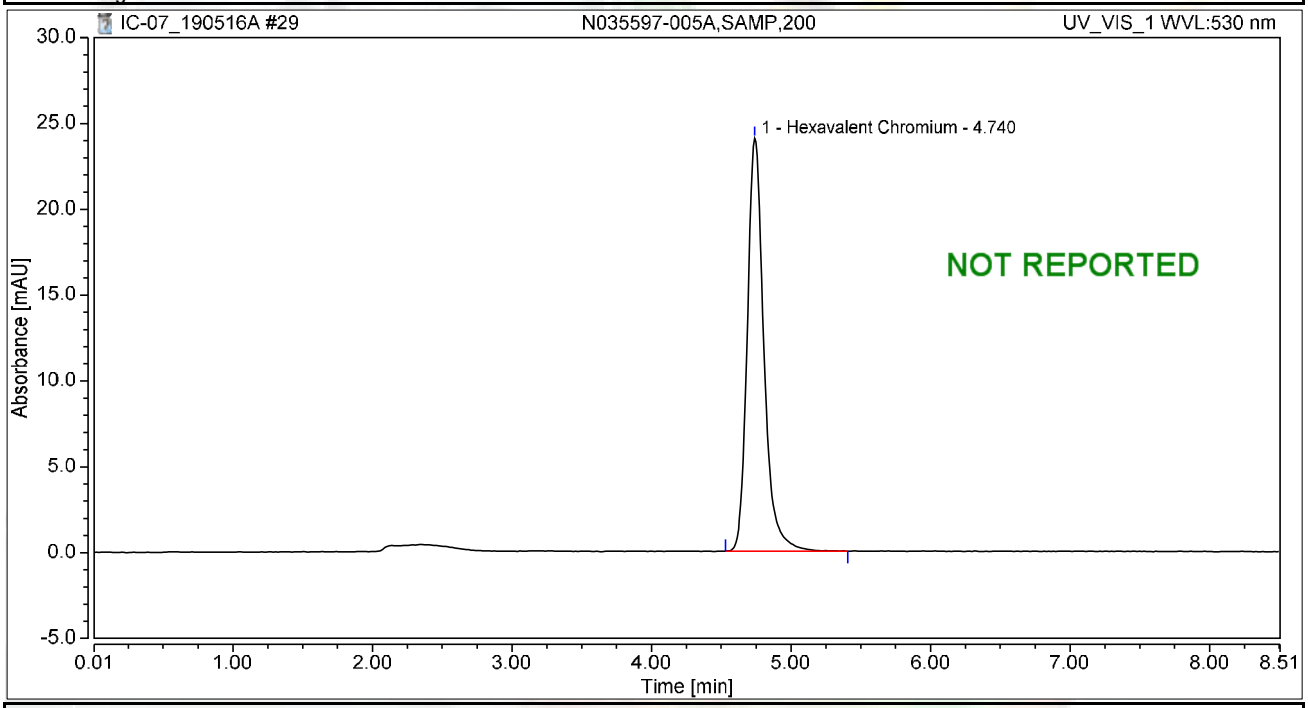
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.521	3.712	100.00	100.00	2.0665
Total:			**0.521**	**3.712**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-005A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

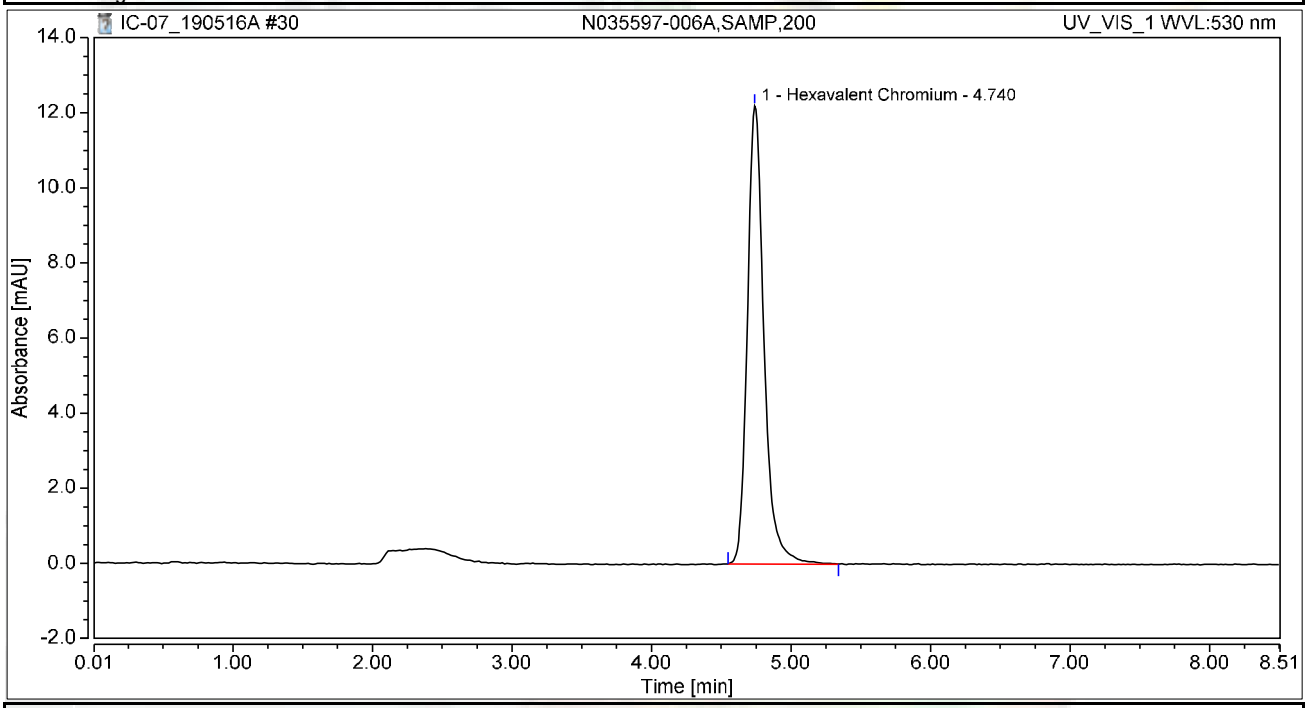
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.321	24.045	100.00	100.00	13.1707
Total:			**3.321**	**24.045**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-006A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 11:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

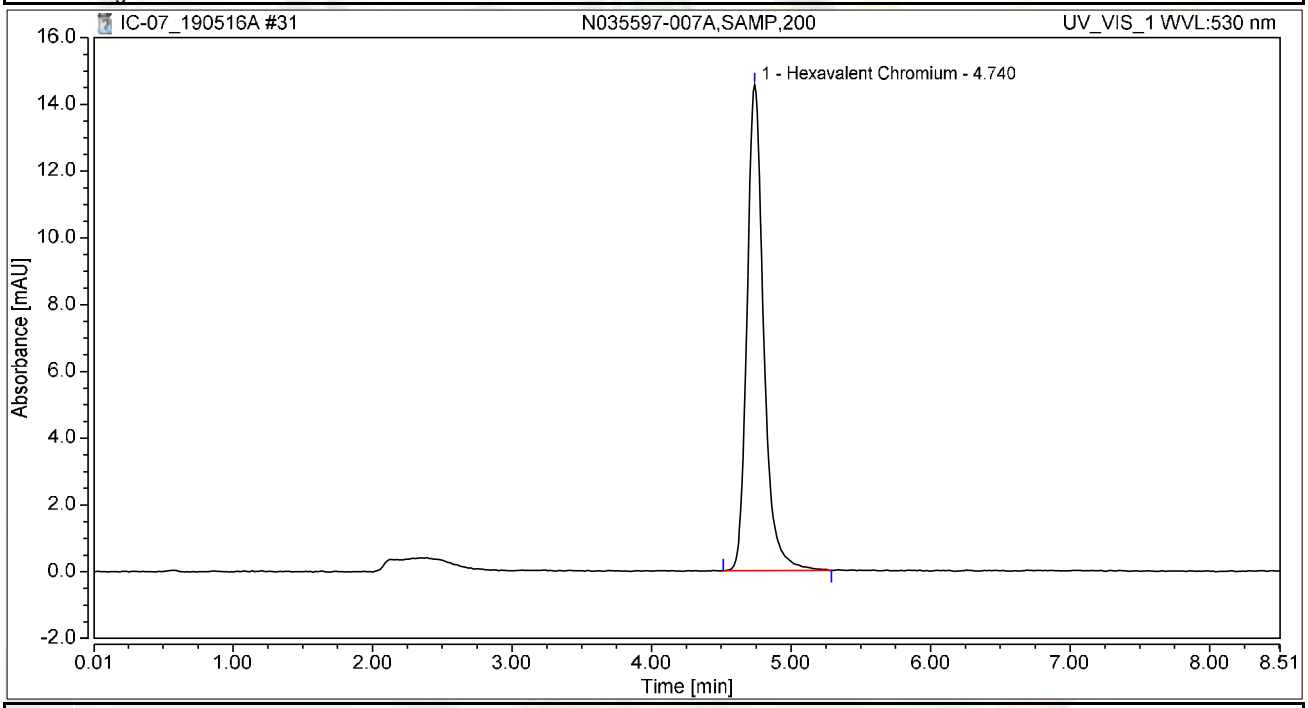
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.685	12.191	100.00	100.00	6.6851
Total:			**1.685**	**12.191**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-007A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 11:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

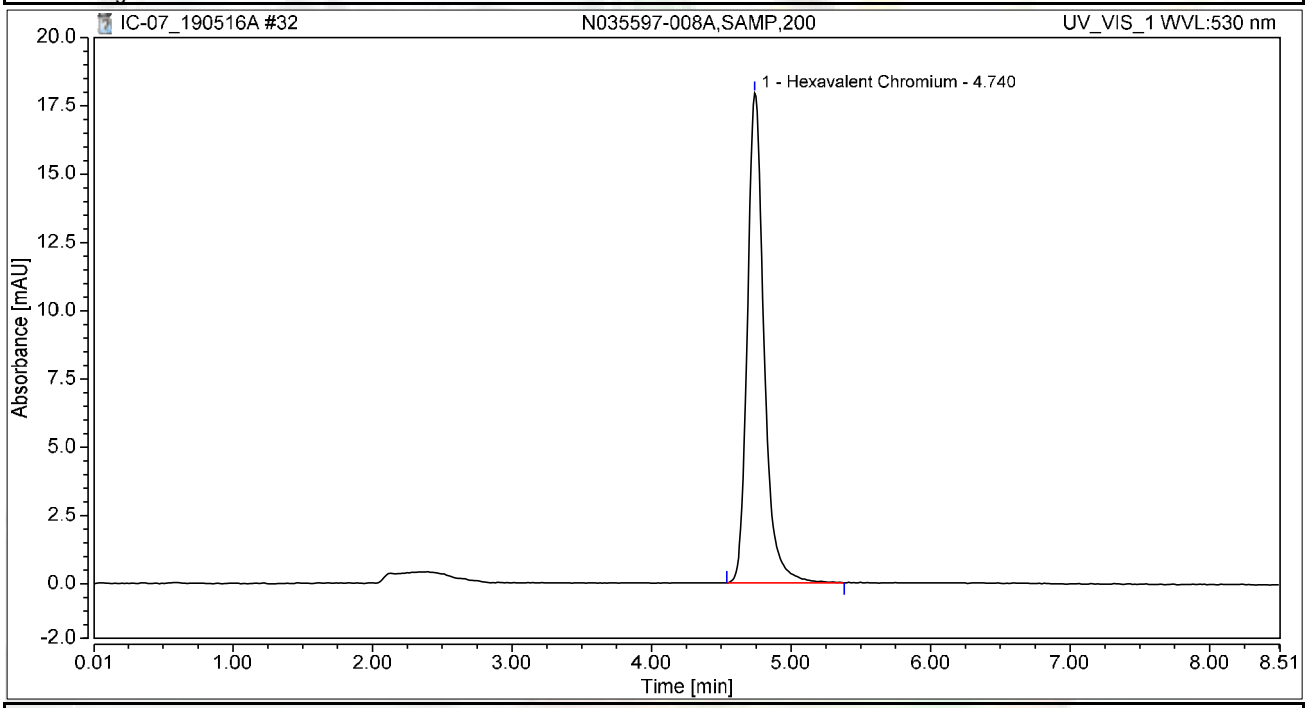
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.013	14.564	100.00	100.00	7.9851
Total:			**2.013**	**14.564**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-008A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 11:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

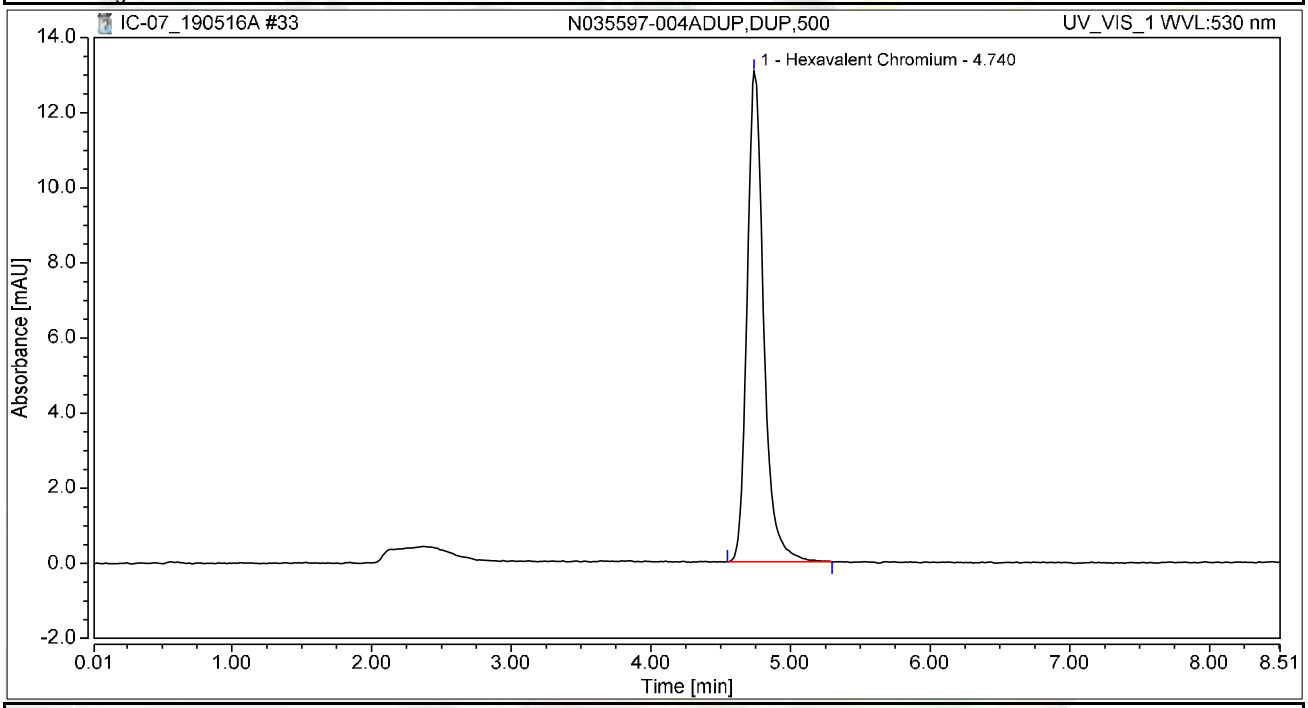
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.483	17.926	100.00	100.00	9.8502
Total:			**2.483**	**17.926**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-004ADUP,DUP,500**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 11:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

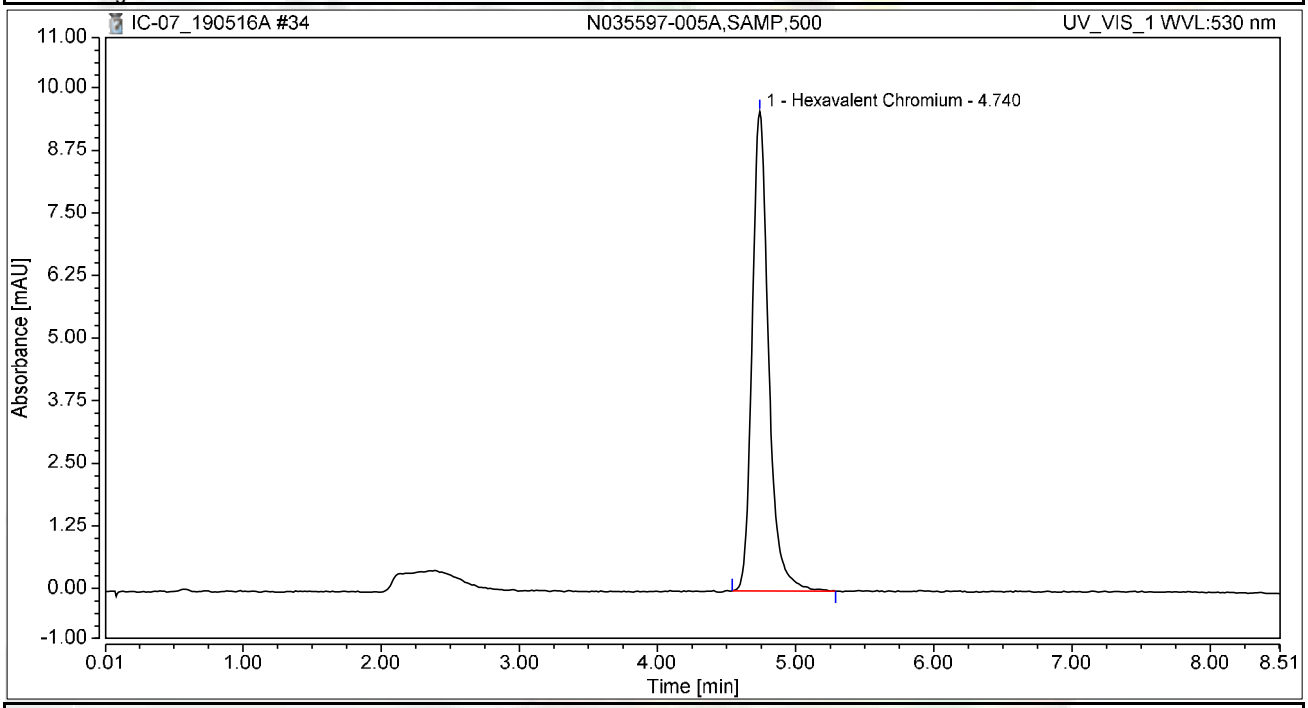
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.803	13.067	100.00	100.00	7.1508
Total:			**1.803**	**13.067**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-005A,SAMP,500**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 12:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

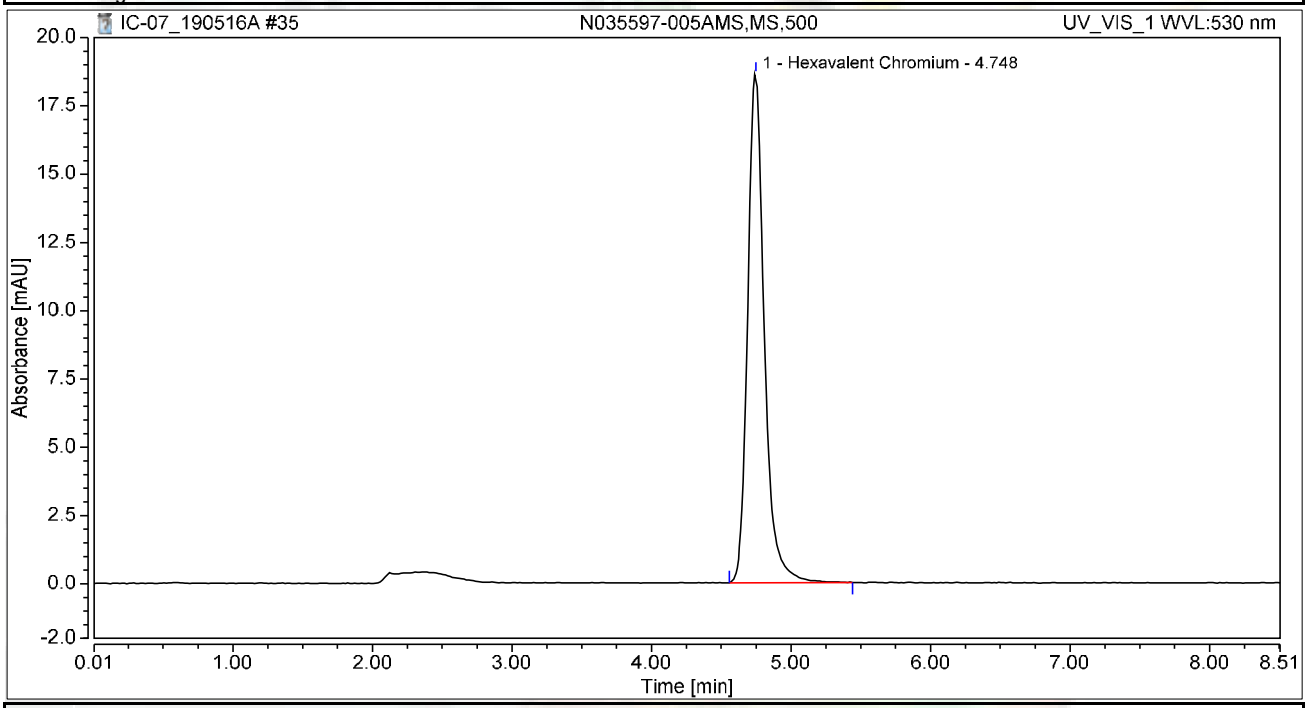
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.322	9.570	100.00	100.00	5.2427
Total:			**1.322**	**9.570**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-005AMS,MS,500**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 12:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

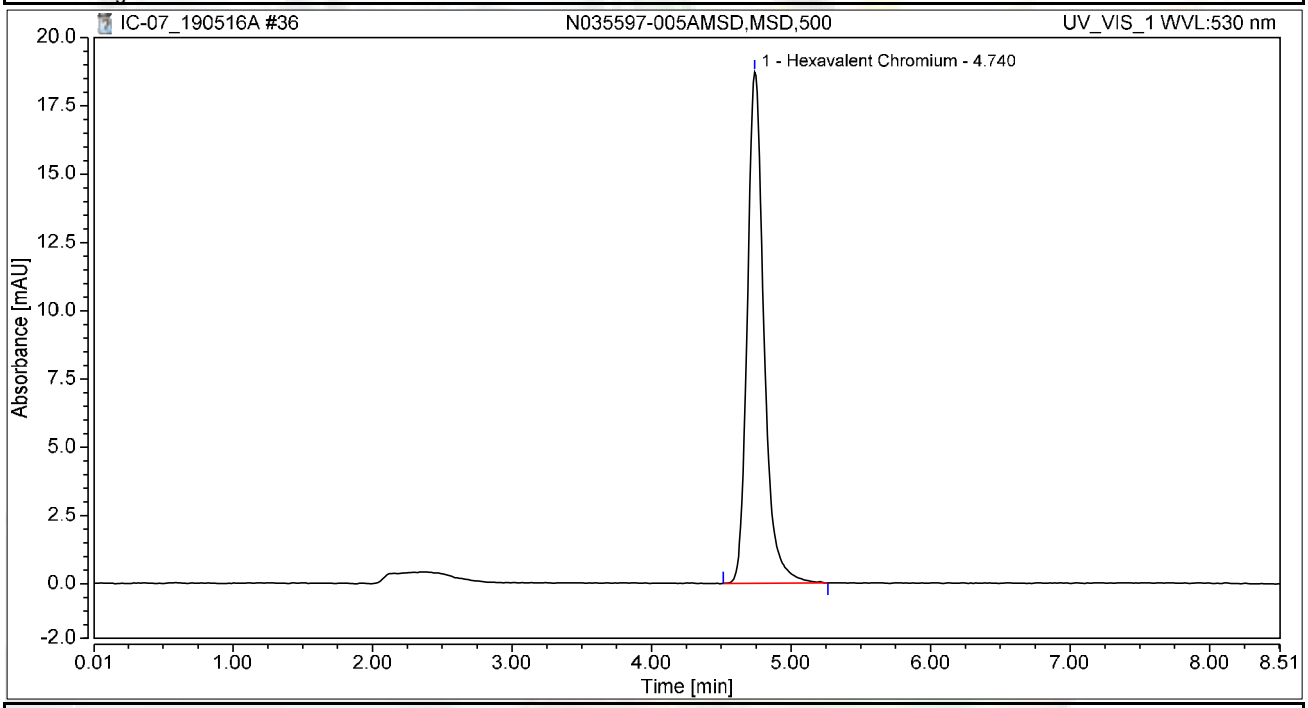
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	2.583	18.621	100.00	100.00	10.2468
Total:			**2.583**	**18.621**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-005AMSD,MSD,500**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 12:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

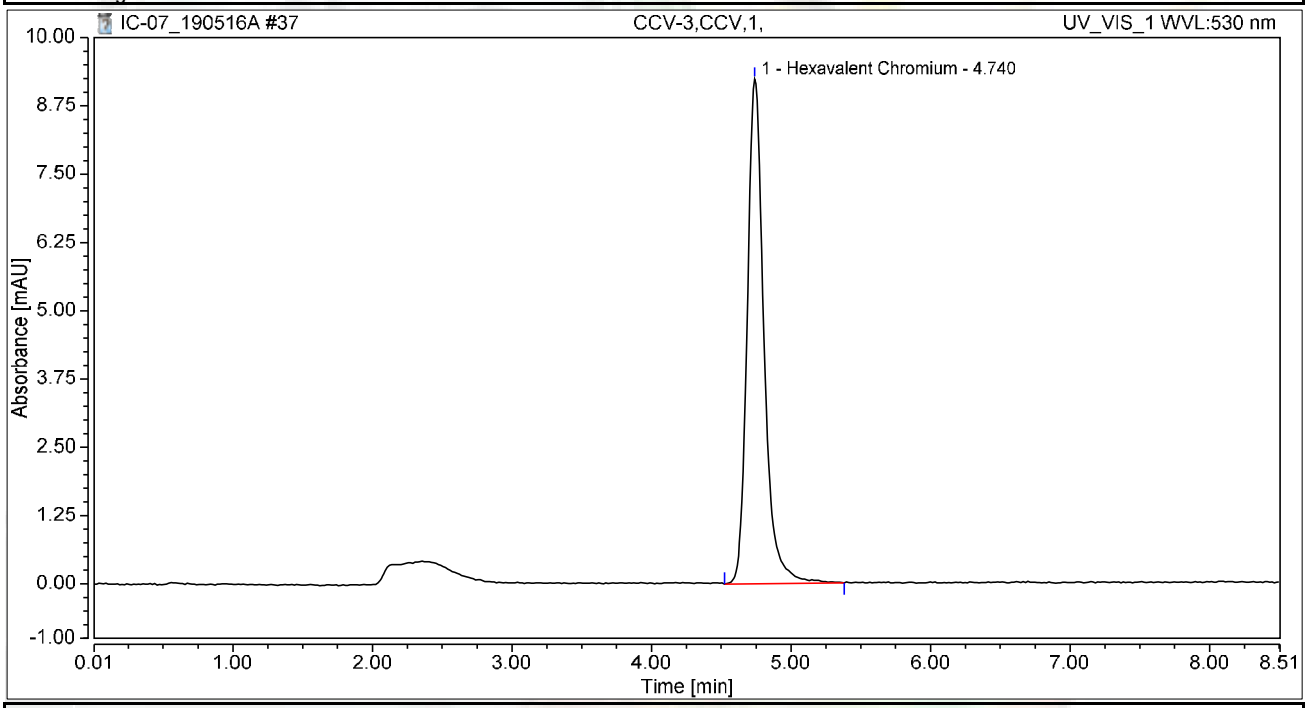
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.592	18.727	100.00	100.00	10.2808
Total:			**2.592**	**18.727**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 12:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

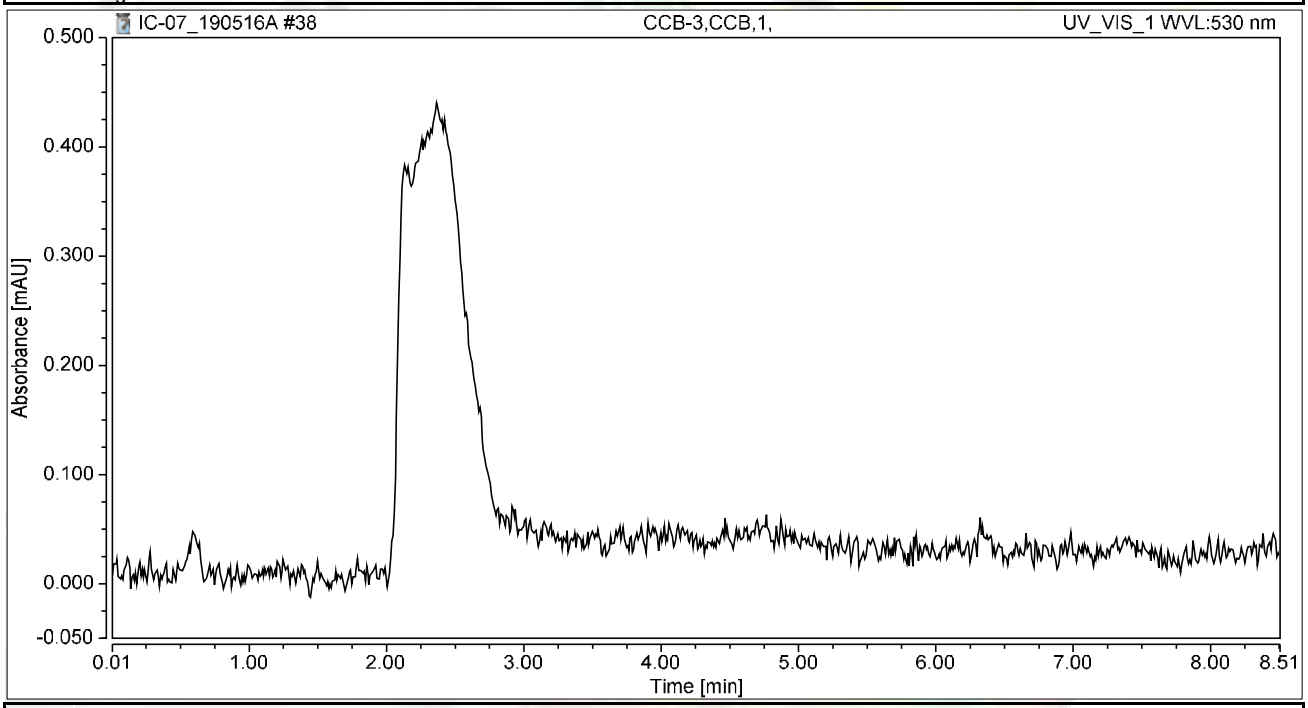
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.288	9.237	100.00	100.00	5.1075
Total:			**1.288**	**9.237**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 12:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

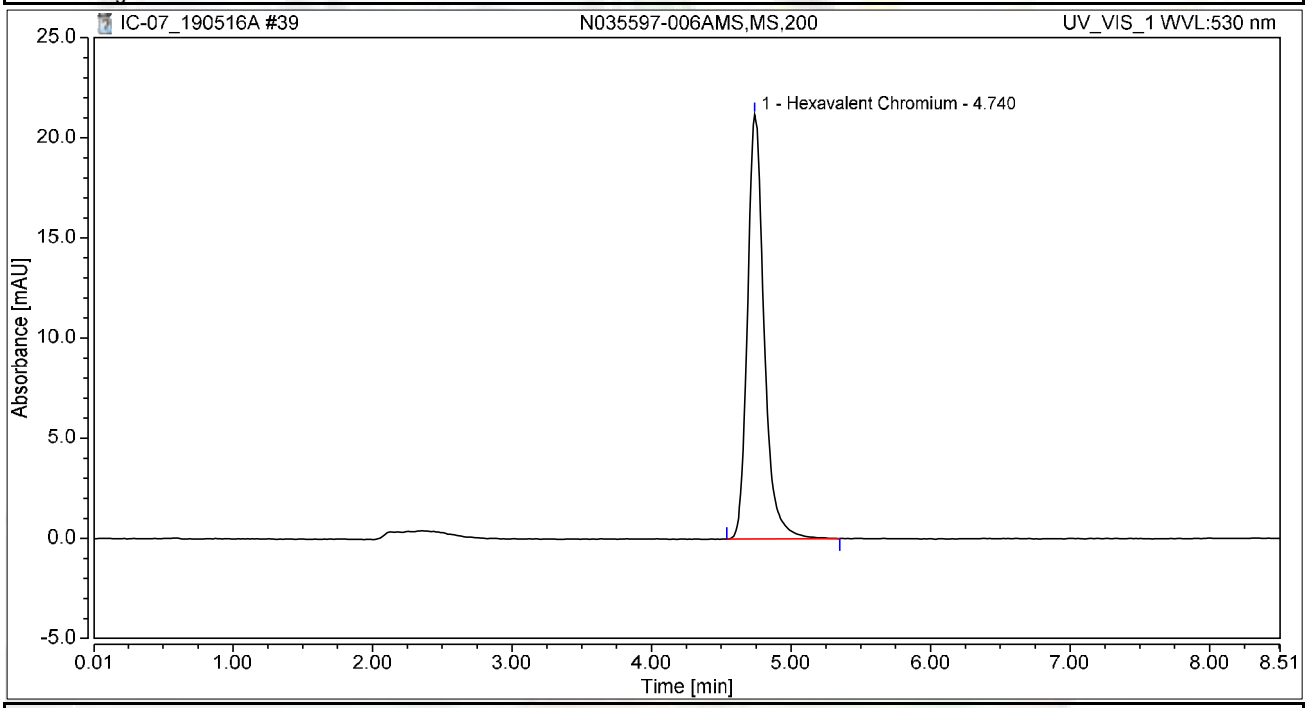
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-006AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 12:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

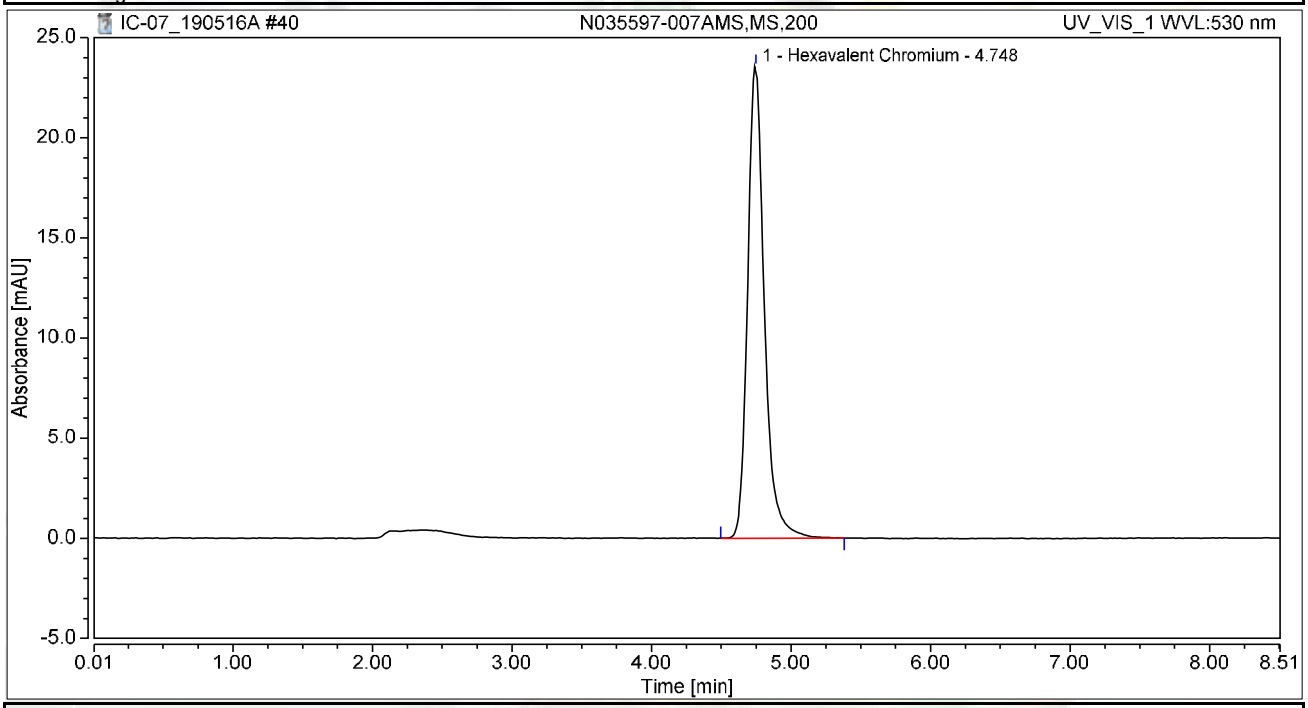
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.937	21.195	100.00	100.00	11.6486
Total:			**2.937**	**21.195**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-007AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 13:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

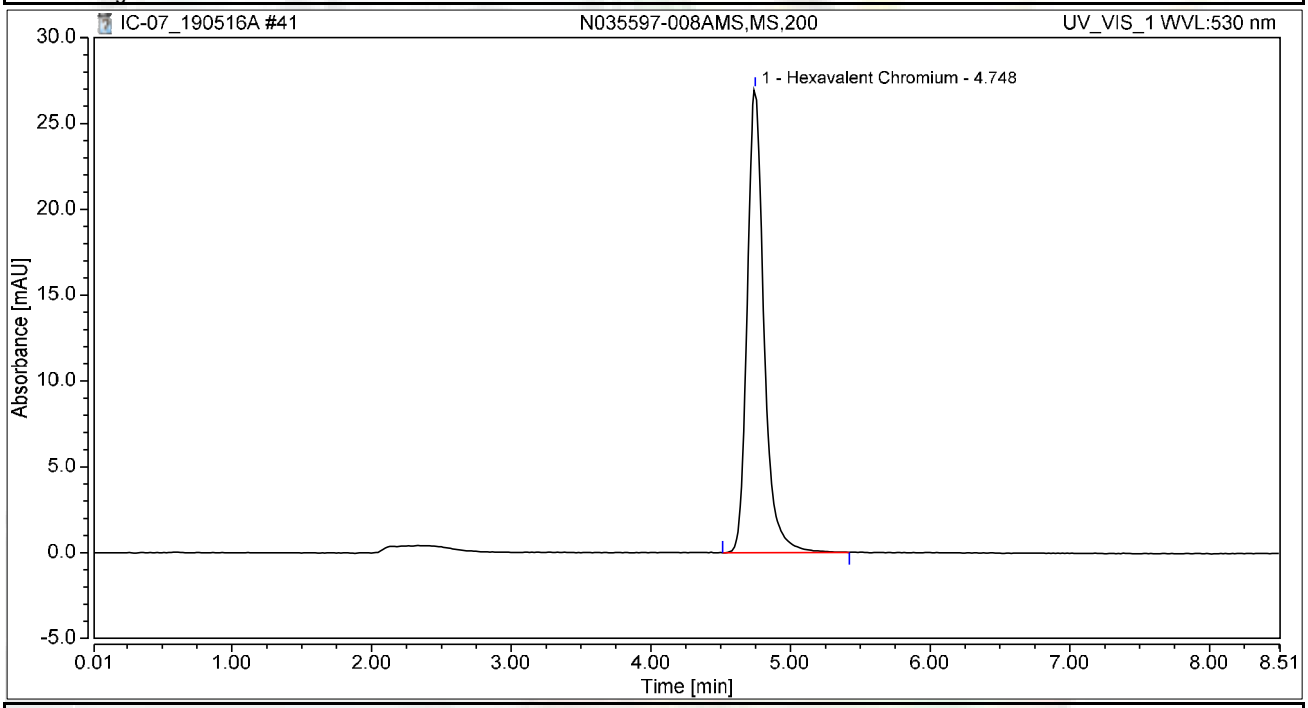
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	3.280	23.563	100.00	100.00	13.0092
Total:			**3.280**	**23.563**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-008AMS,MS,200**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 13:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

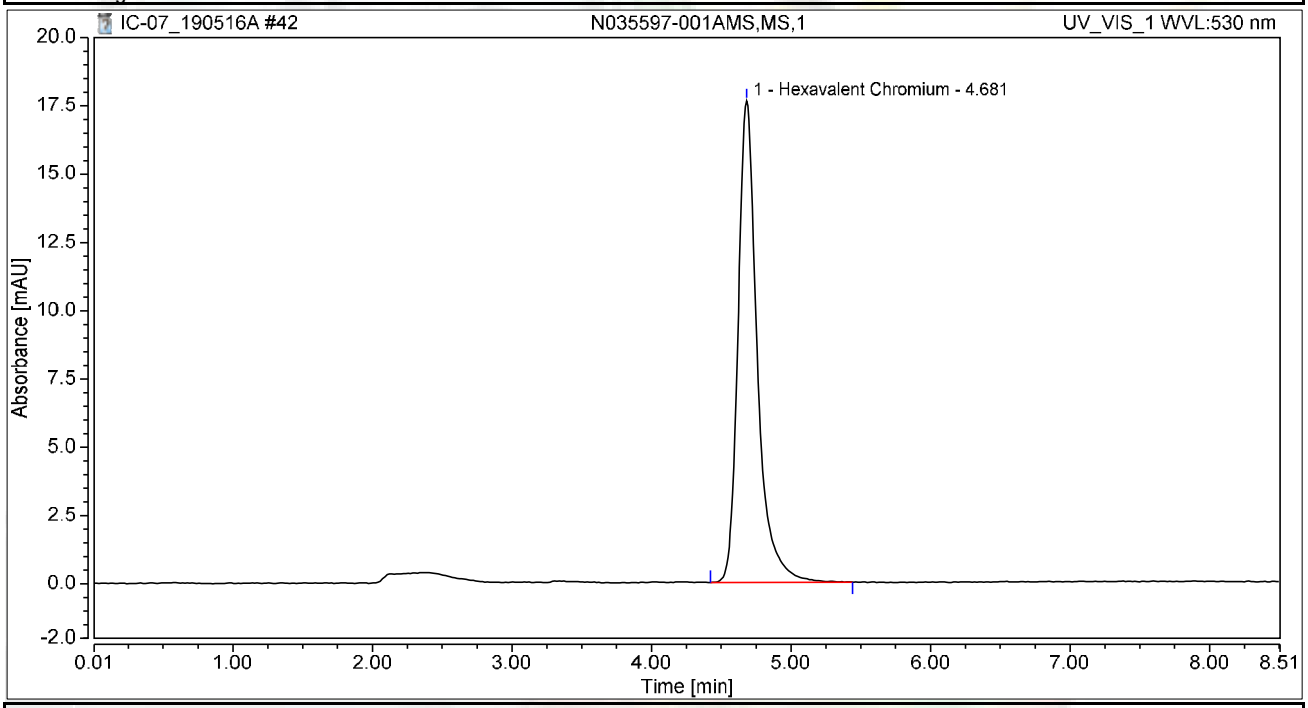
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	3.760	27.000	100.00	100.00	14.9143
Total:			**3.760**	**27.000**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 13:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

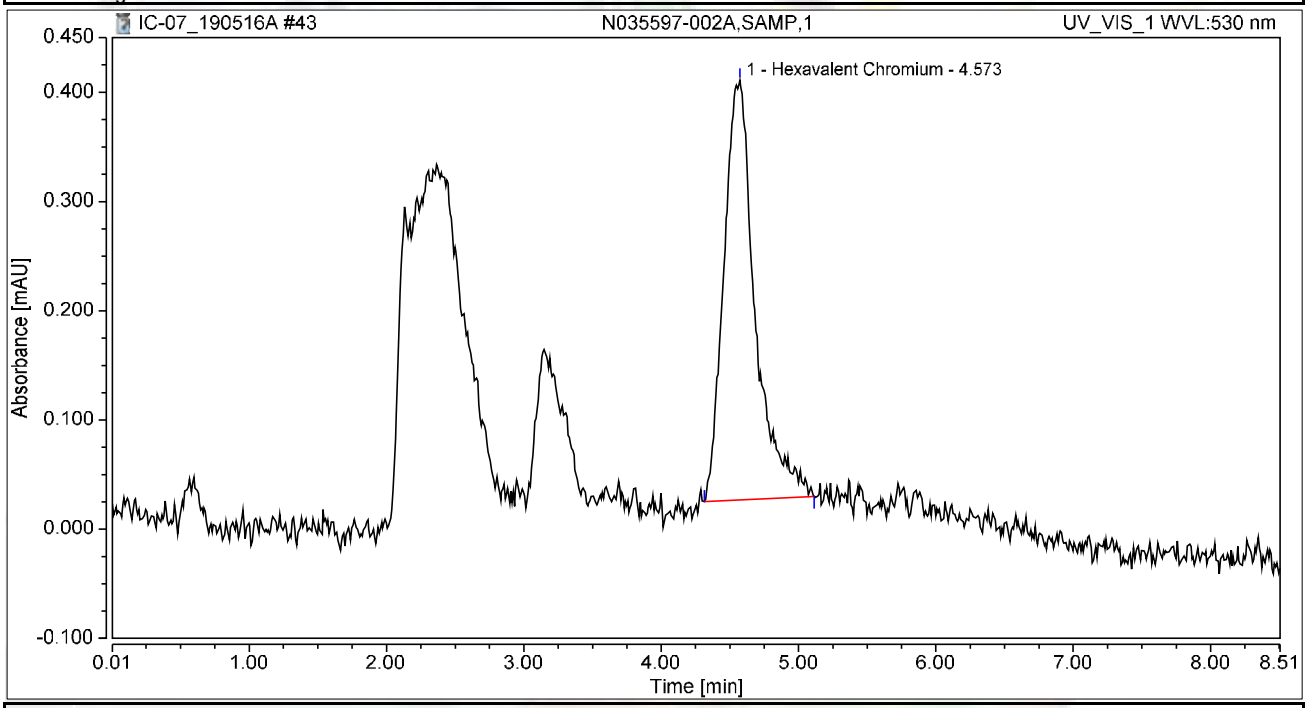
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	2.818	17.631	100.00	100.00	11.1773
Total:			**2.818**	**17.631**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 13:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

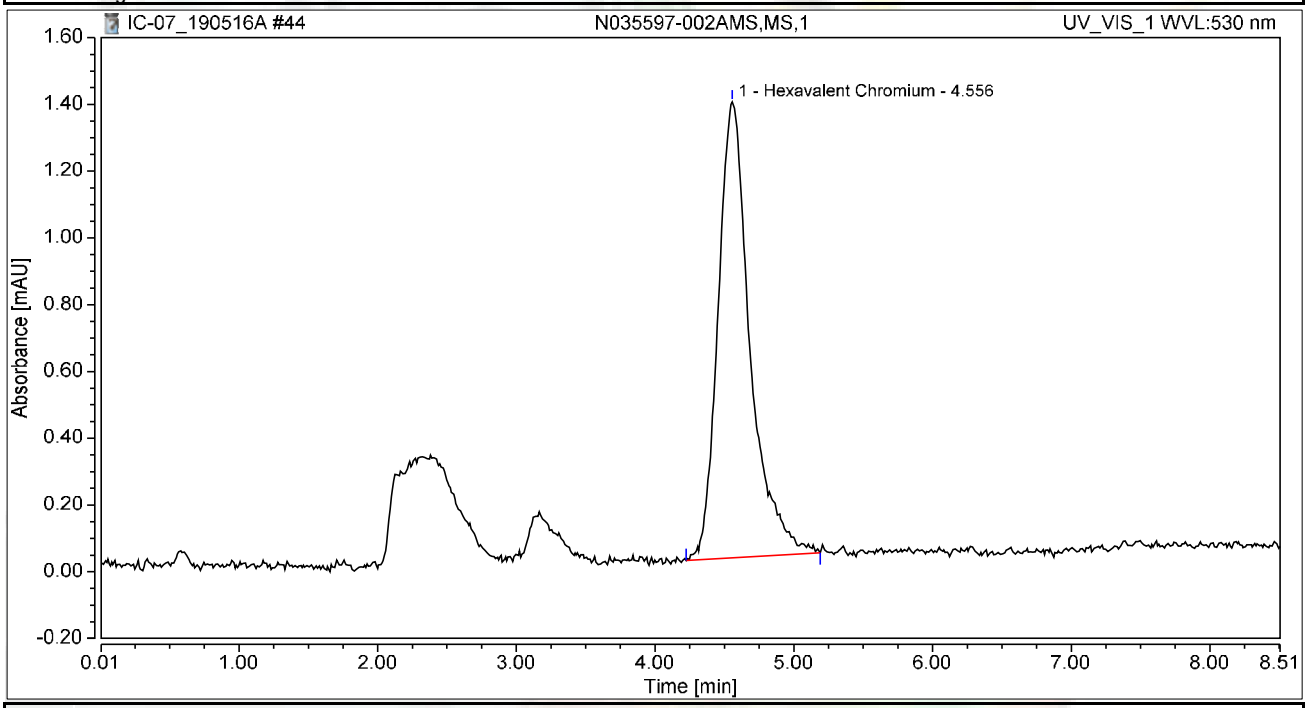
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.573	0.101	0.384	100.00	100.00	0.4012
Total:			**0.101**	**0.384**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 13:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

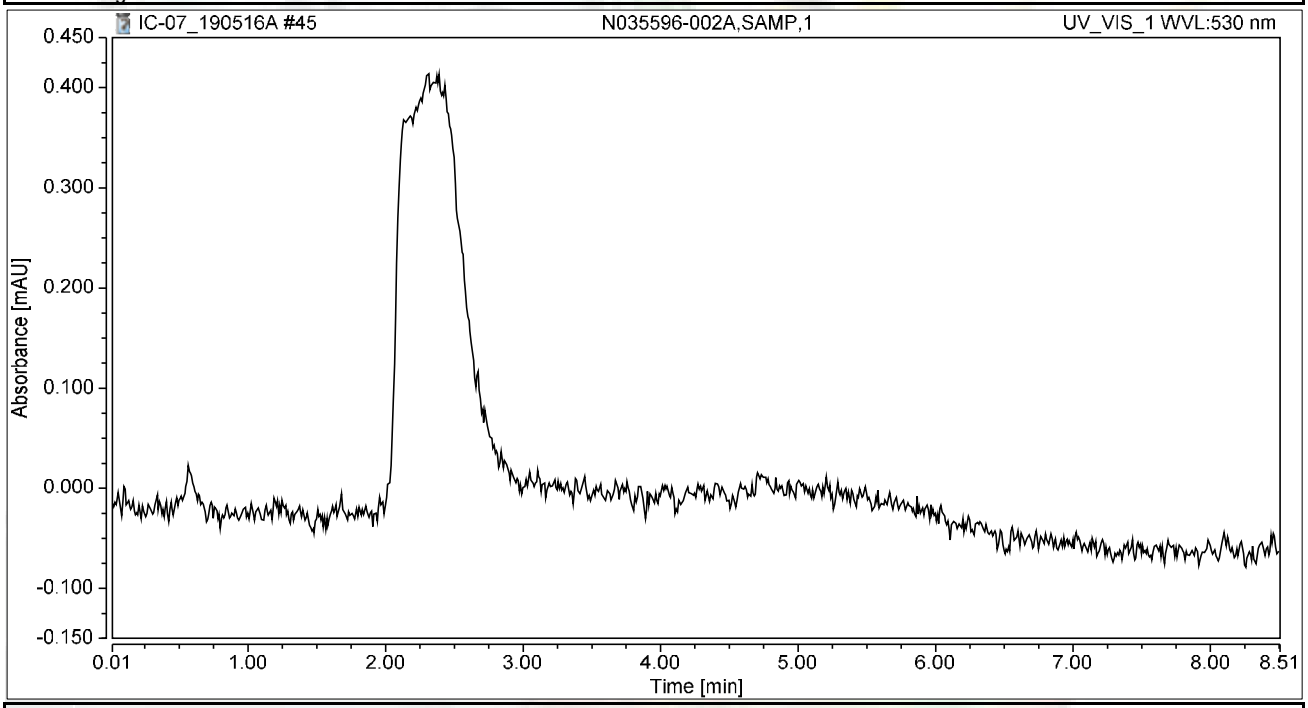
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	0.366	1.366	100.00	100.00	1.4506
Total:			**0.366**	**1.366**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035596-002A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 13:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

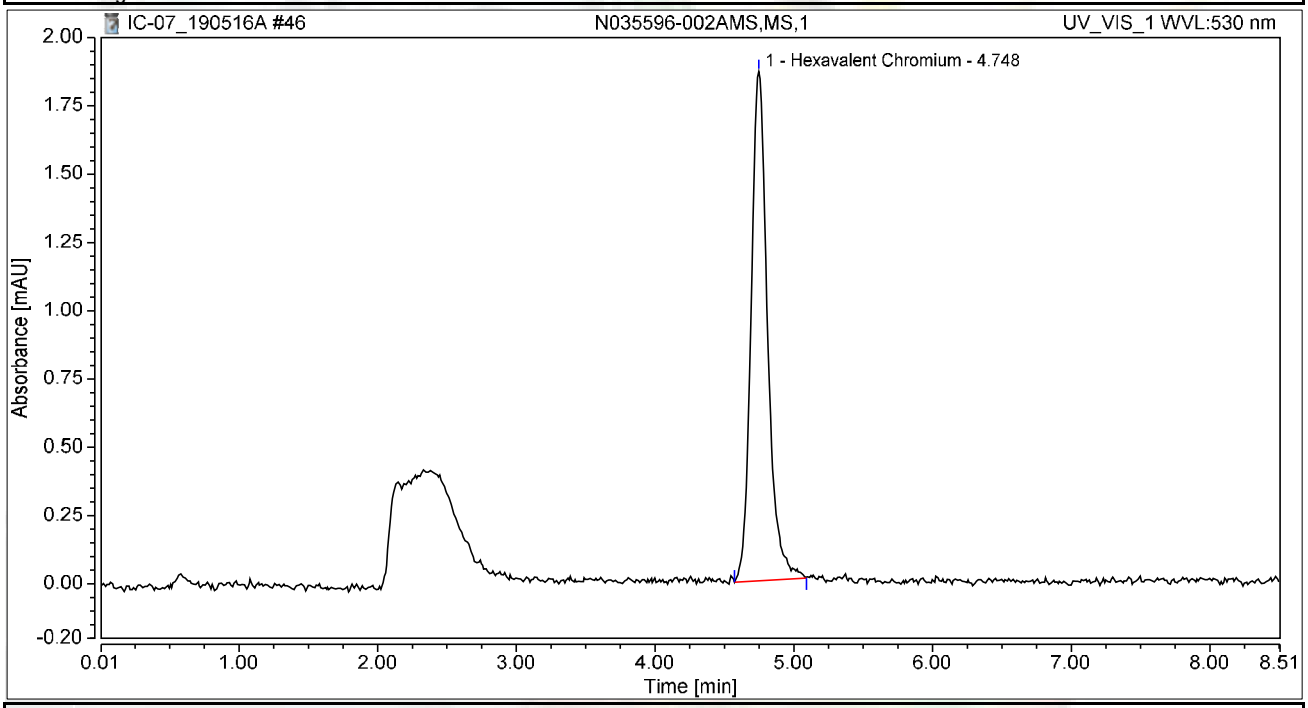
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035596-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 14:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

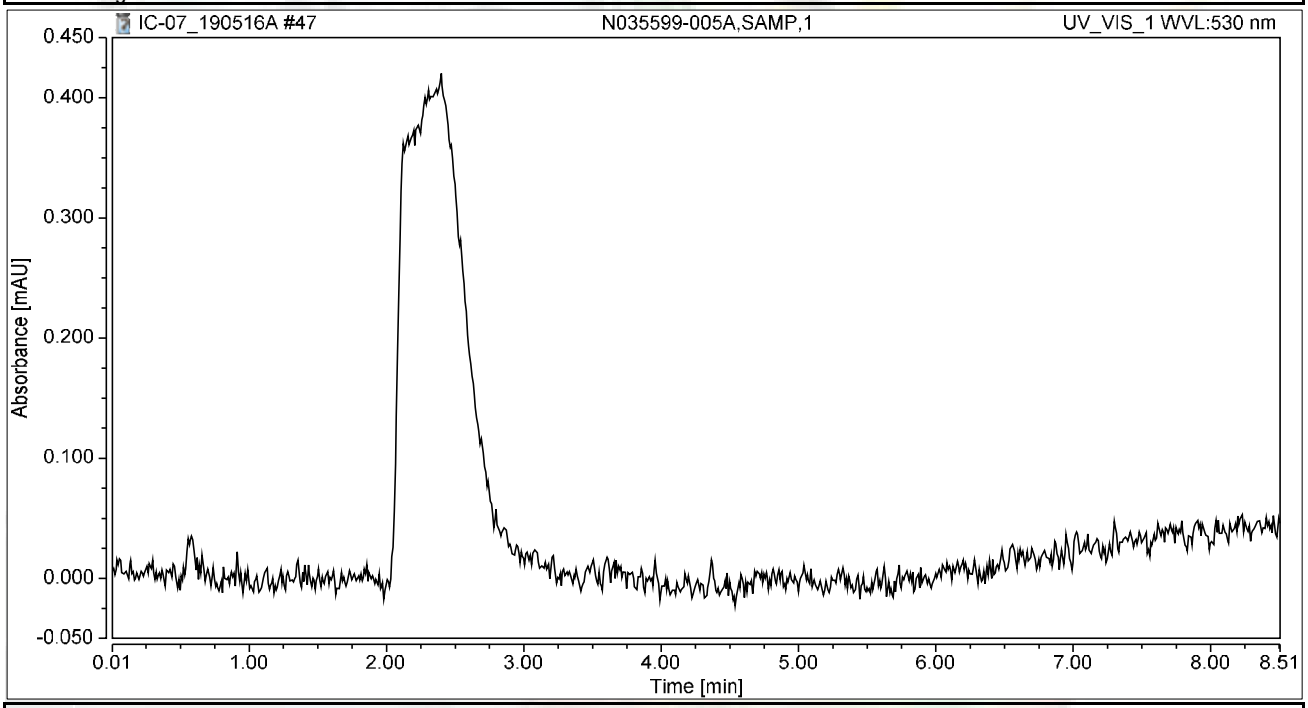
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.256	1.864	100.00	100.00	1.0167
Total:			**0.256**	**1.864**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 14:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

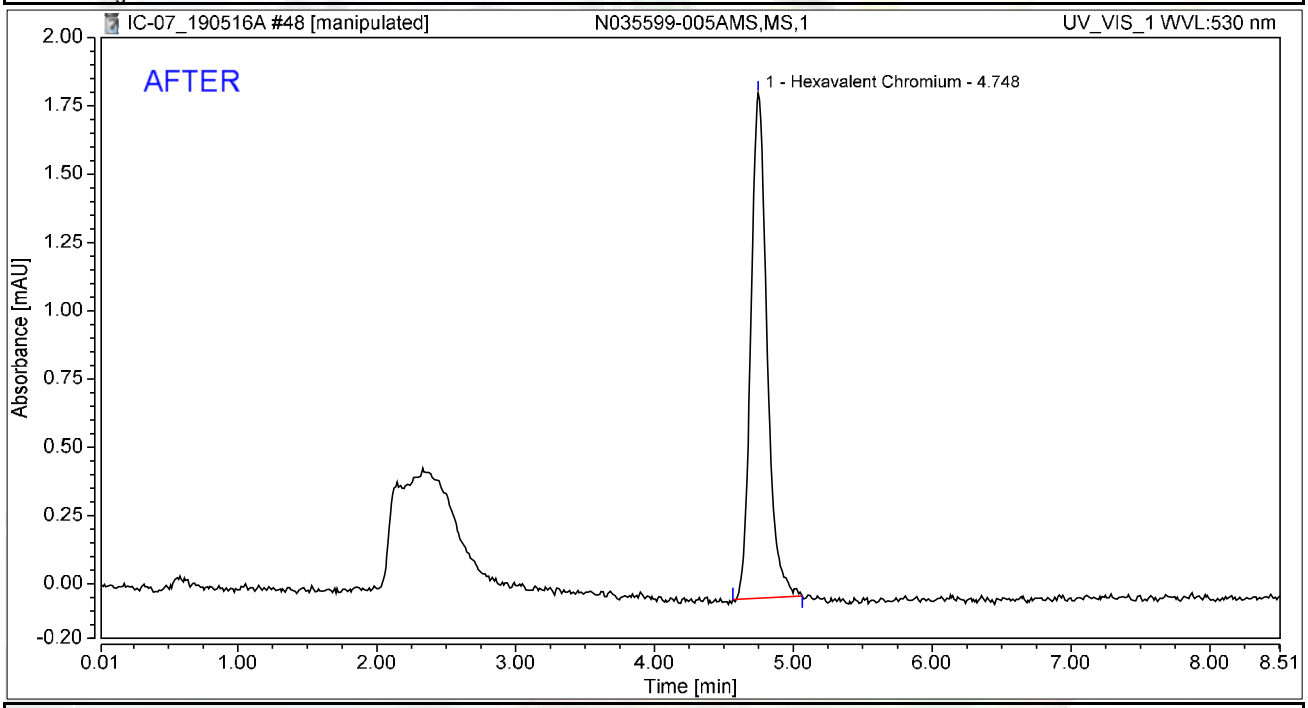
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 14:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.250	1.850	100.00	100.00	0.9915
Total:			**0.250**	**1.850**	**100.00**	**100.00**	

rba 5/27/2019

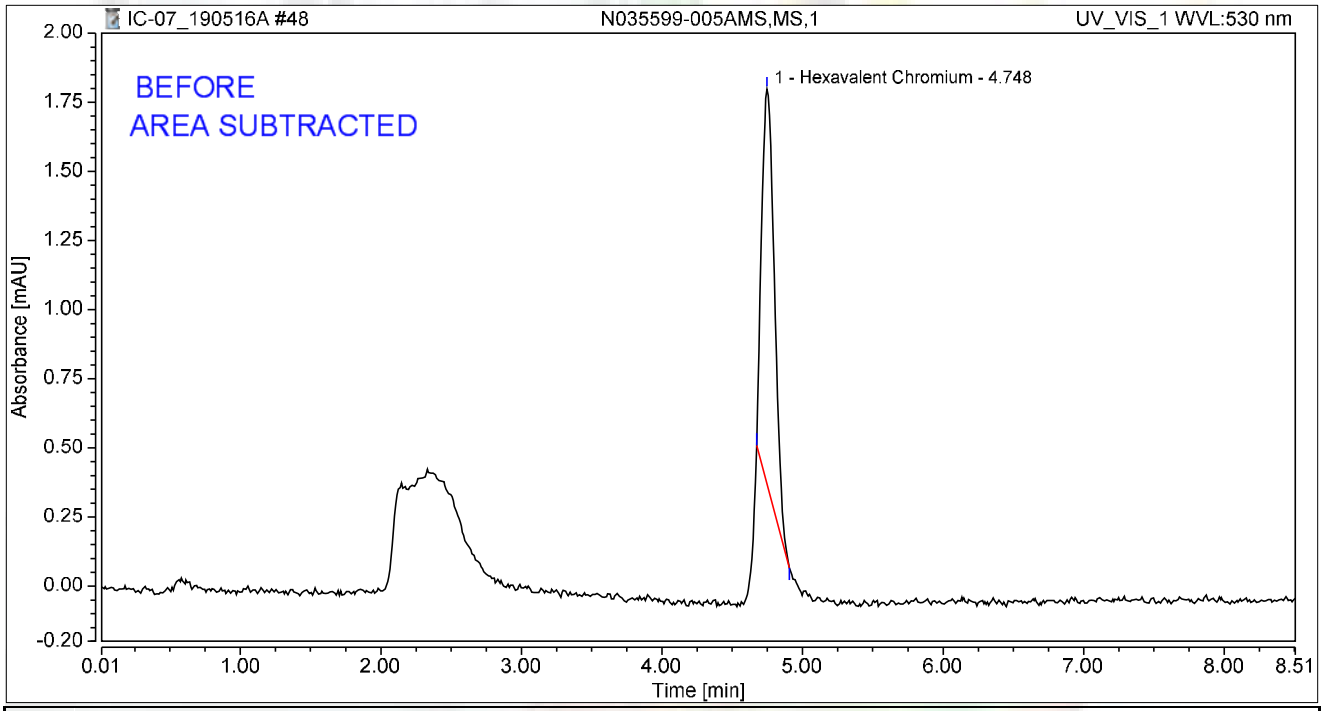
Reviewed by:
Nancy 5/30/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035599-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 14:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.150	1.431	100.00	100.00	0.5965
Total:			**0.150**	**1.431**	**100.00**	**100.00**	

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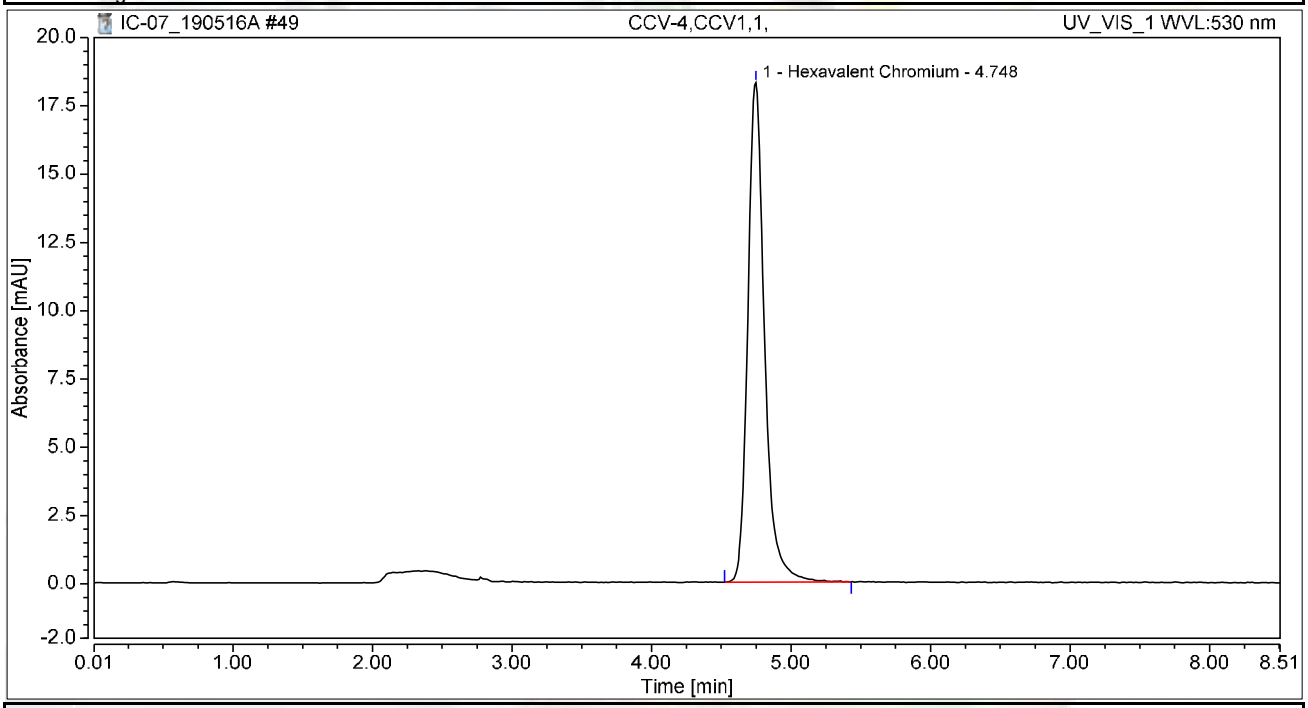
Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 14:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

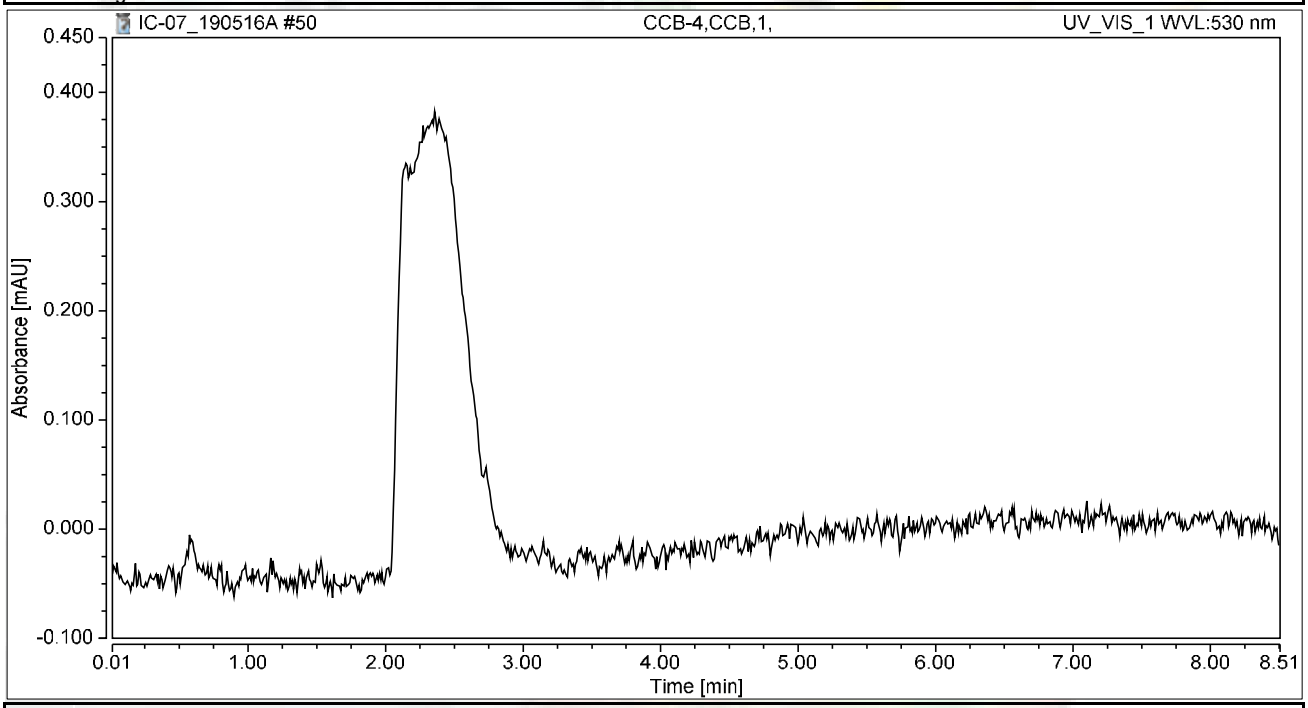
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	2.546	18.278	100.00	100.00	10.0977
Total:			**2.546**	**18.278**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 14:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

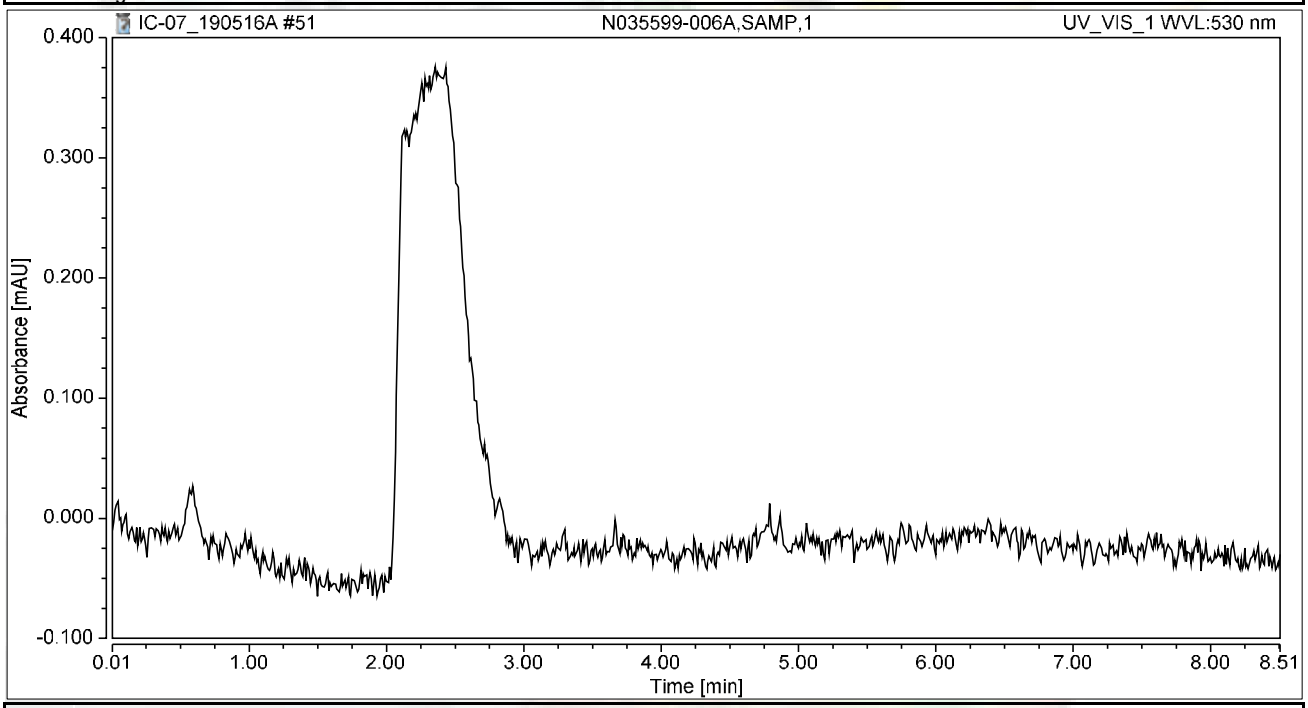
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 15:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

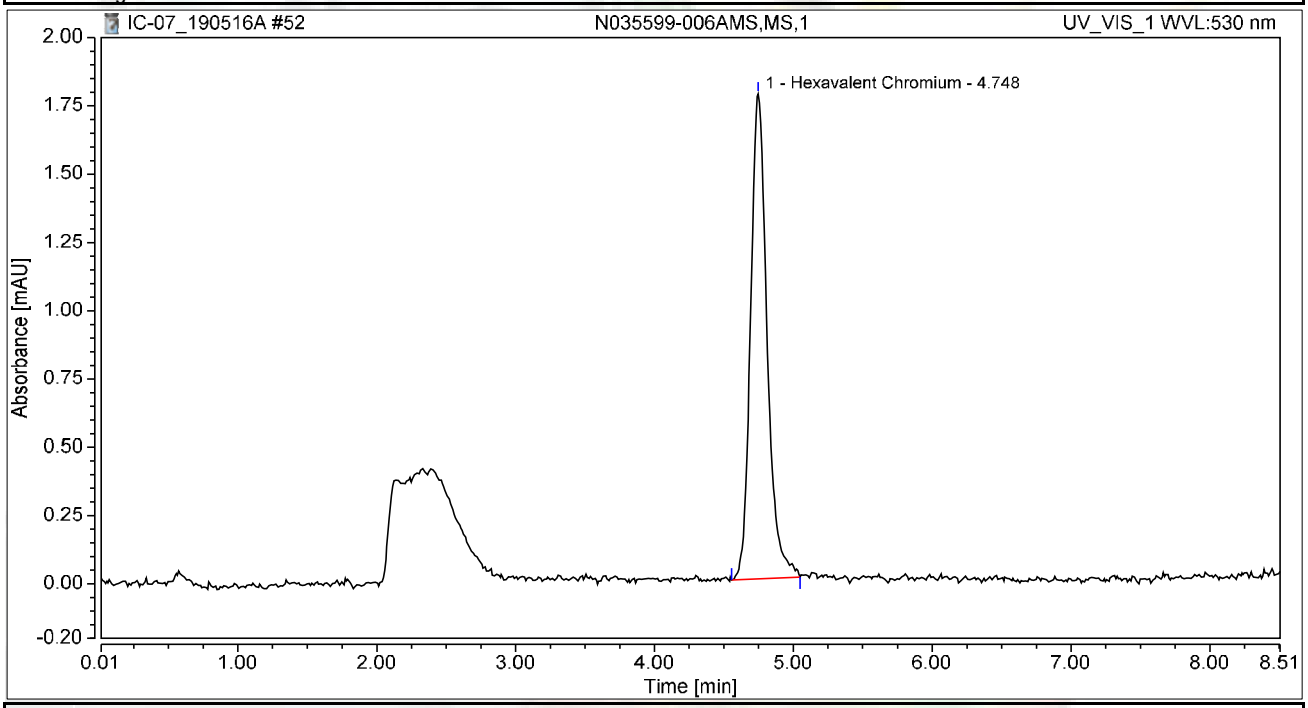
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-006AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 15:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

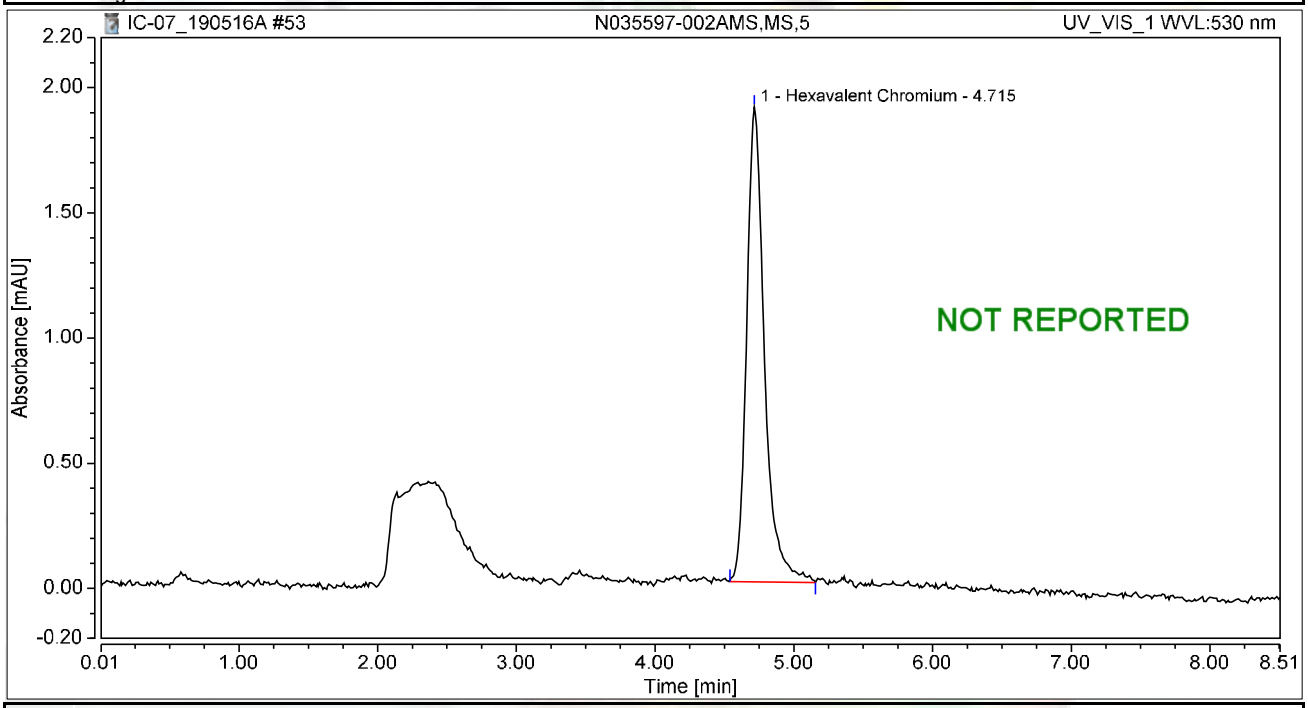
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.245	1.775	100.00	100.00	0.9729
Total:			**0.245**	**1.775**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035597-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 15:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

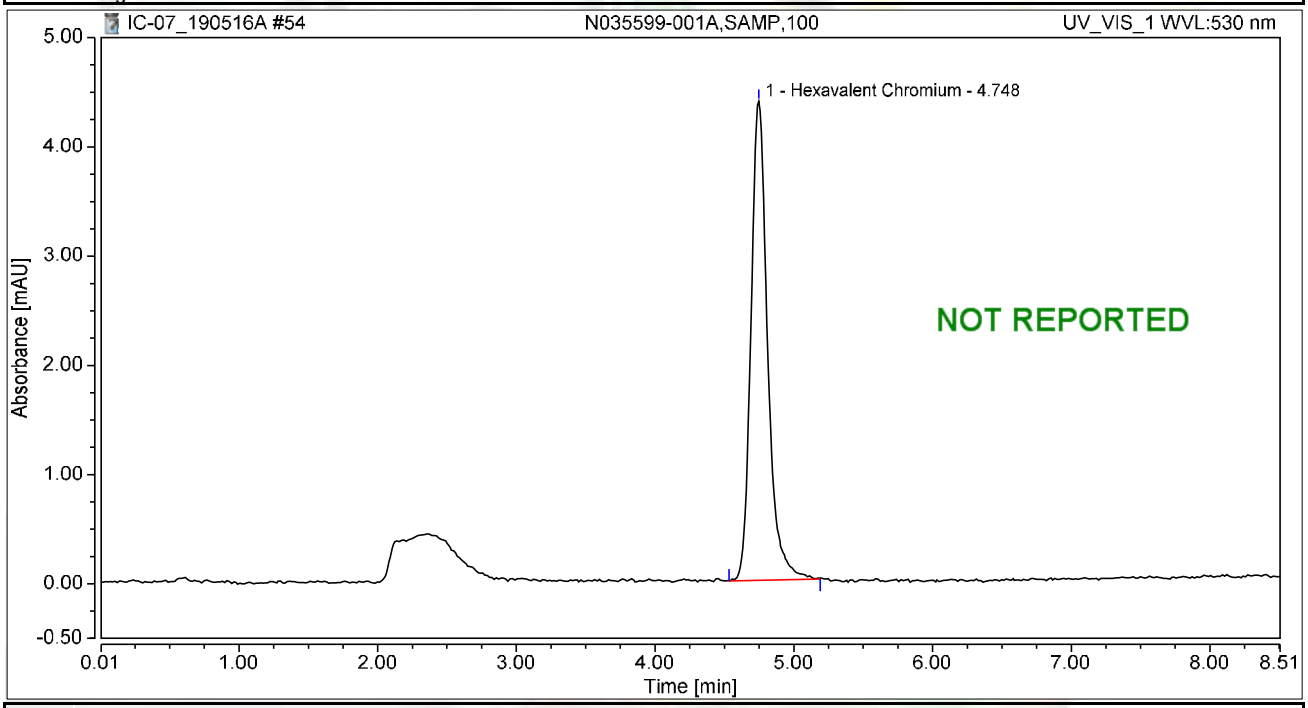
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.282	1.896	100.00	100.00	1.1181
Total:			**0.282**	**1.896**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-001A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 15:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

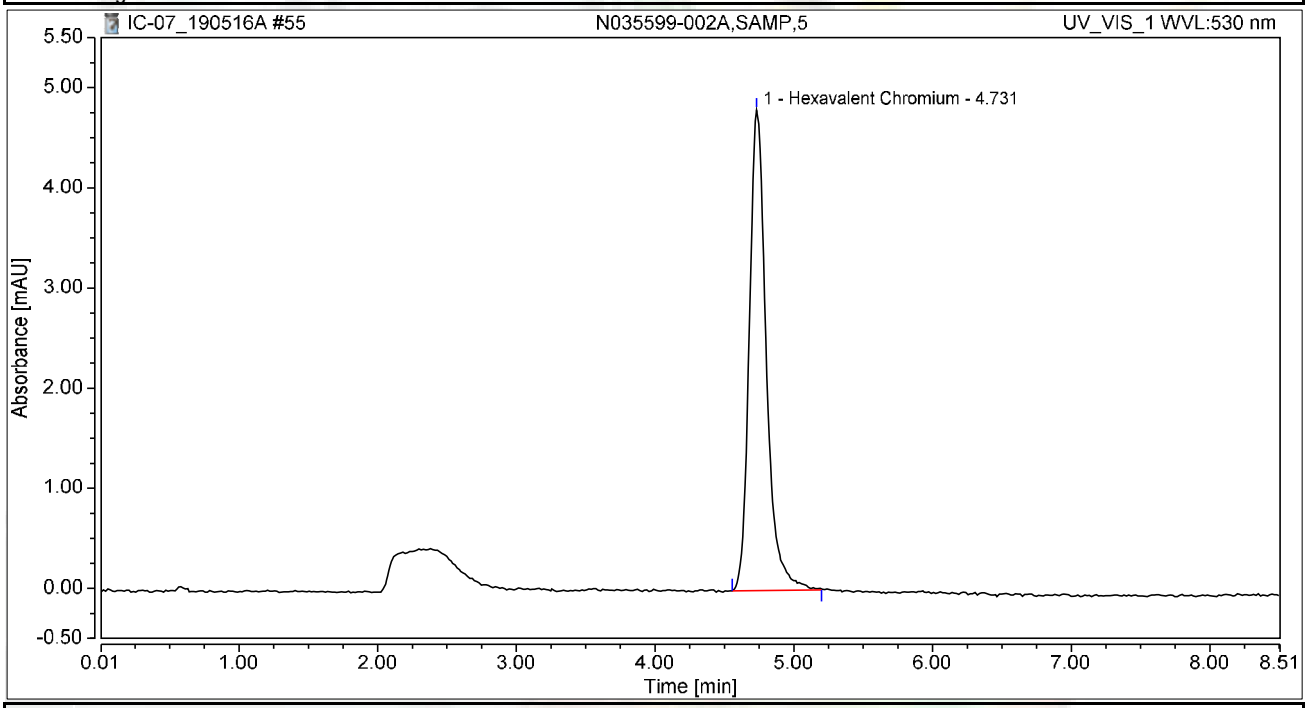
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.610	4.384	100.00	100.00	2.4180
Total:			**0.610**	**4.384**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 16:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

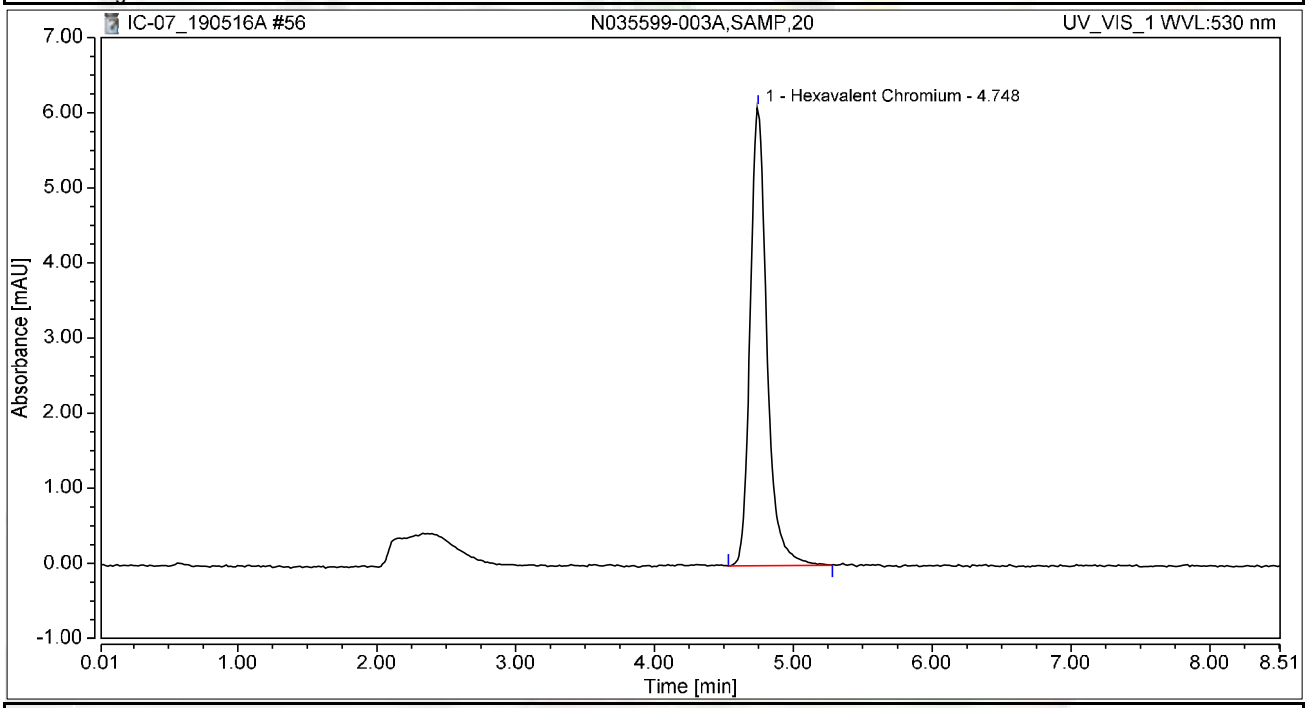
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.682	4.799	100.00	100.00	2.7056
Total:			**0.682**	**4.799**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-003A,SAMP,20**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 16:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

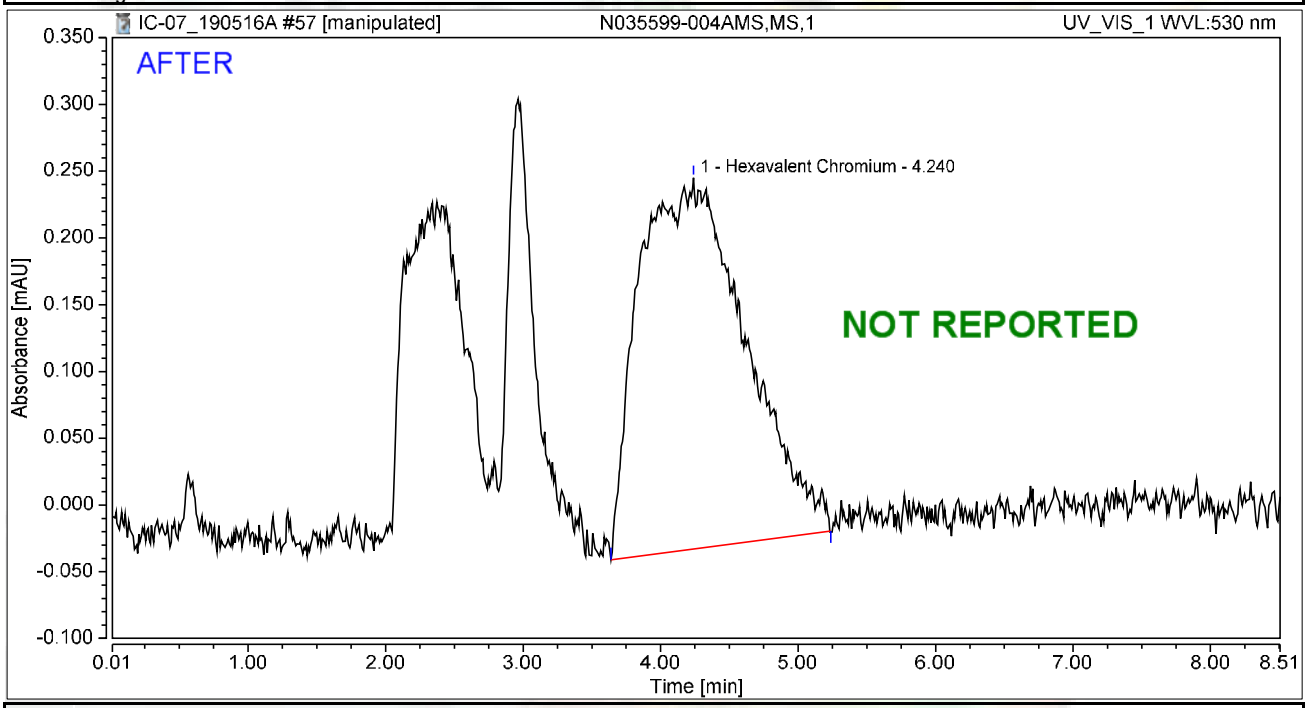
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.857	6.106	100.00	100.00	3.3981
Total:			**0.857**	**6.106**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-004AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 16:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.240	0.248	0.278	100.00	100.00	0.9850
Total:			**0.248**	**0.278**	**100.00**	**100.00**	

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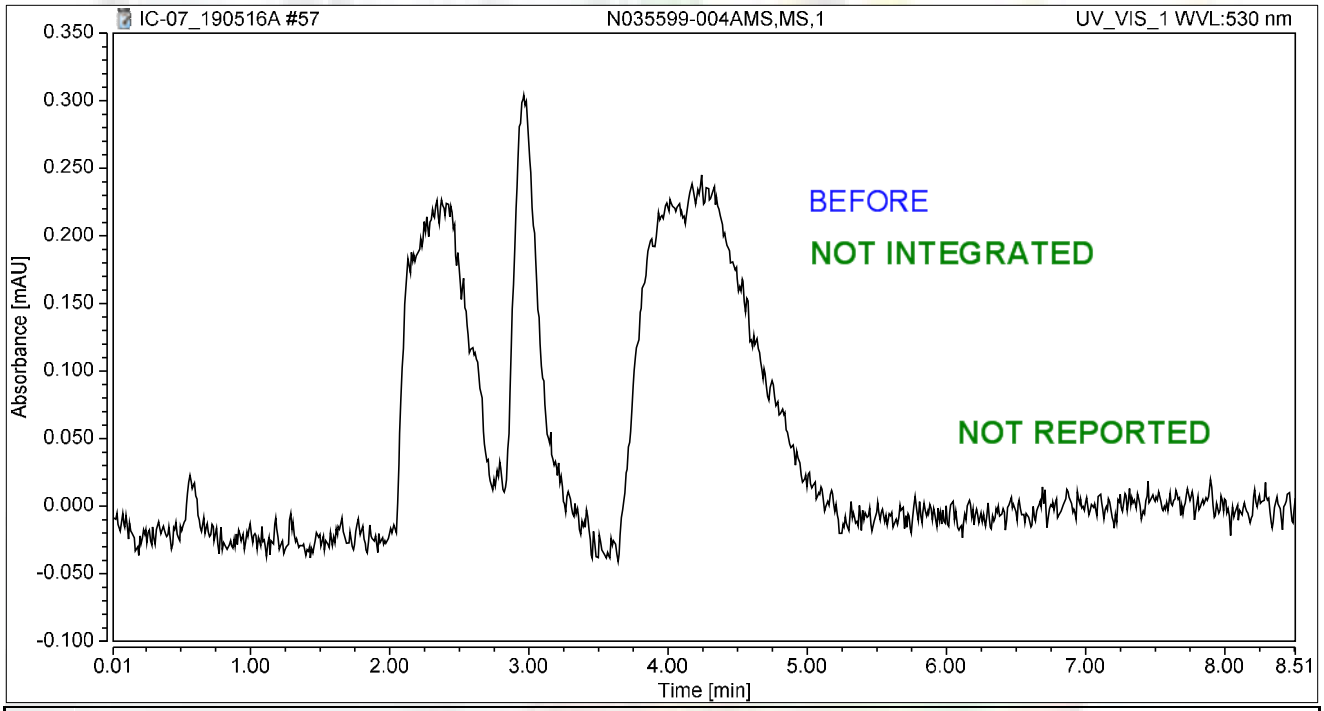
Chromatogram and Results

Injection Details

Injection Name:	**N035599-004AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 16:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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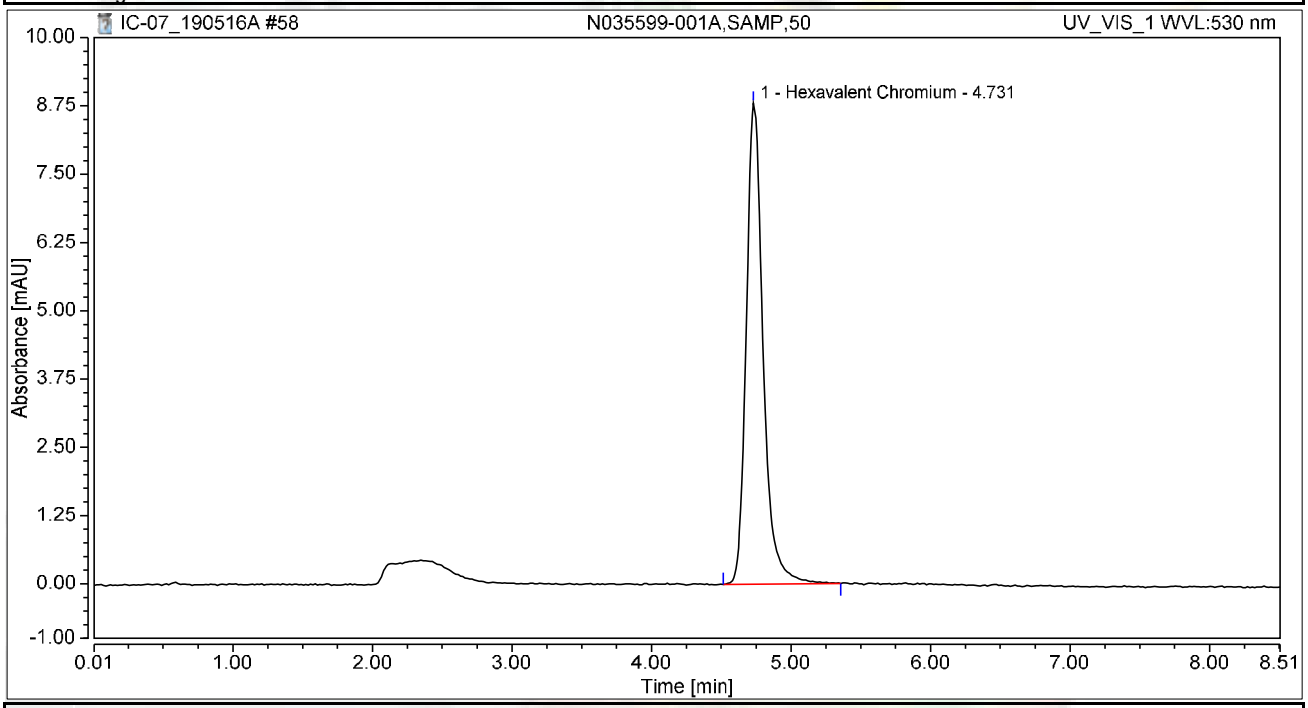
Chromatogram and Results

Injection Details

Injection Name:	**N035599-001A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 16:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

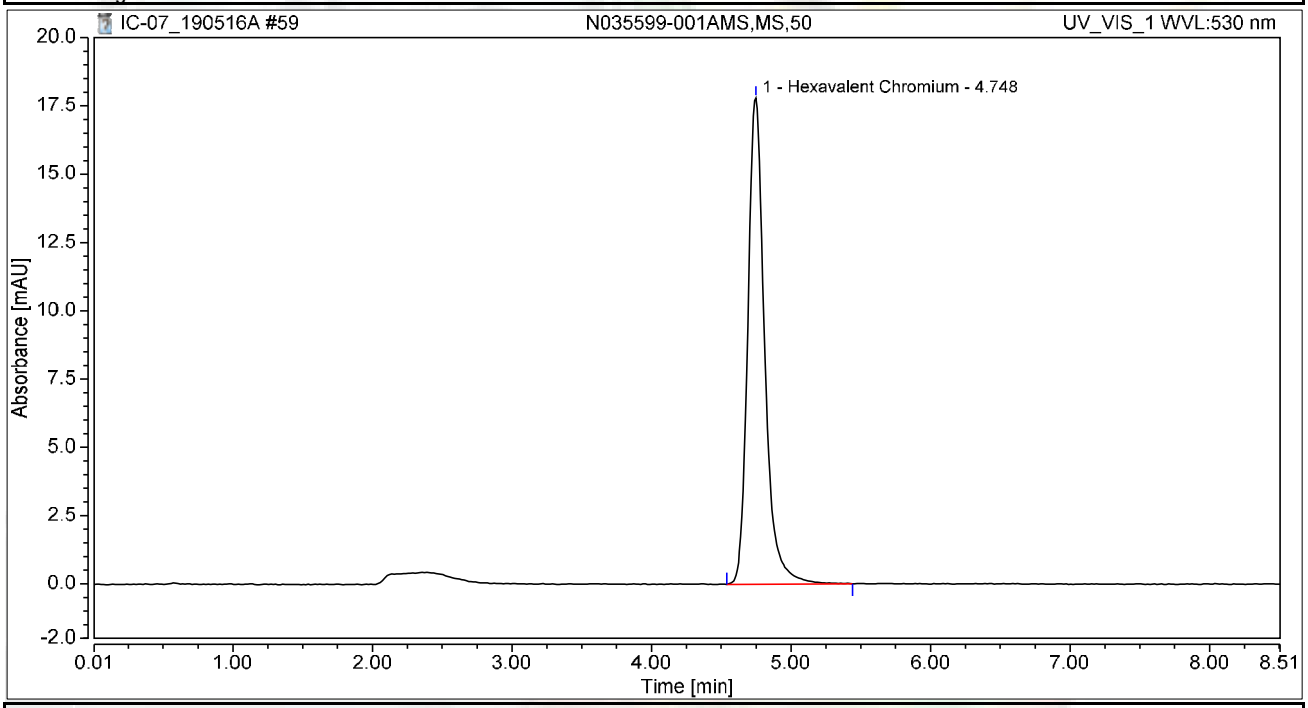
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.237	8.806	100.00	100.00	4.9074
Total:			**1.237**	**8.806**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-001AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 16:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

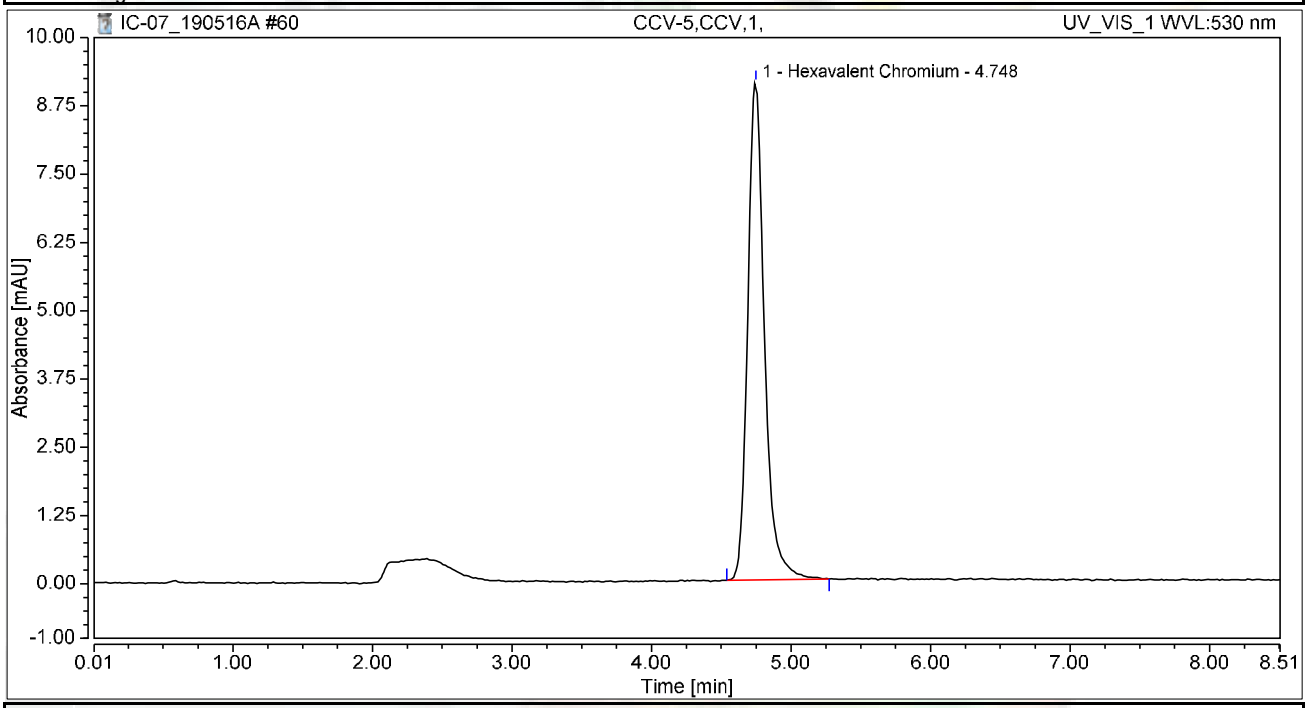
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	2.501	17.805	100.00	100.00	9.9211
Total:			**2.501**	**17.805**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 16:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

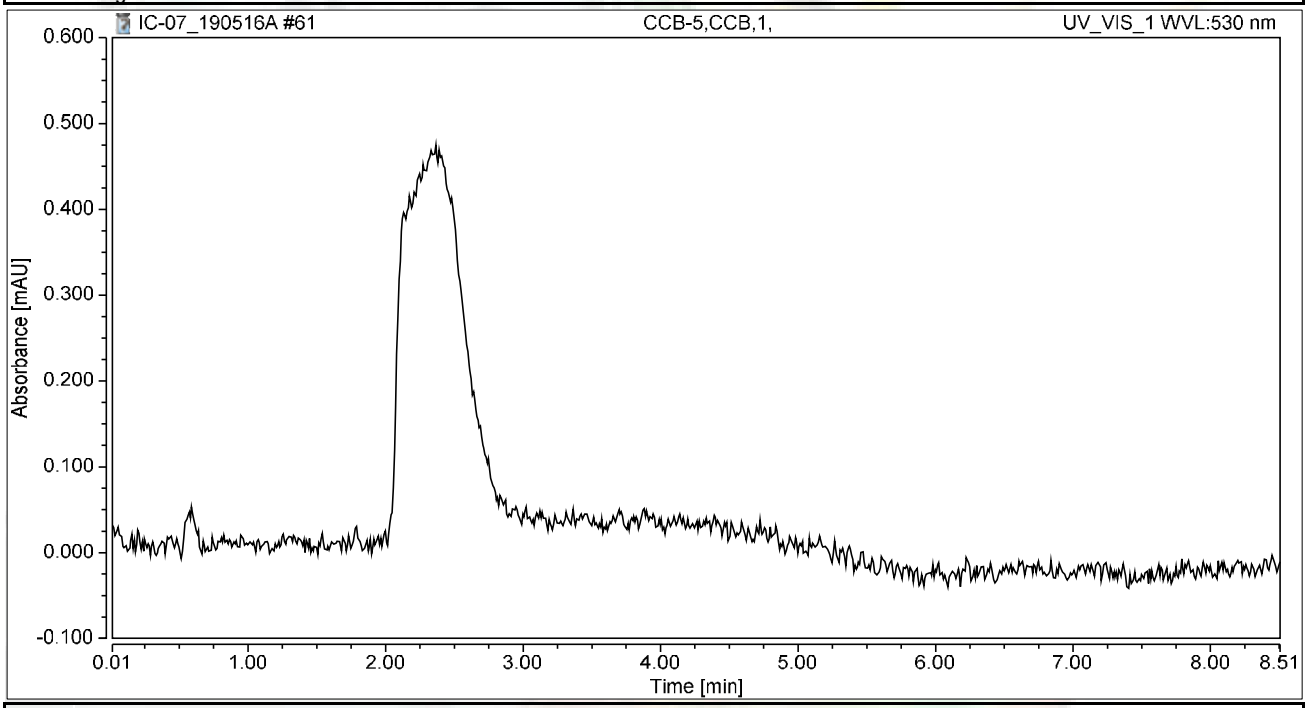
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	1.270	9.111	100.00	100.00	5.0359
Total:			**1.270**	**9.111**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 16:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

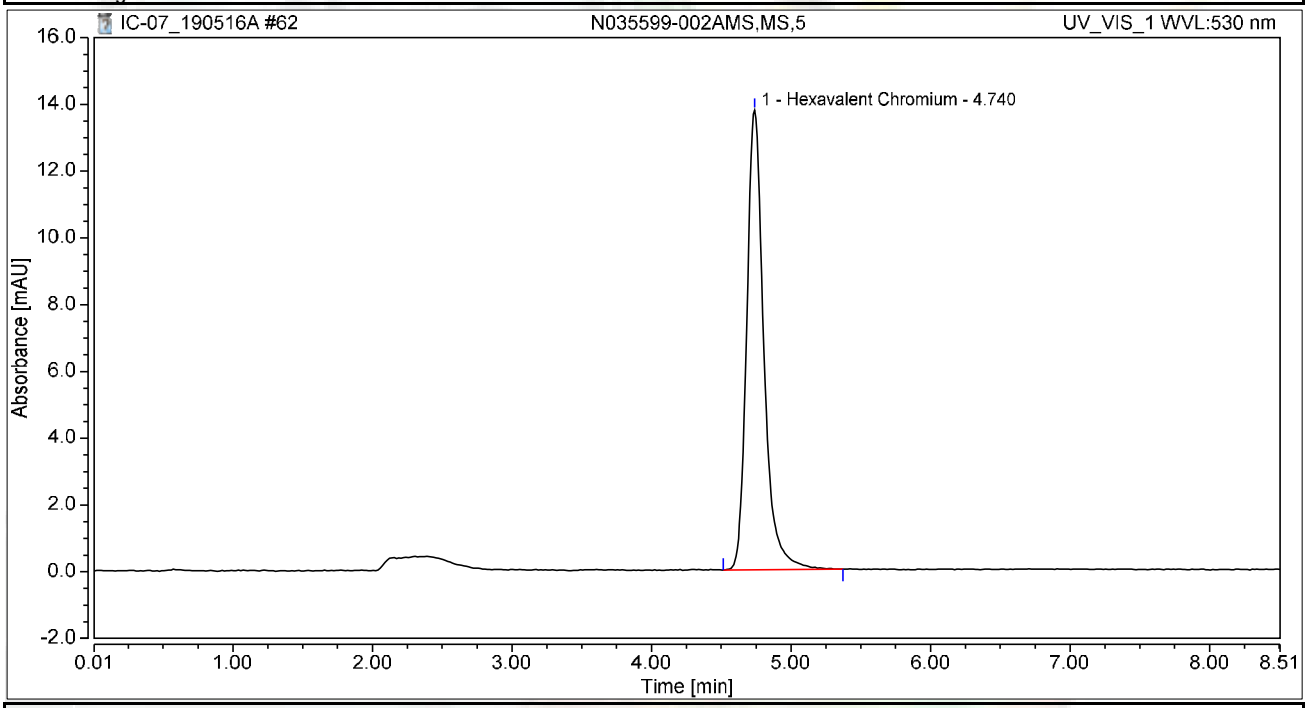
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 17:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

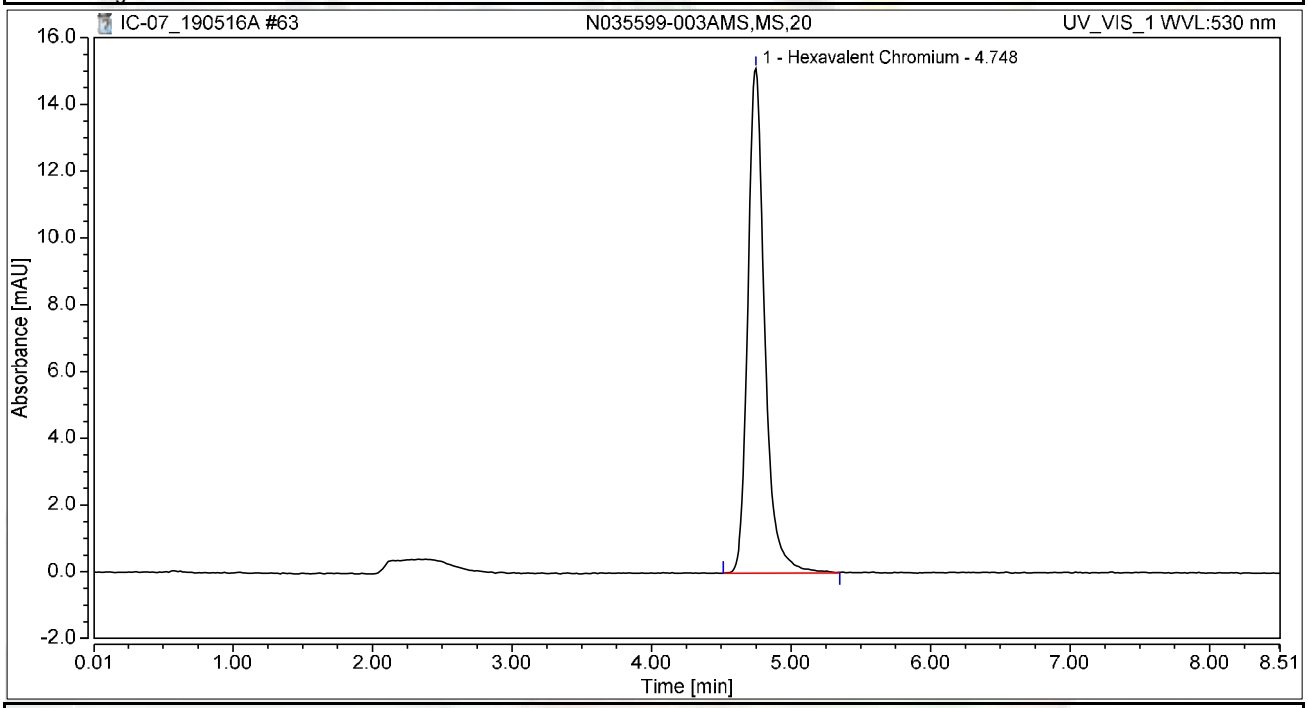
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.966	13.772	100.00	100.00	7.7962
Total:			**1.966**	**13.772**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-003AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 17:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

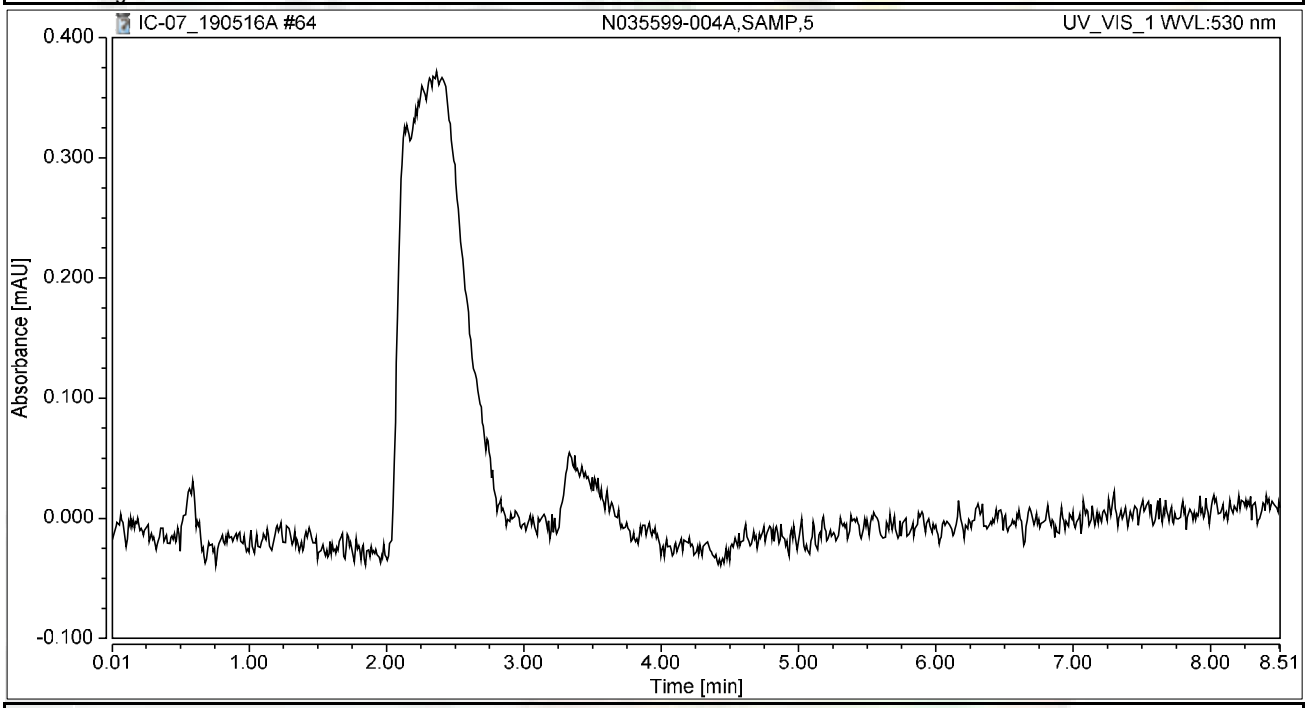
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	2.126	15.117	100.00	100.00	8.4340
Total:			**2.126**	**15.117**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-004A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 17:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

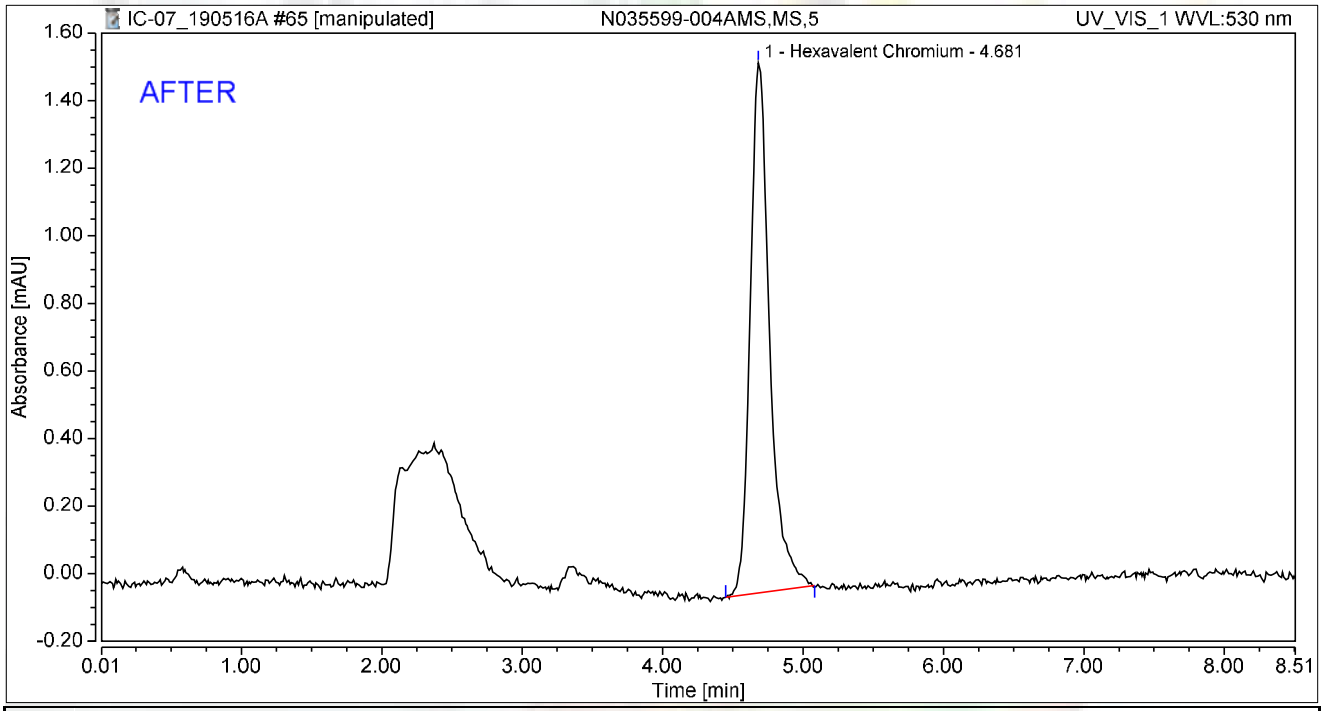
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035599-004AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 17:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.253	1.568	100.00	100.00	1.0033
Total:			**0.253**	**1.568**	**100.00**	**100.00**	

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My first report/integration

Reviewed by: Nancy 5/30/2019

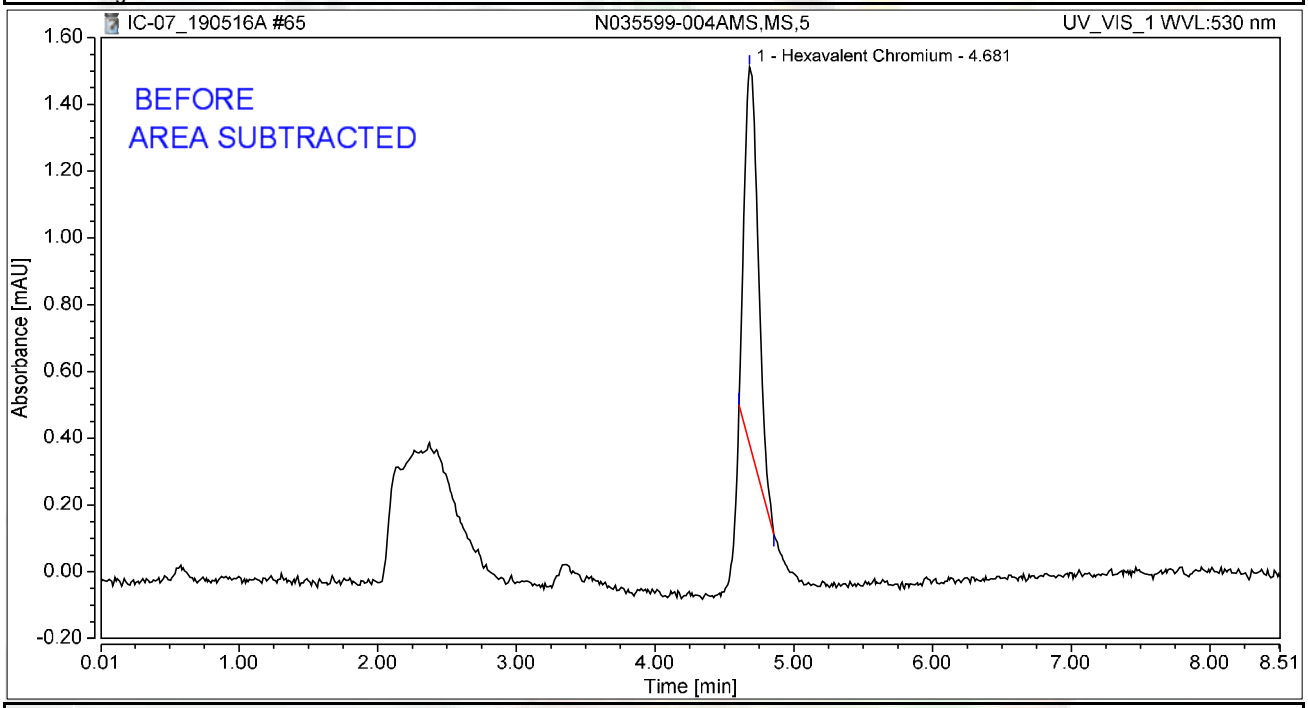
Chromeleon (c) Dionex
Version 7.1.1.1127

Chromatogram and Results

Injection Details

Injection Name:	**N035599-004AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 17:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.133	1.128	100.00	100.00	0.5271
Total:			**0.133**	**1.128**	**100.00**	**100.00**	

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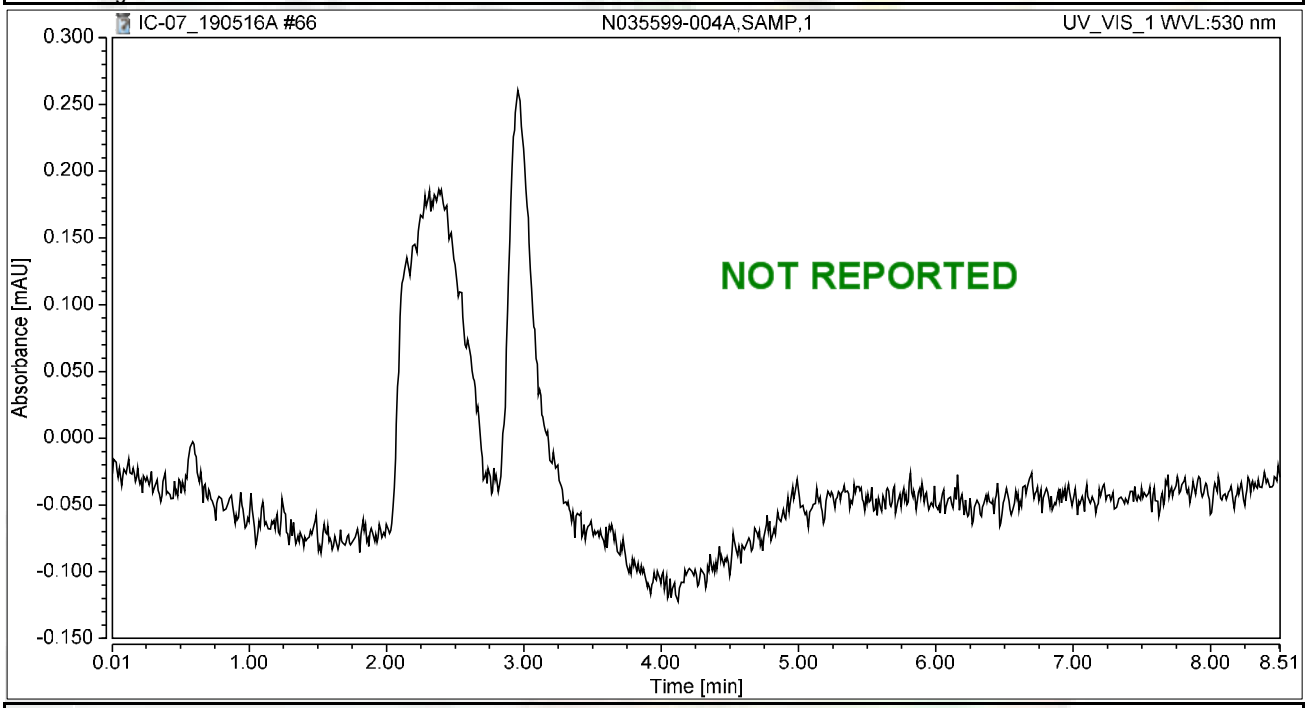
Chromatogram and Results

Injection Details

Injection Name:	**N035599-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 17:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

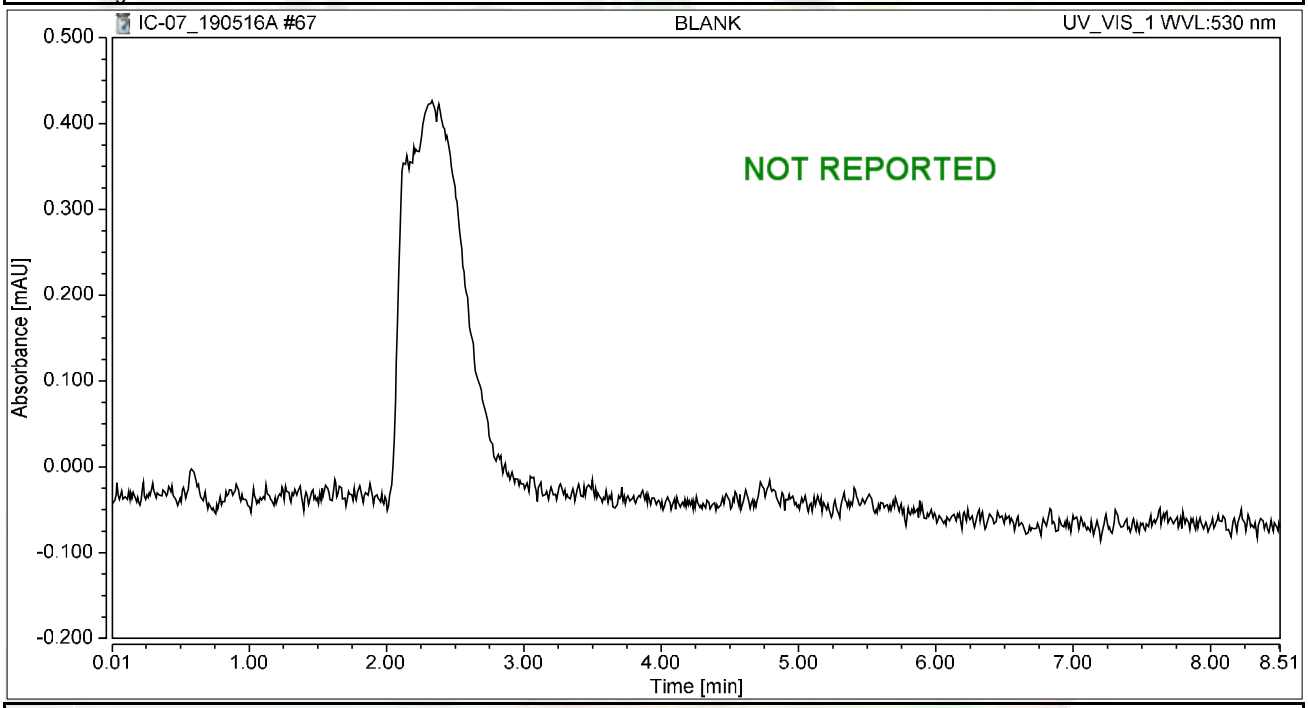
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 17:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

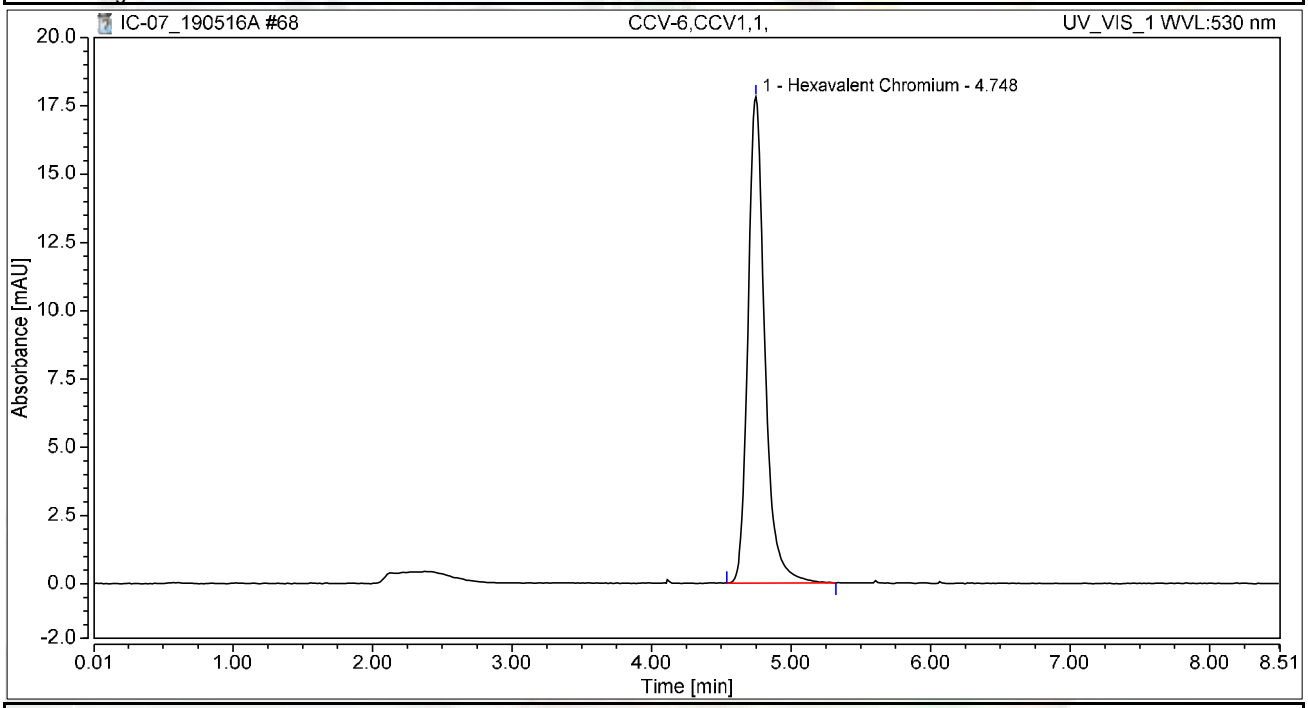
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 18:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

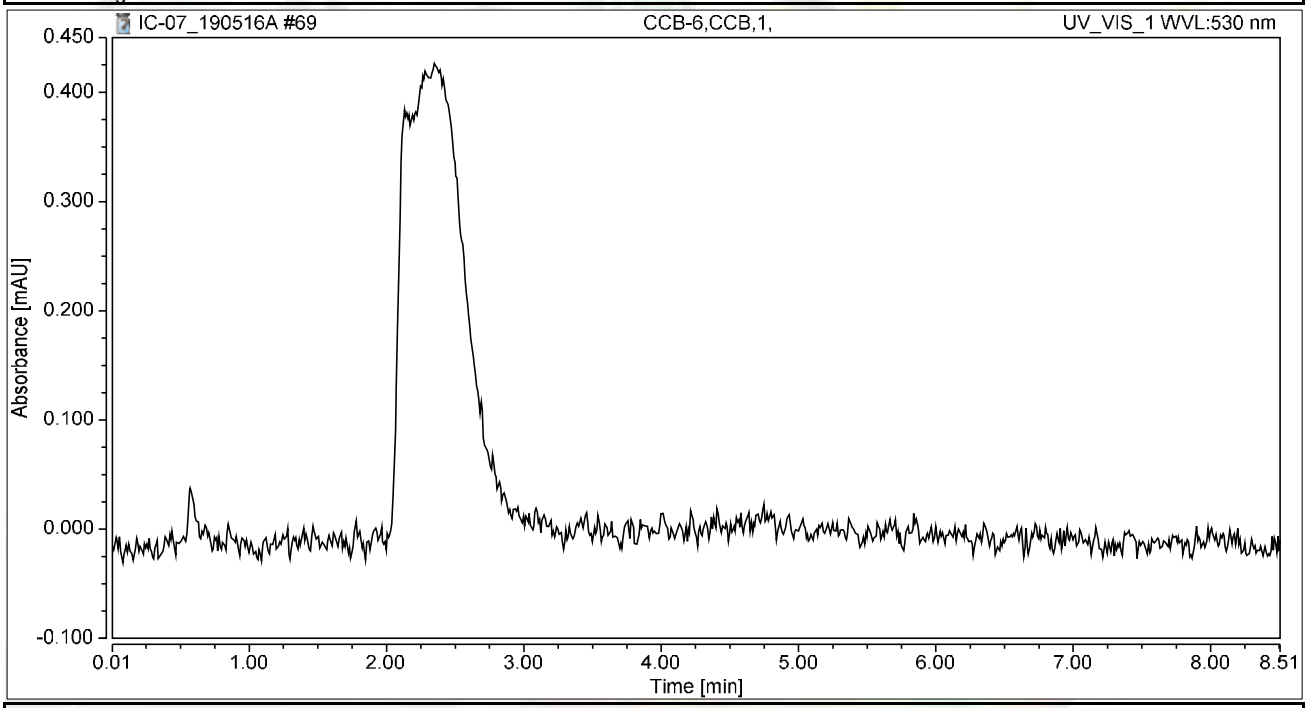
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	2.490	17.808	100.00	100.00	9.8742
Total:			**2.490**	**17.808**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**16/May/19 18:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134094 **Analyst:** QBM

ASSET #: N035599, 640, 662, 705 **Date Analyzed:** 5/22/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 6/3/2019

2nd Level Reviewer NS Date: 6/3/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N035599-002C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N = ~~0.6199~~ 0.6119 * 5
= ~~3.0995~~ 3.0595 mg/L

Reporting result in two significant figures,

Nitrate/Nitrite-N = 3.1 mg/L

NS 6/3/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

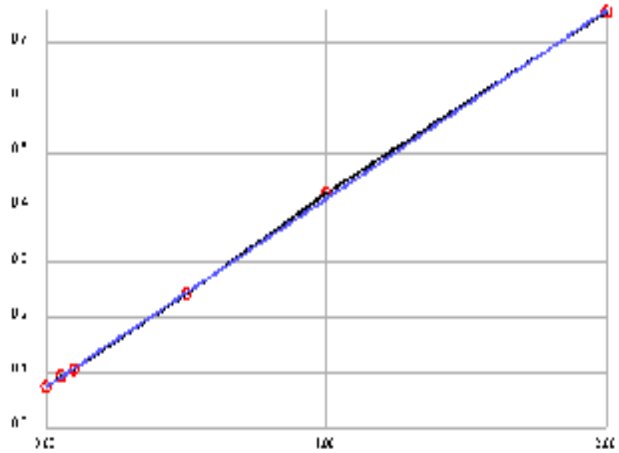
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3424x + 0.0756
Correlation	.999822

Calibrant	Energy	Set	Conc
1	0.0742	0.0000	-0.0040
2	0.0935	0.0500	0.0523
3	0.1070	0.1000	0.0918
4	0.2447	0.5000	0.4939
5	0.4277	1.0000	1.0283
6	0.7562	2.0000	1.9877

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **ICV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.499	0.050	0.5000	0	99.9	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393913**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.479	0.050	0.5000	0	95.7	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.481	0.050	0.5000	0	96.1	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **ICB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393914**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393933**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 05-22-2019 18:03
Time end: 05-22-2019 20:51

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	20:12:05	0.0053		0.0774
2	<BLANK>	20:12:59	-0.0046		0.0740
3	<CAL1>	20:13:54	-0.0040	[0]	0.0742
4	<CAL2>	20:14:55	0.0523	[0.05]	0.0935
5	<CAL3>	20:15:51	0.0918	[0.1]	0.1070
6	<CAL4>	20:16:45	0.4939	[0.5]	0.2447
7	<CAL5>	20:17:47	1.0283	[1]	0.4277
8	<CAL6>	20:18:42	1.9877	[2]	0.7562
9	,BLANK,BLANK,1, NOT REPORTED	20:19:36	0.0135		0.0802
10	,ICV,ICV,1,	20:20:38	0.4994		0.2466
11	,ICB,ICB,1,	20:21:33	0.0053		0.0774
12	,MB-H2O,MBLK,1,	20:22:29	-0.0014		0.0751
13	,LCS-H2O,LCS,1,	20:23:23	0.4778		0.2392
14	,N035599-004C,SAMP,1,	20:24:25	0.0234		0.0836
15	,N035599-002C,SAMP,5,	20:25:20	0.6119		0.2851
16	,N035599-002CDUP,DUP,5,	20:26:14	0.6315		0.2918
17	,N035599-003C,SAMP,20,	20:27:10	0.5856		0.2761
18	,N035599-003CMS,MS,20,	20:28:12	1.0505		0.4353
19	,N035599-003CMSD,MSD,20,	20:29:07	1.0494		0.4349
20	,N035640-005C,SAMP,5,	20:30:02	0.5187		0.2532
21	,BLANK, NOT REPORTED	20:31:03	0.0006		0.0758
22	,CCV-1,CCV,1,	20:31:59	0.4787		0.2395
23	,CCB-1,CCB,1,	20:32:53	0.0001		0.0756
24	,N035640-006C,SAMP,20,	20:33:54	0.5050		0.2485
25	,N035640-007C,SAMP,50,	20:34:50	0.5146		0.2518
26	,N035640-008C,SAMP,20,	20:35:38	0.5371		0.2595

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035640-009C,SAMP,50,	20:36:22	0.4992		0.2465
28	,N035640-010C,SAMP,50,	20:37:05	0.4936		0.2446
29	,N035640-011C,SAMP,100,	20:37:53	0.7857		0.3446
30	,N035640-012C,SAMP,2,	20:38:37	0.2725		0.1689
31	,N035640-015C,SAMP,20,	20:39:19	0.6875		0.3110
32	,N035662-001B,SAMP,20,	20:40:02	0.5287		0.2566
33	,BLANK, NOT REPORTED	20:40:50	-0.0058		0.0736
34	,CCV-2,CCV,1,	20:41:34	0.4805		0.2401
35	,CCB-2,CCB,1,	20:42:16	-0.0096		0.0723
36	,N035705-002C,SAMP,1,	20:43:05	0.1113		0.1137
37	,N035705-003C,SAMP,1,	20:43:49	0.1008		0.1101
38	,N035705-001C,SAMP,20,	20:44:31	0.4816		0.2405
39	,N035705-008C,SAMP,5,	20:45:14	0.3458		0.1940
40	,N035705-009C,SAMP,5,	20:46:02	0.3473		0.1945
41	,N035705-015C,SAMP,1,	20:46:45	0.5532		0.2650
42	,BLANK, NOT REPORTED	20:47:33	-0.0116		0.0716
43	,CCV-3,CCV,1,	20:48:17	0.4723		0.2373
44	,CCB-3,CCB,1,	20:49:00	0.0117		0.0796

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 5/22/2019
Time Analyzed: 6:03 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190424E
Color reagent: R190424F
2% Copper Sulfate: R190424D
Ammonium Hydroxide: CINV-190402B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035599-002C		7.80							
N035599-003C		8.29							
N035599-004C		8.57							
N035640-005C		8.46							
N035640-006C		8.33							
N035640-007C		7.80							
N035640-008C		7.40							
N035640-009C		8.45							
N035640-010C		8.66							
N035640-011C		7.55							
N035640-012C		8.84							
N035640-015C		8.21							
N035662-001B		7.34							
N035705-001C		7.76							
N035705-002C		8.23							
N035705-003C		8.18							
N035705-008C		7.62							
N035705-009C		6.43							
N035705-015C		8.01							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73911
ASSET #: N035599

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/13/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X	X		X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X	X		X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Cr in N035599-001B PS/MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 6/14/2019

2nd Level Reviewer HSG 6/14/2019 Date: –

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035599-001B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 50.1737 * 5 *(25 / 25)

Chromium , ug/L = 250.8685

Reporting results in two significant figures,

Chromium , ug/L = 250

NS 6/17/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.056	22.29	15	<PQL	0.092	12.62	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.47	5.21	15	PASS	0.55	11.37	15	PASS
Std3-5/50 ppb	ICAL	1	5.08	3.27	15	PASS	5.23	3.51	15	PASS
Std4-10/100 ppb	ICAL	1	10.011	1.78	15	PASS	10.45	1.72	15	PASS
Std5-20/200 ppb	ICAL	1	19.62	1.68	15	PASS	20.33	1.086	15	PASS
Std6-40/400 ppb	ICAL	1	38.76	1.59	15	PASS	40.28	1.65	15	PASS
Std7-100/1000 ppb	ICAL	1	96.86	2.14	15	PASS	100.14	1.6	15	PASS
Std8-200/2000 ppb	ICAL	1	201.85	2.9	15	PASS	199.82	1.9	15	PASS
ICV	ICV	1	10.7	2.9	15	PASS	106.8	2.36	15	PASS
ICB	ICB	1	0.0021	254.37	15	<PQL	0.0036	354.91	15	<PQL
LLICV	CCV1	1	1.0089	4.21	20	PASS	0.52	5.66	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.38	2.38	15	PASS	17.31	2.83	15	PASS
LLICV	CCV1	1	0.97	4.45	20	PASS	0.55	5.68	20	PASS
MB-73911	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-73911	LCS	1	10.18	2.66	15	PASS	105.13	2.21	15	PASS
N035596-001A	SAMP	1	<0.000	N/A	15	<PQL	396.89	1.58	15	PASS
N035599-001B	SAMP	1	242.81	1.41	15	PASS	<0.000	N/A	15	<PQL
N035599-001B	SAMP	5	50.17	3.29	15	PASS	0.23	7.62	15	PASS
N035599-001B-PS	PS	1	240.46	3.44	15	PASS	93.7	2.32	15	PASS
N035599-001B-MS	MS	1	242.41	1.98	15	PASS	95.21	0.57	15	PASS
N035599-001B-MSD	MSD	1	239.071	2.39	15	PASS	94.23	2.57	15	PASS
N035599-001B	SAMP	25	10.25	2.77	15	PASS	0.035	29.53	15	<PQL
N035599-001B-PS	PS	5	50.081	2.75	15	PASS	20.84	2.95	15	PASS
CCV1	CCV	1	20.065	1.36	15	PASS	21.056	1.87	15	PASS
CCB1	CCB	1	0.0076	24.71	15	<PQL	<0.000	N/A	15	<PQL
N035599-001B-MS	MS	5	50.82	1.71	15	PASS	20.57	2.2	15	PASS
N035599-001B-MSD	MSD	5	51.34	2.52	15	PASS	21.33	2.63	15	PASS
N035599-002B	SAMP	1	12.8	3.013	15	PASS	<0.000	N/A	15	<PQL
N035599-003B	SAMP	1	66.019	1.43	15	PASS	<0.000	N/A	15	<PQL
N035599-004B	SAMP	1	0.16	7.49	15	PASS	175.5	2.59	15	PASS
N035599-004B	SAMP	5	<0.000	N/A	15	<PQL	42	2.52	15	PASS
N035639-001A	SAMP	1	<0.000	N/A	15	<PQL	114.3	1.73	15	PASS
N035640-001B	SAMP	1	14.71	1.31	15	PASS	<0.000	N/A	15	<PQL
N035640-002B	SAMP	1	14.99	1.59	15	PASS	<0.000	N/A	15	<PQL
N035640-003B	SAMP	1	22.96	2.41	15	PASS	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.31	3.38	15	PASS	21.2	4.1	15	PASS
CCB2	CCB	1	0.0037	213.79	15	<PQL	0.0065	46.94	15	<PQL
N035640-004B	SAMP	1	4.47	1.42	15	PASS	15.65	2.6	15	PASS
N035640-004B	SAMP	5	0.83	2.76	15	PASS	4.86	1.42	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035640-005B	SAMP	1	161.65	2.56	15	PASS	39.57	1.38	15	PASS
N035640-006B	SAMP	1	116.41	1.81	15	PASS	0.54	7.91	15	PASS
N035640-007B	SAMP	1	2896.11	2.54	15	PASS	2.9	2.68	15	PASS
N035640-007B	SAMP	25	133.15	2.78	15	PASS	0.12	7.97	15	PASS
N035640-008B	SAMP	1	5477.56	1.8	15	PASS	3.6	2.077	15	PASS
N035640-008B	SAMP	5	1299.94	2.8	15	PASS	2.048	1.5	15	PASS
N035640-008B	SAMP	50	139.58	3.66	15	PASS	0.21	1.86	15	PASS
N035640-009B	SAMP	1	513.54	2.086	15	PASS	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.34	2.42	15	PASS	20.87	1.61	15	PASS
CCB3	CCB	1	0.19	12.33	15	PASS	<0.000	N/A	15	<PQL
N035640-009B	SAMP	5	114.27	2.64	15	PASS	<0.000	N/A	15	<PQL
N035640-010B	SAMP	1	519.76	1.8	15	PASS	<0.000	N/A	15	<PQL
N035640-010B	SAMP	5	116.75	1.51	15	PASS	<0.000	N/A	15	<PQL
N035640-011B	SAMP	1	1938.27	1.75	15	PASS	<0.000	N/A	15	<PQL
N035640-011B	SAMP	5	443.77	3.31	15	PASS	<0.000	N/A	15	<PQL
N035640-011B	SAMP	25	88.042	2.62	15	PASS	<0.000	N/A	15	<PQL
N035640-012B	SAMP	1	715.54	1.76	15	PASS	125.79	1.84	15	PASS
N035640-012B	SAMP	5	169.32	2.24	15	PASS	30.18	2.47	15	PASS
N035640-015B	SAMP	1	178.97	2.095	15	PASS	76.2	1.51	15	PASS
N035640-015B	SAMP	5	37.12	3.25	15	PASS	17.071	2.94	15	PASS
CCV4	CCV	1	20.027	2.93	15	PASS	20.8	2.18	15	PASS
CCB4	CCB	1	0.07	16.43	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.013	230.04	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.74	2.82	15	PASS	17.26	2.78	15	PASS
CCV5	CCV	1	19.55	2.58	15	PASS	18.69	0.3	15	PASS
CCB5	CCB	1	0.0076	76.39	15	<PQL	<0.000	N/A	15	<PQL
CCV6	CCV	1	20.18	2.52	15	PASS	21.17	2.54	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	20.32	2.93	15	PASS	21.34	2.32	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV8	CCV	1	20.29	2.89	15	PASS	21.23	2.44	15	PASS
CCB8	CCB	1	0.14	8.89	15	PASS	<0.000	N/A	15	<PQL
CCV9	CCV	1	18.22	1.14	15	PASS	19.045	1.14	15	PASS
CCB9	CCB	1	0.003	190.96	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	18.54	1.14	15	PASS	16.75	1.064	15	PASS
CCV10	CCV	1	20.086	1.84	15	PASS	20.64	1.95	15	PASS
CCB10	CCB	1	0.22	7.79	15	PASS	<0.000	N/A	15	<PQL
CCV11	CCV	1	17.51	0.9	15	PASS	18.19	0.18	15	PASS
CCB11	CCB	1	0.0068	86.43	15	<PQL	<0.000	N/A	15	<PQL
CCV11	CCV	1	17.74	2.62	15	PASS	18.82	1.47	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB11	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV12	CCV	1	17.81	2.73	15	PASS	18.96	3.43	15	PASS
CCB12	CCB	1	<0.000	N/A	15	<PQL	0.0019	203.33	15	<PQL
CCV13	CCV	1	17.75	2.95	15	PASS	18.94	2.49	15	PASS
CCB13	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	17.16	2.52	15	PASS	16.29	1.17	15	PASS
CCV14	CCV	1	17.86	2.11	15	PASS	19.21	3.27	15	PASS
CCB14	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV15	CCV	1	18.13	2.93	15	PASS	19.58	2.14	15	PASS
CCB15	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	17.33	2.085	15	PASS	16.89	2.036	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.088	5.36	15	PASS	0.097	26.055	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.5	7.018	15	PASS	0.49	18.76	15	<PQL
Std3-5/50 ppb	ICAL	1	4.81	1.96	15	PASS	5.069	9.24	15	PASS
Std4-10/100 ppb	ICAL	1	9.74	1.84	15	PASS	9.3	1.75	15	PASS
Std5-20/200 ppb	ICAL	1	19.57	0.62	15	PASS	19.43	3.0015	15	PASS
Std6-40/400 ppb	ICAL	1	38.59	0.22	15	PASS	38.99	1.37	15	PASS
Std7-100/1000 ppb	ICAL	1	98.57	1.27	15	PASS	97.26	0.95	15	PASS
Std8-200/2000 ppb	ICAL	1	201.059	0.73	15	PASS	201.66	1.96	15	PASS
ICV	ICV	1	9.87	0.93	15	PASS	9.93	4.51	15	PASS
ICB	ICB	1	0.0092	45.16	15	<PQL	0.017	115.59	15	<PQL
LLICV	CCV1	1	0.11	12.81	20	PASS	0.48	43.92	20	<PQL
ICSA1	ICSA	1	0.039	26.45	15	<PQL	0.024	43.24	15	<PQL
ICSAB1	ICSAB	1	19.86	1.77	15	PASS	18.072	2.29	15	PASS
LLICV	CCV1	1	0.12	3.87	20	PASS	0.53	6.79	20	PASS
MB-73911	MBLK	1	0.016	56.54	15	<PQL	0.0097	271.59	15	<PQL
LCS-73911	LCS	1	9.86	1.22	15	PASS	9.53	12.36	15	PASS
N035596-001A	SAMP	1	0.42	8.21	15	PASS	0.88	8.74	15	PASS
N035599-001B	SAMP	1	0.94	4.13	15	PASS	3.81	13.15	15	PASS
N035599-001B	SAMP	5	0.19	10.31	15	PASS	0.75	22.31	15	NR!
N035599-001B-PS	PS	1	11.11	1.52	15	PASS	13.18	8.063	15	PASS
N035599-001B-MS	MS	1	11.01	2.87	15	PASS	13.22	4.76	15	PASS
N035599-001B-MSD	MSD	1	11.18	0.74	15	PASS	13.39	4.064	15	PASS
N035599-001B	SAMP	25	0.044	18.1	15	<PQL	0.24	45.2	15	<PQL
N035599-001B-PS	PS	5	2.28	0.92	15	PASS	2.61	4.8	15	PASS
CCV1	CCV	1	19.37	1.095	15	PASS	19.15	0.85	15	PASS
CCB1	CCB	1	0.031	26.11	15	<PQL	0.015	155.43	15	<PQL
N035599-001B-MS	MS	5	2.29	2.44	15	PASS	2.67	5.77	15	PASS
N035599-001B-MSD	MSD	5	2.23	4.21	15	PASS	2.58	3.42	15	PASS
N035599-002B	SAMP	1	0.7	7.92	15	PASS	1.99	14.75	15	PASS
N035599-003B	SAMP	1	1.28	5.78	15	PASS	8.36	4.36	15	PASS
N035599-004B	SAMP	1	2.4	1.85	15	PASS	0.09	79.82	15	<PQL
N035599-004B	SAMP	5	0.49	2.88	15	PASS	<0.000	N/A	15	<PQL
N035639-001A	SAMP	1	0.8	3.36	15	PASS	1.031	42.63	15	NR!
N035640-001B	SAMP	1	1.056	3.84	15	PASS	1.0089	2.38	15	PASS
N035640-002B	SAMP	1	1.068	6.18	15	PASS	0.99	8.33	15	PASS
N035640-003B	SAMP	1	1.93	1.83	15	PASS	1.19	2.068	15	PASS
CCV2	CCV	1	19.53	0.93	15	PASS	18.53	2.28	15	PASS
CCB2	CCB	1	0.021	67.75	15	<PQL	0.047	46.64	15	<PQL
N035640-004B	SAMP	1	1.68	0.47	15	PASS	0.58	38.93	15	NR!
N035640-004B	SAMP	5	0.34	0.71	15	PASS	0.15	47.51	15	<PQL

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035640-005B	SAMP	1	2.51	2.46	15	PASS	2.32	2.68	15	PASS
N035640-006B	SAMP	1	2.19	2.2	15	PASS	8.0062	5.39	15	PASS
N035640-007B	SAMP	1	3.42	5.088	15	PASS	92.74	2.69	15	PASS
N035640-007B	SAMP	25	0.14	5.088	15	PASS	3.47	18.41	15	NR!
N035640-008B	SAMP	1	9.75	1.18	15	PASS	9.037	4.26	15	PASS
N035640-008B	SAMP	5	1.93	3.1	15	PASS	1.84	15.44	15	NR!
N035640-008B	SAMP	50	0.17	12.41	15	PASS	0.12	27.63	15	<PQL
N035640-009B	SAMP	1	1.21	3.77	15	PASS	27.97	3.49	15	PASS
CCV3	CCV	1	19.47	1.48	15	PASS	19.02	2.71	15	PASS
CCB3	CCB	1	0.017	26.87	15	<PQL	0.019	160.49	15	<PQL
N035640-009B	SAMP	5	0.24	9.76	15	PASS	5.61	5.88	15	PASS
N035640-010B	SAMP	1	1.17	2.29	15	PASS	28.26	1.74	15	PASS
N035640-010B	SAMP	5	0.26	9.68	15	PASS	6.21	7.82	15	PASS
N035640-011B	SAMP	1	1	3.81	15	PASS	403.3	1.29	15	PASS
N035640-011B	SAMP	5	0.2	9.77	15	PASS	80.17	1.74	15	PASS
N035640-011B	SAMP	25	0.044	10.88	15	PASS	16.59	3.85	15	PASS
N035640-012B	SAMP	1	8.95	1.4	15	PASS	1.18	4.32	15	PASS
N035640-012B	SAMP	5	1.85	2.93	15	PASS	0.21	23.14	15	<PQL
N035640-015B	SAMP	1	0.69	3.16	15	PASS	9.36	3.51	15	PASS
N035640-015B	SAMP	5	0.14	9.69	15	PASS	2.086	10.28	15	PASS
CCV4	CCV	1	19.32	0.36	15	PASS	20.41	1.17	15	PASS
CCB4	CCB	1	0.014	36.86	15	<PQL	0.005	363.4	15	<PQL
ICSA2	ICSA	1	0.033	47.66	15	<PQL	0.017	228.55	15	<PQL
ICSAB2	ICSAB	1	19.44	1.49	15	PASS	18.24	1.65	15	PASS
CCV5	CCV	1	19.39	0.64	15	PASS	20.022	4.19	15	PASS
CCB5	CCB	1	0.02	52.37	15	<PQL	0.064	78.057	15	<PQL
CCV6	CCV	1	19.36	1	15	PASS	19.068	4.51	15	PASS
CCB6	CCB	1	0.023	32.73	15	<PQL	0.02	42.52	15	<PQL
CCV7	CCV	1	18.98	0.54	15	PASS	18.99	2.73	15	PASS
CCB7	CCB	1	0.022	69.56	15	<PQL	0.016	61.46	15	<PQL
CCV8	CCV	1	19.27	0.77	15	PASS	19.82	3.2	15	PASS
CCB8	CCB	1	0.03	3.65	15	PASS	0.022	116.59	15	<PQL
CCV9	CCV	1	19.39	1.16	15	PASS	18.89	0.99	15	PASS
CCB9	CCB	1	0.014	48.65	15	<PQL	0.045	78.16	15	<PQL
ICSA3	ICSA	1	0.031	40.24	15	<PQL	0.00023	4371.42	15	<PQL
ICSAB3	ICSAB	1	19.47	1.096	15	PASS	19.12	2.95	15	PASS
CCV10	CCV	1	19.2	2.11	15	PASS	18.67	2.57	15	PASS
CCB10	CCB	1	0.013	11.78	15	PASS	0.027	4.68	15	PASS
CCV11	CCV	1	19.45	0.67	15	PASS	19.93	0.57	15	PASS
CCB11	CCB	1	0.021	69.67	15	<PQL	0.038	65.5	15	<PQL
CCV11	CCV	1	19.15	1.65	15	PASS	20.4	3.12	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB11	CCB	1	0.017	40.26	15	<PQL	0.01	155.37	15	<PQL
CCV12	CCV	1	19.27	1.056	15	PASS	19.81	2.27	15	PASS
CCB12	CCB	1	0.0057	81.75	15	<PQL	0.014	243.59	15	<PQL
CCV13	CCV	1	19.14	1.74	15	PASS	19.82	2.95	15	PASS
CCB13	CCB	1	0.016	29.54	15	<PQL	0.013	248.18	15	<PQL
ICSA4	ICSA	1	0.048	23.2	15	<PQL	0.023	123.83	15	<PQL
ICSAB4	ICSAB	1	19.48	0.78	15	PASS	18.72	1.42	15	PASS
CCV14	CCV	1	19.15	1.19	15	PASS	19.64	0.91	15	PASS
CCB14	CCB	1	0.017	70.44	15	<PQL	0.021	1.88	15	PASS
CCV15	CCV	1	19.11	0.47	15	PASS	19.34	1.33	15	PASS
CCB15	CCB	1	0.019	31.75	15	<PQL	0.049	82.45	15	<PQL
ICSA5	ICSA	1	0.055	37.35	15	<PQL	0.0038	422.29	15	<PQL
ICSAB5	ICSAB	1	19.73	1.057	15	PASS	18.54	2.088	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.083	9.77	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.46	5.86	15	PASS
Std3-5/50 ppb	ICAL	1	4.57	1.21	15	PASS
Std4-10/100 ppb	ICAL	1	9.37	1.84	15	PASS
Std5-20/200 ppb	ICAL	1	18.88	1.65	15	PASS
Std6-40/400 ppb	ICAL	1	38.55	1.59	15	PASS
Std7-100/1000 ppb	ICAL	1	98.69	2.57	15	PASS
Std8-200/2000 ppb	ICAL	1	201.1	1.61	15	PASS
ICV	ICV	1	9.5	2.069	15	PASS
ICB	ICB	1	0.095	4.083	15	PASS
LLICV	CCV1	1	0.5	1.86	20	PASS
ICSA1	ICSA	1	0.061	19.25	15	<PQL
ICSAB1	ICSAB	1	20.55	0.5	15	PASS
LLICV	CCV1	1	0.66	2.82	20	PASS
MB-73911	MBLK	1	0.059	9.14	15	PASS
LCS-73911	LCS	1	9.63	1.73	15	PASS
N035596-001A	SAMP	1	19.96	1.47	15	PASS
N035599-001B	SAMP	1	7.57	1.019	15	PASS
N035599-001B	SAMP	5	1.55	4.22	15	PASS
N035599-001B-PS	PS	1	18.41	0.43	15	PASS
N035599-001B-MS	MS	1	18.7	0.75	15	PASS
N035599-001B-MSD	MSD	1	18.79	0.29	15	PASS
N035599-001B	SAMP	25	0.4	1.5	15	PASS
N035599-001B-PS	PS	5	3.66	1.22	15	PASS
CCV1	CCV	1	19.23	1.2	15	PASS
CCB1	CCB	1	0.16	12.48	15	PASS
N035599-001B-MS	MS	5	3.55	1.82	15	PASS
N035599-001B-MSD	MSD	5	3.56	1.2	15	PASS
N035599-002B	SAMP	1	10.55	0.65	15	PASS
N035599-003B	SAMP	1	4.17	1.73	15	PASS
N035599-004B	SAMP	1	74.2	0.22	15	PASS
N035599-004B	SAMP	5	14.55	1.72	15	PASS
N035639-001A	SAMP	1	39.72	0.27	15	PASS
N035640-001B	SAMP	1	7.69	1.17	15	PASS
N035640-002B	SAMP	1	7.52	1.043	15	PASS
N035640-003B	SAMP	1	20.01	0.5	15	PASS
CCV2	CCV	1	18.95	2.15	15	PASS
CCB2	CCB	1	0.18	7.2	15	PASS
N035640-004B	SAMP	1	43.98	3.078	15	PASS
N035640-004B	SAMP	5	8.46	1.65	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035640-005B	SAMP	1	44.23	1.26	15	PASS
N035640-006B	SAMP	1	58.035	0.35	15	PASS
N035640-007B	SAMP	1	47.81	1.38	15	PASS
N035640-007B	SAMP	25	2.066	0.87	15	PASS
N035640-008B	SAMP	1	72.85	1.53	15	PASS
N035640-008B	SAMP	5	14.25	0.56	15	PASS
N035640-008B	SAMP	50	1.48	2.86	15	PASS
N035640-009B	SAMP	1	5.52	0.87	15	PASS
CCV3	CCV	1	19.062	0.58	15	PASS
CCB3	CCB	1	0.18	12.55	15	PASS
N035640-009B	SAMP	5	1.12	2.17	15	PASS
N035640-010B	SAMP	1	5.45	0.72	15	PASS
N035640-010B	SAMP	5	1.13	3.048	15	PASS
N035640-011B	SAMP	1	5.7	0.37	15	PASS
N035640-011B	SAMP	5	1.11	0.81	15	PASS
N035640-011B	SAMP	25	0.23	8.93	15	PASS
N035640-012B	SAMP	1	71.37	0.89	15	PASS
N035640-012B	SAMP	5	13.87	0.77	15	PASS
N035640-015B	SAMP	1	109.91	1.6	15	PASS
N035640-015B	SAMP	5	21.69	1.39	15	PASS
CCV4	CCV	1	19.15	1.53	15	PASS
CCB4	CCB	1	0.21	12.69	15	PASS
ICSA2	ICSA	1	0.12	8.23	15	PASS
ICSAB2	ICSAB	1	20.33	1.87	15	PASS
CCV5	CCV	1	18.3	0.65	15	PASS
CCB5	CCB	1	0.18	5.28	15	PASS
CCV6	CCV	1	19	1.85	15	PASS
CCB6	CCB	1	0.22	5.52	15	PASS
CCV7	CCV	1	18.64	2.13	15	PASS
CCB7	CCB	1	0.17	5.52	15	PASS
CCV8	CCV	1	18.55	0.68	15	PASS
CCB8	CCB	1	0.15	11.39	15	PASS
CCV9	CCV	1	18.77	1.35	15	PASS
CCB9	CCB	1	0.14	19.048	15	<PQL
ICSA3	ICSA	1	0.087	7.032	15	PASS
ICSAB3	ICSAB	1	20.11	0.97	15	PASS
CCV10	CCV	1	18.53	1.61	15	PASS
CCB10	CCB	1	0.16	11.97	15	PASS
CCV11	CCV	1	18.99	2.22	15	PASS
CCB11	CCB	1	0.16	7.024	15	PASS
CCV11	CCV	1	19.015	1.33	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
CCB11	CCB	1	0.16	12.5	15	PASS
CCV12	CCV	1	19.17	1.83	15	PASS
CCB12	CCB	1	0.14	3.9	15	PASS
CCV13	CCV	1	19.51	0.97	15	PASS
CCB13	CCB	1	0.23	3.16	15	PASS
ICSA4	ICSA	1	0.14	7.78	15	PASS
ICSAB4	ICSAB	1	20.73	1.4	15	PASS
CCV14	CCV	1	19.026	1.26	15	PASS
CCB14	CCB	1	0.15	3.47	15	PASS
CCV15	CCV	1	20.43	0.66	15	PASS
CCB15	CCB	1	0.41	8.44	15	PASS
ICSA5	ICSA	1	0.23	10.077	15	PASS
ICSAB5	ICSAB	1	20.77	2.54	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613001.D	RINSE	RINSE	1	06/13/19 4:20 AM
A0613002.D	Cal Blank	IBLK	1	06/13/19 4:25 AM
A0613003.D	Std1-0.1/1 ppb	ICAL	1	06/13/19 4:30 AM
A0613004.D	Std2-0.5/5 ppb	ICAL	1	06/13/19 4:34 AM
A0613005.D	Std3-5/50 ppb	ICAL	1	06/13/19 4:39 AM
A0613006.D	Std4-10/100 ppb	ICAL	1	06/13/19 4:44 AM
A0613007.D	Std5-20/200 ppb	ICAL	1	06/13/19 4:49 AM
A0613008.D	Std6-40/400 ppb	ICAL	1	06/13/19 4:54 AM
A0613009.D	Std7-100/1000 ppb	ICAL	1	06/13/19 4:59 AM
A0613010.D	Std8-200/2000 ppb	ICAL	1	06/13/19 5:04 AM
A0613011.D	ICV	ICV	1	06/13/19 5:09 AM
A0613012.D	ICB	ICB	1	06/13/19 5:14 AM
A0613013.D	LLICV	CCV1	1	06/13/19 5:19 AM
A0613014.D	ICSA1	ICSA	1	06/13/19 5:24 AM
A0613015.D	ICSAB1	ICSAB	1	06/13/19 5:29 AM
A0613016.D	LLICV	CCV1	1	06/13/19 5:34 AM
A0613017.D	MB-73911	MBLK	1	06/13/19 5:39 AM
A0613018.D	LCS-73911	LCS	1	06/13/19 5:44 AM
A0613019.D	N035596-001A	SAMP	1	06/13/19 5:49 AM
A0613020.D	N035599-001B	SAMP	1	06/13/19 5:54 AM
A0613021.D	N035599-001B	SAMP	5	06/13/19 5:59 AM
A0613022.D	N035599-001B-PS	PS	1	06/13/19 6:04 AM
A0613023.D	N035599-001B-MS	MS	1	06/13/19 6:09 AM
A0613024.D	N035599-001B-MSD	MSD	1	06/13/19 6:14 AM
A0613025.D	N035599-001B	SAMP	25	06/13/19 6:18 AM
A0613026.D	N035599-001B-PS	PS	5	06/13/19 6:23 AM
A0613027.D	CCV1	CCV	1	06/13/19 6:29 AM
A0613028.D	CCB1	CCB	1	06/13/19 6:34 AM
A0613029_190613A1.D	N035599-001B-MS	MS	5	06/13/19 6:41 AM
A0613030_190613A1.D	N035599-001B-MSD	MSD	5	06/13/19 6:46 AM
A0613031_190613A1.D	N035599-002B	SAMP	1	06/13/19 6:51 AM
A0613032_190613A1.D	N035599-003B	SAMP	1	06/13/19 6:56 AM
A0613033_190613A1.D	N035599-004B	SAMP	1	06/13/19 7:00 AM
A0613034_190613A1.D	N035599-004B	SAMP	5	06/13/19 7:05 AM
A0613035_190613A1.D	N035639-001A	SAMP	1	06/13/19 7:10 AM
A0613036_190613A1.D	N035640-001B	SAMP	1	06/13/19 7:15 AM
A0613037_190613A1.D	N035640-002B	SAMP	1	06/13/19 7:20 AM
A0613038_190613A1.D	N035640-003B	SAMP	1	06/13/19 7:25 AM
A0613039_190613A1.D	CCV2	CCV	1	06/13/19 7:30 AM
A0613040_190613A1.D	CCB2	CCB	1	06/13/19 7:35 AM
A0613041_190613A1.D	N035640-004B	SAMP	1	06/13/19 7:40 AM
A0613042_190613A1.D	N035640-004B	SAMP	5	06/13/19 7:45 AM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613043_190613A1.D	N035640-005B	SAMP	1	06/13/19 7:50 AM
A0613044_190613A1.D	N035640-006B	SAMP	1	06/13/19 7:55 AM
A0613045_190613A1.D	N035640-007B	SAMP	1	06/13/19 8:00 AM
A0613046_190613A1.D	N035640-007B	SAMP	25	06/13/19 8:05 AM
A0613047_190613A1.D	N035640-008B	SAMP	1	06/13/19 8:10 AM
A0613048_190613A1.D	N035640-008B	SAMP	5	06/13/19 8:15 AM
A0613049_190613A1.D	N035640-008B	SAMP	50	06/13/19 8:20 AM
A0613050_190613A1.D	N035640-009B	SAMP	1	06/13/19 8:25 AM
A0613051_190613A1.D	CCV3	CCV	1	06/13/19 8:30 AM
A0613052_190613A1.D	CCB3	CCB	1	06/13/19 8:35 AM
A0613053_190613A1.D	N035640-009B	SAMP	5	06/13/19 8:40 AM
A0613054_190613A1.D	N035640-010B	SAMP	1	06/13/19 8:45 AM
A0613055_190613A1.D	N035640-010B	SAMP	5	06/13/19 8:49 AM
A0613056_190613A1.D	N035640-011B	SAMP	1	06/13/19 8:54 AM
A0613057_190613A1.D	N035640-011B	SAMP	5	06/13/19 8:59 AM
A0613058_190613A1.D	N035640-011B	SAMP	25	06/13/19 9:04 AM
A0613059_190613A1.D	N035640-012B	SAMP	1	06/13/19 9:09 AM
A0613060_190613A1.D	N035640-012B	SAMP	5	06/13/19 9:14 AM
A0613061_190613A1.D	N035640-015B	SAMP	1	06/13/19 9:19 AM
A0613062_190613A1.D	N035640-015B	SAMP	5	06/13/19 9:24 AM
A0613063_190613A1.D	CCV4	CCV	1	06/13/19 9:29 AM
A0613064_190613A1.D	CCB4	CCB	1	06/13/19 9:34 AM
A0613065_190613A1.D	ICSA2	ICSA	1	06/13/19 9:39 AM
A0613066_190613A1.D	ICSAB2	ICSAB	1	06/13/19 9:44 AM
A0613067_190613A1.D	MB-73996	MBLK	1	06/13/19 9:49 AM
A0613068_190613A1.D	LCS-73996	LCS	1	06/13/19 9:54 AM
A0613069_190613A1.D	N035660-001A	SAMP	1	06/13/19 9:59 AM
A0613070_190613A1.D	N035660-001A	SAMP	5	06/13/19 10:04 AM
A0613071_190613A1.D	N035660-001A-PS	PS	1	06/13/19 10:09 AM
A0613072_190613A1.D	N035660-001A-MS	MS	1	06/13/19 10:14 AM
A0613073_190613A1.D	N035660-001A-MSD	MSD	1	06/13/19 10:19 AM
A0613074_190613A1.D	N035663-001B	SAMP	1	06/13/19 10:23 AM
A0613075_190613A1.D	N035663-002B	SAMP	1	06/13/19 10:28 AM
A0613076_190613A1.D	N035663-002B	SAMP	5	06/13/19 10:33 AM
A0613077.D	CCV5	CCV	1	06/13/19 11:36 AM
A0613078.D	CCB5	CCB	1	06/13/19 11:41 AM
A0613079.D	N035663-003B	SAMP	1	06/13/19 11:47 AM
A0613080.D	N035663-003B	SAMP	5	06/13/19 11:51 AM
A0613081.D	N035663-004B	SAMP	1	06/13/19 11:56 AM
A0613082.D	N035663-005B	SAMP	1	06/13/19 12:01 PM
A0613083.D	N035663-005B	SAMP	5	06/13/19 12:06 PM
A0613084.D	N035663-006B	SAMP	1	06/13/19 12:11 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613085.D	N035663-007B	SAMP	1	06/13/19 12:16 PM
A0613086.D	N035663-008B	SAMP	1	06/13/19 12:21 PM
A0613087.D	N035663-008B	SAMP	5	06/13/19 12:26 PM
A0613088.D	N035663-009B	SAMP	1	06/13/19 12:31 PM
A0613089.D	CCV6	CCV	1	06/13/19 12:36 PM
A0613090.D	CCB6	CCB	1	06/13/19 12:41 PM
A0613091.D	N035663-009B	SAMP	5	06/13/19 12:46 PM
A0613092.D	N035663-004B	SAMP	1	06/13/19 12:51 PM
A0613093.D	N035705-001B	SAMP	1	06/13/19 12:57 PM
A0613094.D	N035705-001B	SAMP	5	06/13/19 1:02 PM
A0613095.D	N035705-002B	SAMP	1	06/13/19 1:07 PM
A0613096.D	N035705-002B	SAMP	5	06/13/19 1:12 PM
A0613097.D	N035705-003B	SAMP	1	06/13/19 1:17 PM
A0613098.D	N035705-003B	SAMP	5	06/13/19 1:22 PM
A0613099.D	N035705-004B	SAMP	1	06/13/19 1:26 PM
A0613100.D	N035705-005B	SAMP	1	06/13/19 1:32 PM
A0613101.D	CCV7	CCV	1	06/13/19 1:41 PM
A0613102.D	CCB7	CCB	1	06/13/19 1:46 PM
A0613103.D	N035705-006B	SAMP	1	06/13/19 1:51 PM
A0613104.D	N035705-006B	SAMP	5	06/13/19 1:56 PM
A0613105.D	N035705-007B	SAMP	1	06/13/19 2:01 PM
A0613106.D	N035705-007B	SAMP	5	06/13/19 2:06 PM
A0613107.D	N035705-008B	SAMP	1	06/13/19 2:11 PM
A0613108.D	N035705-008B	SAMP	5	06/13/19 2:16 PM
A0613109.D	N035705-008B	SAMP	25	06/13/19 2:21 PM
A0613110.D	N035705-009B	SAMP	1	06/13/19 2:26 PM
A0613111.D	N035705-009B	SAMP	5	06/13/19 2:31 PM
A0613112.D	N035705-009B	SAMP	25	06/13/19 2:36 PM
A0613113.D	CCV8	CCV	1	06/13/19 2:40 PM
A0613114.D	CCB8	CCB	1	06/13/19 2:45 PM
A0613115.D	N035705-010B	SAMP	1	06/13/19 2:51 PM
A0613116.D	N035705-001B	SAMP	1	06/13/19 2:55 PM
A0613117.D	N035705-004B	SAMP	1	06/13/19 3:00 PM
A0613118.D	N035705-005B	SAMP	1	06/13/19 3:05 PM
A0613119.D	N035705-004B	SAMP	1	06/13/19 3:10 PM
A0613120.D	MB-74192	MBLK	1	06/13/19 3:15 PM
A0613121.D	LCS-74192	LCS	1	06/13/19 3:20 PM
A0613122.D	N035824-005A	SAMP	1	06/13/19 3:25 PM
A0613123.D	N035824-005A	SAMP	5	06/13/19 3:30 PM
A0613124.D	N035824-005A-PS	PS	1	06/13/19 3:35 PM
A0613125.D	CCV9	CCV	1	06/13/19 3:40 PM
A0613126.D	CCB9	CCB	1	06/13/19 3:45 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613127.D	ICSA3	ICSA	1	06/13/19 3:50 PM
A0613128.D	ICSAB3	ICSAB	1	06/13/19 3:55 PM
A0613129.D	N035824-005A-MS	MS	1	06/13/19 4:00 PM
A0613130.D	N035824-005A-MSD	MSD	1	06/13/19 4:05 PM
A0613131.D	N035956-001A	SAMP	5	06/13/19 4:10 PM
A0613132.D	N035956-001A	SAMP	25	06/13/19 4:15 PM
A0613133.D	N035705-004B	SAMP	1	06/13/19 4:20 PM
A0613134.D	MB-73997	MBLK	1	06/13/19 4:25 PM
A0613135.D	LCS-73997	LCS	1	06/13/19 4:30 PM
A0613136.D	N035705-014B	SAMP	1	06/13/19 4:35 PM
A0613137.D	N035705-014B	SAMP	5	06/13/19 4:40 PM
A0613138.D	N035705-014B	SAMP	50	06/13/19 4:45 PM
A0613139.D	CCV10	CCV	1	06/13/19 4:50 PM
A0613140.D	CCB10	CCB	1	06/13/19 4:55 PM
A0613141.D	N035705-015B	SAMP	1	06/13/19 5:00 PM
A0613142.D	N035705-015B	SAMP	5	06/13/19 5:05 PM
A0613143.D	N035705-015B-PS	PS	1	06/13/19 5:10 PM
A0613144.D	N035705-015B-MS	MS	1	06/13/19 5:15 PM
A0613145.D	N035705-015B-MSD	MSD	1	06/13/19 5:20 PM
A0613146.D	N035705-015B	SAMP	25	06/13/19 5:34 PM
A0613147.D	N035705-015B-PS	PS	5	06/13/19 5:38 PM
A0613148.D	N035705-015B-MS	MS	5	06/13/19 5:43 PM
A0613149.D	N035705-015B-MSD	MSD	5	06/13/19 5:48 PM
A0613150.D	N035705-004B	SAMP	1	06/13/19 5:59 PM
A0613151.D	CCV11	CCV	1	06/13/19 6:12 PM
A0613152.D	CCB11	CCB	1	06/13/19 6:17 PM
A0613153.D	CCV11	CCV	1	06/13/19 6:22 PM
A0613154.D	CCB11	CCB	1	06/13/19 6:27 PM
A0613155.D	N035705-004B	SAMP	1	06/13/19 6:32 PM
A0613156.D	N035705-014B	SAMP	5	06/13/19 6:37 PM
A0613157.D	N035705-015B-MS	MS	5	06/13/19 6:42 PM
A0613158.D	N035712-002B	SAMP	1	06/13/19 6:46 PM
A0613159.D	N035712-004B	SAMP	1	06/13/19 6:51 PM
A0613160.D	N035712-004B	SAMP	5	06/13/19 6:57 PM
A0613161.D	N035705-004B	SAMP	1	06/13/19 7:01 PM
A0613162.D	N035712-006B	SAMP	1	06/13/19 7:06 PM
A0613163.D	N035712-006B	SAMP	5	06/13/19 7:11 PM
A0613164.D	N035712-007B	SAMP	1	06/13/19 7:16 PM
A0613165.D	CCV12	CCV	1	06/13/19 7:21 PM
A0613166.D	CCB12	CCB	1	06/13/19 7:26 PM
A0613167.D	N035712-007B	SAMP	5	06/13/19 7:31 PM
A0613168.D	N035712-008B	SAMP	1	06/13/19 7:36 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613169.D	N035712-008B	SAMP	5	06/13/19 7:41 PM
A0613170.D	N035712-009B	SAMP	1	06/13/19 7:46 PM
A0613171.D	N035712-009B	SAMP	5	06/13/19 7:51 PM
A0613172.D	N035712-009B	SAMP	10	06/13/19 7:56 PM
A0613173.D	N035712-010B	SAMP	1	06/13/19 8:01 PM
A0613174.D	N035712-010B	SAMP	5	06/13/19 8:06 PM
A0613175.D	N035712-011B	SAMP	1	06/13/19 8:11 PM
A0613176.D	N035712-011B	SAMP	5	06/13/19 8:16 PM
A0613177.D	CCV13	CCV	1	06/13/19 8:21 PM
A0613178.D	CCB13	CCB	1	06/13/19 8:26 PM
A0613179.D	ICSA4	ICSA	1	06/13/19 8:31 PM
A0613180.D	ICSAB4	ICSAB	1	06/13/19 8:35 PM
A0613181.D	N035712-012B	SAMP	1	06/13/19 8:40 PM
A0613182.D	N035712-012B	SAMP	5	06/13/19 8:45 PM
A0613183.D	N035712-013B	SAMP	1	06/13/19 8:50 PM
A0613184.D	N035712-013B	SAMP	5	06/13/19 8:55 PM
A0613185.D	N035712-013B	SAMP	10	06/13/19 9:00 PM
A0613186.D	N035712-016B	SAMP	1	06/13/19 9:05 PM
A0613187.D	N035712-017B	SAMP	1	06/13/19 9:11 PM
A0613188.D	N035712-018B	SAMP	1	06/13/19 9:16 PM
A0613189.D	N035712-020B	SAMP	1	06/13/19 9:21 PM
A0613190.D	N035712-016B	SAMP	5	06/13/19 9:26 PM
A0613191.D	CCV14	CCV	1	06/13/19 9:31 PM
A0613192.D	CCB14	CCB	1	06/13/19 9:36 PM
A0613193.D	N035712-017B	SAMP	5	06/13/19 9:41 PM
A0613194.D	N035712-018B	SAMP	5	06/13/19 9:46 PM
A0613195.D	N035712-020B	SAMP	5	06/13/19 9:51 PM
A0613196.D	N035712-010B	SAMP	1	06/13/19 9:55 PM
A0613197.D	N035712-011B	SAMP	1	06/13/19 10:00 PM
A0613198.D	N035712-012B	SAMP	1	06/13/19 10:05 PM
A0613199.D	CCV15	CCV	1	06/13/19 10:10 PM
A0613200.D	CCB15	CCB	1	06/13/19 10:15 PM
A0613201.D	ICSA5	ICSA	1	06/13/19 10:20 PM
A0613202.D	ICSAB5	ICSAB	1	06/13/19 10:25 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/18/2019 6:47:36**
Prep End Date: **5/18/2019 11:00:00**
Reviewed/ Date: NS 6/17/2019
Initials/ Date: for

Prep Batch **73911** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73911	Aqueous		25	☐	0	0	25	1.000		
MB-73911	Aqueous		25	☐	0	0	25	1.000		
N035596-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035639-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-004B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/18/2019 6:47:36**
Prep End Date: **5/18/2019 11:00:00**
Reviewed/ Date: NS 6/17/2019
Initials/ Date: for

Prep Batch **73911** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035640-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-011B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-015B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 13 Jun 2019 03:50:19 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	189117.00	0.00	
24 Mg	466211.00	0.00	
25 Mg	61234.40	0.00	
26 Mg	70391.80	0.00	
59 Co	588709.00	0.00	
115 In	839911.00	0.00	
206 Pb	222452.00	0.00	
207 Pb	196044.00	0.00	
208 Pb	479118.00	0.00	

RSD (%)

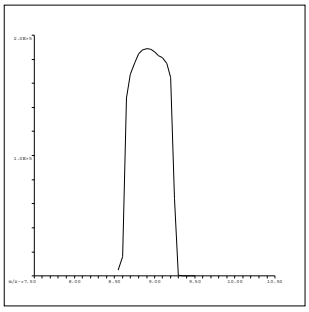
Element	Actual	Required	Flag
9 Be	0.26	5.00	
24 Mg	0.80	5.00	
25 Mg	0.82	5.00	
26 Mg	1.11	5.00	
59 Co	0.66	5.00	
115 In	0.60	5.00	
206 Pb	0.85	5.00	
207 Pb	1.04	5.00	
208 Pb	0.56	5.00	

Ion Ratio

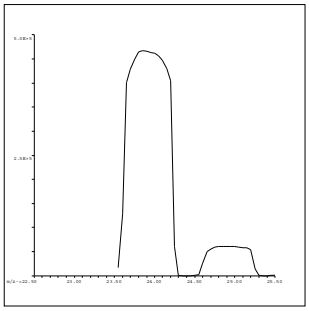
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

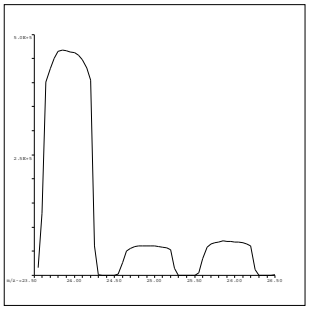
Element	Actual	Required	Flag



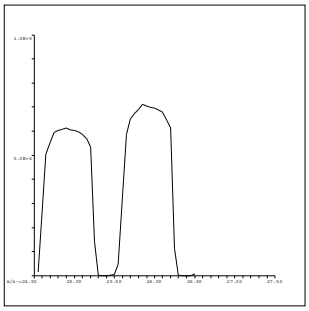
9 Be
Mass Calib.
Actual: 8.90
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



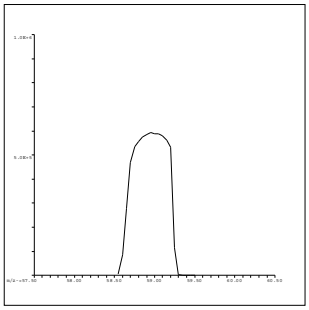
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



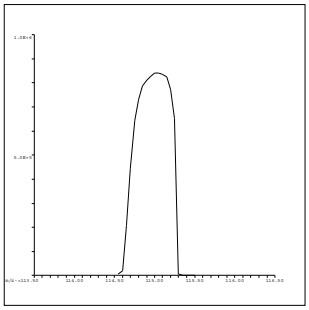
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



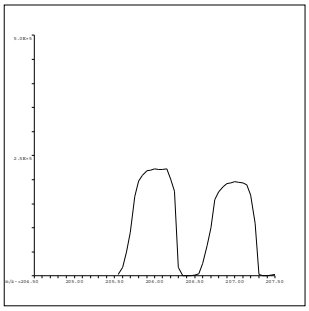
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



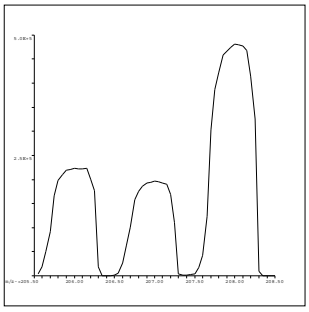
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



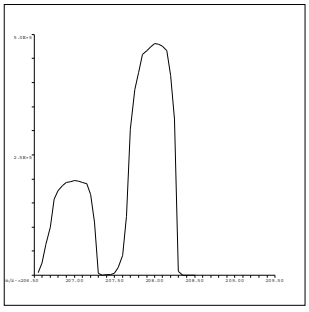
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190613A

Instrument ID: ICPMS-02

Analyte	Data File	A0613002.D	A0613003.D	A0613004.D	A0613005.D	A0613006.D	A0613007.D	A0613008.D	A0613009.D	A0613010.D	
	Acq. Date-Time	06/13/2019 04:25 AM	06/13/2019 04:30 AM	06/13/2019 04:34 AM	06/13/2019 04:39 AM	06/13/2019 04:44 AM	06/13/2019 04:49 AM	06/13/2019 04:54 AM	06/13/2019 04:59 AM	06/13/2019 05:04 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	118299.9		119867.1	119272.4	118909.5	123008	123835.8	123010	120294.7	
55 Mn [2]	CPS	155.5		2913.2	26071.6	51762.2	104092.5	207457.2	511984.7	998890.8	1.0000
52 Cr [2]	CPS	744.3		5335.4	49830.7	97211.2	196338.1	389716.7	966206.2	1968079.5	0.9998
72 Ge (ISTD) [1]	CPS	52885.6		53986.2	54439.8	52967.2	53485.6	53722.5	52414.3	50289.6	
78 Se [1]	CPS	1.1		101.1	1045.6	1865.8	3932.9	7927.8	19292.3	38379.9	0.9999
72 Ge (ISTD) [2]	CPS	84806.3	86959.6	85862.7	85668.5	85550.4	85531.1	86259.6	83976.2	80020	
75 As [2]	CPS	25.8	124.9	575.6	5307.1	10697.8	21470.3	42664.1	106037.5	206119.6	0.9999
103 Rh (ISTD) [2]	CPS	2396812.1		2410984	2394967.6	2359479.3	2385170.2	2326277.7	2269384.6	2185897.5	
95 Mo [2]	CPS	62.2		2590.3	25126.2	50703.3	103222.5	205459.7	512984.2	1006879.5	0.9999

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.869	0.10	10.00	0	98.7	90	110				
Manganese	106.801	0.50	100.0	0	107	90	110				
Molybdenum	9.499	0.50	10.00	0	95.0	90	110				
Selenium	9.930	0.50	10.00	0	99.3	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ZZZZZZ** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.108	0.10	0.1000	0	108	80	120				
Manganese	0.520	0.50	0.5000	0	104	80	120				
Molybdenum	0.497	0.50	0.5000	0	99.4	80	120				
Selenium	0.485	0.50	0.5000	0	97.0	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.375	0.10	20.00	0	96.9	90	110				
Manganese	21.056	0.50	20.00	0	105	90	110				
Molybdenum	19.228	0.50	20.00	0	96.1	90	110				
Selenium	19.147	0.50	20.00	0	95.7	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.530	0.10	20.00	0	97.7	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.199	0.50	20.00	0	106	90	110				
Molybdenum	18.955	0.50	20.00	0	94.8	90	110				
Selenium	18.535	0.50	20.00	0	92.7	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.467	0.10	20.00	0	97.3	90	110				
Manganese	20.869	0.50	20.00	0	104	90	110				
Molybdenum	19.062	0.50	20.00	0	95.3	90	110				
Selenium	19.020	0.50	20.00	0	95.1	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.322	0.10	20.00	0	96.6	90	110				
Manganese	20.803	0.50	20.00	0	104	90	110				
Molybdenum	19.152	0.50	20.00	0	95.8	90	110				
Selenium	20.412	0.50	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.387	0.10	20.00	0	96.9	90	110				
Manganese	18.694	0.50	20.00	0	93.5	90	110				
Molybdenum	18.301	0.50	20.00	0	91.5	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.022	0.50	20.00	0	100	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.357	0.10	20.00	0	96.8	90	110				
Manganese	21.167	0.50	20.00	0	106	90	110				
Molybdenum	18.998	0.50	20.00	0	95.0	90	110				
Selenium	19.068	0.50	20.00	0	95.3	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409931**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.981	0.10	20.00	0	94.9	90	110				
Manganese	21.343	0.50	20.00	0	107	90	110				
Molybdenum	18.641	0.50	20.00	0	93.2	90	110				
Selenium	18.994	0.50	20.00	0	95.0	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409943**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.271	0.10	20.00	0	96.4	90	110				
Manganese	21.230	0.50	20.00	0	106	90	110				
Molybdenum	18.548	0.50	20.00	0	92.7	90	110				
Selenium	19.825	0.50	20.00	0	99.1	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.387	0.10	20.00	0	96.9	90	110				
Manganese	19.045	0.50	20.00	0	95.2	90	110				
Molybdenum	18.771	0.50	20.00	0	93.9	90	110				
Selenium	18.888	0.50	20.00	0	94.4	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.695	1.0	10.00	0	107	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.009	1.0	1.000	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.065	1.0	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.314	1.0	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.342	1.0	20.00	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.027	1.0	20.00	0	100	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.551	1.0	20.00	0	97.8	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.183	1.0	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.319	1.0	20.00	0	102	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.292	1.0	20.00	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.221	1.0	20.00	0	91.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.216	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409944**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.190	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409816**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.140	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSA** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSAB** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.856	0.10	20.00	0	99.3	80	120				
Manganese	17.305	0.50	20.00	0	86.5	80	120				
Molybdenum	20.553	0.50	20.00	0	103	80	120				
Selenium	18.072	0.50	20.00	0	90.4	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSA** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSAB** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.436	0.10	20.00	0	97.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSAB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.264	0.50	20.00	0	86.3	80	120				
Molybdenum	20.328	0.50	20.00	0	102	80	120				
Selenium	18.241	0.50	20.00	0	91.2	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSA**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSAB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.471	0.10	20.00	0	97.4	80	120				
Manganese	16.754	0.50	20.00	0	83.8	80	120				
Molybdenum	20.106	0.50	20.00	0	101	80	120				
Selenium	19.121	0.50	20.00	0	95.6	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.378	1.0	20.00	0	96.9	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.742	1.0	20.00	0	98.7	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.542	1.0	20.00	0	92.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	118299.9	118299.9	100	PASS	70-125	84806.3	84806.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	121078	118299.9	102.35	PASS	70-125	86959.6	84806.3	102.54	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	119867.1	118299.9	101.32	PASS	70-125	85862.7	84806.3	101.25	PASS	70-125
Std3-5/50 ppb	ICAL	1	119272.4	118299.9	100.82	PASS	70-125	85668.5	84806.3	101.02	PASS	70-125
Std4-10/100 ppb	ICAL	1	118909.5	118299.9	100.52	PASS	70-125	85550.4	84806.3	100.88	PASS	70-125
Std5-20/200 ppb	ICAL	1	123008	118299.9	103.98	PASS	70-125	85531.1	84806.3	100.85	PASS	70-125
Std6-40/400 ppb	ICAL	1	123835.8	118299.9	104.68	PASS	70-125	86259.6	84806.3	101.71	PASS	70-125
Std7-100/1000 ppb	ICAL	1	123010	118299.9	103.98	PASS	70-125	83976.2	84806.3	99.021	PASS	70-125
Std8-200/2000 ppb	ICAL	1	120294.7	118299.9	101.69	PASS	70-125	80020	84806.3	94.36	PASS	70-125
ICV	ICV	1	107067.5	118299.9	90.51	PASS	70-125	79175	84806.3	93.36	PASS	70-125
ICB	ICB	1	113385.9	118299.9	95.85	PASS	70-125	83289.3	84806.3	98.21	PASS	70-125
LLICV	CCV1	1	114048.8	118299.9	96.41	PASS	70-125	84285.8	84806.3	99.39	PASS	70-125
ICSA1	ICSA	1	116558.7	118299.9	98.53	PASS	70-125	82217.4	84806.3	96.95	PASS	70-125
ICSAB1	ICSAB	1	121151.6	118299.9	102.41	PASS	70-125	83592	84806.3	98.57	PASS	70-125
LLICV	CCV1	1	130218.2	118299.9	110.08	PASS	70-125	93292	84806.3	110.01	PASS	70-125
MB-73911	MBLK	1	122803	118299.9	103.81	PASS	70-125	88624.1	84806.3	104.5	PASS	70-125
LCS-73911	LCS	1	118610.7	118299.9	100.26	PASS	70-125	85998.8	84806.3	101.41	PASS	70-125
N035596-001A	SAMP	1	129228.9	118299.9	109.24	PASS	70-125	80810	84806.3	95.29	PASS	70-125
N035599-001B	SAMP	1	129629.1	118299.9	109.58	PASS	70-125	85962.8	84806.3	101.36	PASS	70-125
N035599-001B	SAMP	5	132508	118299.9	112.01	PASS	70-125	93389.5	84806.3	110.12	PASS	70-125
N035599-001B-PS	PS	1	136608.1	118299.9	115.48	PASS	70-125	89831	84806.3	105.92	PASS	70-125
N035599-001B-MS	MS	1	132317.7	118299.9	111.85	PASS	70-125	87788.5	84806.3	103.52	PASS	70-125
N035599-001B-MSD	MSD	1	133933.8	118299.9	113.22	PASS	70-125	88407.4	84806.3	104.25	PASS	70-125
N035599-001B	SAMP	25	134250.1	118299.9	113.48	PASS	70-125	96102.4	84806.3	113.32	PASS	70-125
N035599-001B-PS	PS	5	134502.4	118299.9	113.7	PASS	70-125	93495.3	84806.3	110.25	PASS	70-125
CCV1	CCV	1	131653.7	118299.9	111.29	PASS	70-125	93444.8	84806.3	110.19	PASS	70-125
CCB1	CCB	1	124611.9	118299.9	105.34	PASS	70-125	91023.7	84806.3	107.33	PASS	70-125
N035599-001B-MS	MS	5	110270.9	118299.9	93.21	PASS	70-125	77440.8	84806.3	91.31	PASS	70-125
N035599-001B-MSD	MSD	5	112945.4	118299.9	95.47	PASS	70-125	81073	84806.3	95.6	PASS	70-125
N035599-002B	SAMP	1	120650	118299.9	101.99	PASS	70-125	80226.9	84806.3	94.6	PASS	70-125
N035599-003B	SAMP	1	127119.3	118299.9	107.46	PASS	70-125	84003.3	84806.3	99.053	PASS	70-125
N035599-004B	SAMP	1	116808	118299.9	98.74	PASS	70-125	69050.2	84806.3	81.42	PASS	70-125
N035599-004B	SAMP	5	129504.2	118299.9	109.47	PASS	70-125	88041.2	84806.3	103.81	PASS	70-125
N035639-001A	SAMP	1	127335.8	118299.9	107.64	PASS	70-125	77880.6	84806.3	91.83	PASS	70-125
N035640-001B	SAMP	1	130446.9	118299.9	110.27	PASS	70-125	83586.6	84806.3	98.56	PASS	70-125
N035640-002B	SAMP	1	134541.2	118299.9	113.73	PASS	70-125	85601.2	84806.3	100.94	PASS	70-125
N035640-003B	SAMP	1	122851.2	118299.9	103.85	PASS	70-125	75823.5	84806.3	89.41	PASS	70-125
CCV2	CCV	1	137138.8	118299.9	115.92	PASS	70-125	98271.7	84806.3	115.88	PASS	70-125
CCB2	CCB	1	133901.7	118299.9	113.19	PASS	70-125	97139.8	84806.3	114.54	PASS	70-125
N035640-004B	SAMP	1	115123.1	118299.9	97.31	PASS	70-125	69112.6	84806.3	81.49	PASS	70-125
N035640-004B	SAMP	5	128910.8	118299.9	108.97	PASS	70-125	88054.3	84806.3	103.83	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035640-005B	SAMP	1	124907.1	118299.9	105.59	PASS	70-125	75970.1	84806.3	89.58	PASS	70-125
N035640-006B	SAMP	1	137700.3	118299.9	116.4	PASS	70-125	90676.2	84806.3	106.92	PASS	70-125
N035640-007B	SAMP	1	132267.8	118299.9	111.81	PASS	70-125	85943.2	84806.3	101.34	PASS	70-125
N035640-007B	SAMP	25	132884.3	118299.9	112.33	PASS	70-125	97833.2	84806.3	115.36	PASS	70-125
N035640-008B	SAMP	1	117616.1	118299.9	99.42	PASS	70-125	70618.8	84806.3	83.27	PASS	70-125
N035640-008B	SAMP	5	129391.8	118299.9	109.38	PASS	70-125	88396.5	84806.3	104.23	PASS	70-125
N035640-008B	SAMP	50	132899.4	118299.9	112.34	PASS	70-125	97920.1	84806.3	115.46	PASS	70-125
N035640-009B	SAMP	1	131365	118299.9	111.04	PASS	70-125	86819.7	84806.3	102.37	PASS	70-125
CCV3	CCV	1	137592.8	118299.9	116.31	PASS	70-125	98647.8	84806.3	116.32	PASS	70-125
CCB3	CCB	1	130525.4	118299.9	110.33	PASS	70-125	96350.6	84806.3	113.61	PASS	70-125
N035640-009B	SAMP	5	127662.8	118299.9	107.91	PASS	70-125	91583.7	84806.3	107.99	PASS	70-125
N035640-010B	SAMP	1	128039.5	118299.9	108.23	PASS	70-125	85103.6	84806.3	100.35	PASS	70-125
N035640-010B	SAMP	5	126437.4	118299.9	106.88	PASS	70-125	91796.1	84806.3	108.24	PASS	70-125
N035640-011B	SAMP	1	128651	118299.9	108.75	PASS	70-125	79999.8	84806.3	94.33	PASS	70-125
N035640-011B	SAMP	5	125893.4	118299.9	106.42	PASS	70-125	89572.9	84806.3	105.62	PASS	70-125
N035640-011B	SAMP	25	127374.2	118299.9	107.67	PASS	70-125	94516.8	84806.3	111.45	PASS	70-125
N035640-012B	SAMP	1	116054.8	118299.9	98.1	PASS	70-125	71059.9	84806.3	83.79	PASS	70-125
N035640-012B	SAMP	5	129984.9	118299.9	109.88	PASS	70-125	89945.6	84806.3	106.06	PASS	70-125
N035640-015B	SAMP	1	135816.7	118299.9	114.81	PASS	70-125	88836.4	84806.3	104.75	PASS	70-125
N035640-015B	SAMP	5	133620.2	118299.9	112.95	PASS	70-125	95841.1	84806.3	113.01	PASS	70-125
CCV4	CCV	1	138359.3	118299.9	116.96	PASS	70-125	99023.2	84806.3	116.76	PASS	70-125
CCB4	CCB	1	129876.9	118299.9	109.79	PASS	70-125	96572.2	84806.3	113.87	PASS	70-125
ICSA2	ICSA	1	127416.6	118299.9	107.71	PASS	70-125	90619.8	84806.3	106.86	PASS	70-125
ICSAB2	ICSAB	1	129109.7	118299.9	109.14	PASS	70-125	91644.4	84806.3	108.06	PASS	70-125
CCV5	CCV	1	120169.2	118299.9	101.58	PASS	70-125	79871.9	84806.3	94.18	PASS	70-125
CCB5	CCB	1	112973.5	118299.9	95.5	PASS	70-125	81724.4	84806.3	96.37	PASS	70-125
CCV6	CCV	1	130365.4	118299.9	110.2	PASS	70-125	95358.3	84806.3	112.44	PASS	70-125
CCB6	CCB	1	128516.5	118299.9	108.64	PASS	70-125	93763.2	84806.3	110.56	PASS	70-125
CCV7	CCV	1	129951.8	118299.9	109.85	PASS	70-125	97687	84806.3	115.19	PASS	70-125
CCB7	CCB	1	121923.9	118299.9	103.06	PASS	70-125	92957.1	84806.3	109.61	PASS	70-125
CCV8	CCV	1	123209.4	118299.9	104.15	PASS	70-125	91092.5	84806.3	107.41	PASS	70-125
CCB8	CCB	1	115201.6	118299.9	97.38	PASS	70-125	86809.3	84806.3	102.36	PASS	70-125
CCV9	CCV	1	132929.8	118299.9	112.37	PASS	70-125	89958	84806.3	106.08	PASS	70-125
CCB9	CCB	1	122515.4	118299.9	103.56	PASS	70-125	86943.7	84806.3	102.52	PASS	70-125
ICSA3	ICSA	1	120646.9	118299.9	101.98	PASS	70-125	82979.6	84806.3	97.85	PASS	70-125
ICSAB3	ICSAB	1	122250.3	118299.9	103.34	PASS	70-125	84116.8	84806.3	99.19	PASS	70-125
CCV10	CCV	1	126311.1	118299.9	106.77	PASS	70-125	91611	84806.3	108.02	PASS	70-125
CCB10	CCB	1	122094.1	118299.9	103.21	PASS	70-125	89692.6	84806.3	105.76	PASS	70-125
CCV11	CCV	1	147709.8	118299.9	124.86	PASS	70-125	94478.5	84806.3	111.41	PASS	70-125
CCB11	CCB	1	143820.2	118299.9	121.57	PASS	70-125	96776.4	84806.3	114.11	PASS	70-125
CCV11	CCV	1	146814.8	118299.9	124.1	PASS	70-125	97466.2	84806.3	114.93	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB11	CCB	1	137425.9	118299.9	116.17	PASS	70-125	94192.4	84806.3	111.07	PASS	70-125
CCV12	CCV	1	149318.2	118299.9	126.22	NR!	70-125	98987.9	84806.3	116.72	PASS	70-125
CCB12	CCB	1	139329	118299.9	117.78	PASS	70-125	94352	84806.3	111.26	PASS	70-125
CCV13	CCV	1	155808.6	118299.9	131.71	NR!	70-125	104956.3	84806.3	123.76	PASS	70-125
CCB13	CCB	1	146712.9	118299.9	124.02	PASS	70-125	100434	84806.3	118.43	PASS	70-125
ICSA4	ICSA	1	147712.9	118299.9	124.86	PASS	70-125	98365.8	84806.3	115.99	PASS	70-125
ICSAB4	ICSAB	1	150301.7	118299.9	127.05	NR!	70-125	98183.3	84806.3	115.77	PASS	70-125
CCV14	CCV	1	140471.2	118299.9	118.74	PASS	70-125	96391.8	84806.3	113.66	PASS	70-125
CCB14	CCB	1	141379.3	118299.9	119.51	PASS	70-125	98448	84806.3	116.09	PASS	70-125
CCV15	CCV	1	144515.8	118299.9	122.16	PASS	70-125	100360.5	84806.3	118.34	PASS	70-125
CCB15	CCB	1	144951.9	118299.9	122.53	PASS	70-125	102142.4	84806.3	120.44	PASS	70-125
ICSA5	ICSA	1	140709.1	118299.9	118.94	PASS	70-125	95807.8	84806.3	112.97	PASS	70-125
ICSAB5	ICSAB	1	141283.8	118299.9	119.43	PASS	70-125	93986.6	84806.3	110.83	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	52885.6	52885.6	100	PASS	70-125	2396812.1	2396812.1	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	54733.9	52885.6	103.49	PASS	70-125	2447111.2	2396812.1	102.1	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	53986.2	52885.6	102.08	PASS	70-125	2410984	2396812.1	100.59	PASS	70-125
Std3-5/50 ppb	ICAL	1	54439.8	52885.6	102.94	PASS	70-125	2394967.6	2396812.1	99.92	PASS	70-125
Std4-10/100 ppb	ICAL	1	52967.2	52885.6	100.15	PASS	70-125	2359479.3	2396812.1	98.44	PASS	70-125
Std5-20/200 ppb	ICAL	1	53485.6	52885.6	101.13	PASS	70-125	2385170.2	2396812.1	99.51	PASS	70-125
Std6-40/400 ppb	ICAL	1	53722.5	52885.6	101.58	PASS	70-125	2326277.7	2396812.1	97.057	PASS	70-125
Std7-100/1000 ppb	ICAL	1	52414.3	52885.6	99.11	PASS	70-125	2269384.6	2396812.1	94.68	PASS	70-125
Std8-200/2000 ppb	ICAL	1	50289.6	52885.6	95.091	PASS	70-125	2185897.5	2396812.1	91.2	PASS	70-125
ICV	ICV	1	47132.7	52885.6	89.12	PASS	70-125	2267150	2396812.1	94.59	PASS	70-125
ICB	ICB	1	53234.5	52885.6	100.66	PASS	70-125	2304559.4	2396812.1	96.15	PASS	70-125
LLICV	CCV1	1	52815.6	52885.6	99.87	PASS	70-125	2346500.7	2396812.1	97.9	PASS	70-125
ICSA1	ICSA	1	50145.9	52885.6	94.82	PASS	70-125	2124323.6	2396812.1	88.63	PASS	70-125
ICSAB1	ICSAB	1	51617.3	52885.6	97.6	PASS	70-125	2120252	2396812.1	88.46	PASS	70-125
LLICV	CCV1	1	60802.1	52885.6	114.97	PASS	70-125	2538827	2396812.1	105.93	PASS	70-125
MB-73911	MBLK	1	57363	52885.6	108.47	PASS	70-125	2427728	2396812.1	101.29	PASS	70-125
LCS-73911	LCS	1	55630.4	52885.6	105.19	PASS	70-125	2375689.1	2396812.1	99.12	PASS	70-125
N035596-001A	SAMP	1	46062.9	52885.6	87.099	PASS	70-125	1898444.4	2396812.1	79.21	PASS	70-125
N035599-001B	SAMP	1	52967.9	52885.6	100.16	PASS	70-125	2122215.4	2396812.1	88.54	PASS	70-125
N035599-001B	SAMP	5	55688.1	52885.6	105.3	PASS	70-125	2354977	2396812.1	98.25	PASS	70-125
N035599-001B-PS	PS	1	53810.7	52885.6	101.75	PASS	70-125	2203113.8	2396812.1	91.92	PASS	70-125
N035599-001B-MS	MS	1	52371.8	52885.6	99.028	PASS	70-125	2146628.2	2396812.1	89.56	PASS	70-125
N035599-001B-MSD	MSD	1	53029.3	52885.6	100.27	PASS	70-125	2172454.2	2396812.1	90.64	PASS	70-125
N035599-001B	SAMP	25	58201.6	52885.6	110.05	PASS	70-125	2489793.5	2396812.1	103.88	PASS	70-125
N035599-001B-PS	PS	5	56803.3	52885.6	107.41	PASS	70-125	2354924.4	2396812.1	98.25	PASS	70-125
CCV1	CCV	1	56614.7	52885.6	107.05	PASS	70-125	2501641.2	2396812.1	104.37	PASS	70-125
CCB1	CCB	1	56838.9	52885.6	107.48	PASS	70-125	2491903.6	2396812.1	103.97	PASS	70-125
N035599-001B-MS	MS	5	47275.3	52885.6	89.39	PASS	70-125	2119773.6	2396812.1	88.44	PASS	70-125
N035599-001B-MSD	MSD	5	50851.6	52885.6	96.15	PASS	70-125	2166804.5	2396812.1	90.4	PASS	70-125
N035599-002B	SAMP	1	46839.5	52885.6	88.57	PASS	70-125	2028345	2396812.1	84.63	PASS	70-125
N035599-003B	SAMP	1	49441.5	52885.6	93.49	PASS	70-125	2102642	2396812.1	87.73	PASS	70-125
N035599-004B	SAMP	1	37099.8	52885.6	70.15	PASS	70-125	1595051.6	2396812.1	66.55	NR!	70-125
N035599-004B	SAMP	5	53970.6	52885.6	102.05	PASS	70-125	2177965.6	2396812.1	90.87	PASS	70-125
N035639-001A	SAMP	1	46845.1	52885.6	88.58	PASS	70-125	1882689.1	2396812.1	78.55	PASS	70-125
N035640-001B	SAMP	1	51541.2	52885.6	97.46	PASS	70-125	2052584.7	2396812.1	85.64	PASS	70-125
N035640-002B	SAMP	1	52253.6	52885.6	98.8	PASS	70-125	2111351.5	2396812.1	88.09	PASS	70-125
N035640-003B	SAMP	1	41912.8	52885.6	79.25	PASS	70-125	1763968.5	2396812.1	73.6	PASS	70-125
CCV2	CCV	1	61854	52885.6	116.96	PASS	70-125	2637526.6	2396812.1	110.04	PASS	70-125
CCB2	CCB	1	61945.2	52885.6	117.13	PASS	70-125	2575075.8	2396812.1	107.44	PASS	70-125
N035640-004B	SAMP	1	36825.8	52885.6	69.63	NR!	70-125	1577226.4	2396812.1	65.81	NR!	70-125
N035640-004B	SAMP	5	52353.9	52885.6	98.99	PASS	70-125	2190613.8	2396812.1	91.4	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035640-005B	SAMP	1	41513.8	52885.6	78.5	PASS	70-125	1744606.4	2396812.1	72.79	PASS	70-125
N035640-006B	SAMP	1	54499.6	52885.6	103.05	PASS	70-125	2233980.1	2396812.1	93.21	PASS	70-125
N035640-007B	SAMP	1	51229.5	52885.6	96.87	PASS	70-125	2051722.4	2396812.1	85.6	PASS	70-125
N035640-007B	SAMP	25	60769.6	52885.6	114.91	PASS	70-125	2531409.8	2396812.1	105.62	PASS	70-125
N035640-008B	SAMP	1	37553.2	52885.6	71.008	PASS	70-125	1602531.7	2396812.1	66.86	NR!	70-125
N035640-008B	SAMP	5	51215.9	52885.6	96.84	PASS	70-125	2191075.9	2396812.1	91.42	PASS	70-125
N035640-008B	SAMP	50	59035.8	52885.6	111.63	PASS	70-125	2498395.9	2396812.1	104.24	PASS	70-125
N035640-009B	SAMP	1	50641.9	52885.6	95.76	PASS	70-125	2119941.5	2396812.1	88.45	PASS	70-125
CCV3	CCV	1	60233.1	52885.6	113.89	PASS	70-125	2626607.6	2396812.1	109.59	PASS	70-125
CCB3	CCB	1	58767	52885.6	111.12	PASS	70-125	2580943.9	2396812.1	107.68	PASS	70-125
N035640-009B	SAMP	5	54245.8	52885.6	102.57	PASS	70-125	2330514.3	2396812.1	97.23	PASS	70-125
N035640-010B	SAMP	1	48200.3	52885.6	91.14	PASS	70-125	2100926.8	2396812.1	87.66	PASS	70-125
N035640-010B	SAMP	5	54260.2	52885.6	102.6	PASS	70-125	2327768.3	2396812.1	97.12	PASS	70-125
N035640-011B	SAMP	1	43543.7	52885.6	82.34	PASS	70-125	1940856.6	2396812.1	80.98	PASS	70-125
N035640-011B	SAMP	5	51239.2	52885.6	96.89	PASS	70-125	2261694.1	2396812.1	94.36	PASS	70-125
N035640-011B	SAMP	25	54112	52885.6	102.32	PASS	70-125	2413690.9	2396812.1	100.7	PASS	70-125
N035640-012B	SAMP	1	35067.6	52885.6	66.31	NR!	70-125	1639626	2396812.1	68.41	NR!	70-125
N035640-012B	SAMP	5	51318.4	52885.6	97.037	PASS	70-125	2209746.8	2396812.1	92.2	PASS	70-125
N035640-015B	SAMP	1	50648.8	52885.6	95.77	PASS	70-125	2160119.5	2396812.1	90.12	PASS	70-125
N035640-015B	SAMP	5	56141.2	52885.6	106.16	PASS	70-125	2384778.8	2396812.1	99.5	PASS	70-125
CCV4	CCV	1	57448.9	52885.6	108.63	PASS	70-125	2624575.8	2396812.1	109.5	PASS	70-125
CCB4	CCB	1	55462	52885.6	104.87	PASS	70-125	2559089.3	2396812.1	106.77	PASS	70-125
ICSA2	ICSA	1	51264.8	52885.6	96.94	PASS	70-125	2289759.1	2396812.1	95.53	PASS	70-125
ICSAB2	ICSAB	1	51946.1	52885.6	98.22	PASS	70-125	2277901	2396812.1	95.039	PASS	70-125
CCV5	CCV	1	42360.7	52885.6	80.099	PASS	70-125	2248826.9	2396812.1	93.83	PASS	70-125
CCB5	CCB	1	47151.4	52885.6	89.16	PASS	70-125	2266355	2396812.1	94.56	PASS	70-125
CCV6	CCV	1	58321.1	52885.6	110.28	PASS	70-125	2543894.4	2396812.1	106.14	PASS	70-125
CCB6	CCB	1	57574.2	52885.6	108.87	PASS	70-125	2511700.8	2396812.1	104.79	PASS	70-125
CCV7	CCV	1	59262.3	52885.6	112.06	PASS	70-125	2562067.6	2396812.1	106.89	PASS	70-125
CCB7	CCB	1	56050.8	52885.6	105.98	PASS	70-125	2447922.6	2396812.1	102.13	PASS	70-125
CCV8	CCV	1	54644.7	52885.6	103.33	PASS	70-125	2449837.7	2396812.1	102.21	PASS	70-125
CCB8	CCB	1	52684.1	52885.6	99.62	PASS	70-125	2339360.9	2396812.1	97.6	PASS	70-125
CCV9	CCV	1	55313.8	52885.6	104.59	PASS	70-125	2436501.1	2396812.1	101.66	PASS	70-125
CCB9	CCB	1	52765.6	52885.6	99.77	PASS	70-125	2351258.9	2396812.1	98.099	PASS	70-125
ICSA3	ICSA	1	50052.5	52885.6	94.64	PASS	70-125	2146100.3	2396812.1	89.54	PASS	70-125
ICSAB3	ICSAB	1	49589.7	52885.6	93.77	PASS	70-125	2140563.6	2396812.1	89.31	PASS	70-125
CCV10	CCV	1	54610.9	52885.6	103.26	PASS	70-125	2449064	2396812.1	102.18	PASS	70-125
CCB10	CCB	1	53794.4	52885.6	101.72	PASS	70-125	2382349.3	2396812.1	99.4	PASS	70-125
CCV11	CCV	1	56431.9	52885.6	106.71	PASS	70-125	2622300.7	2396812.1	109.41	PASS	70-125
CCB11	CCB	1	61021.5	52885.6	115.38	PASS	70-125	2637261.4	2396812.1	110.03	PASS	70-125
CCV11	CCV	1	60712.3	52885.6	114.8	PASS	70-125	2651908.5	2396812.1	110.64	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB11	CCB	1	56182.2	52885.6	106.23	PASS	70-125	2573807.2	2396812.1	107.38	PASS	70-125
CCV12	CCV	1	62220.4	52885.6	117.65	PASS	70-125	2667290.8	2396812.1	111.28	PASS	70-125
CCB12	CCB	1	59512.9	52885.6	112.53	PASS	70-125	2577460.6	2396812.1	107.54	PASS	70-125
CCV13	CCV	1	67499	52885.6	127.63	NR!	70-125	2774619.7	2396812.1	115.76	PASS	70-125
CCB13	CCB	1	65250.1	52885.6	123.38	PASS	70-125	2676741.9	2396812.1	111.68	PASS	70-125
ICSA4	ICSA	1	60682.7	52885.6	114.74	PASS	70-125	2461665.8	2396812.1	102.71	PASS	70-125
ICSAB4	ICSAB	1	61276.8	52885.6	115.87	PASS	70-125	2433637.9	2396812.1	101.54	PASS	70-125
CCV14	CCV	1	64170	52885.6	121.34	PASS	70-125	2588998.9	2396812.1	108.02	PASS	70-125
CCB14	CCB	1	67120.6	52885.6	126.92	NR!	70-125	2663601.6	2396812.1	111.13	PASS	70-125
CCV15	CCV	1	67642	52885.6	127.9	NR!	70-125	2656766.3	2396812.1	110.85	PASS	70-125
CCB15	CCB	1	69949.6	52885.6	132.27	NR!	70-125	2705951	2396812.1	112.9	PASS	70-125
ICSA5	ICSA	1	63117.1	52885.6	119.35	PASS	70-125	2395525.5	2396812.1	99.95	PASS	70-125
ICSAB5	ICSAB	1	62251.7	52885.6	117.71	PASS	70-125	2357064.5	2396812.1	98.34	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035599
Test Method: EPA 6020
Analysis Date: 6/13/2019

Matrix: Groundwater
Batch No.: 73911

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035599-001B DT 25x	Chromium	Cr	µg/L	256.2871	PASS	250.8685	2.16%	10
N035599-001B DT 5x	Arsenic	As	µg/L	0.9292635	NA	0.9424185	1.40%	10
N035599-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N035599-001B DT 5x	Molybdenum	Mo	µg/L	7.7366	NA	7.568782	2.22%	10
N035599-001B DT 5x	Selenium	Se	µg/L	3.75276	NA	3.811676	1.55%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035599-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ZZZZZZ** Batch ID: **73911** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/13/2019** SeqNo: **3409852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.110	0.10	10.00	0.9424	102	80	120				
Manganese	93.704	0.50	100.0	0	93.7	80	120				
Molybdenum	18.410	0.50	10.00	7.569	108	80	120				
Selenium	13.183	0.50	10.00	3.812	93.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035599
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N035599-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID:	**ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	250.406	5.0	10.00	250.9	-4.62	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

June 16, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035640

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 16, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N035599-001B-MS and N035599-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on some analytes for samples N035640-004, -008 and -012 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035640
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035640-001A	MW-47-055-Q219	Groundwater	5/16/2019 10:12:00 AM	5/16/2019	6/16/2019
N035640-001B	MW-47-055-Q219	Groundwater	5/16/2019 10:12:00 AM	5/16/2019	6/16/2019
N035640-001C	MW-47-055-Q219	Groundwater	5/16/2019 10:12:00 AM	5/16/2019	6/16/2019
N035640-002A	MW-907-Q219	Groundwater	5/16/2019 10:17:00 AM	5/16/2019	6/16/2019
N035640-002B	MW-907-Q219	Groundwater	5/16/2019 10:17:00 AM	5/16/2019	6/16/2019
N035640-002C	MW-907-Q219	Groundwater	5/16/2019 10:17:00 AM	5/16/2019	6/16/2019
N035640-003A	MW-47-115-Q219	Groundwater	5/16/2019 9:20:00 AM	5/16/2019	6/16/2019
N035640-003B	MW-47-115-Q219	Groundwater	5/16/2019 9:20:00 AM	5/16/2019	6/16/2019
N035640-003C	MW-47-115-Q219	Groundwater	5/16/2019 9:20:00 AM	5/16/2019	6/16/2019
N035640-004A	TW-04-LF-Q219	Groundwater	5/16/2019 11:23:00 AM	5/16/2019	6/16/2019
N035640-004B	TW-04-LF-Q219	Groundwater	5/16/2019 11:23:00 AM	5/16/2019	6/16/2019
N035640-004C	TW-04-LF-Q219	Groundwater	5/16/2019 11:23:00 AM	5/16/2019	6/16/2019
N035640-005A	MW-65-225-Q219	Groundwater	5/16/2019 3:13:00 PM	5/16/2019	6/16/2019
N035640-005B	MW-65-225-Q219	Groundwater	5/16/2019 3:13:00 PM	5/16/2019	6/16/2019
N035640-005C	MW-65-225-Q219	Groundwater	5/16/2019 3:13:00 PM	5/16/2019	6/16/2019
N035640-005D	MW-65-225-Q219	Groundwater	5/16/2019 3:13:00 PM	5/16/2019	6/16/2019
N035640-006A	MW-69-195-Q219	Groundwater	5/16/2019 3:57:00 PM	5/16/2019	6/16/2019
N035640-006B	MW-69-195-Q219	Groundwater	5/16/2019 3:57:00 PM	5/16/2019	6/16/2019
N035640-006C	MW-69-195-Q219	Groundwater	5/16/2019 3:57:00 PM	5/16/2019	6/16/2019
N035640-006D	MW-69-195-Q219	Groundwater	5/16/2019 3:57:00 PM	5/16/2019	6/16/2019
N035640-007A	MW-67-225-Q219	Groundwater	5/16/2019 2:00:00 PM	5/16/2019	6/16/2019
N035640-007B	MW-67-225-Q219	Groundwater	5/16/2019 2:00:00 PM	5/16/2019	6/16/2019
N035640-007C	MW-67-225-Q219	Groundwater	5/16/2019 2:00:00 PM	5/16/2019	6/16/2019
N035640-007D	MW-67-225-Q219	Groundwater	5/16/2019 2:00:00 PM	5/16/2019	6/16/2019
N035640-008A	MW-66-230-Q219	Groundwater	5/16/2019 9:34:00 AM	5/16/2019	6/16/2019
N035640-008B	MW-66-230-Q219	Groundwater	5/16/2019 9:34:00 AM	5/16/2019	6/16/2019
N035640-008C	MW-66-230-Q219	Groundwater	5/16/2019 9:34:00 AM	5/16/2019	6/16/2019
N035640-008D	MW-66-230-Q219	Groundwater	5/16/2019 9:34:00 AM	5/16/2019	6/16/2019
N035640-009A	MW-66-165-Q219	Groundwater	5/16/2019 11:08:00 AM	5/16/2019	6/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035640
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035640-009B	MW-66-165-Q219	Groundwater	5/16/2019 11:08:00 AM	5/16/2019	6/16/2019
N035640-009C	MW-66-165-Q219	Groundwater	5/16/2019 11:08:00 AM	5/16/2019	6/16/2019
N035640-009D	MW-66-165-Q219	Groundwater	5/16/2019 11:08:00 AM	5/16/2019	6/16/2019
N035640-010A	MW-911-Q219	Groundwater	5/16/2019 11:18:00 AM	5/16/2019	6/16/2019
N035640-010B	MW-911-Q219	Groundwater	5/16/2019 11:18:00 AM	5/16/2019	6/16/2019
N035640-010C	MW-911-Q219	Groundwater	5/16/2019 11:18:00 AM	5/16/2019	6/16/2019
N035640-010D	MW-911-Q219	Groundwater	5/16/2019 11:18:00 AM	5/16/2019	6/16/2019
N035640-011A	MW-67-185-Q219	Groundwater	5/16/2019 12:33:00 PM	5/16/2019	6/16/2019
N035640-011B	MW-67-185-Q219	Groundwater	5/16/2019 12:33:00 PM	5/16/2019	6/16/2019
N035640-011C	MW-67-185-Q219	Groundwater	5/16/2019 12:33:00 PM	5/16/2019	6/16/2019
N035640-011D	MW-67-185-Q219	Groundwater	5/16/2019 12:33:00 PM	5/16/2019	6/16/2019
N035640-012A	MW-67-260-Q219	Groundwater	5/16/2019 2:48:00 PM	5/16/2019	6/16/2019
N035640-012B	MW-67-260-Q219	Groundwater	5/16/2019 2:48:00 PM	5/16/2019	6/16/2019
N035640-012C	MW-67-260-Q219	Groundwater	5/16/2019 2:48:00 PM	5/16/2019	6/16/2019
N035640-012D	MW-67-260-Q219	Groundwater	5/16/2019 2:48:00 PM	5/16/2019	6/16/2019
N035640-013A	MW-711-Q219	Groundwater	5/16/2019 4:20:00 PM	5/16/2019	6/16/2019
N035640-014A	MW-710-Q219	Groundwater	5/16/2019 4:15:00 PM	5/16/2019	6/16/2019
N035640-015A	MW-65-160-Q219	Groundwater	5/16/2019 1:32:00 PM	5/16/2019	6/16/2019
N035640-015B	MW-65-160-Q219	Groundwater	5/16/2019 1:32:00 PM	5/16/2019	6/16/2019
N035640-015C	MW-65-160-Q219	Groundwater	5/16/2019 1:32:00 PM	5/16/2019	6/16/2019
N035640-015D	MW-65-160-Q219	Groundwater	5/16/2019 1:32:00 PM	5/16/2019	6/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-47-055-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 10:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	4800	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-907-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	4700	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-47-115-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 9:20:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-04-LF-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:23:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:13:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:57:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-230-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 9:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-165-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	3900	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	4000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-185-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 12:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	7700	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-260-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 1:32:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	4000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N035640-005DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	133989
Client ID:	ZZZZZZ	Batch ID:	R133989	TestNo:	EPA 120.1			Analysis Date:	5/17/2019	SeqNo:	3389056

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15390.000	0.10						15400	0.0650	2	

Sample ID	N035640-015DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	133989
Client ID:	ZZZZZZ	Batch ID:	R133989	TestNo:	EPA 120.1			Analysis Date:	5/17/2019	SeqNo:	3389066

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3990.000	0.10						3970	0.503	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-47-055-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 10:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A** QC Batch: **R133981**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	17	0.17	1.0		µg/L	5	5/17/2019 10:29 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	15	0.13	1.0		µg/L	1	6/13/2019 07:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-907-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A** QC Batch: **R133981**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	17	0.17	1.0		µg/L	5	5/17/2019 11:52 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	15	0.13	1.0		µg/L	1	6/13/2019 07:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-47-115-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 9:20:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A** QC Batch: **R133981**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	27	0.17	1.0		µg/L	5	5/17/2019 12:03 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	23	0.13	1.0		µg/L	1	6/13/2019 07:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-04-LF-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:23:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	5.1	0.17	1.0		µg/L	5	5/17/2019 12:12 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	4.5	0.13	1.0		µg/L	1	6/13/2019 07:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:13:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	180	1.7	10		µg/L	50	5/17/2019 12:21 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	160	0.13	1.0		µg/L	1	6/13/2019 07:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:57:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	120	1.7	10		µg/L	50	5/17/2019 12:40 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	120	0.13	1.0		µg/L	1	6/13/2019 07:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	3100	17	100		µg/L	500	5/17/2019 12:50 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	3300	3.2	25		µg/L	25	6/13/2019 08:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-230-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 9:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	6400	33	200		µg/L	1000	5/17/2019 12:59 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	7000	6.5	50		µg/L	50	6/13/2019 08:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-165-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	550	3.3	20		µg/L	100	5/17/2019 01:09 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	570	0.65	5.0		µg/L	5	6/13/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	540	3.3	20		µg/L	100	5/17/2019 01:18 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	580	0.65	5.0		µg/L	5	6/13/2019 08:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-185-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 12:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	2100	6.6	40		µg/L	200	5/17/2019 10:38 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	2200	3.2	25		µg/L	25	6/13/2019 09:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-260-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	800	3.3	20		µg/L	100	5/17/2019 01:47 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	850	0.65	5.0		µg/L	5	6/13/2019 09:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-711-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 4:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/17/2019 04:55 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-710-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 4:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/17/2019 05:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 1:32:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	160	0.66	4.0		µg/L	20	5/17/2019 01:56 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	190	0.65	5.0		µg/L	5	6/13/2019 09:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R133981**	SampType:	**MBLK**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133981**
Client ID:	**PBW**	Batch ID:	**R133981**	TestNo:	**EPA 218.6**			Analysis Date:	**5/17/2019**	SeqNo:	**3388737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-R133981**	SampType:	**LCS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133981**
Client ID:	**LCSW**	Batch ID:	**R133981**	TestNo:	**EPA 218.6**			Analysis Date:	**5/17/2019**	SeqNo:	**3388738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.081	0.20	5.000	0	102	90	110				

Sample ID	**N035638-001AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133981**
Client ID:	**ZZZZZZ**	Batch ID:	**R133981**	TestNo:	**EPA 218.6**			Analysis Date:	**5/17/2019**	SeqNo:	**3388743**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.092	0.20	1.000	0	109	90	110				

Sample ID	**N035640-001ADUP**	SampType:	**DUP**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133981**
Client ID:	**ZZZZZZ**	Batch ID:	**R133981**	TestNo:	**EPA 218.6**			Analysis Date:	**5/17/2019**	SeqNo:	**3388744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	16.499	1.0						16.64	0.881	20	

Sample ID	**N035640-011AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**133981**
Client ID:	**ZZZZZZ**	Batch ID:	**R133981**	TestNo:	**EPA 218.6**			Analysis Date:	**5/17/2019**	SeqNo:	**3388745**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3090.540	40	1000	2108	98.2	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035640-011AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133981**
Client ID: **ZZZZZZ** Batch ID: **R133981** TestNo: **EPA 218.6** Analysis Date: **5/17/2019** SeqNo: **3388746**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3095.340	40	1000	2108	98.7	90	110	3091	0.155	20	

Sample ID **N035639-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133981**
Client ID: **ZZZZZZ** Batch ID: **R133981** TestNo: **EPA 218.6** Analysis Date: **5/17/2019** SeqNo: **3388753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.022	0.20	1.000	0	102	90	110				

Sample ID **N035640-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133981**
Client ID: **ZZZZZZ** Batch ID: **R133981** TestNo: **EPA 218.6** Analysis Date: **5/17/2019** SeqNo: **3388763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	41.914	1.0	25.00	16.64	101	90	110				

Sample ID **N035640-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133981**
Client ID: **ZZZZZZ** Batch ID: **R133981** TestNo: **EPA 218.6** Analysis Date: **5/17/2019** SeqNo: **3388764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	41.643	1.0	25.00	16.60	100	90	110				

Sample ID **N035640-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133981**
Client ID: **ZZZZZZ** Batch ID: **R133981** TestNo: **EPA 218.6** Analysis Date: **5/17/2019** SeqNo: **3388765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	52.033	1.0	25.00	26.55	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035640-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.313	1.0	5.000	5.138	103	90	110				

Sample ID **N035640-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	432.425	10	250.0	176.9	102	90	110				

Sample ID **N035640-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	376.195	10	250.0	119.8	103	90	110				

Sample ID **N035640-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5666.450	100	2500	3067	104	90	110				

Sample ID **N035640-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11460.200	200	5000	6356	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035640-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1056.830	20	500.0	545.3	102	90	110				

Sample ID **N035640-010AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1053.820	20	500.0	539.3	103	90	110				

Sample ID **N035640-012AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1306.910	20	500.0	802.4	101	90	110				

Sample ID **N035640-015AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	257.916	4.0	100.0	155.7	102	90	110				

Sample ID **N035640-013AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.012	0.20	1.000	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N035640-014AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	133981
Client ID:	ZZZZZZ	Batch ID:	R133981	TestNo:	EPA 218.6			Analysis Date:	5/17/2019	SeqNo:	3390256

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0	106	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-73911	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134492
Client ID:	PBW	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409719

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-73911	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134492
Client ID:	LCSW	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409720

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.182	1.0	10.00	0	102	85	115				

Sample ID	N035599-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409731

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	254.086	5.0	10.00	250.9	32.2	75	125				S

Sample ID	N035599-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409732

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	256.706	5.0	10.00	250.9	58.4	75	125	254.1	1.03	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N035599-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	250.406	5.0	10.00	250.9	-4.62	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:13:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	2.6	0.16	0.25		mg/L	5	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:57:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	10	0.63	1.0		mg/L	20	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate:				Analyst: **QBM**
Nitrate/Nitrite as N	26	1.6	2.5		mg/L	50	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-230-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 9:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-165-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate:				Analyst: **QBM**
Nitrate/Nitrite as N	25	1.6	2.5		mg/L	50	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate:				Analyst: **QBM**
Nitrate/Nitrite as N	25	1.6	2.5		mg/L	50	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-185-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 12:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	79	3.2	5.0		mg/L	100	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-260-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.55	0.063	0.10		mg/L	2	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 1:32:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate:				Analyst: **QBM**
Nitrate/Nitrite as N	14	0.63	1.0		mg/L	20	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134092	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	PBW	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393904

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R134092	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	LCSW	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393905

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.478	0.050	0.5000	0	95.6	85	115				

Sample ID	N035599-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	ZZZZZZ	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393908

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	3.158	0.25						3.060	3.15	20	

Sample ID	N035599-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	ZZZZZZ	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393910

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	21.010	1.0	10.00	11.71	93.0	75	125				

Sample ID	N035599-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	ZZZZZZ	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393911

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	20.988	1.0	10.00	11.71	92.8	75	125	21.01	0.105	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-47-055-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 10:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Arsenic	1.1	0.081	0.10		µg/L	1	6/13/2019 07:15 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 07:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-907-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	1.1	0.081	0.10		µg/L	1	6/13/2019 07:20 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 07:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-004

Client Sample ID: TW-04-LF-Q219
Collection Date: 5/16/2019 11:23:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Manganese	16	0.26	0.50		µg/L	1	6/13/2019 07:40 AM
Molybdenum	42	1.1	2.5		µg/L	5	6/13/2019 07:45 AM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 07:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-005

Client Sample ID: MW-65-225-Q219
Collection Date: 5/16/2019 3:13:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	2.5	0.081	0.10		µg/L	1	6/13/2019 07:50 AM
Manganese	40	0.26	0.50		µg/L	1	6/13/2019 07:50 AM
Molybdenum	44	0.21	0.50		µg/L	1	6/13/2019 07:50 AM
Selenium	2.3	0.36	0.50		µg/L	1	6/13/2019 07:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-006

Client Sample ID: MW-69-195-Q219
Collection Date: 5/16/2019 3:57:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	6/13/2019 07:55 AM
Manganese	0.54	0.26	0.50		µg/L	1	6/13/2019 07:55 AM
Molybdenum	58	0.21	0.50		µg/L	1	6/13/2019 07:55 AM
Selenium	8.0	0.36	0.50		µg/L	1	6/13/2019 07:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-007

Client Sample ID: MW-67-225-Q219
Collection Date: 5/16/2019 2:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	3.4	0.081	0.10		µg/L	1	6/13/2019 08:00 AM
Manganese	2.9	0.26	0.50		µg/L	1	6/13/2019 08:00 AM
Molybdenum	48	0.21	0.50		µg/L	1	6/13/2019 08:00 AM
Selenium	93	0.36	0.50		µg/L	1	6/13/2019 08:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-008

Client Sample ID: MW-66-230-Q219
Collection Date: 5/16/2019 9:34:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	9.8	0.081	0.10		µg/L	1	6/13/2019 08:10 AM
Manganese	3.6	0.26	0.50		µg/L	1	6/13/2019 08:10 AM
Molybdenum	71	1.1	2.5		µg/L	5	6/13/2019 08:15 AM
Selenium	9.0	0.36	0.50		µg/L	1	6/13/2019 08:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-009

Client Sample ID: MW-66-165-Q219
Collection Date: 5/16/2019 11:08:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	1.2	0.081	0.10		µg/L	1	6/13/2019 08:25 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 08:25 AM
Molybdenum	5.5	0.21	0.50		µg/L	1	6/13/2019 08:25 AM
Selenium	28	0.36	0.50		µg/L	1	6/13/2019 08:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-010

Client Sample ID: MW-911-Q219
Collection Date: 5/16/2019 11:18:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	1.2	0.081	0.10		µg/L	1	6/13/2019 08:45 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 08:45 AM
Molybdenum	5.5	0.21	0.50		µg/L	1	6/13/2019 08:45 AM
Selenium	28	0.36	0.50		µg/L	1	6/13/2019 08:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-011

Client Sample ID: MW-67-185-Q219
Collection Date: 5/16/2019 12:33:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	1.0	0.081	0.10		µg/L	1	6/13/2019 08:54 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 08:54 AM
Molybdenum	5.7	0.21	0.50		µg/L	1	6/13/2019 08:54 AM
Selenium	400	1.8	2.5		µg/L	5	6/13/2019 08:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-012

Client Sample ID: MW-67-260-Q219
Collection Date: 5/16/2019 2:48:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	8.9	0.081	0.10		µg/L	1	6/13/2019 09:09 AM
Manganese	130	0.26	0.50		µg/L	1	6/13/2019 09:09 AM
Molybdenum	69	1.1	2.5		µg/L	5	6/13/2019 09:14 AM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 09:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-015

Client Sample ID: MW-65-160-Q219
Collection Date: 5/16/2019 1:32:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	0.69	0.081	0.10		µg/L	1	6/13/2019 09:19 AM
Manganese	76	0.26	0.50		µg/L	1	6/13/2019 09:19 AM
Molybdenum	110	0.21	0.50		µg/L	1	6/13/2019 09:19 AM
Selenium	9.4	0.36	0.50		µg/L	1	6/13/2019 09:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-73911**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **PBW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-73911**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **LCSW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.864	0.10	10.00	0	98.6	85	115				
Manganese	105.130	0.50	100.0	0	105	85	115				
Molybdenum	9.633	0.50	10.00	0	96.3	85	115				
Selenium	9.526	0.50	10.00	0	95.3	85	115				

Sample ID **N035599-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.010	0.10	10.00	0.9424	101	75	125				
Manganese	95.212	0.50	100.0	0	95.2	75	125				
Molybdenum	18.696	0.50	10.00	7.569	111	75	125				
Selenium	13.222	0.50	10.00	3.812	94.1	75	125				

Sample ID **N035599-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.176	0.10	10.00	0.9424	102	75	125	11.01	1.49	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035599-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134493
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409854

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	94.234	0.50	100.0	0	94.2	75	125	95.21	1.03	20	
Molybdenum	18.789	0.50	10.00	7.569	112	75	125	18.70	0.495	20	
Selenium	13.391	0.50	10.00	3.812	95.8	75	125	13.22	1.28	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@arcadis.com	Address:	Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051	6. Method of Cooling: ICE
Submitted By: Joe Gatel	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Sample Temp: 2.8/2.8
Title: Scientist 1			
Signature: Date: 5/16/19	Sampled By: Jason Mahon	Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface	Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: Date: 5/16/2019		
Project Number: RC000753.801D			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (6020AFF) Arsenic; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved Metals (SW6020A) FF Manganese; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Molybdenum; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Selenium; HNO3 (125 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035640-01	MW-47-055-Q219	5/16/2019	10:12		X		X	X	X					X						E	3	P	BN	
2	-02	MW-907-Q219	5/16/2019	10:17		X		X	X	X					X						E	3	P	BN	
3	-03	MW-47-115-Q219	5/16/2019	9:20		X			X						X						E	3	P	BN	
4	-04	TW-04-LF-Q219	5/16/2019	11:23			X		X	X	X	X			X						E	4	P	BN	
5	-05	MW-65-225-Q219	5/16/2019	15:13		X		X	X	X	X	X	X		X						E	4	P	BN	
6	-06	MW-69-195-Q219	5/16/2019	15:57		X		X	X	X	X	X	X		X						E	4	P	BN	
7	-07	MW-67-225-Q219	5/16/2019	14:00		X		X	X	X	X	X	X		X						E	4	P	BN	
8	-08	MW-66-230-Q219	5/16/2019	9:34		X		X	X	X	X	X	X		X						E	4	P	BN	
9	-09	MW-66-165-Q219	5/16/2019	11:08		X		X	X	X	X	X	X		X						E	4	P	BN	
10	-10	MW-911-Q219	5/16/2019	11:18		X		X	X	X	X	X	X		X						E	4	P	BN	

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Jason Mahon	5/16/19 1630	JORDAN IGC	5-16-19 1630
JORDAN IGC	5-16-19 1830	JORDAN IGC	5-16-19 1830

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
CHAIN OF CUSTODY RECORD
Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓ (Specify: RWQCB); Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled Y ✓ N; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051	Sample Temp: 2.0/2.8
Submitted By: Joe Gatel	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	
Title: Scientist 1			

Signature: Date: 5/16/19
I hereby authorize ASSET Labs to perform the tests indicated below.

Sampled By: Susan Mahan
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for
Signature: Date: 5/16/2019

Project Name: PG&E Topock - GMP
Project Number: RC000753.801D

Courier:
Tracking No.:

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (6020AFF) Arsenic; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved Metals (SW6020A) FF Manganese; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Molybdenum; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Selenium; HNO3 (125 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035640-11	MW-67-185-Q219	5/16/2019	12:33		X		X	X	X	X	X	X		X							E	4	P	BN	
2	-12	MW-67-260-Q219	5/16/2019	14:48		X		X	X	X	X	X	X		X							E	4	P	BN	
3	-13	MW-711-Q219	5/16/2019	16:20		X																E	1	P	B	
4	-14	MW-710-Q219	5/16/2019	16:15		X																E	1	P	B	
5	-15	MW-65-160-Q219	5/16/2019	13:32		X		X	X	X	X	X	X		X							E	4	P	BN	
6																										
7																										
8																										
9																										
10																										

Reliquished by (Signature and Printed Name): Susan Mahan 5/16/19 1630 Date/Time:
Reliquished by (Signature and Printed Name): JORDAN ICE 5-16-19 1830 Date/Time:
Reliquished by (Signature and Printed Name): Date/Time:

Reliquished by (Signature and Printed Name): JORDAN ICE 5-16-19 1630 Date/Time:
Reliquished by (Signature and Printed Name): JORDAN ICE 5-16-19 1830 Date/Time:
Reliquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis:
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/16/2019	Workorder:	N035640
Rep sample Temp (Deg C):	2.8/2.8	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 5/17/2019

Reviewed By: LG 052919

ASSET Laboratories

WORK ORDER Summary

17-May-19

WorkOrder: N035640

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/16/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035640-001A	MW-47-055-Q219	5/16/2019 10:12:00 AM	5/31/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-001B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-001C			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-002A	MW-907-Q219	5/16/2019 10:17:00 AM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-002B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-002C			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-003A	MW-47-115-Q219	5/16/2019 9:20:00 AM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-003B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-003C			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-004A	TW-04-LF-Q219	5/16/2019 11:23:00 AM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-004B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-004C			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-005A	MW-65-225-Q219	5/16/2019 3:13:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-005B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

17-May-19

WorkOrder: N035640

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/16/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035640-005B	MW-65-225-Q219	5/16/2019 3:13:00 PM	5/31/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-005C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-005D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-006A	MW-69-195-Q219	5/16/2019 3:57:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-006B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-006C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-006D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-007A	MW-67-225-Q219	5/16/2019 2:00:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-007B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-007C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-007D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-008A	MW-66-230-Q219	5/16/2019 9:34:00 AM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-008B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-008C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-008D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

17-May-19

WorkOrder: N035640

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/16/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035640-009A	MW-66-165-Q219	5/16/2019 11:08:00 AM	5/31/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-009B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-009C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-009D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-010A	MW-911-Q219	5/16/2019 11:18:00 AM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-010B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-010C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-010D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-011A	MW-67-185-Q219	5/16/2019 12:33:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-011B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-011C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-011D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-012A	MW-67-260-Q219	5/16/2019 2:48:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-012B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

17-May-19

WorkOrder: N035640

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/16/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035640-012B	MW-67-260-Q219	5/16/2019 2:48:00 PM	5/31/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-012C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-012D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-013A	MW-711-Q219	5/16/2019 4:20:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-014A	MW-710-Q219	5/16/2019 4:15:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-015A	MW-65-160-Q219	5/16/2019 1:32:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-015B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-015C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-015D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-016A	FOLDER	5/31/2019	5/31/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/31/2019		Folder	Folder	☐	☐	☐	LAB
			5/31/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035640

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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June 16, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035640

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 16, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035640

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N035599-001B-MS and N035599-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Dilution was necessary on some analytes for samples N035640-004, -008 and -012 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

ASSET Laboratories

Date: *16-Jun-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035640
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035640-001A	MW-47-055-Q219	Groundwater	5/16/2019 10:12:00 AM	5/16/2019	6/16/2019
N035640-001B	MW-47-055-Q219	Groundwater	5/16/2019 10:12:00 AM	5/16/2019	6/16/2019
N035640-001C	MW-47-055-Q219	Groundwater	5/16/2019 10:12:00 AM	5/16/2019	6/16/2019
N035640-002A	MW-907-Q219	Groundwater	5/16/2019 10:17:00 AM	5/16/2019	6/16/2019
N035640-002B	MW-907-Q219	Groundwater	5/16/2019 10:17:00 AM	5/16/2019	6/16/2019
N035640-002C	MW-907-Q219	Groundwater	5/16/2019 10:17:00 AM	5/16/2019	6/16/2019
N035640-003A	MW-47-115-Q219	Groundwater	5/16/2019 9:20:00 AM	5/16/2019	6/16/2019
N035640-003B	MW-47-115-Q219	Groundwater	5/16/2019 9:20:00 AM	5/16/2019	6/16/2019
N035640-003C	MW-47-115-Q219	Groundwater	5/16/2019 9:20:00 AM	5/16/2019	6/16/2019
N035640-004A	TW-04-LF-Q219	Groundwater	5/16/2019 11:23:00 AM	5/16/2019	6/16/2019
N035640-004B	TW-04-LF-Q219	Groundwater	5/16/2019 11:23:00 AM	5/16/2019	6/16/2019
N035640-004C	TW-04-LF-Q219	Groundwater	5/16/2019 11:23:00 AM	5/16/2019	6/16/2019
N035640-005A	MW-65-225-Q219	Groundwater	5/16/2019 3:13:00 PM	5/16/2019	6/16/2019
N035640-005B	MW-65-225-Q219	Groundwater	5/16/2019 3:13:00 PM	5/16/2019	6/16/2019
N035640-005C	MW-65-225-Q219	Groundwater	5/16/2019 3:13:00 PM	5/16/2019	6/16/2019
N035640-005D	MW-65-225-Q219	Groundwater	5/16/2019 3:13:00 PM	5/16/2019	6/16/2019
N035640-006A	MW-69-195-Q219	Groundwater	5/16/2019 3:57:00 PM	5/16/2019	6/16/2019
N035640-006B	MW-69-195-Q219	Groundwater	5/16/2019 3:57:00 PM	5/16/2019	6/16/2019
N035640-006C	MW-69-195-Q219	Groundwater	5/16/2019 3:57:00 PM	5/16/2019	6/16/2019
N035640-006D	MW-69-195-Q219	Groundwater	5/16/2019 3:57:00 PM	5/16/2019	6/16/2019
N035640-007A	MW-67-225-Q219	Groundwater	5/16/2019 2:00:00 PM	5/16/2019	6/16/2019
N035640-007B	MW-67-225-Q219	Groundwater	5/16/2019 2:00:00 PM	5/16/2019	6/16/2019
N035640-007C	MW-67-225-Q219	Groundwater	5/16/2019 2:00:00 PM	5/16/2019	6/16/2019
N035640-007D	MW-67-225-Q219	Groundwater	5/16/2019 2:00:00 PM	5/16/2019	6/16/2019
N035640-008A	MW-66-230-Q219	Groundwater	5/16/2019 9:34:00 AM	5/16/2019	6/16/2019
N035640-008B	MW-66-230-Q219	Groundwater	5/16/2019 9:34:00 AM	5/16/2019	6/16/2019
N035640-008C	MW-66-230-Q219	Groundwater	5/16/2019 9:34:00 AM	5/16/2019	6/16/2019
N035640-008D	MW-66-230-Q219	Groundwater	5/16/2019 9:34:00 AM	5/16/2019	6/16/2019
N035640-009A	MW-66-165-Q219	Groundwater	5/16/2019 11:08:00 AM	5/16/2019	6/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035640
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035640-009B	MW-66-165-Q219	Groundwater	5/16/2019 11:08:00 AM	5/16/2019	6/16/2019
N035640-009C	MW-66-165-Q219	Groundwater	5/16/2019 11:08:00 AM	5/16/2019	6/16/2019
N035640-009D	MW-66-165-Q219	Groundwater	5/16/2019 11:08:00 AM	5/16/2019	6/16/2019
N035640-010A	MW-911-Q219	Groundwater	5/16/2019 11:18:00 AM	5/16/2019	6/16/2019
N035640-010B	MW-911-Q219	Groundwater	5/16/2019 11:18:00 AM	5/16/2019	6/16/2019
N035640-010C	MW-911-Q219	Groundwater	5/16/2019 11:18:00 AM	5/16/2019	6/16/2019
N035640-010D	MW-911-Q219	Groundwater	5/16/2019 11:18:00 AM	5/16/2019	6/16/2019
N035640-011A	MW-67-185-Q219	Groundwater	5/16/2019 12:33:00 PM	5/16/2019	6/16/2019
N035640-011B	MW-67-185-Q219	Groundwater	5/16/2019 12:33:00 PM	5/16/2019	6/16/2019
N035640-011C	MW-67-185-Q219	Groundwater	5/16/2019 12:33:00 PM	5/16/2019	6/16/2019
N035640-011D	MW-67-185-Q219	Groundwater	5/16/2019 12:33:00 PM	5/16/2019	6/16/2019
N035640-012A	MW-67-260-Q219	Groundwater	5/16/2019 2:48:00 PM	5/16/2019	6/16/2019
N035640-012B	MW-67-260-Q219	Groundwater	5/16/2019 2:48:00 PM	5/16/2019	6/16/2019
N035640-012C	MW-67-260-Q219	Groundwater	5/16/2019 2:48:00 PM	5/16/2019	6/16/2019
N035640-012D	MW-67-260-Q219	Groundwater	5/16/2019 2:48:00 PM	5/16/2019	6/16/2019
N035640-013A	MW-711-Q219	Groundwater	5/16/2019 4:20:00 PM	5/16/2019	6/16/2019
N035640-014A	MW-710-Q219	Groundwater	5/16/2019 4:15:00 PM	5/16/2019	6/16/2019
N035640-015A	MW-65-160-Q219	Groundwater	5/16/2019 1:32:00 PM	5/16/2019	6/16/2019
N035640-015B	MW-65-160-Q219	Groundwater	5/16/2019 1:32:00 PM	5/16/2019	6/16/2019
N035640-015C	MW-65-160-Q219	Groundwater	5/16/2019 1:32:00 PM	5/16/2019	6/16/2019
N035640-015D	MW-65-160-Q219	Groundwater	5/16/2019 1:32:00 PM	5/16/2019	6/16/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-47-055-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 10:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	4800	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-002

Client Sample ID: MW-907-Q219
Collection Date: 5/16/2019 10:17:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	4700	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-47-115-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 9:20:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-04-LF-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:23:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:13:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:57:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-230-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 9:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	19000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-165-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	3900	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-010

Client Sample ID: MW-911-Q219
Collection Date: 5/16/2019 11:18:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	4000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-185-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 12:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	7700	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-012

Client Sample ID: MW-67-260-Q219
Collection Date: 5/16/2019 2:48:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 1:32:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190517C**	QC Batch: **R133989**			PrepDate:			Analyst: **LR**
Specific Conductance	4000	0.10	0.10		umhos/cm	1	5/17/2019 11:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N035640-005DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **133989**
Client ID: **ZZZZZZ**	Batch ID: **R133989**	TestNo: **EPA 120.1**		Analysis Date: **5/17/2019**	SeqNo: **3389056**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	15390.000	0.10						15400	0.0650	2	

Sample ID **N035640-015DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **133989**
Client ID: **ZZZZZZ**	Batch ID: **R133989**	TestNo: **EPA 120.1**		Analysis Date: **5/17/2019**	SeqNo: **3389066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3990.000	0.10						3970	0.503	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-47-055-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 10:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A** QC Batch: **R133981**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	17	0.17	1.0		µg/L	5	5/17/2019 10:29 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	15	0.13	1.0		µg/L	1	6/13/2019 07:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-002

Client Sample ID: MW-907-Q219
Collection Date: 5/16/2019 10:17:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A** QC Batch: **R133981**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	17	0.17	1.0		µg/L	5	5/17/2019 11:52 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	15	0.13	1.0		µg/L	1	6/13/2019 07:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-47-115-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 9:20:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A** QC Batch: **R133981**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	27	0.17	1.0		µg/L	5	5/17/2019 12:03 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	23	0.13	1.0		µg/L	1	6/13/2019 07:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-04-LF-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:23:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	5.1	0.17	1.0		µg/L	5	5/17/2019 12:12 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	4.5	0.13	1.0		µg/L	1	6/13/2019 07:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:13:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	180	1.7	10		µg/L	50	5/17/2019 12:21 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	160	0.13	1.0		µg/L	1	6/13/2019 07:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:57:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	120	1.7	10		µg/L	50	5/17/2019 12:40 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	120	0.13	1.0		µg/L	1	6/13/2019 07:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	3100	17	100		µg/L	500	5/17/2019 12:50 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	3300	3.2	25		µg/L	25	6/13/2019 08:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-230-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 9:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	6400	33	200		µg/L	1000	5/17/2019 12:59 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	7000	6.5	50		µg/L	50	6/13/2019 08:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-009

Client Sample ID: MW-66-165-Q219
Collection Date: 5/16/2019 11:08:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A** QC Batch: **R133981**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	550	3.3	20		µg/L	100	5/17/2019 01:09 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73911**				PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	570	0.65	5.0		µg/L	5	6/13/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	540	3.3	20		µg/L	100	5/17/2019 01:18 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	580	0.65	5.0		µg/L	5	6/13/2019 08:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-185-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 12:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	2100	6.6	40		µg/L	200	5/17/2019 10:38 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	2200	3.2	25		µg/L	25	6/13/2019 09:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-260-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	800	3.3	20		µg/L	100	5/17/2019 01:47 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	850	0.65	5.0		µg/L	5	6/13/2019 09:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-711-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 4:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/17/2019 04:55 PM

Qualifiers:		
B	Analyte detected in the associated Method Blank	
H	Holding times for preparation or analysis exceeded	
S	Spike/Surrogate outside of limits due to matrix interference	
DO	Surrogate Diluted Out	
E	Value above quantitation range	
ND	Not Detected at the Reporting Limit	
	Results are wet unless otherwise specified	

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-710-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 4:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/17/2019 05:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 1:32:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190517A**	QC Batch: **R133981**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	160	0.66	4.0		µg/L	20	5/17/2019 01:56 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Chromium	190	0.65	5.0		µg/L	5	6/13/2019 09:24 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R133981**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **133981**			
Client ID: **PBW**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**			SeqNo: **3388737**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R133981**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **133981**			
Client ID: **LCSW**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**			SeqNo: **3388738**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.081	0.20	5.000	0	102	90	110				

Sample ID **N035638-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **133981**			
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**			SeqNo: **3388743**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.092	0.20	1.000	0	109	90	110				

Sample ID **N035640-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **133981**			
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**			SeqNo: **3388744**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	16.499	1.0						16.64	0.881	20	

Sample ID **N035640-011AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **133981**			
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**			SeqNo: **3388745**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3090.540	40	1000	2108	98.2	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035640-011AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133981**
Client ID: **ZZZZZZ** Batch ID: **R133981** TestNo: **EPA 218.6** Analysis Date: **5/17/2019** SeqNo: **3388746**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	3095.340	40	1000	2108	98.7	90	110	3091	0.155	20	

Sample ID **N035639-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133981**
Client ID: **ZZZZZZ** Batch ID: **R133981** TestNo: **EPA 218.6** Analysis Date: **5/17/2019** SeqNo: **3388753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.022	0.20	1.000	0	102	90	110				

Sample ID **N035640-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133981**
Client ID: **ZZZZZZ** Batch ID: **R133981** TestNo: **EPA 218.6** Analysis Date: **5/17/2019** SeqNo: **3388763**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	41.914	1.0	25.00	16.64	101	90	110				

Sample ID **N035640-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133981**
Client ID: **ZZZZZZ** Batch ID: **R133981** TestNo: **EPA 218.6** Analysis Date: **5/17/2019** SeqNo: **3388764**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	41.643	1.0	25.00	16.60	100	90	110				

Sample ID **N035640-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **133981**
Client ID: **ZZZZZZ** Batch ID: **R133981** TestNo: **EPA 218.6** Analysis Date: **5/17/2019** SeqNo: **3388765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	52.033	1.0	25.00	26.55	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035640-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.313	1.0	5.000	5.138	103	90	110				

Sample ID **N035640-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390243**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	432.425	10	250.0	176.9	102	90	110				

Sample ID **N035640-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	376.195	10	250.0	119.8	103	90	110				

Sample ID **N035640-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5666.450	100	2500	3067	104	90	110				

Sample ID **N035640-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11460.200	200	5000	6356	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035640-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1056.830	20	500.0	545.3	102	90	110				

Sample ID **N035640-010AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1053.820	20	500.0	539.3	103	90	110				

Sample ID **N035640-012AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1306.910	20	500.0	802.4	101	90	110				

Sample ID **N035640-015AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	257.916	4.0	100.0	155.7	102	90	110				

Sample ID **N035640-013AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390254**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.012	0.20	1.000	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N035640-014AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	133981
Client ID:	ZZZZZZ	Batch ID:	R133981	TestNo:	EPA 218.6			Analysis Date:	5/17/2019	SeqNo:	3390256

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0	106	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **MB-73911**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134492**
Client ID: **PBW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **LCS-73911**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134492**
Client ID: **LCSW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.182	1.0	10.00	0	102	85	115				

Sample ID **N035599-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	254.086	5.0	10.00	250.9	32.2	75	125				S

Sample ID **N035599-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	256.706	5.0	10.00	250.9	58.4	75	125	254.1	1.03	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	N035599-001B-PS	SampType:	PS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409728

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	250.406	5.0	10.00	250.9	-4.62	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:13:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	2.6	0.16	0.25		mg/L	5	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-69-195-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:57:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	10	0.63	1.0		mg/L	20	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	26	1.6	2.5		mg/L	50	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-230-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 9:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-165-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	25	1.6	2.5		mg/L	50	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	25	1.6	2.5		mg/L	50	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-185-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 12:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	79	3.2	5.0		mg/L	100	5/22/2019

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-260-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.55	0.063	0.10		mg/L	2	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-160-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 1:32:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	14	0.63	1.0		mg/L	20	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-R134092	**MBLK**	**4500N03F_W**	**mg/L**		**134092**
Client ID: **PBW**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-R134092	**LCS**	**4500N03F_W**	**mg/L**		**134092**
Client ID: **LCSW**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393905**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.478	0.050	0.5000	0	95.6	85	115				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N035599-002CDUP	**DUP**	**4500N03F_W**	**mg/L**		**134092**
Client ID: **ZZZZZZ**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	3.158	0.25						3.060	3.15	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N035599-003CMS	**MS**	**4500N03F_W**	**mg/L**		**134092**
Client ID: **ZZZZZZ**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	21.010	1.0	10.00	11.71	93.0	75	125				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N035599-003CMSD	**MSD**	**4500N03F_W**	**mg/L**		**134092**
Client ID: **ZZZZZZ**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	20.988	1.0	10.00	11.71	92.8	75	125	21.01	0.105	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-47-055-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 10:12:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Arsenic	1.1	0.081	0.10		µg/L	1	6/13/2019 07:15 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 07:15 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-907-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 10:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Arsenic	1.1	0.081	0.10		µg/L	1	6/13/2019 07:20 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 07:20 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-004

Client Sample ID: TW-04-LF-Q219
Collection Date: 5/16/2019 11:23:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Manganese	16	0.26	0.50		µg/L	1	6/13/2019 07:40 AM
Molybdenum	42	1.1	2.5		µg/L	5	6/13/2019 07:45 AM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 07:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-65-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 3:13:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:	**5/18/2019**		Analyst: **CEI**
Arsenic	2.5	0.081	0.10		µg/L	1	6/13/2019 07:50 AM
Manganese	40	0.26	0.50		µg/L	1	6/13/2019 07:50 AM
Molybdenum	44	0.21	0.50		µg/L	1	6/13/2019 07:50 AM
Selenium	2.3	0.36	0.50		µg/L	1	6/13/2019 07:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-006

Client Sample ID: MW-69-195-Q219
Collection Date: 5/16/2019 3:57:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	6/13/2019 07:55 AM
Manganese	0.54	0.26	0.50		µg/L	1	6/13/2019 07:55 AM
Molybdenum	58	0.21	0.50		µg/L	1	6/13/2019 07:55 AM
Selenium	8.0	0.36	0.50		µg/L	1	6/13/2019 07:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-225-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 2:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	3.4	0.081	0.10		µg/L	1	6/13/2019 08:00 AM
Manganese	2.9	0.26	0.50		µg/L	1	6/13/2019 08:00 AM
Molybdenum	48	0.21	0.50		µg/L	1	6/13/2019 08:00 AM
Selenium	93	0.36	0.50		µg/L	1	6/13/2019 08:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-008

Client Sample ID: MW-66-230-Q219
Collection Date: 5/16/2019 9:34:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	9.8	0.081	0.10		µg/L	1	6/13/2019 08:10 AM
Manganese	3.6	0.26	0.50		µg/L	1	6/13/2019 08:10 AM
Molybdenum	71	1.1	2.5		µg/L	5	6/13/2019 08:15 AM
Selenium	9.0	0.36	0.50		µg/L	1	6/13/2019 08:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66-165-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**				PrepDate:	**5/18/2019**	Analyst: **CEI**
Arsenic	1.2	0.081	0.10		µg/L	1	6/13/2019 08:25 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 08:25 AM
Molybdenum	5.5	0.21	0.50		µg/L	1	6/13/2019 08:25 AM
Selenium	28	0.36	0.50		µg/L	1	6/13/2019 08:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-911-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**				PrepDate:	**5/18/2019**	Analyst: **CEI**
Arsenic	1.2	0.081	0.10		µg/L	1	6/13/2019 08:45 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 08:45 AM
Molybdenum	5.5	0.21	0.50		µg/L	1	6/13/2019 08:45 AM
Selenium	28	0.36	0.50		µg/L	1	6/13/2019 08:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-67-185-Q219
Lab Order:	N035640	**Collection Date:**	5/16/2019 12:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035640-011		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190613C** QC Batch: **73911** PrepDate: **5/18/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	1.0	0.081	0.10		µg/L	1	6/13/2019 08:54 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 08:54 AM
Molybdenum	5.7	0.21	0.50		µg/L	1	6/13/2019 08:54 AM
Selenium	400	1.8	2.5		µg/L	5	6/13/2019 08:59 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-012

Client Sample ID: MW-67-260-Q219
Collection Date: 5/16/2019 2:48:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	8.9	0.081	0.10		µg/L	1	6/13/2019 09:09 AM
Manganese	130	0.26	0.50		µg/L	1	6/13/2019 09:09 AM
Molybdenum	69	1.1	2.5		µg/L	5	6/13/2019 09:14 AM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 09:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035640
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035640-015

Client Sample ID: MW-65-160-Q219
Collection Date: 5/16/2019 1:32:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73911**			PrepDate:		**5/18/2019**	Analyst: **CEI**
Arsenic	0.69	0.081	0.10		µg/L	1	6/13/2019 09:19 AM
Manganese	76	0.26	0.50		µg/L	1	6/13/2019 09:19 AM
Molybdenum	110	0.21	0.50		µg/L	1	6/13/2019 09:19 AM
Selenium	9.4	0.36	0.50		µg/L	1	6/13/2019 09:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-73911**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **PBW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-73911**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **LCSW**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.864	0.10	10.00	0	98.6	85	115				
Manganese	105.130	0.50	100.0	0	105	85	115				
Molybdenum	9.633	0.50	10.00	0	96.3	85	115				
Selenium	9.526	0.50	10.00	0	95.3	85	115				

Sample ID **N035599-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.010	0.10	10.00	0.9424	101	75	125				
Manganese	95.212	0.50	100.0	0	95.2	75	125				
Molybdenum	18.696	0.50	10.00	7.569	111	75	125				
Selenium	13.222	0.50	10.00	3.812	94.1	75	125				

Sample ID **N035599-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/18/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.176	0.10	10.00	0.9424	102	75	125	11.01	1.49	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035599-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/18/2019	RunNo:	134493
Client ID:	ZZZZZZ	Batch ID:	73911	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409854

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	94.234	0.50	100.0	0	94.2	75	125	95.21	1.03	20	
Molybdenum	18.789	0.50	10.00	7.569	112	75	125	18.70	0.495	20	
Selenium	13.391	0.50	10.00	3.812	95.8	75	125	13.22	1.28	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@arcadis.com	Address:	Sample Receipt Condition: 1. Chilled; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number 2
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051	6. Method of Cooling: ICE
Submitted By: Joe Gatel	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Sample Temp: 2.8/2.8
Title: Scientist 1			
Signature: Date: 5/16/19	Sampled By: Jason Mahon		Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: Date: 5/16/2019		
Project Number: RC000753.801D			

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035640-01	MW-47-055-Q219	5/16/2019	10:12		X		X	X	X					X						E	3	P	BN	
2	-02	MW-907-Q219	5/16/2019	10:17		X		X	X	X					X						E	3	P	BN	
3	-03	MW-47-115-Q219	5/16/2019	9:20		X			X						X						E	3	P	BN	
4	-04	TW-04-LF-Q219	5/16/2019	11:23			X		X	X	X	X			X						E	4	P	BN	
5	-05	MW-65-225-Q219	5/16/2019	15:13		X		X	X	X	X	X	X		X						E	4	P	BN	
6	-06	MW-69-195-Q219	5/16/2019	15:57		X		X	X	X	X	X	X		X						E	4	P	BN	
7	-07	MW-67-225-Q219	5/16/2019	14:00		X		X	X	X	X	X	X		X						E	4	P	BN	
8	-08	MW-66-230-Q219	5/16/2019	9:34		X		X	X	X	X	X	X		X						E	4	P	BN	
9	-09	MW-66-165-Q219	5/16/2019	11:08		X		X	X	X	X	X	X		X						E	4	P	BN	
10	-10	MW-911-Q219	5/16/2019	11:18		X		X	X	X	X	X	X		X						E	4	P	BN	

Relinquished by (Signature and Printed Name): Jason Mahon	Date/Time: 5/16/19 1630	Relinquished by (Signature and Printed Name): JORDAN IGC
Relinquished by (Signature and Printed Name): JORDAN IGC	Date/Time: 5-16-19 1830	Relinquished by (Signature and Printed Name): JORDAN IGC
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:			
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:		
T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Yellow=Customer's Copy

ASSET LABORATORIES
CHAIN OF CUSTODY RECORD
Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
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ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓ (Specify: RWQCB)
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Global ID:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		

Signature: Date: 5/16/19
I hereby authorize ASSET Labs to perform the tests indicated below.

Project Name: PG&E Topock - GMP
Project Number: RC000753.801D

Sampled By: Jason Mahan
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for
Signature: Date: 5/16/2019

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

Sample Receipt Condition: 1. Chilled Y; 2. Headspace; 3. Container Intact Y; 4. Seal Present Y; 5. IR number 2; 6. Method of Cooling: ICE; Sample Temp: 2.0/2.8; Courier:; Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (6020AFF) Arsenic; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved Metals (SW6020A) FF Manganese; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Molybdenum; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Selenium; HNO3 (125 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035640-11	MW-67-185-Q219	5/16/2019	12:33		X		X	X	X	X	X	X		X						E	4	P	BN	
2	-12	MW-67-260-Q219	5/16/2019	14:48		X		X	X	X	X	X	X		X						E	4	P	BN	
3	-13	MW-711-Q219	5/16/2019	16:20		X															E	1	P	B	
4	-14	MW-710-Q219	5/16/2019	16:15		X															E	1	P	B	
5	-15	MW-65-160-Q219	5/16/2019	13:32		X		X	X	X	X	X	X		X						E	4	P	BN	
6																									
7																									
8																									
9																									
10																									

Reliquished by (Signature and Printed Name): Jason Mahan 5/16/19 1630 Date/Time:
Reliquished by (Signature and Printed Name): JORDAN ICE 5-16-19 1630 Date/Time:
Reliquished by (Signature and Printed Name): Date/Time:

Reliquished by (Signature and Printed Name): JORDAN ICE 5-16-19 1630 Date/Time:
Reliquished by (Signature and Printed Name): JORDAN ICE 5-16-19 1830 Date/Time:
Reliquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

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Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

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1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
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Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
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9. For subcontract analysis, TAT and Surcharges will vary.

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H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/16/2019	Workorder:	N035640
Rep sample Temp (Deg C):	2.8/2.8	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 5/17/2019

Reviewed By: LG 052919

ASSET Laboratories

WORK ORDER Summary

17-May-19

WorkOrder: N035640

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/16/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035640-001A	MW-47-055-Q219	5/16/2019 10:12:00 AM	5/31/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-001B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-001C			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-002A	MW-907-Q219	5/16/2019 10:17:00 AM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-002B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-002C			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-003A	MW-47-115-Q219	5/16/2019 9:20:00 AM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-003B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-003C			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-004A	TW-04-LF-Q219	5/16/2019 11:23:00 AM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-004B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-004C			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-005A	MW-65-225-Q219	5/16/2019 3:13:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-005B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

17-May-19

WorkOrder: N035640

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/16/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035640-005B	MW-65-225-Q219	5/16/2019 3:13:00 PM	5/31/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-005C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-005D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-006A	MW-69-195-Q219	5/16/2019 3:57:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-006B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-006C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-006D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-007A	MW-67-225-Q219	5/16/2019 2:00:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-007B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-007C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-007D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-008A	MW-66-230-Q219	5/16/2019 9:34:00 AM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-008B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-008C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-008D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

WORK ORDER Summary

17-May-19

WorkOrder: N035640

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/16/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035640-009A	MW-66-165-Q219	5/16/2019 11:08:00 AM	5/31/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-009B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-009C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-009D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-010A	MW-911-Q219	5/16/2019 11:18:00 AM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-010B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-010C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-010D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-011A	MW-67-185-Q219	5/16/2019 12:33:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-011B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-011C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-011D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-012A	MW-67-260-Q219	5/16/2019 2:48:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-012B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

17-May-19

WorkOrder: N035640

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/16/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035640-012B	MW-67-260-Q219	5/16/2019 2:48:00 PM	5/31/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-012C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-012D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-013A	MW-711-Q219	5/16/2019 4:20:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-014A	MW-710-Q219	5/16/2019 4:15:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-015A	MW-65-160-Q219	5/16/2019 1:32:00 PM	5/31/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035640-015B			5/31/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			5/31/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035640-015C			5/31/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035640-015D			5/31/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035640-016A	FOLDER	5/31/2019	5/31/2019		EDD	RWQCB	☐	☐	☐	LAB
			5/31/2019		Folder	Folder	☐	☐	☐	LAB
			5/31/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035640

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133989 **Analyst:** LSR

ASSET #: N035640 **Date Analyzed:** 17-May

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer Silvia Ramit Date: 5/30/2019

2nd Level Reviewer 6/13/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 5/17/19 1150

Analyst: KSO

Standard	Std ID	Reading	Comments
9.56 mS/cm	CINV-190201A	9.73 @19.5C	% Rec: (90-110%)
1411	190425C	1431 @19.2C	
9965	190218B	10130 @19.2C	
100590	190218C	102200 @19.2C	

	Sample ID	Matrix	Reading	Comments
1	NO35640-1C	H2O	4770 @18.5°C	
2	2C		4730 @18.0°C	
3	3C		12380 @18.2°C	
4	4C		19630 @17.5°C	
5	5D		15400 @17.8°C	
6	5D DUP		15390 @17.5°C	
7	6D		2640 @17.5°C	
8	7D		6970 @17.4°C	
9	8D		19340 @17.6°C	
10	9D		3930 @17.7°C	
Dup	10D		3980 @17.6°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: _____ CONTD

Analyst: _____

Julia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
1413 mS/cm	CINV-190313A	1457 @19.4°C	% Rec: (90-110%)
10000	B	10040 @19.4°C	
99922	CINV-190111H	102900 @19.4°C	

	Sample ID	Matrix	Reading	Comments
1	NO35640-11D	H2O	76660 @17.9°C	
2	12D		17900 @17.6°C	
3	13D		3970 @17.6°C	
4	13D DUP		3990 @17.7°C	
5				
6				
7				
8	1413 mS/cm	CINV-190313A	1440 @ 19.5°C	
9	10000	B	10020 @19.5°C	
10	99922	CINV-190111H	101800 @ 19.5°C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R133981
ASSET #: N035640

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 5/17/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			x		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			x		
3. ICV within ± 10% of expected value.	X			x		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			x		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			x		
6. Calibration blanks run after ICV and CCV?	X			x		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			x		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			x		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			x		
Sample Information						
10. All samples are within linear range.	X			x		
11. All samples pH within 9.3-9.7 when analyzed?	X			x		
12. Duplicate sample injections for every sample. (7199 only)			X			x
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			x		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			x
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					x
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			x		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			x
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			x		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			x
20. Are all peaks within RT window, ± 0.2 min?	X			x		
21. Are all samples analyzed within hold time?	X			x		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			x
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			x		
24. LCS compounds are within control limits.	X			x		
25. MS/MSD, RPD's are within control limits.	X			x		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			x
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			x		
28. Extraction log complete and included in package (if applicable)			X			x
29. All manual integrations initialed, date and reasons included.	X			x		
30. Before and after manual integration chromatogram included in the package	X			x		
31. All samples and QC raw data present in package.	X			x		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			x		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			x		
34 Is the QC summary report present and complete?	X			x		

Comments: Dilution was necessary in N035640-004A due to matrix interference. RT of the MS at 1X failed.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 6/5/2019

2nd Level Reviewer: [signature] Date: 6/5/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035640-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 3.3289 * 5$$

$$Cr^{+6}, \mu g/L = 16.6445$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 17}$$

6/5/2019

ANALYSIS RUN LOG

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

jrba 5/11/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 5/11/2019

INJECTION LOG: 190517A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/17/19 9:12 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/17/19 9:22 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/17/19 9:32 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/17/19 9:41 AM	Reported
14	MB-R133981	MBLK	1	Hexavalent Chromium	05/17/19 9:51 AM	Reported
15	LCS-R133981	LCS	1	Hexavalent Chromium	05/17/19 10:00 AM	Reported
16	N035638-001A	SAMP	1	Hexavalent Chromium	05/17/19 10:10 AM	Reported
17	N035639-002A	SAMP	1	Hexavalent Chromium	05/17/19 10:19 AM	Reported
18	N035640-001A	SAMP	5	Hexavalent Chromium	05/17/19 10:29 AM	Reported
19	N035640-011A	SAMP	200	Hexavalent Chromium	05/17/19 10:38 AM	Reported
20	N035638-001AMS	MS	1	Hexavalent Chromium	05/17/19 10:48 AM	Reported
21	N035640-001ADUP	DUP	5	Hexavalent Chromium	05/17/19 10:58 AM	Reported
22	N035640-011AMS	MS	200	Hexavalent Chromium	05/17/19 11:09 AM	Reported
23	N035640-011AMSD	MSD	200	Hexavalent Chromium	05/17/19 11:19 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	05/17/19 11:28 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/17/19 11:38 AM	Reported
26	N035640-002A	SAMP	5	Hexavalent Chromium	05/17/19 11:52 AM	Reported
27	N035640-003A	SAMP	5	Hexavalent Chromium	05/17/19 12:03 PM	Reported
28	N035640-004A	SAMP	5	Hexavalent Chromium	05/17/19 12:12 PM	Reported
29	N035640-005A	SAMP	50	Hexavalent Chromium	05/17/19 12:21 PM	Reported
30	N035639-002AMS	MS	1	Hexavalent Chromium	05/17/19 12:31 PM	Reported
31	N035640-006A	SAMP	50	Hexavalent Chromium	05/17/19 12:40 PM	Reported
32	N035640-007A	SAMP	500	Hexavalent Chromium	05/17/19 12:50 PM	Reported
33	N035640-008A	SAMP	1000	Hexavalent Chromium	05/17/19 12:59 PM	Reported
34	N035640-009A	SAMP	100	Hexavalent Chromium	05/17/19 1:09 PM	Reported
35	N035640-010A	SAMP	100	Hexavalent Chromium	05/17/19 1:18 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	05/17/19 1:28 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/17/19 1:37 PM	Reported
38	N035640-012A	SAMP	100	Hexavalent Chromium	05/17/19 1:47 PM	Reported
39	N035640-015A	SAMP	20	Hexavalent Chromium	05/17/19 1:56 PM	Reported
40	N035640-001AMS	MS	5	Hexavalent Chromium	05/17/19 2:22 PM	Reported
41	N035640-002AMS	MS	5	Hexavalent Chromium	05/17/19 2:33 PM	Reported
42	N035640-003AMS	MS	5	Hexavalent Chromium	05/17/19 2:42 PM	Reported

INJECTION LOG: 190517A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035640-004AMS	MS	5	Hexavalent Chromium	05/17/19 2:52 PM	Reported
44	N035640-005AMS	MS	50	Hexavalent Chromium	05/17/19 3:01 PM	Reported
45	N035640-006AMS	MS	50	Hexavalent Chromium	05/17/19 3:11 PM	Reported
46	N035640-007AMS	MS	500	Hexavalent Chromium	05/17/19 3:20 PM	Reported
47	N035640-008AMS	MS	1000	Hexavalent Chromium	05/17/19 3:30 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	05/17/19 3:39 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	05/17/19 3:48 PM	Reported
50	N035640-009AMS	MS	100	Hexavalent Chromium	05/17/19 3:58 PM	Reported
51	N035640-010AMS	MS	100	Hexavalent Chromium	05/17/19 4:07 PM	Reported
52	N035640-012AMS	MS	100	Hexavalent Chromium	05/17/19 4:17 PM	Reported
53	N035640-015AMS	MS	20	Hexavalent Chromium	05/17/19 4:26 PM	Reported
54	N035640-004A	SAMP	1	Hexavalent Chromium	05/17/19 4:36 PM	Not Reported
55	N035640-004AMS	MS	1	Hexavalent Chromium	05/17/19 4:45 PM	Not Reported
56	N035640-013A	SAMP	1	Hexavalent Chromium	05/17/19 4:55 PM	Reported
57	N035640-013AMS	MS	1	Hexavalent Chromium	05/17/19 5:04 PM	Reported
58	N035640-014A	SAMP	1	Hexavalent Chromium	05/17/19 5:14 PM	Reported
59	N035640-014AMS	MS	1	Hexavalent Chromium	05/17/19 5:23 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	05/17/19 5:32 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	05/17/19 5:42 PM	Reported
62	BLANK	BLANK	1	Hexavalent Chromium	05/17/19 5:51 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190517A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**17/May/19 18:22:14**
No. of Injections:	**65**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/17/2019 09:12	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/17/2019 09:22	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/17/2019 09:32	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/17/2019 09:41	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/17/2019 09:51	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/17/2019 10:00	Finished	LCS @5ppb, IWST-190423B
16	N035638-001A,SAMP	7	1000	Unknown		05/17/2019 10:10	Finished	SAMP, 10mL
17	N035639-002A,SAMP	8	1000	Unknown		05/17/2019 10:19	Finished	SAMP, 10mL
18	N035640-001A,SAMP	9	1000	Unknown		05/17/2019 10:29	Finished	SAMP, 2>10mL
19	N035640-011A,SAMP	10	1000	Unknown		05/17/2019 10:38	Finished	SAMP, 0.05>10mL
20	N035638-001AMS,MS	11	1000	Unknown		05/17/2019 10:48	Finished	MS (1ppb), IWST-190423B,10
21	N035640-001ADUP,D	1	1000	Unknown		05/17/2019 10:58	Finished	DUP, 2>10mL
22	N035640-011AMS,MS	2	1000	Unknown		05/17/2019 11:09	Finished	MS (5ppb), IWST-190423B,0.0
23	N035640-011AMSD,M	3	1000	Unknown		05/17/2019 11:19	Finished	MSD (5ppb), IWST-190423B,0.
24	CCV-2,CCV1,1,	4	1000	Unknown		05/17/2019 11:28	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	5	1000	Unknown		05/17/2019 11:38	Finished	CCB R190508A
26	N035640-002A,SAMP	1	1000	Unknown		05/17/2019 11:52	Finished	SAMP, 2>10mL
27	N035640-003A,SAMP	2	1000	Unknown		05/17/2019 12:03	Finished	SAMP, 2>10mL
28	N035640-004A,SAMP	3	1000	Unknown		05/17/2019 12:12	Finished	SAMP, 2>10mL
29	N035640-005A,SAMP	4	1000	Unknown		05/17/2019 12:21	Finished	SAMP, 0.2>10mL
30	N035639-002AMS,MS	5	1000	Unknown		05/17/2019 12:31	Finished	MS (1ppb), IWST-190423B,10
31	N035640-006A,SAMP	6	1000	Unknown		05/17/2019 12:40	Finished	SAMP, 0.2>10mL
32	N035640-007A,SAMP	7	1000	Unknown		05/17/2019 12:50	Finished	SAMP, 0.02>10mL
33	N035640-008A,SAMP	8	1000	Unknown		05/17/2019 12:59	Finished	SAMP, 0.01>10mL
34	N035640-009A,SAMP	9	1000	Unknown		05/17/2019 13:09	Finished	SAMP, 0.1>10mL
35	N035640-010A,SAMP	10	1000	Unknown		05/17/2019 13:18	Finished	SAMP, 0.1>10mL
36	CCV-3,CCV,1,	11	1000	Unknown		05/17/2019 13:28	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	12	1000	Unknown		05/17/2019 13:37	Finished	CCB R190411C
38	N035640-012A,SAMP	13	1000	Unknown		05/17/2019 13:47	Finished	SAMP, 0.1>10mL
39	N035640-015A,SAMP	14	1000	Unknown		05/17/2019 13:56	Finished	SAMP, 0.5>10mL
40	N035640-001AMS,MS	1	1000	Unknown		05/17/2019 14:22	Finished	MS (5ppb), IWST-190423B,2>1
41	N035640-002AMS,MS	2	1000	Unknown		05/17/2019 14:33	Finished	MS (5ppb), IWST-190423B,2>1
42	N035640-003AMS,MS	3	1000	Unknown		05/17/2019 14:42	Finished	MS (5ppb), IWST-190423B,2>1
43	N035640-004AMS,MS	4	1000	Unknown		05/17/2019 14:52	Finished	MS (5ppb), IWST-190423B,2>1
44	N035640-005AMS,MS	5	1000	Unknown		05/17/2019 15:01	Finished	MS (5ppb), IWST-190423B,0.2
45	N035640-006AMS,MS	6	1000	Unknown		05/17/2019 15:11	Finished	MS (5ppb), IWST-190423B,0.2
46	N035640-007AMS,MS	7	1000	Unknown		05/17/2019 15:20	Finished	MS (5ppb), IWST-190423B,0.0
47	N035640-008AMS,MS	8	1000	Unknown		05/17/2019 15:30	Finished	MS (5ppb), IWST-190423B,0.0
48	CCV-4,CCV1,1,	9	1000	Unknown		05/17/2019 15:39	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	10	1000	Unknown		05/17/2019 15:48	Finished	CCB R190411C
50	N035640-009AMS,MS	11	1000	Unknown		05/17/2019 15:58	Finished	MS (5ppb), IWST-190423B,0.1
51	N035640-010AMS,MS	12	1000	Unknown		05/17/2019 16:07	Finished	MS (5ppb), IWST-190423B,0.1
52	N035640-012AMS,MS	13	1000	Unknown		05/17/2019 16:17	Finished	MS (5ppb), IWST-190423B,0.1
53	N035640-015AMS,MS	14	1000	Unknown		05/17/2019 16:26	Finished	MS (5ppb), IWST-190423B,0.5
54	N035640-004A,SAMP	15	1000	Unknown		05/17/2019 16:36	Finished	SAMP, 10mL
55	N035640-004AMS,MS	16	1000	Unknown		05/17/2019 16:45	Finished	MS (1ppb), IWST-190423B,10
56	N035640-013A,SAMP	17	1000	Unknown		05/17/2019 16:55	Finished	SAMP, 10mL
57	N035640-013AMS,MS	18	1000	Unknown		05/17/2019 17:04	Finished	MS (1ppb), IWST-190423B,10
58	N035640-014A,SAMP	19	1000	Unknown		05/17/2019 17:14	Finished	SAMP, 10mL
59	N035640-014AMS,MS	20	1000	Unknown		05/17/2019 17:23	Finished	MS (1ppb), IWST-190423B,10
60	CCV-5,CCV,1,	21	1000	Unknown		05/17/2019 17:32	Finished	CCV @5ppb, IWST-190423A

61	CCB-5,CCB,1,	22	1000	Unknown		05/17/2019 17:42	Finished	CCB R190411C
62	BLANK	23	1000	Unknown		05/17/2019 17:51	Finished	BLANK
63	SHUTDOWN	24	1000	Unknown		05/17/2019 18:01	Finished	
64	Eluent: R190517A	25	1000	Unknown		n.a.	Finished	Eluent
65	PCR: R190513E	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: ~~NBA~~ 5/17/19
Time Prepared: 0950H
Prepared By: RBA

Slope: 97.5%
pH 4: 4.02
7: 7.02
10: 10.02

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90517A
NH4OH + NH4SO4 buffer: M90414 / M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M075638-001A	9.57	-	~250ml	~250ml		
2)	M075639-2A	9.63	-				
3)	M075640-1A	9.51	-				
4)	2A	9.47	-				
5)	3A	9.50	-				
6)	4A	9.51 / 9.52	-				1/2 & 2/2
7)	5A	9.58	-				
8)	6A	9.57	-				
9)	7A	9.36	-				
10)	8A	9.44	-				
11)	9A	9.46	-				
12)	10A	9.47	-				
13)	11A	9.32	-				
14)	12A	9.37	-				
15)	13A	9.69	-				
	14A	9.67	-				
	15A	9.38	-				

Sample Preparation

Date Prepared: 5/20/19
Time Prepared: 1022H
Prepared By: NBA

Slope: 97.6%
pH 4: 4.00
7: 7.00
10: 10.02

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90525A
NH4OH + NH4SO4 buffer: M90508A / M90414C

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M075659-001A	9.48	-	~250ml	~250ml		
2)	M075660-2A	9.65	-				
3)	M075661-1A	9.40	-				
4)	M075662-2A	9.62	-				
5)	M075663-1A	9.54	-				
6)	2A	9.53	-				
7)	3A	9.52	-				
8)	4A	9.56	-				
9)	5A	9.49	-				
10)	6A	9.68	-				
11)	7A	9.63	-				
12)	8A	9.59	-				
13)	9A	9.61	-				
14)	10A	9.64	-				
15)	M075664-1A	9.57	-				

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 5/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2514	1.2615	2.5188	3.7985	5.0310	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ICV**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3388731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.175	0.20	5.000	0	104	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3388732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **CCV**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3388734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.008	0.20	5.000	0	100	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3388735**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.224	0.20	0.2000	0	112	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3388747**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.003	0.20	10.00	0	100	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **CCV**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3388759**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.047	0.20	5.000	0	101	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ZZZZZZ**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.052	0.20	10.00	0	101	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **CCV**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.016	0.20	5.000	0	100	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **ICB**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3388733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **CCB**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3388736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **CCB**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3388748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **CCB**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3388760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **CCB**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **133981**
Client ID: **CCB**	Batch ID: **R133981**	TestNo: **EPA 218.6**		Analysis Date: **5/17/2019**	SeqNo: **3390258**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/17/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.731	
CCV-3	4.740	
CCV-4	4.731	
CCV-5	4.740	
Average	4.736	
Actual RT Window	4.656 - 4.816	
Applied RT Window	4.536 - 4.936	
MB-R133981	N.A.	N.A.
LCS-R133981	4.740	PASS
N035638-001A	N.A.	N.A.
N035639-002A	N.A.	N.A.
N035640-001A	4.723	PASS
N035640-011A	4.731	PASS
N035638-001AMS	4.573	PASS
N035640-001ADUP	4.723	PASS
N035640-011AMS	4.740	PASS
N035640-011AMSD	4.740	PASS
N035640-002A	4.731	PASS
N035640-003A	4.706	PASS
N035640-004A	4.673	PASS
N035640-005A	4.731	PASS
N035639-002AMS	4.748	PASS
N035640-006A	4.731	PASS
N035640-007A	4.740	PASS
N035640-008A	4.740	PASS
N035640-009A	4.731	PASS
N035640-010A	4.740	PASS
N035640-012A	4.731	PASS
N035640-015A	4.731	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/17/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.731	
CCV-3	4.740	
CCV-4	4.731	
CCV-5	4.740	
Average	4.736	
Actual RT Window	4.656 - 4.816	
Applied RT Window	4.536 - 4.936	
N035640-001AMS	4.723	PASS
N035640-002AMS	4.731	PASS
N035640-003AMS	4.706	PASS
N035640-004AMS	4.673	PASS
N035640-005AMS	4.740	PASS
N035640-006AMS	4.740	PASS
N035640-007AMS	4.740	PASS
N035640-008AMS	4.731	PASS
N035640-009AMS	4.731	PASS
N035640-010AMS	4.731	PASS
N035640-012AMS	4.731	PASS
N035640-015AMS	4.731	PASS
N035640-004A	4.156	FAIL
N035640-004AMS	4.165	FAIL
N035640-013A	N.A.	N.A.
N035640-013AMS	4.740	PASS
N035640-014A	N.A.	N.A.
N035640-014AMS	4.740	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

rba 5/11/2019

5/15/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

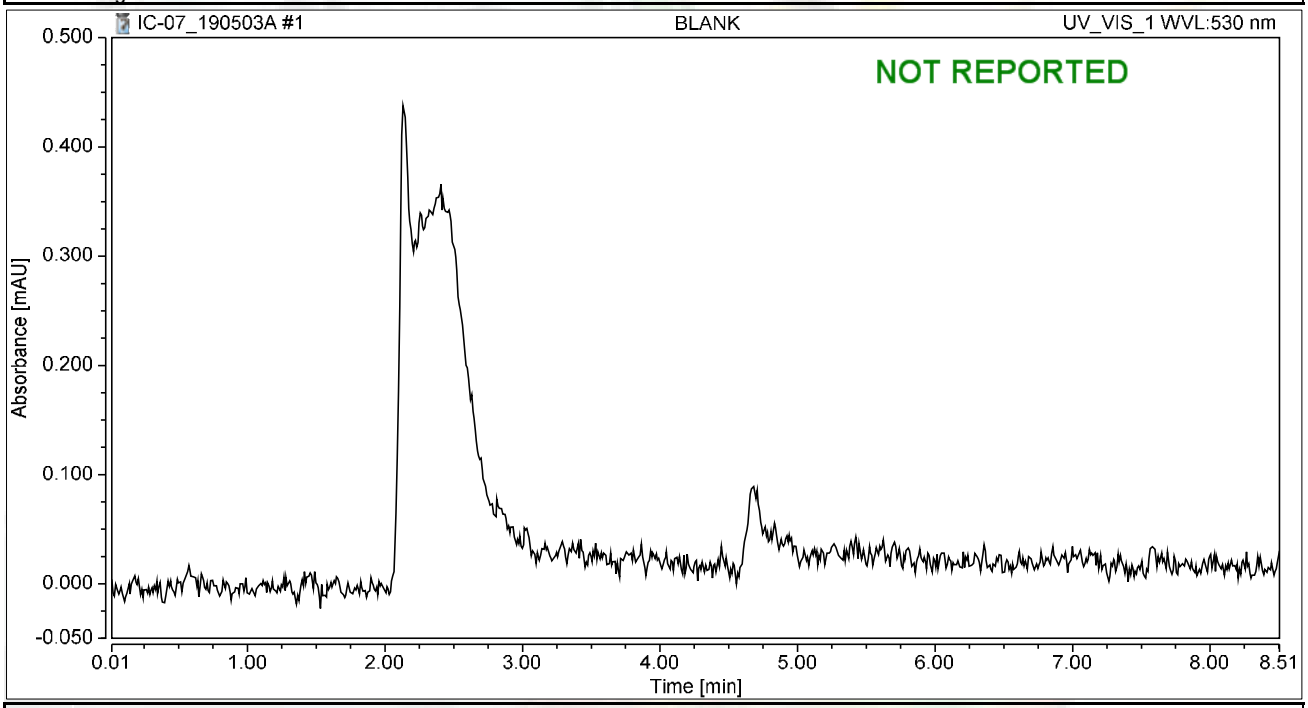
rba 5/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 09:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

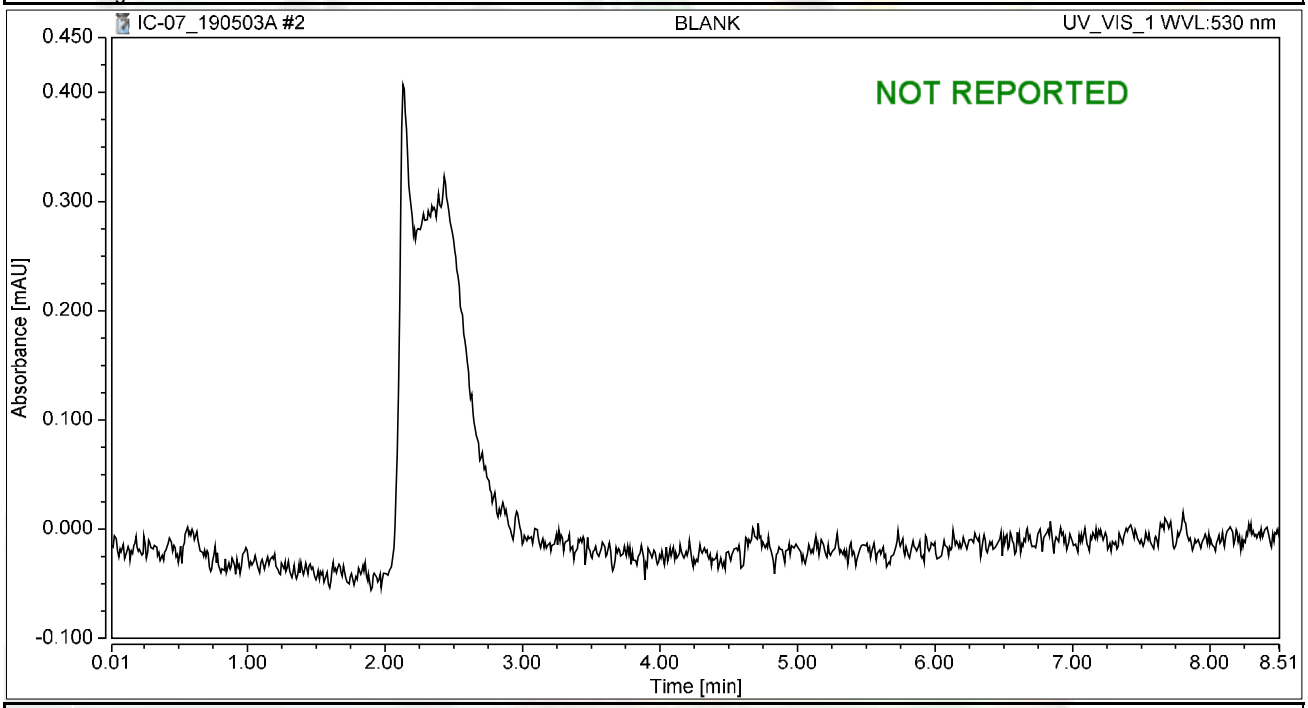
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

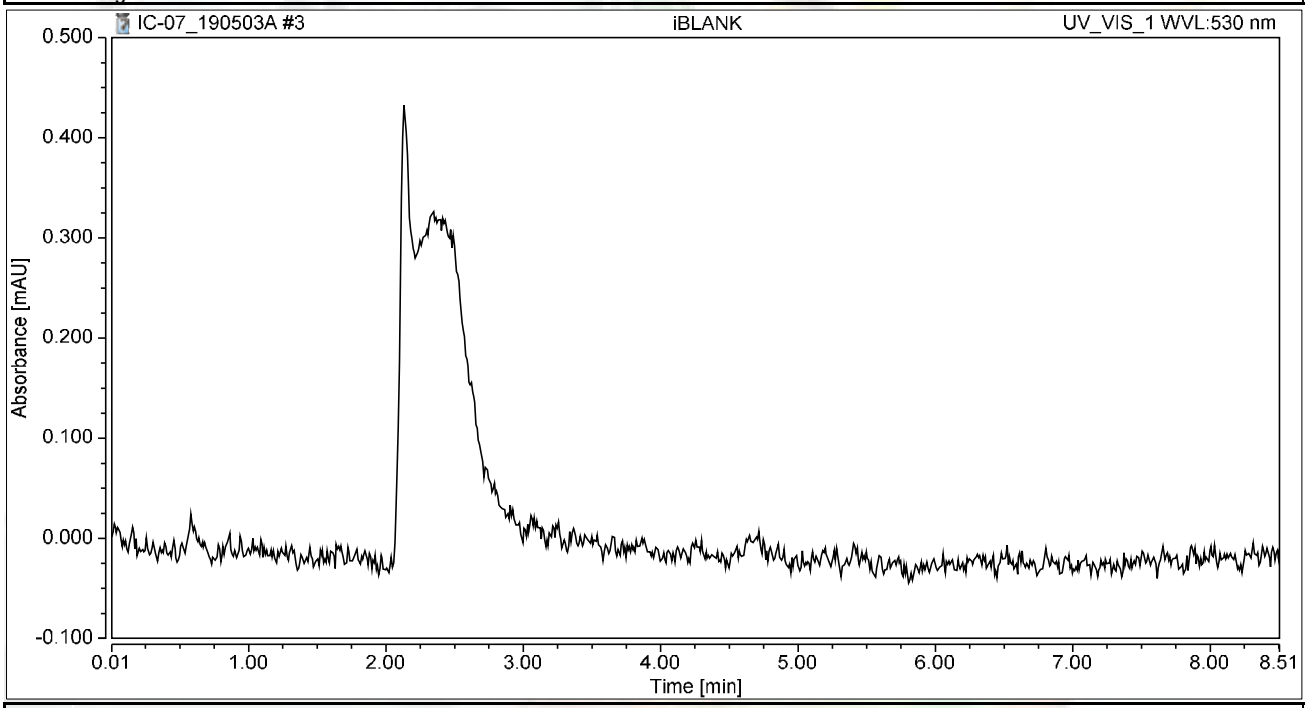
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

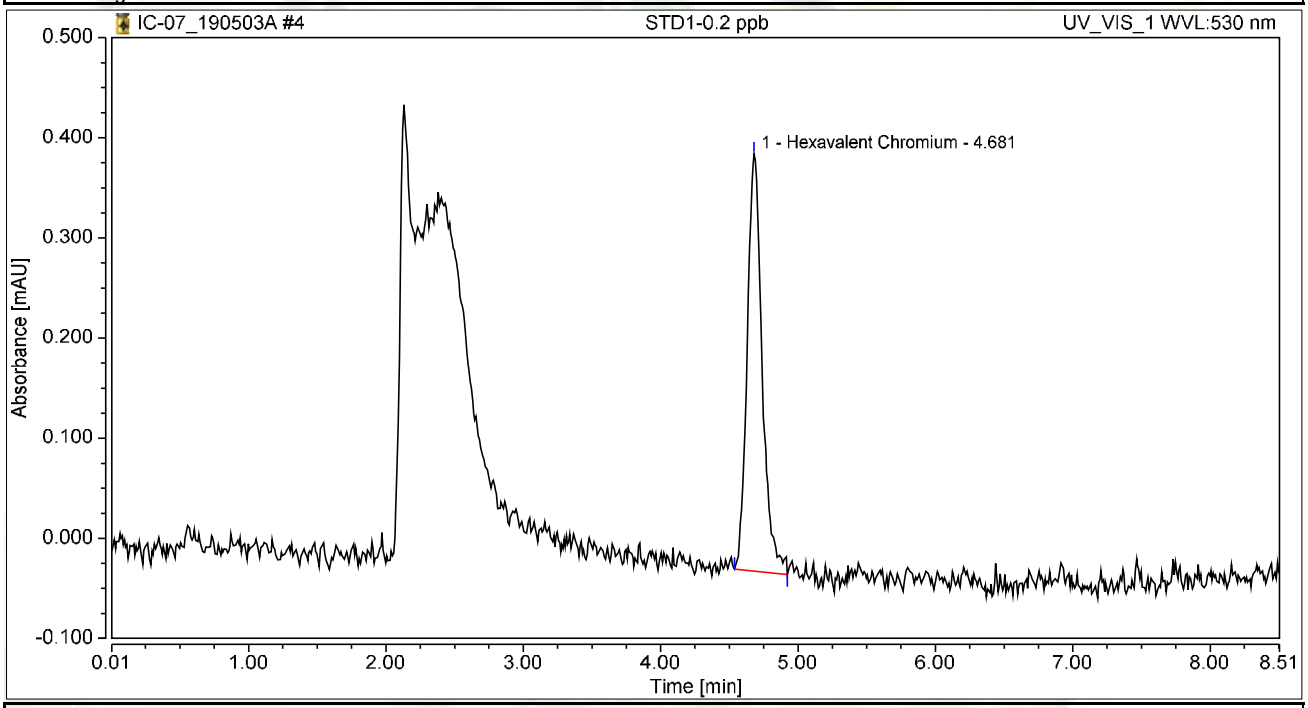
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

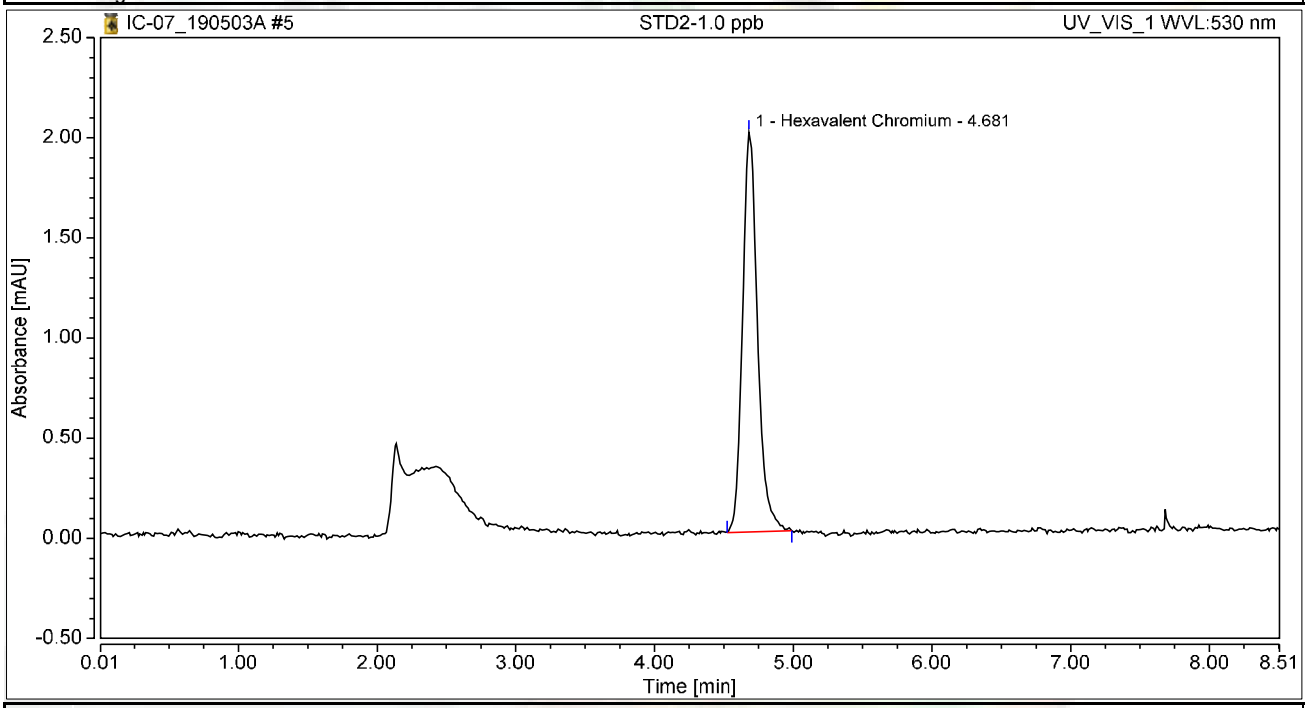
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.053	0.417	100.00	100.00	0.2092
Total:			**0.053**	**0.417**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

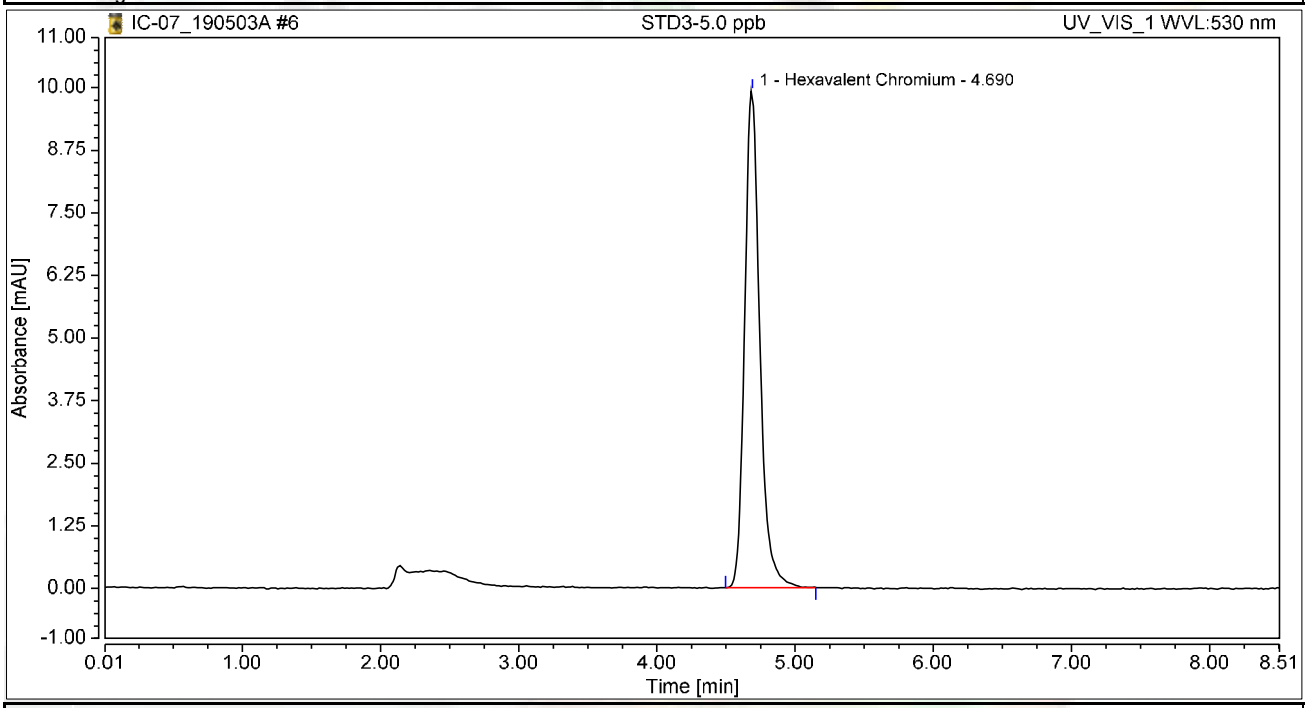
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.251	1.997	100.00	100.00	0.9971
Total:			**0.251**	**1.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

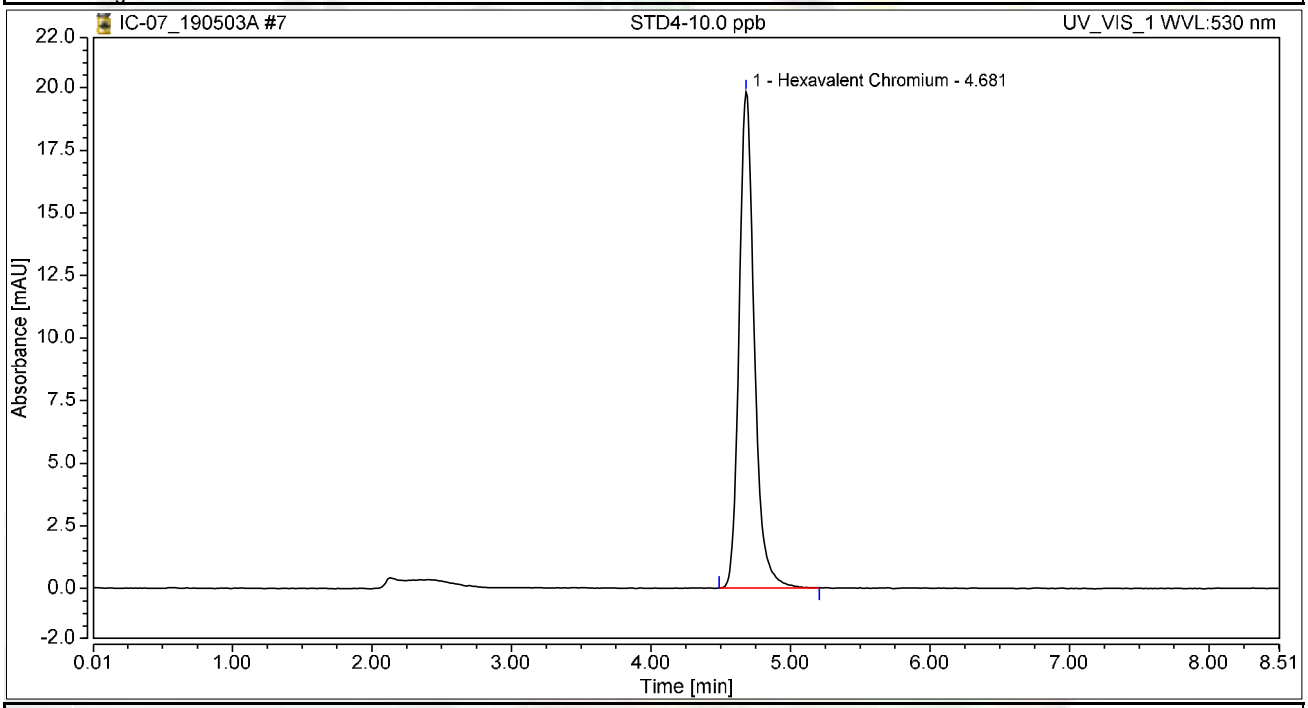
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.261	9.919	100.00	100.00	5.0034
Total:			**1.261**	**9.919**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

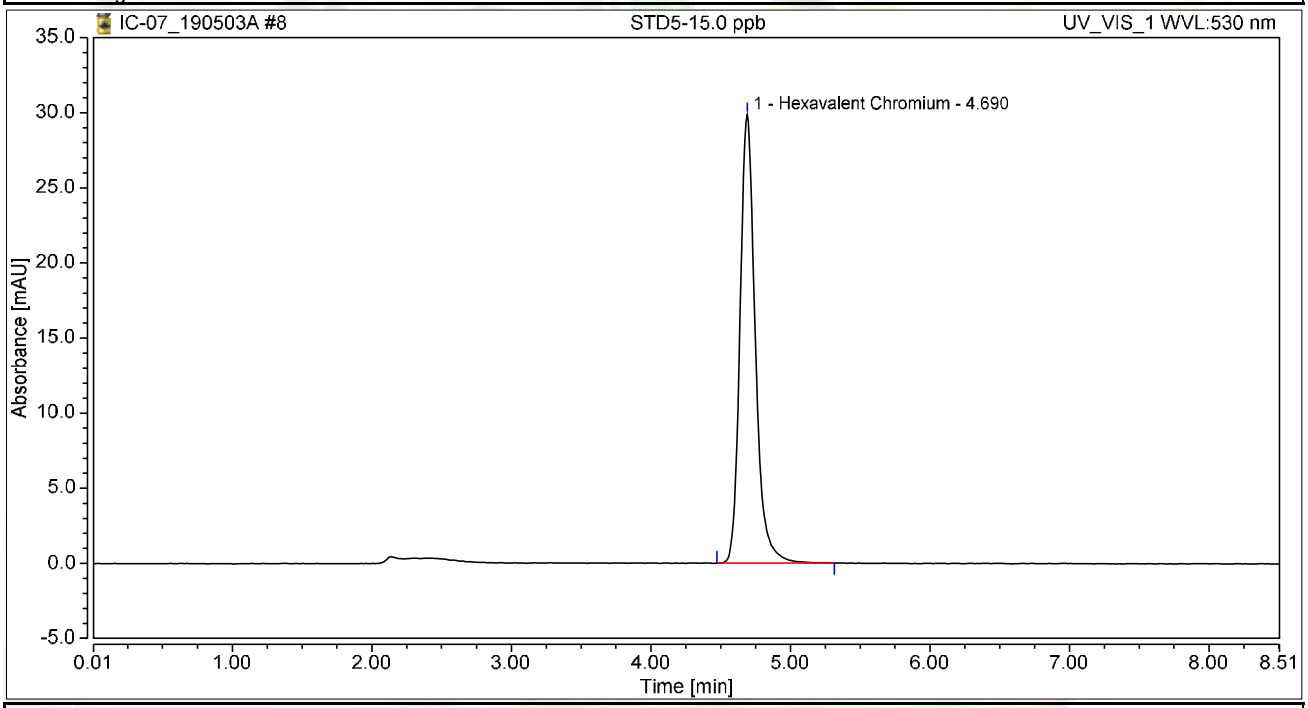
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	2.519	19.825	100.00	100.00	9.9901
Total:			**2.519**	**19.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

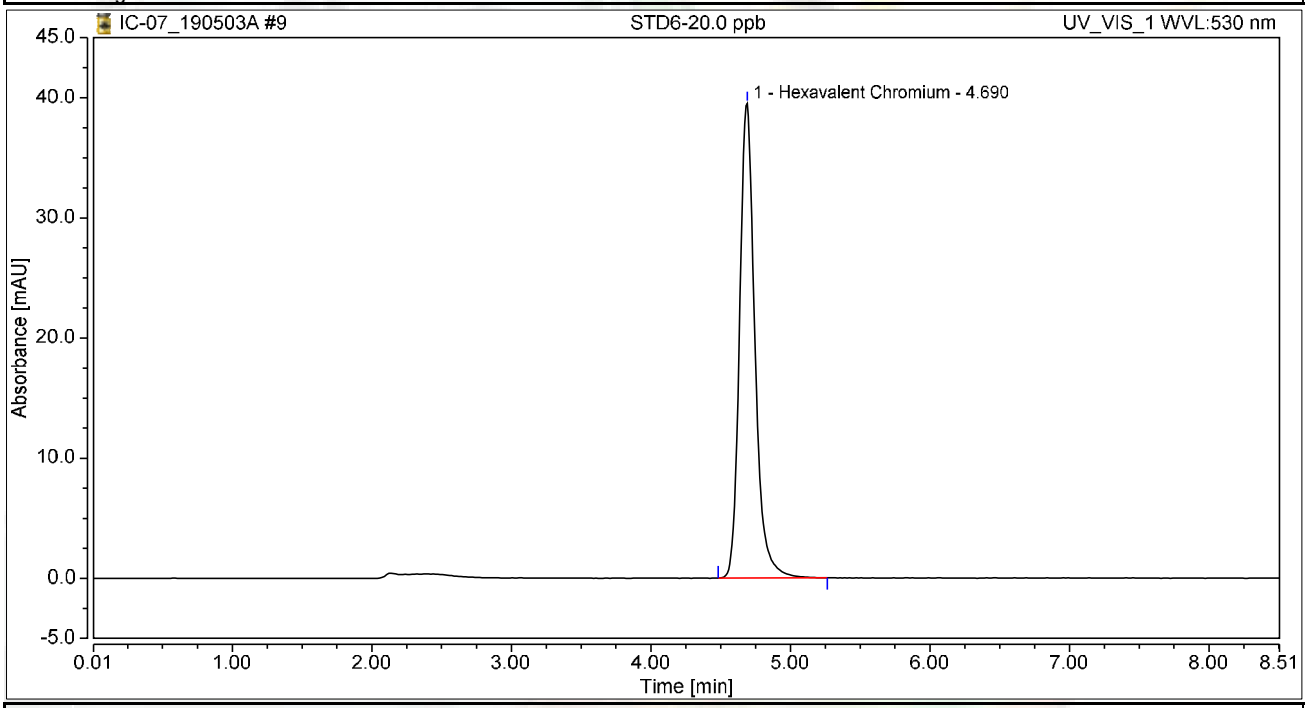
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.799	29.868	100.00	100.00	15.0660
Total:			**3.799**	**29.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



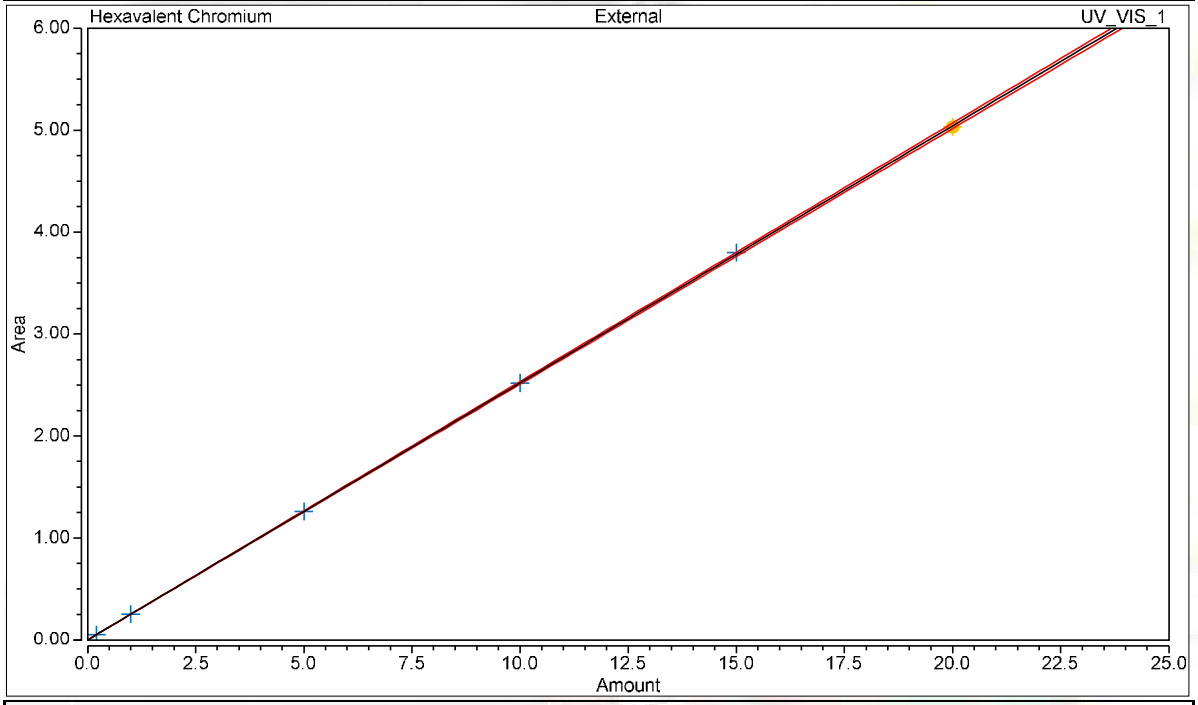
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	5.031	39.475	100.00	100.00	19.9546
Total:			**5.031**	**39.475**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2521
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

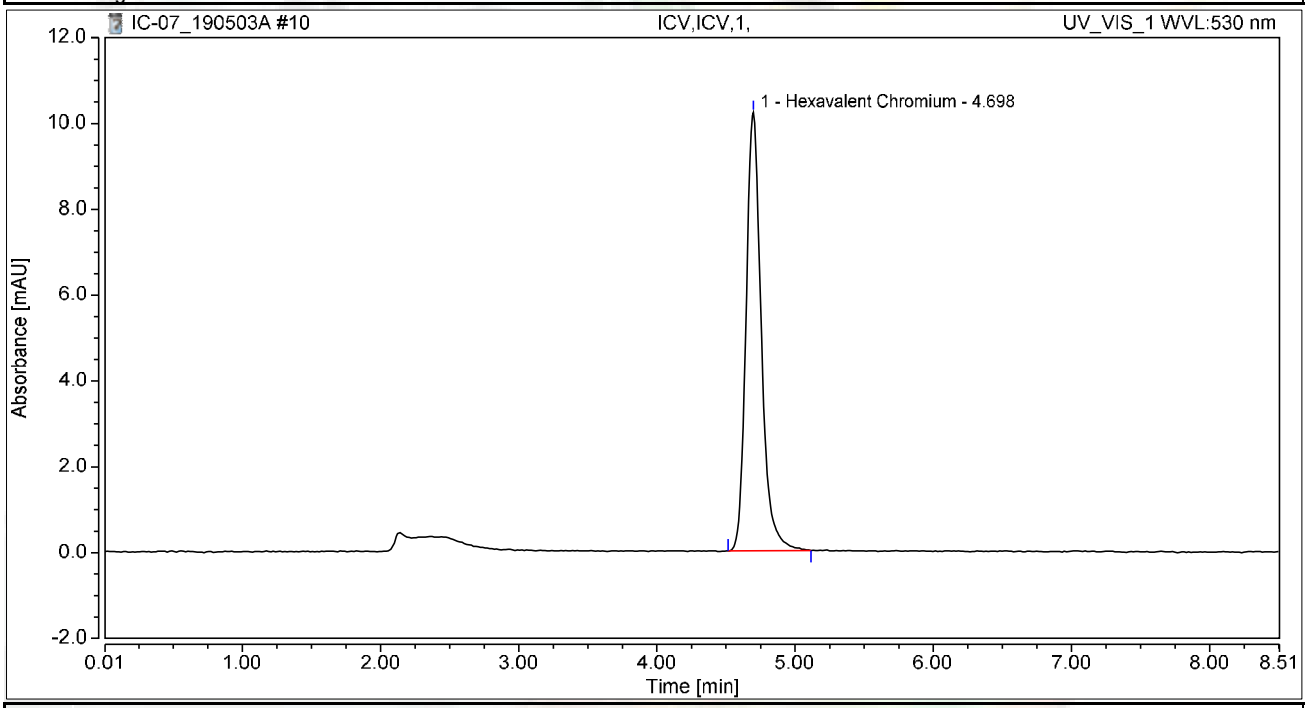
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.417
5	STD2-1.0 ppb	02	1.0000	0.2514	0.251	1.997
6	STD3-5.0 ppb	03	5.0000	1.2615	1.261	9.919
7	STD4-10.0 ppb	04	10.0000	2.5188	2.519	19.825
8	STD5-15.0 ppb	05	15.0000	3.7985	3.799	29.868
9	STD6-20.0 ppb	06	20.0000	5.0310	5.031	39.475

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

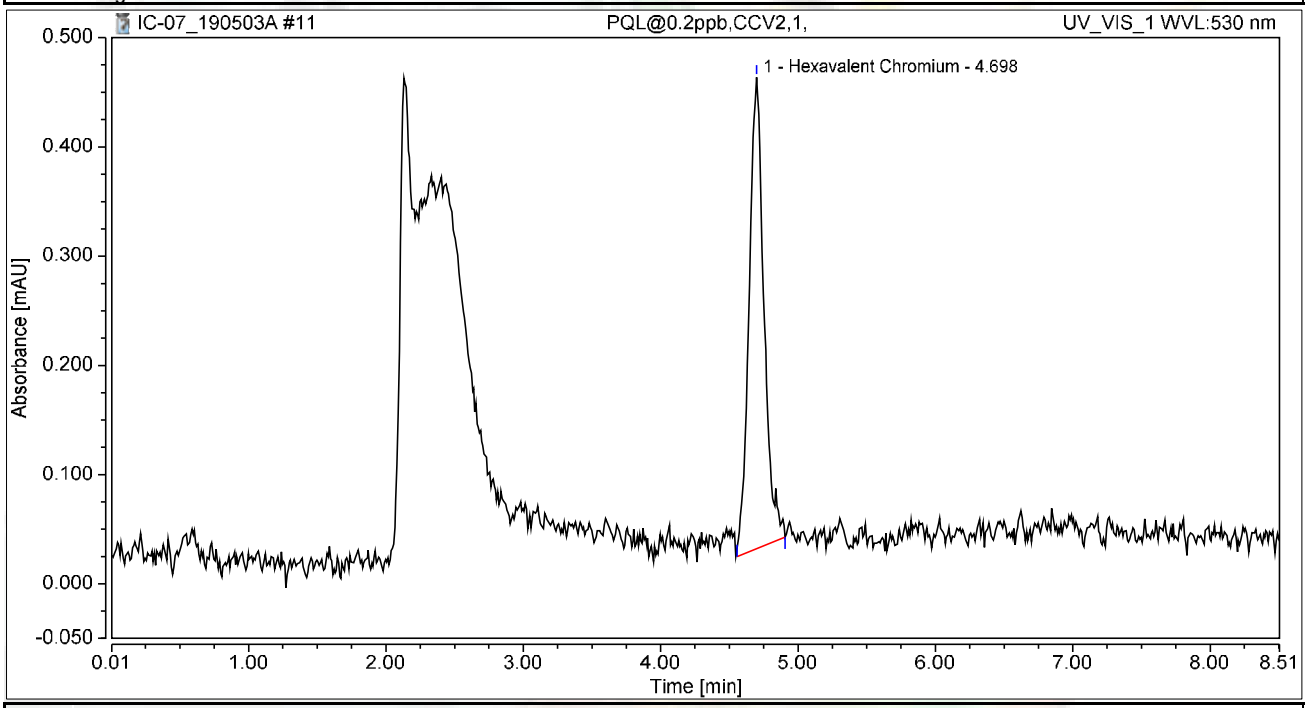
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.305	10.217	100.00	100.00	5.1753
Total:			**1.305**	**10.217**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

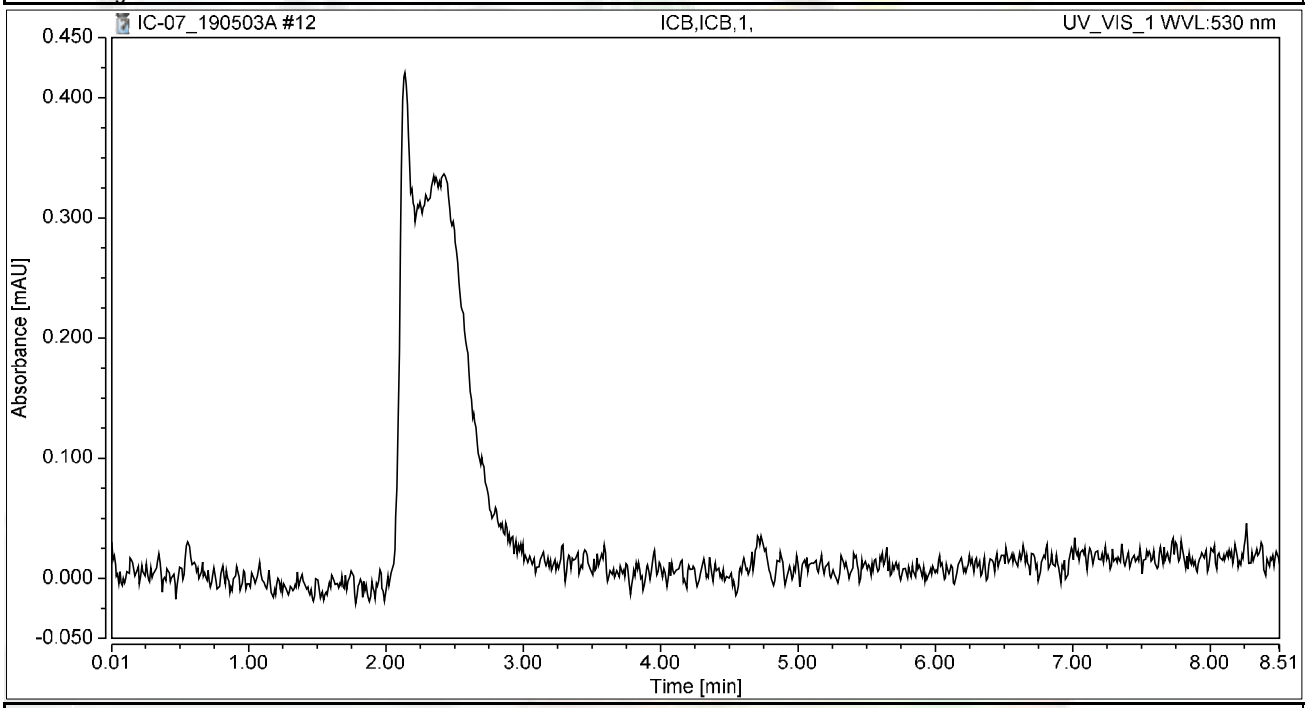
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.431	100.00	100.00	0.2143
Total:			**0.054**	**0.431**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190517A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/17/19 9:12 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/17/19 9:22 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/17/19 9:32 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/17/19 9:41 AM	Reported
14	MB-R133981	MBLK	1	Hexavalent Chromium	05/17/19 9:51 AM	Reported
15	LCS-R133981	LCS	1	Hexavalent Chromium	05/17/19 10:00 AM	Reported
16	N035638-001A	SAMP	1	Hexavalent Chromium	05/17/19 10:10 AM	Reported
17	N035639-002A	SAMP	1	Hexavalent Chromium	05/17/19 10:19 AM	Reported
18	N035640-001A	SAMP	5	Hexavalent Chromium	05/17/19 10:29 AM	Reported
19	N035640-011A	SAMP	200	Hexavalent Chromium	05/17/19 10:38 AM	Reported
20	N035638-001AMS	MS	1	Hexavalent Chromium	05/17/19 10:48 AM	Reported
21	N035640-001ADUP	DUP	5	Hexavalent Chromium	05/17/19 10:58 AM	Reported
22	N035640-011AMS	MS	200	Hexavalent Chromium	05/17/19 11:09 AM	Reported
23	N035640-011AMSD	MSD	200	Hexavalent Chromium	05/17/19 11:19 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	05/17/19 11:28 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/17/19 11:38 AM	Reported
26	N035640-002A	SAMP	5	Hexavalent Chromium	05/17/19 11:52 AM	Reported
27	N035640-003A	SAMP	5	Hexavalent Chromium	05/17/19 12:03 PM	Reported
28	N035640-004A	SAMP	5	Hexavalent Chromium	05/17/19 12:12 PM	Reported
29	N035640-005A	SAMP	50	Hexavalent Chromium	05/17/19 12:21 PM	Reported
30	N035639-002AMS	MS	1	Hexavalent Chromium	05/17/19 12:31 PM	Reported
31	N035640-006A	SAMP	50	Hexavalent Chromium	05/17/19 12:40 PM	Reported
32	N035640-007A	SAMP	500	Hexavalent Chromium	05/17/19 12:50 PM	Reported
33	N035640-008A	SAMP	1000	Hexavalent Chromium	05/17/19 12:59 PM	Reported
34	N035640-009A	SAMP	100	Hexavalent Chromium	05/17/19 1:09 PM	Reported
35	N035640-010A	SAMP	100	Hexavalent Chromium	05/17/19 1:18 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	05/17/19 1:28 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/17/19 1:37 PM	Reported
38	N035640-012A	SAMP	100	Hexavalent Chromium	05/17/19 1:47 PM	Reported
39	N035640-015A	SAMP	20	Hexavalent Chromium	05/17/19 1:56 PM	Reported
40	N035640-001AMS	MS	5	Hexavalent Chromium	05/17/19 2:22 PM	Reported
41	N035640-002AMS	MS	5	Hexavalent Chromium	05/17/19 2:33 PM	Reported
42	N035640-003AMS	MS	5	Hexavalent Chromium	05/17/19 2:42 PM	Reported

INJECTION LOG: 190517A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035640-004AMS	MS	5	Hexavalent Chromium	05/17/19 2:52 PM	Reported
44	N035640-005AMS	MS	50	Hexavalent Chromium	05/17/19 3:01 PM	Reported
45	N035640-006AMS	MS	50	Hexavalent Chromium	05/17/19 3:11 PM	Reported
46	N035640-007AMS	MS	500	Hexavalent Chromium	05/17/19 3:20 PM	Reported
47	N035640-008AMS	MS	1000	Hexavalent Chromium	05/17/19 3:30 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	05/17/19 3:39 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	05/17/19 3:48 PM	Reported
50	N035640-009AMS	MS	100	Hexavalent Chromium	05/17/19 3:58 PM	Reported
51	N035640-010AMS	MS	100	Hexavalent Chromium	05/17/19 4:07 PM	Reported
52	N035640-012AMS	MS	100	Hexavalent Chromium	05/17/19 4:17 PM	Reported
53	N035640-015AMS	MS	20	Hexavalent Chromium	05/17/19 4:26 PM	Reported
54	N035640-004A	SAMP	1	Hexavalent Chromium	05/17/19 4:36 PM	Not Reported
55	N035640-004AMS	MS	1	Hexavalent Chromium	05/17/19 4:45 PM	Not Reported
56	N035640-013A	SAMP	1	Hexavalent Chromium	05/17/19 4:55 PM	Reported
57	N035640-013AMS	MS	1	Hexavalent Chromium	05/17/19 5:04 PM	Reported
58	N035640-014A	SAMP	1	Hexavalent Chromium	05/17/19 5:14 PM	Reported
59	N035640-014AMS	MS	1	Hexavalent Chromium	05/17/19 5:23 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	05/17/19 5:32 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	05/17/19 5:42 PM	Reported
62	BLANK	BLANK	1	Hexavalent Chromium	05/17/19 5:51 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190517A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**17/May/19 18:22:14**
No. of Injections:	**65**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/17/2019 09:12	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/17/2019 09:22	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/17/2019 09:32	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/17/2019 09:41	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/17/2019 09:51	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/17/2019 10:00	Finished	LCS @5ppb, IWST-190423B
16	N035638-001A,SAMF	7	1000	Unknown		05/17/2019 10:10	Finished	SAMP, 10mL
17	N035639-002A,SAMF	8	1000	Unknown		05/17/2019 10:19	Finished	SAMP, 10mL
18	N035640-001A,SAMF	9	1000	Unknown		05/17/2019 10:29	Finished	SAMP, 2>10mL
19	N035640-011A,SAMF	10	1000	Unknown		05/17/2019 10:38	Finished	SAMP, 0.05>10mL
20	N035638-001AMS,MS	11	1000	Unknown		05/17/2019 10:48	Finished	MS (1ppb), IWST-190423B,10
21	N035640-001ADUP,D	1	1000	Unknown		05/17/2019 10:58	Finished	DUP, 2>10mL
22	N035640-011AMS,MS	2	1000	Unknown		05/17/2019 11:09	Finished	MS (5ppb), IWST-190423B,0.0
23	N035640-011AMSD,M	3	1000	Unknown		05/17/2019 11:19	Finished	MSD (5ppb), IWST-190423B,0.
24	CCV-2,CCV1,1,	4	1000	Unknown		05/17/2019 11:28	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	5	1000	Unknown		05/17/2019 11:38	Finished	CCB R190508A
26	N035640-002A,SAMF	1	1000	Unknown		05/17/2019 11:52	Finished	SAMP, 2>10mL
27	N035640-003A,SAMF	2	1000	Unknown		05/17/2019 12:03	Finished	SAMP, 2>10mL
28	N035640-004A,SAMF	3	1000	Unknown		05/17/2019 12:12	Finished	SAMP, 2>10mL
29	N035640-005A,SAMF	4	1000	Unknown		05/17/2019 12:21	Finished	SAMP, 0.2>10mL
30	N035639-002AMS,MS	5	1000	Unknown		05/17/2019 12:31	Finished	MS (1ppb), IWST-190423B,10
31	N035640-006A,SAMF	6	1000	Unknown		05/17/2019 12:40	Finished	SAMP, 0.2>10mL
32	N035640-007A,SAMF	7	1000	Unknown		05/17/2019 12:50	Finished	SAMP, 0.02>10mL
33	N035640-008A,SAMF	8	1000	Unknown		05/17/2019 12:59	Finished	SAMP, 0.01>10mL
34	N035640-009A,SAMF	9	1000	Unknown		05/17/2019 13:09	Finished	SAMP, 0.1>10mL
35	N035640-010A,SAMF	10	1000	Unknown		05/17/2019 13:18	Finished	SAMP, 0.1>10mL
36	CCV-3,CCV,1,	11	1000	Unknown		05/17/2019 13:28	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	12	1000	Unknown		05/17/2019 13:37	Finished	CCB R190411C
38	N035640-012A,SAMF	13	1000	Unknown		05/17/2019 13:47	Finished	SAMP, 0.1>10mL
39	N035640-015A,SAMF	14	1000	Unknown		05/17/2019 13:56	Finished	SAMP, 0.5>10mL
40	N035640-001AMS,MS	1	1000	Unknown		05/17/2019 14:22	Finished	MS (5ppb), IWST-190423B,2>1
41	N035640-002AMS,MS	2	1000	Unknown		05/17/2019 14:33	Finished	MS (5ppb), IWST-190423B,2>1
42	N035640-003AMS,MS	3	1000	Unknown		05/17/2019 14:42	Finished	MS (5ppb), IWST-190423B,2>1
43	N035640-004AMS,MS	4	1000	Unknown		05/17/2019 14:52	Finished	MS (5ppb), IWST-190423B,2>1
44	N035640-005AMS,MS	5	1000	Unknown		05/17/2019 15:01	Finished	MS (5ppb), IWST-190423B,0.2
45	N035640-006AMS,MS	6	1000	Unknown		05/17/2019 15:11	Finished	MS (5ppb), IWST-190423B,0.2
46	N035640-007AMS,MS	7	1000	Unknown		05/17/2019 15:20	Finished	MS (5ppb), IWST-190423B,0.0
47	N035640-008AMS,MS	8	1000	Unknown		05/17/2019 15:30	Finished	MS (5ppb), IWST-190423B,0.0
48	CCV-4,CCV1,1,	9	1000	Unknown		05/17/2019 15:39	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	10	1000	Unknown		05/17/2019 15:48	Finished	CCB R190411C
50	N035640-009AMS,MS	11	1000	Unknown		05/17/2019 15:58	Finished	MS (5ppb), IWST-190423B,0.1
51	N035640-010AMS,MS	12	1000	Unknown		05/17/2019 16:07	Finished	MS (5ppb), IWST-190423B,0.1
52	N035640-012AMS,MS	13	1000	Unknown		05/17/2019 16:17	Finished	MS (5ppb), IWST-190423B,0.1
53	N035640-015AMS,MS	14	1000	Unknown		05/17/2019 16:26	Finished	MS (5ppb), IWST-190423B,0.5
54	N035640-004A,SAMF	15	1000	Unknown		05/17/2019 16:36	Finished	SAMP, 10mL
55	N035640-004AMS,MS	16	1000	Unknown		05/17/2019 16:45	Finished	MS (1ppb), IWST-190423B,10
56	N035640-013A,SAMF	17	1000	Unknown		05/17/2019 16:55	Finished	SAMP, 10mL
57	N035640-013AMS,MS	18	1000	Unknown		05/17/2019 17:04	Finished	MS (1ppb), IWST-190423B,10
58	N035640-014A,SAMF	19	1000	Unknown		05/17/2019 17:14	Finished	SAMP, 10mL
59	N035640-014AMS,MS	20	1000	Unknown		05/17/2019 17:23	Finished	MS (1ppb), IWST-190423B,10
60	CCV-5,CCV,1,	21	1000	Unknown		05/17/2019 17:32	Finished	CCV @5ppb, IWST-190423A

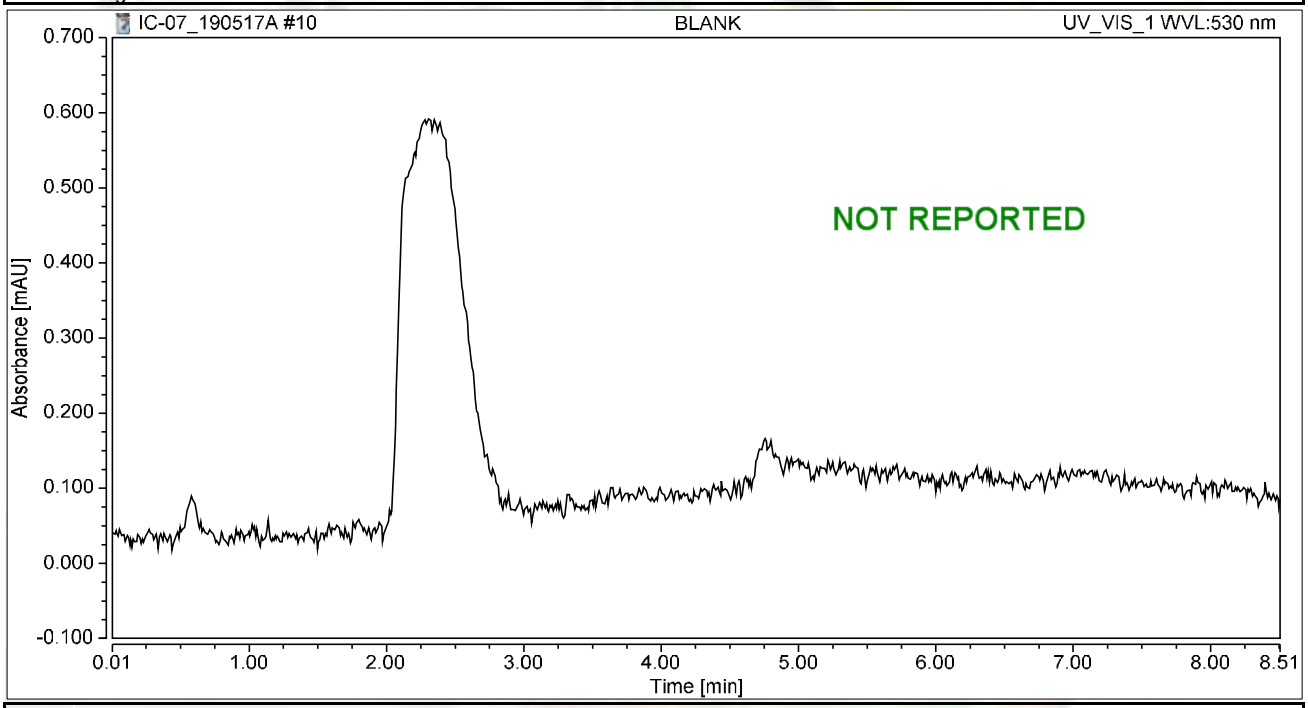
61	CCB-5,CCB,1,	22	1000	Unknown		05/17/2019 17:42	Finished	CCB R190411C
62	BLANK	23	1000	Unknown		05/17/2019 17:51	Finished	BLANK
63	SHUTDOWN	24	1000	Unknown		05/17/2019 18:01	Finished	
64	Eluent: R190517A	25	1000	Unknown		n.a.	Finished	Eluent
65	PCR: R190513E	26	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 09:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

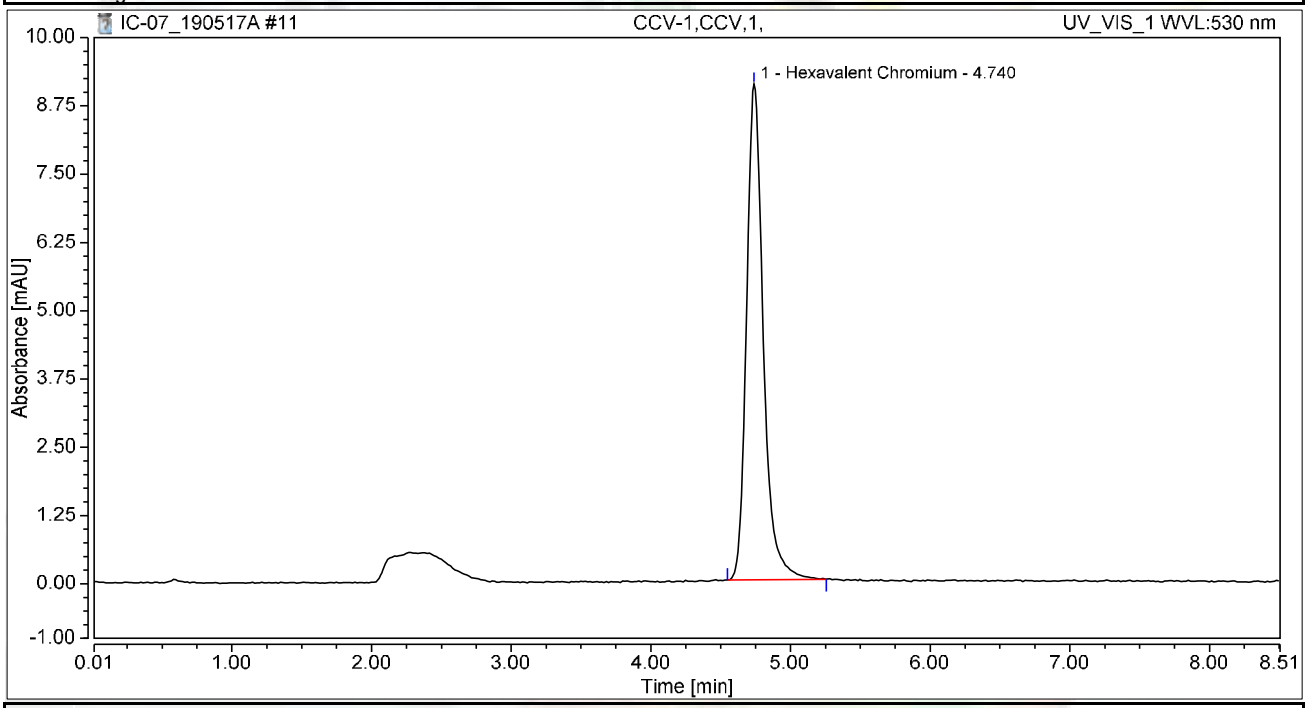
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 09:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

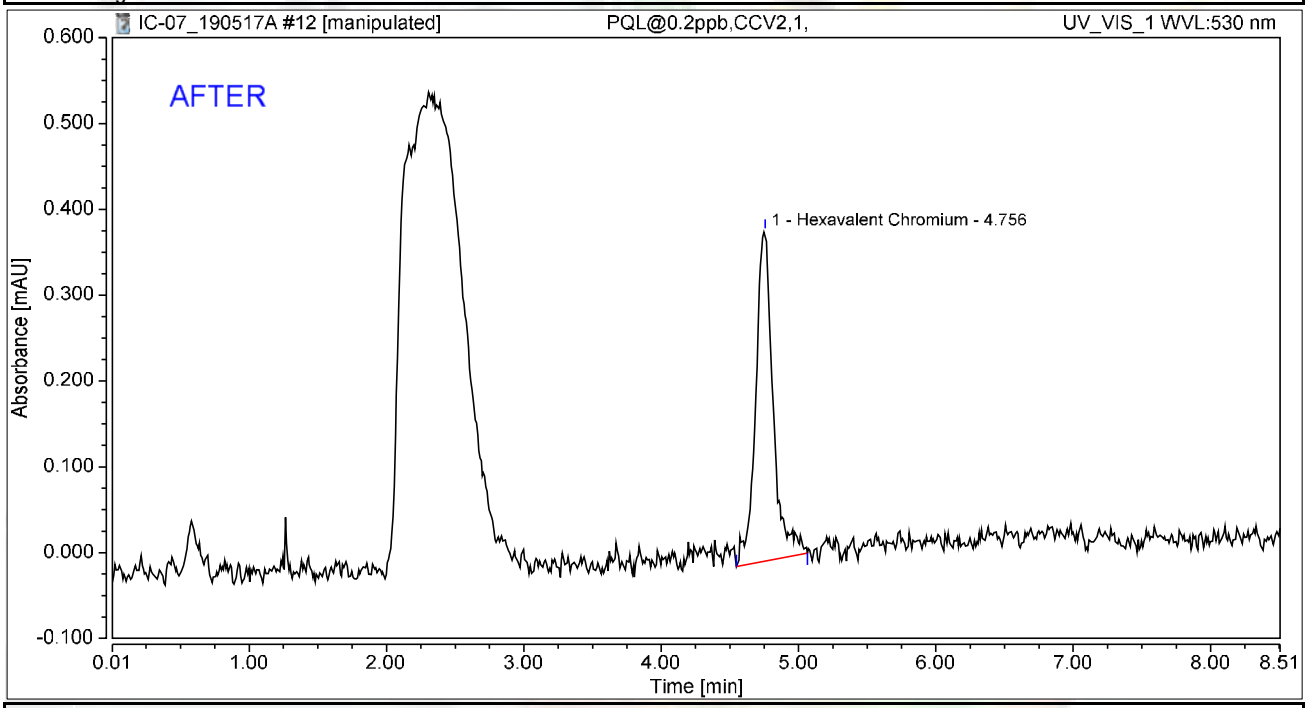
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.263	9.073	100.00	100.00	5.0078
Total:			**1.263**	**9.073**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 09:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.057	0.384	100.00	100.00	0.2243
Total:			**0.057**	**0.384**	**100.00**	**100.00**	

rba 5/27/2019

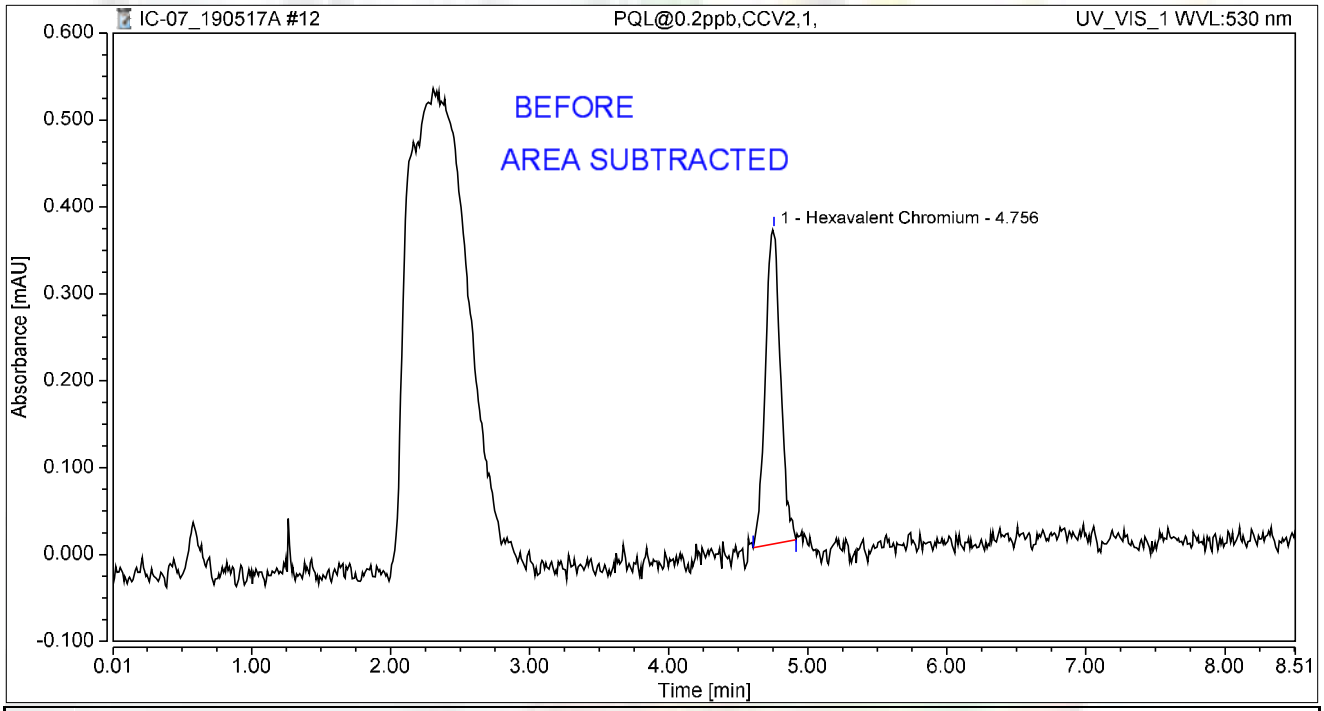
6/5/2019

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 09:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.046	0.362	100.00	100.00	0.1819
Total:			**0.046**	**0.362**	**100.00**	**100.00**	

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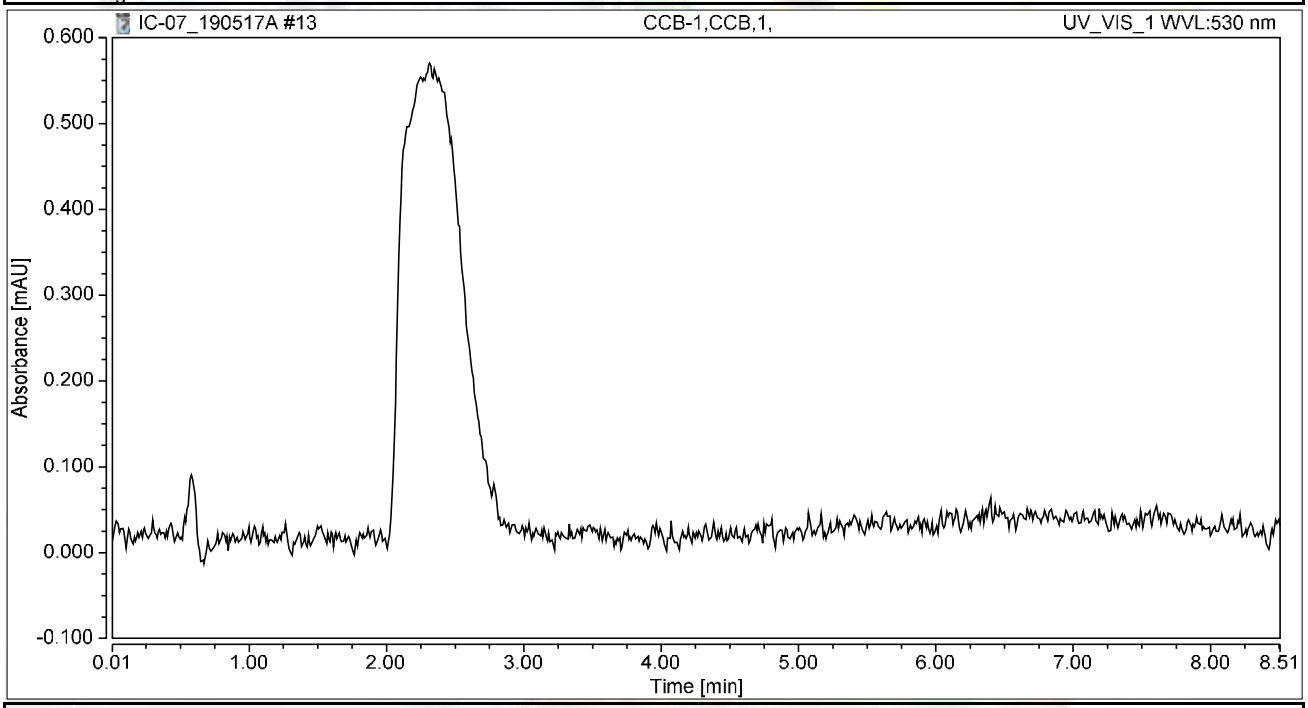
Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 09:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

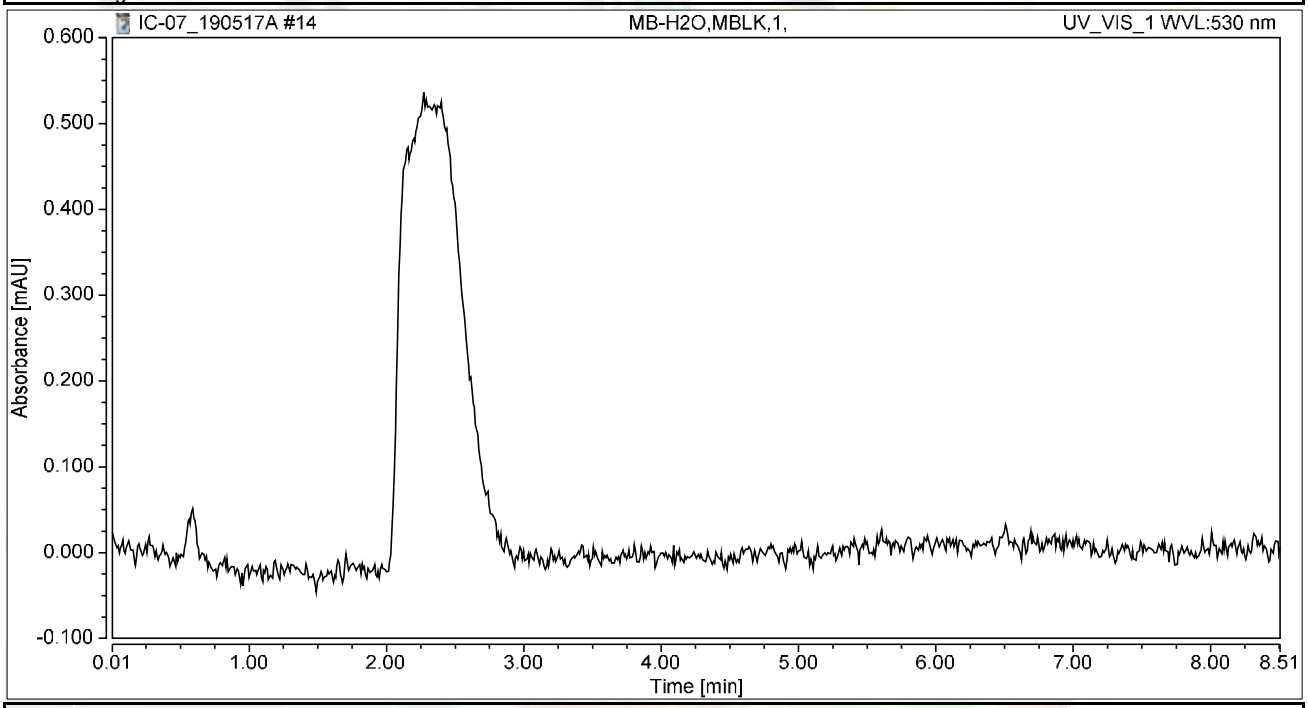
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 09:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

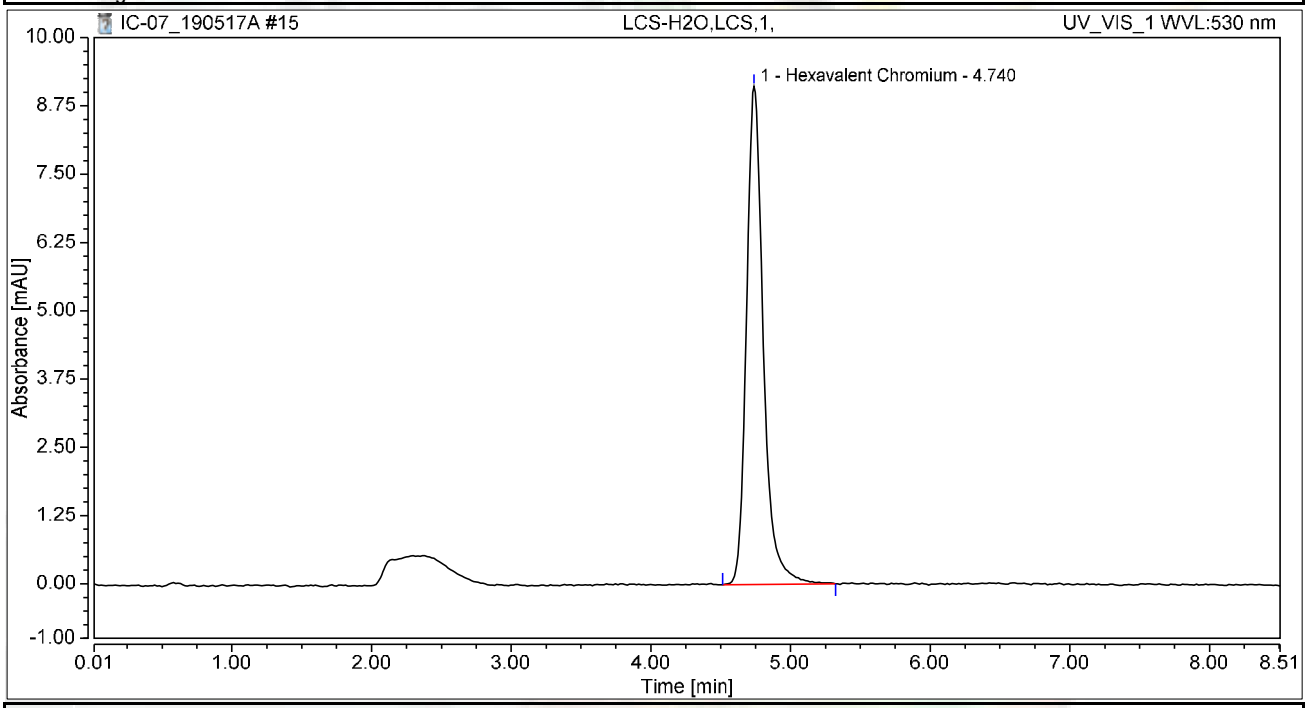
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 10:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

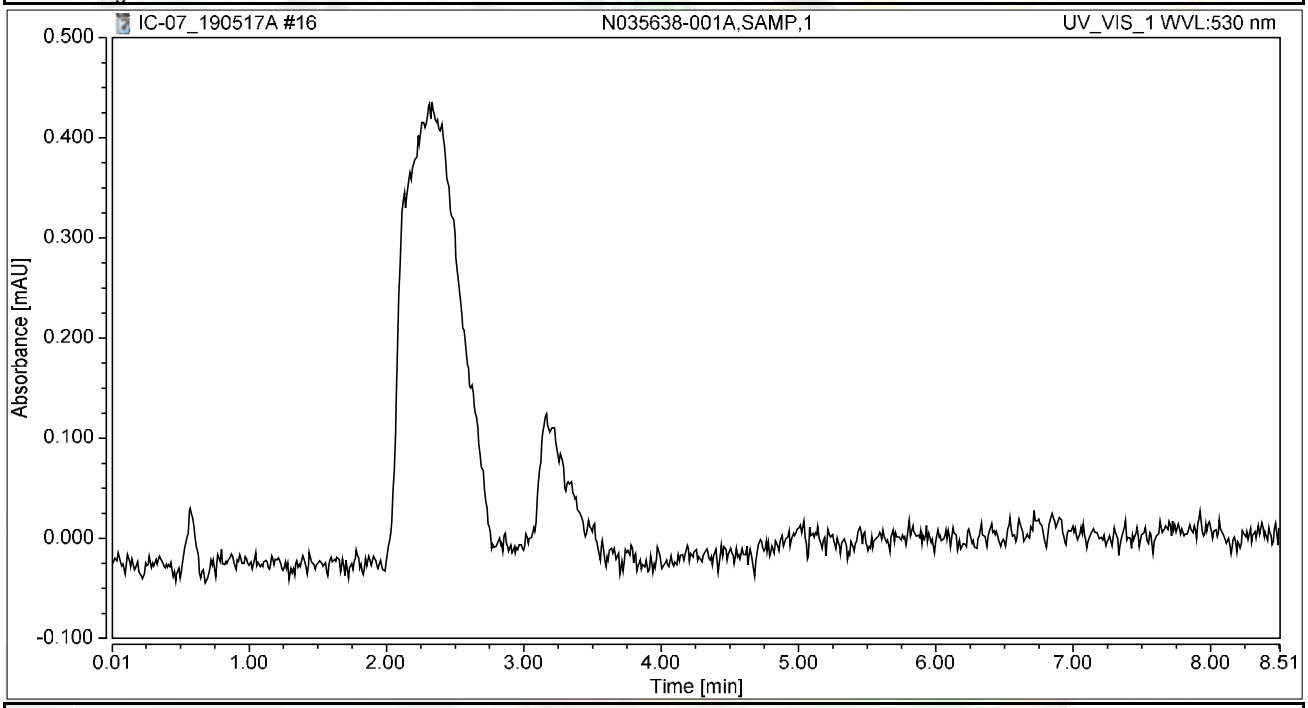
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.281	9.121	100.00	100.00	5.0809
Total:			**1.281**	**9.121**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035638-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 10:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

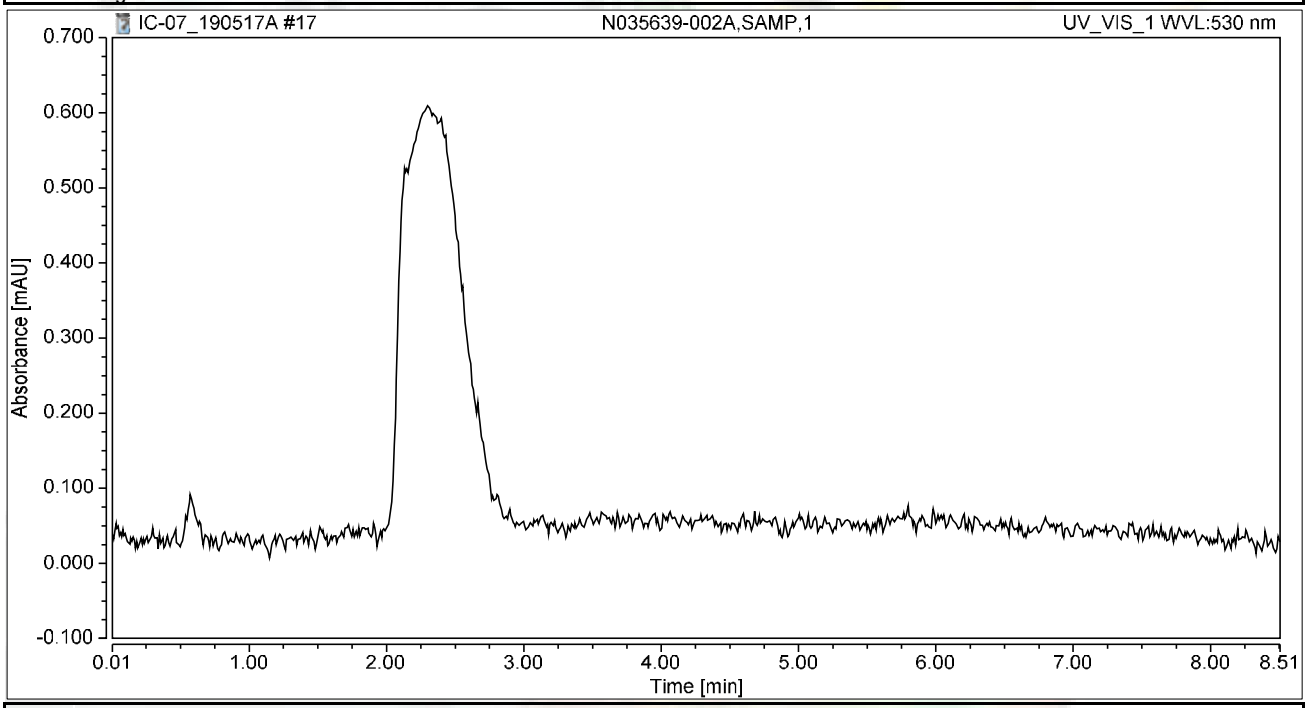
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035639-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 10:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

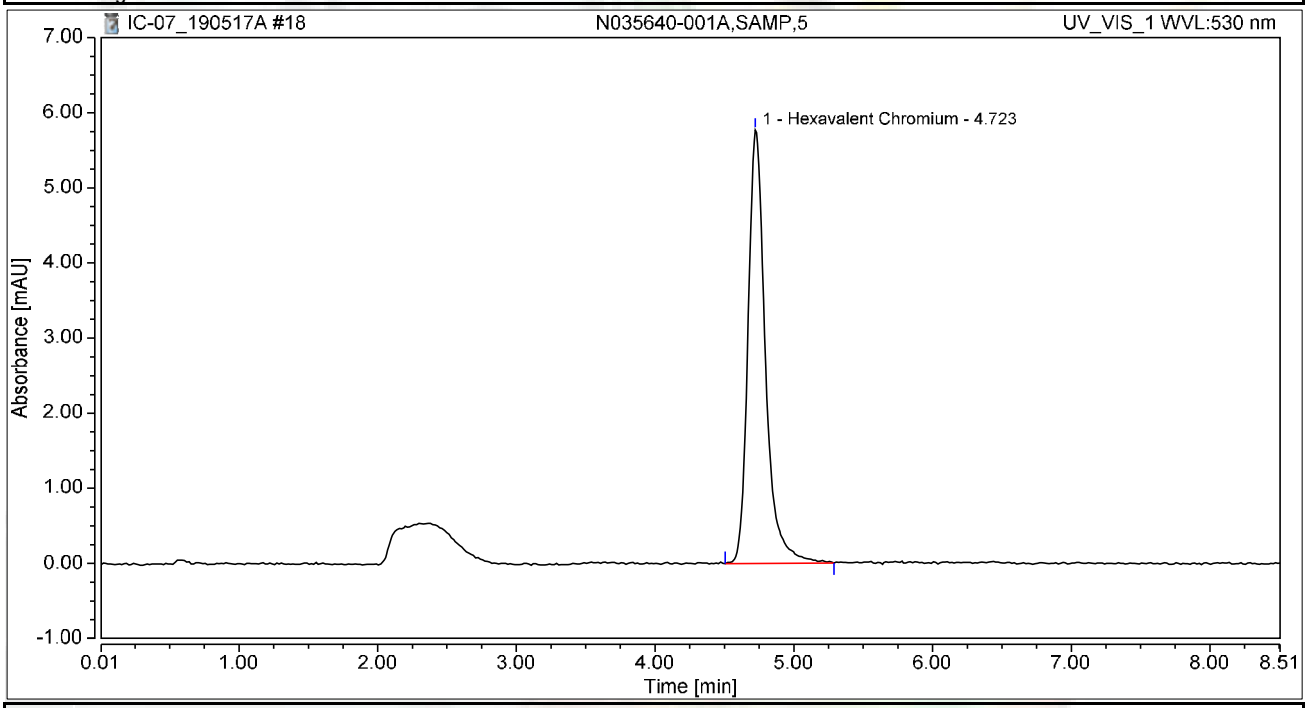
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 10:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

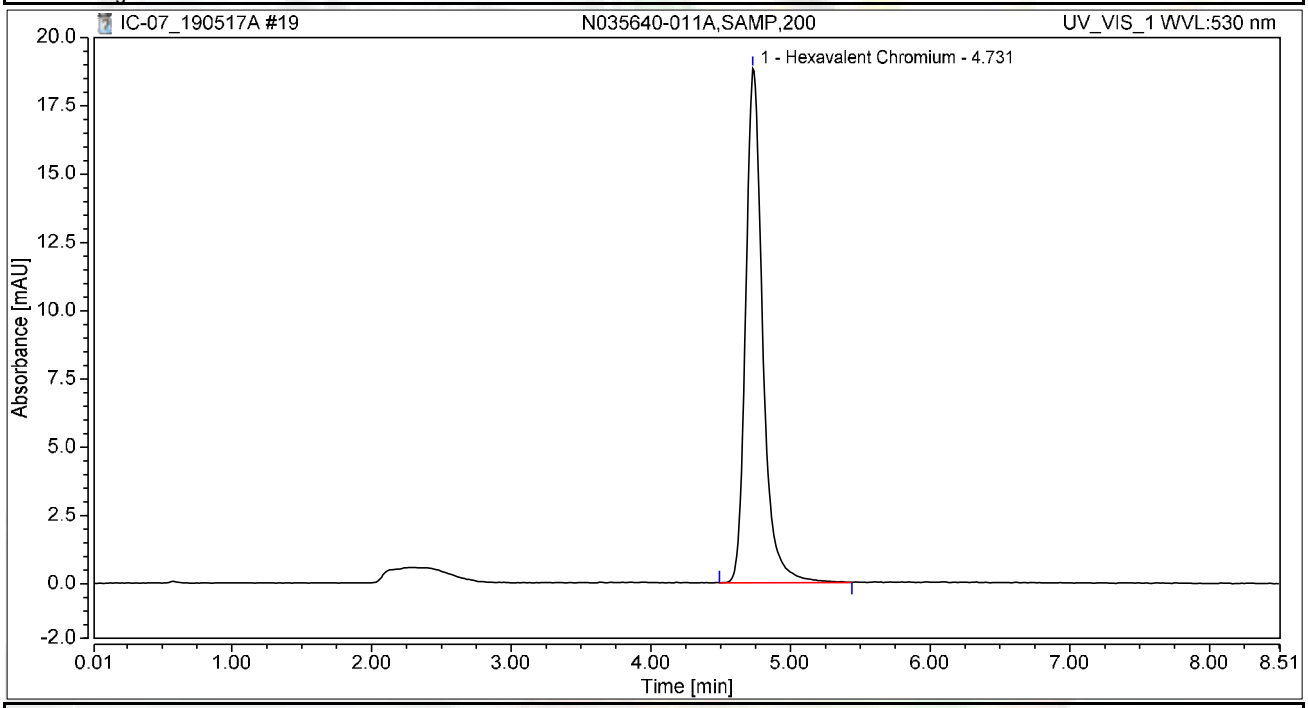
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.839	5.769	100.00	100.00	3.3289
Total:			**0.839**	**5.769**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-011A,SAMP,200**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 10:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

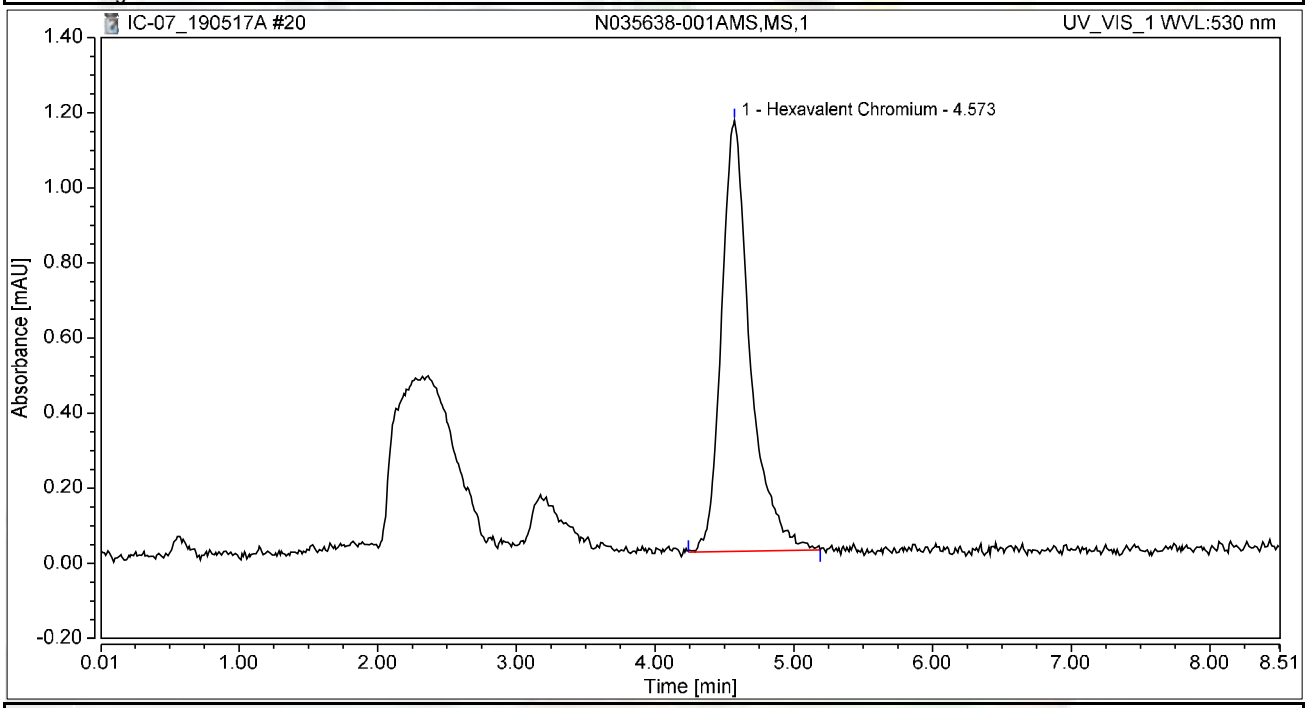
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.658	18.831	100.00	100.00	10.5408
Total:			**2.658**	**18.831**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035638-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 10:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

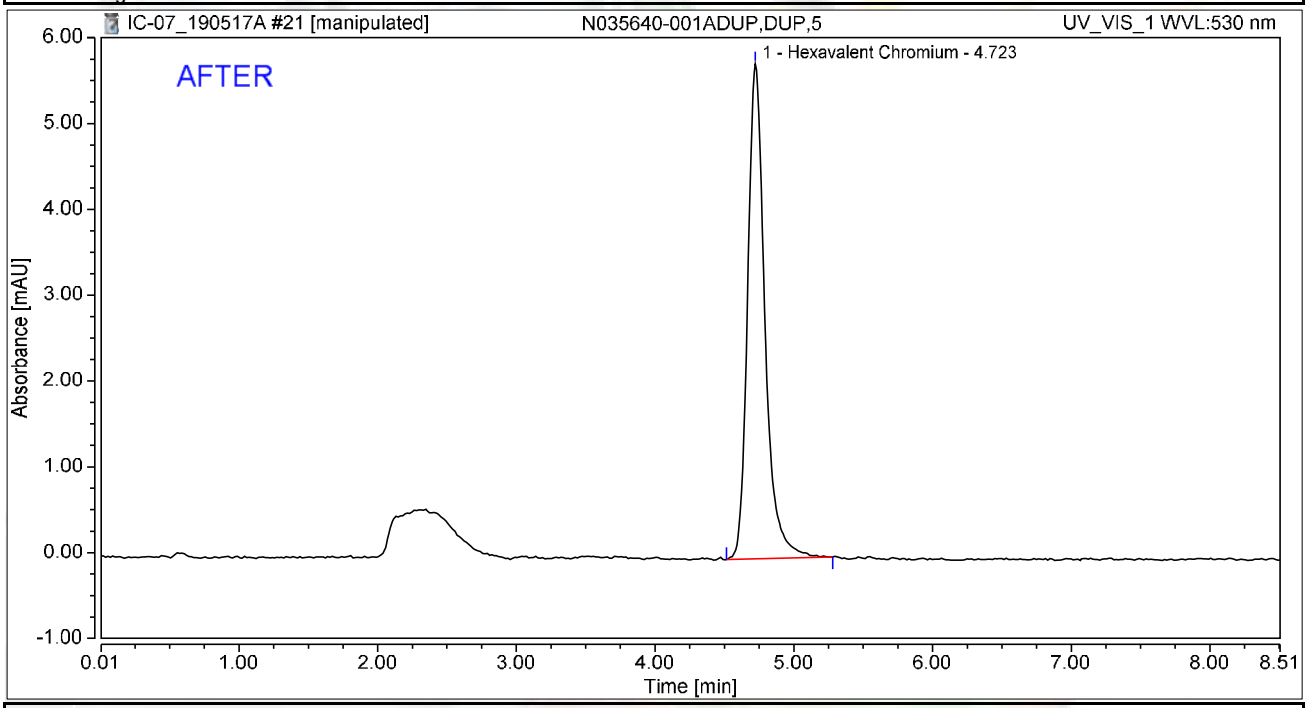
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.573	0.275	1.148	100.00	100.00	1.0924
Total:			**0.275**	**1.148**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-001ADUP,DUP,5**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 10:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.832	5.768	100.00	100.00	3.2997
Total:			**0.832**	**5.768**	**100.00**	**100.00**	

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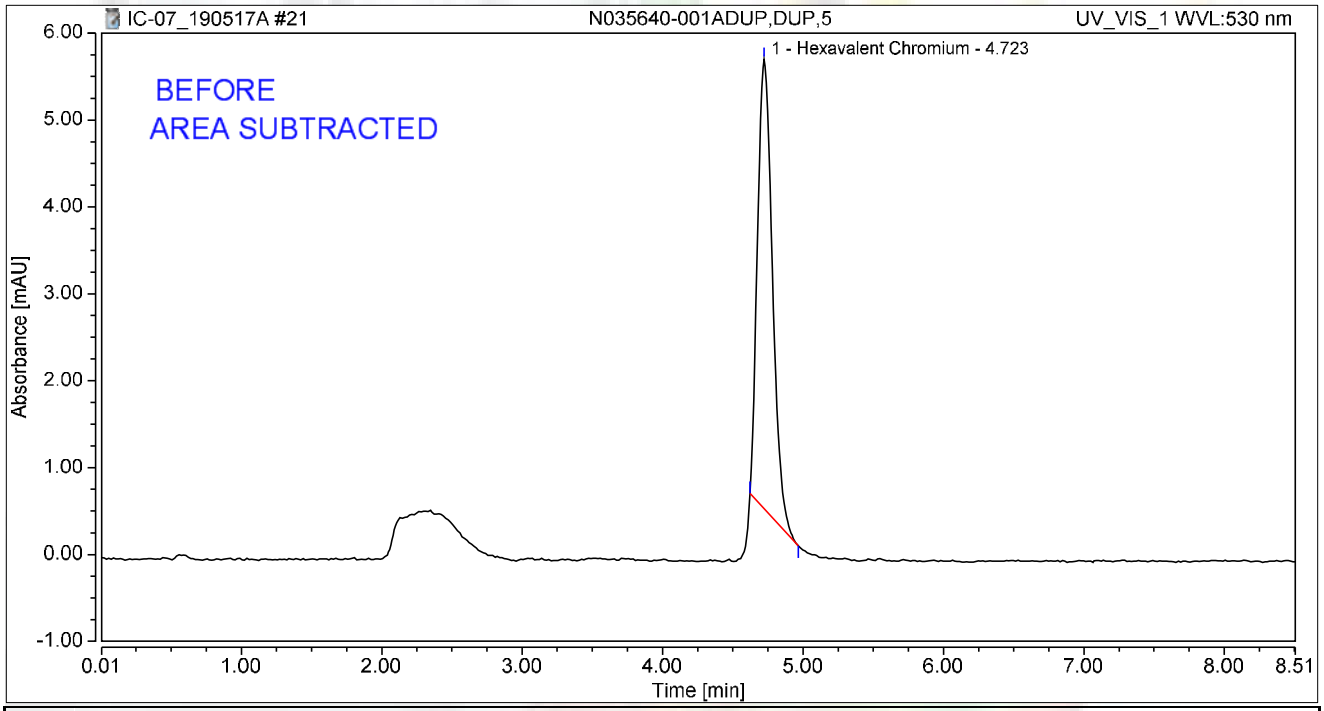
Chromatogram and Results

Injection Details

Injection Name:	**N035640-001ADUP,DUP,5**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 10:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.640	5.171	100.00	100.00	2.5373
Total:			**0.640**	**5.171**	**100.00**	**100.00**	

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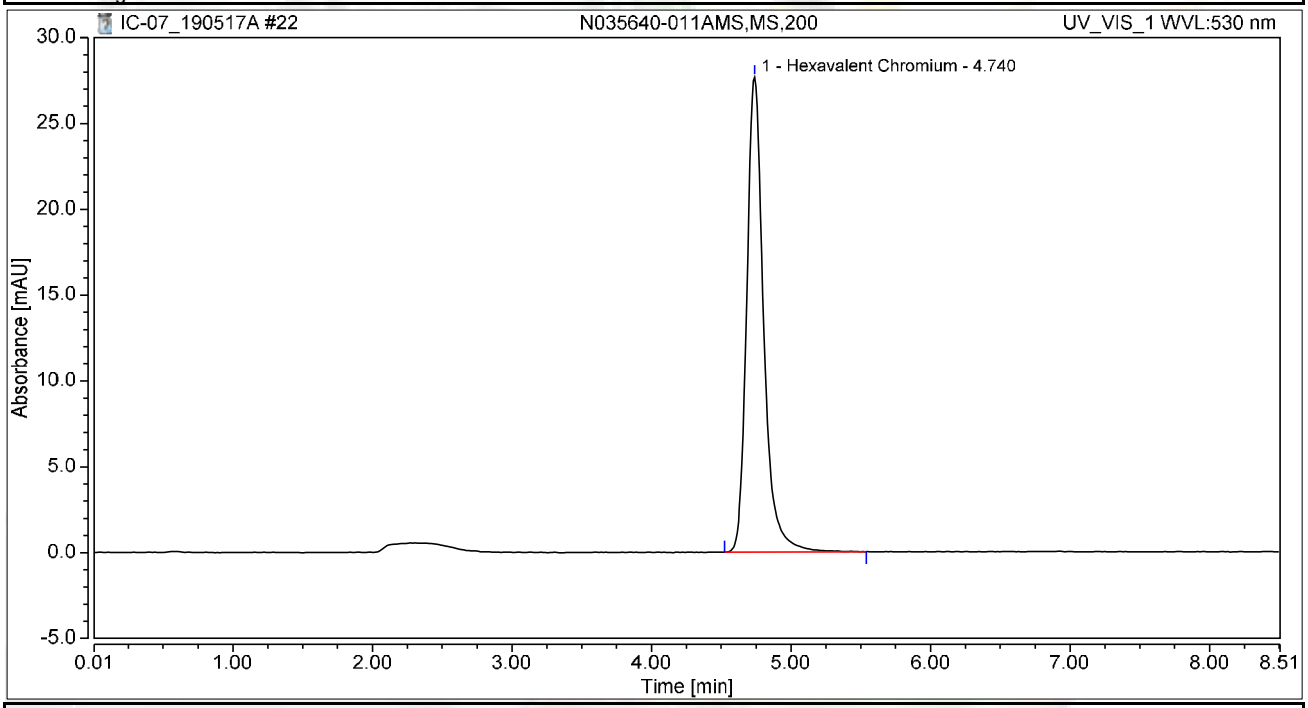
Chromatogram and Results

Injection Details

Injection Name:	**N035640-011AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

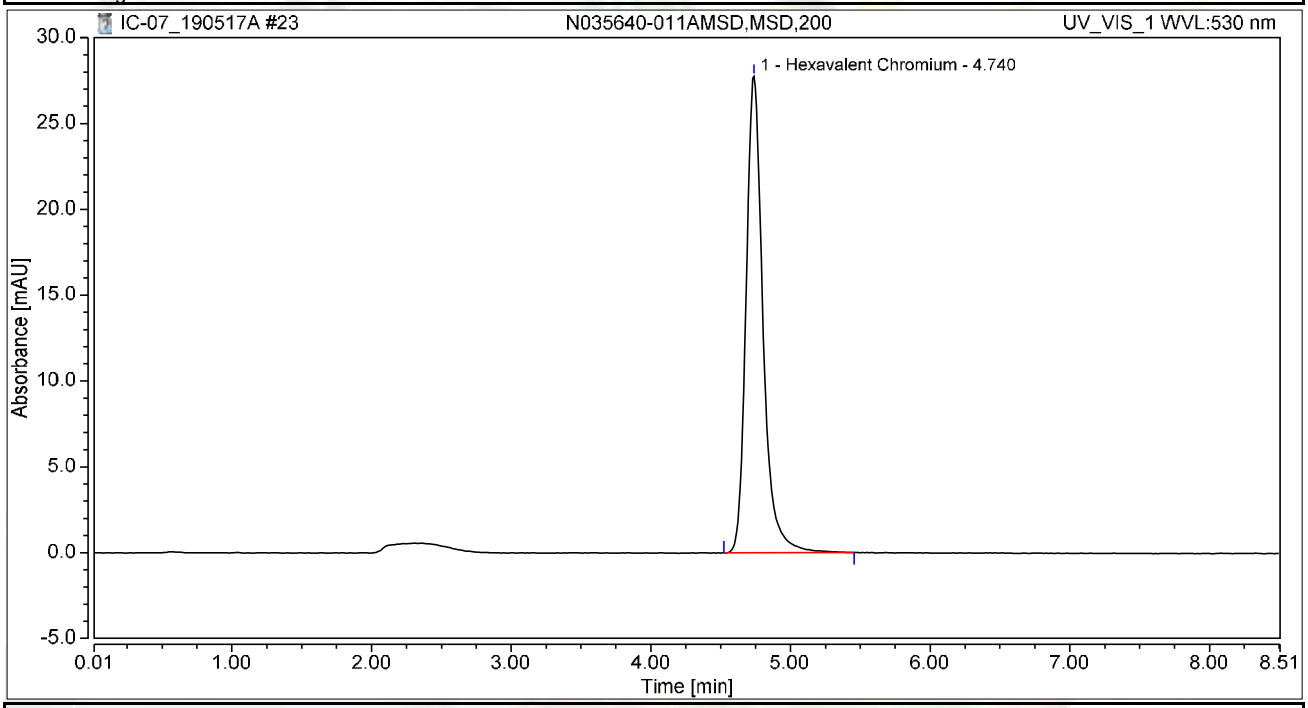
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.896	27.674	100.00	100.00	15.4527
Total:			**3.896**	**27.674**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-011AMSD,MSD,200**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

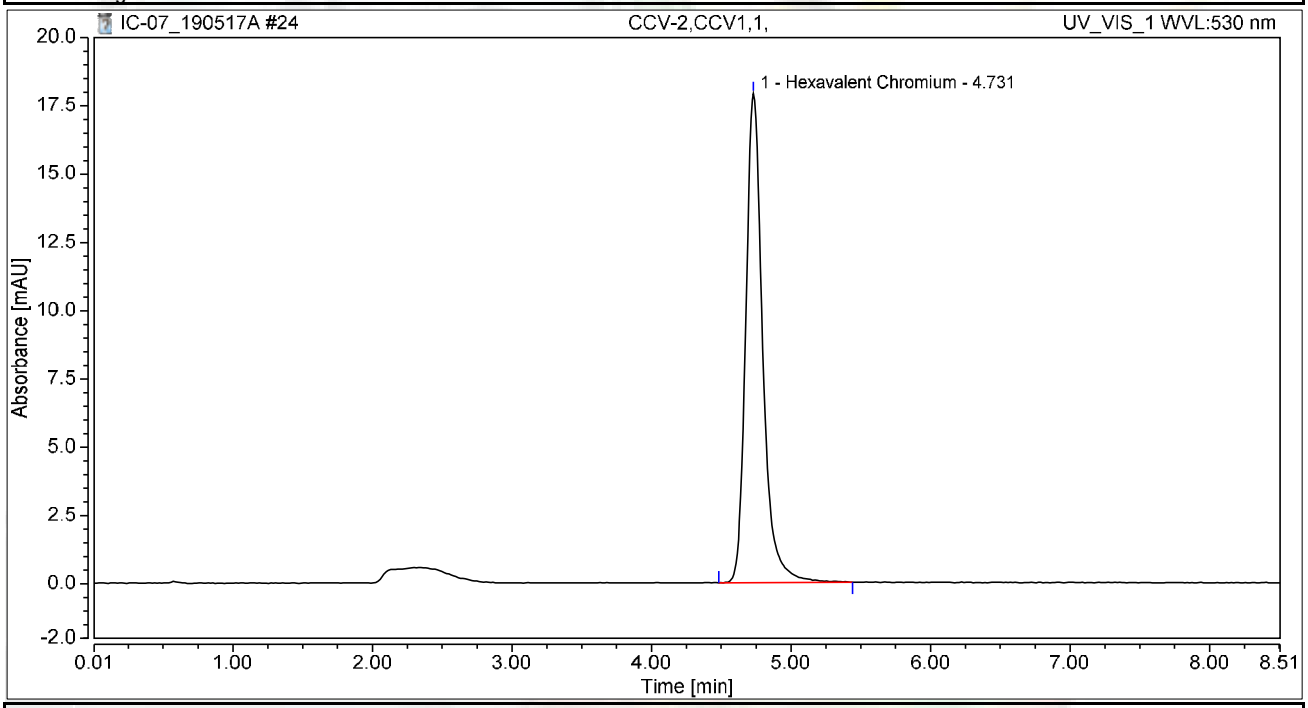
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.902	27.761	100.00	100.00	15.4767
Total:			**3.902**	**27.761**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 11:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

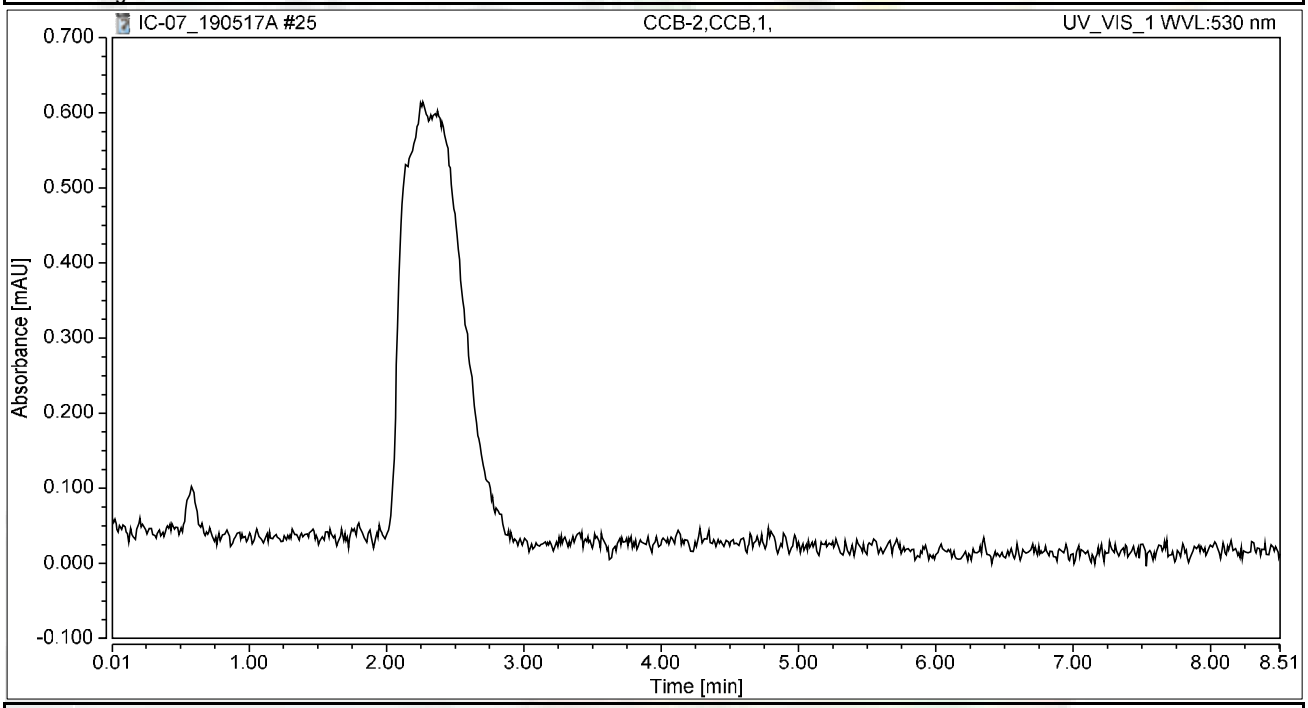
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.522	17.908	100.00	100.00	10.0030
Total:			**2.522**	**17.908**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

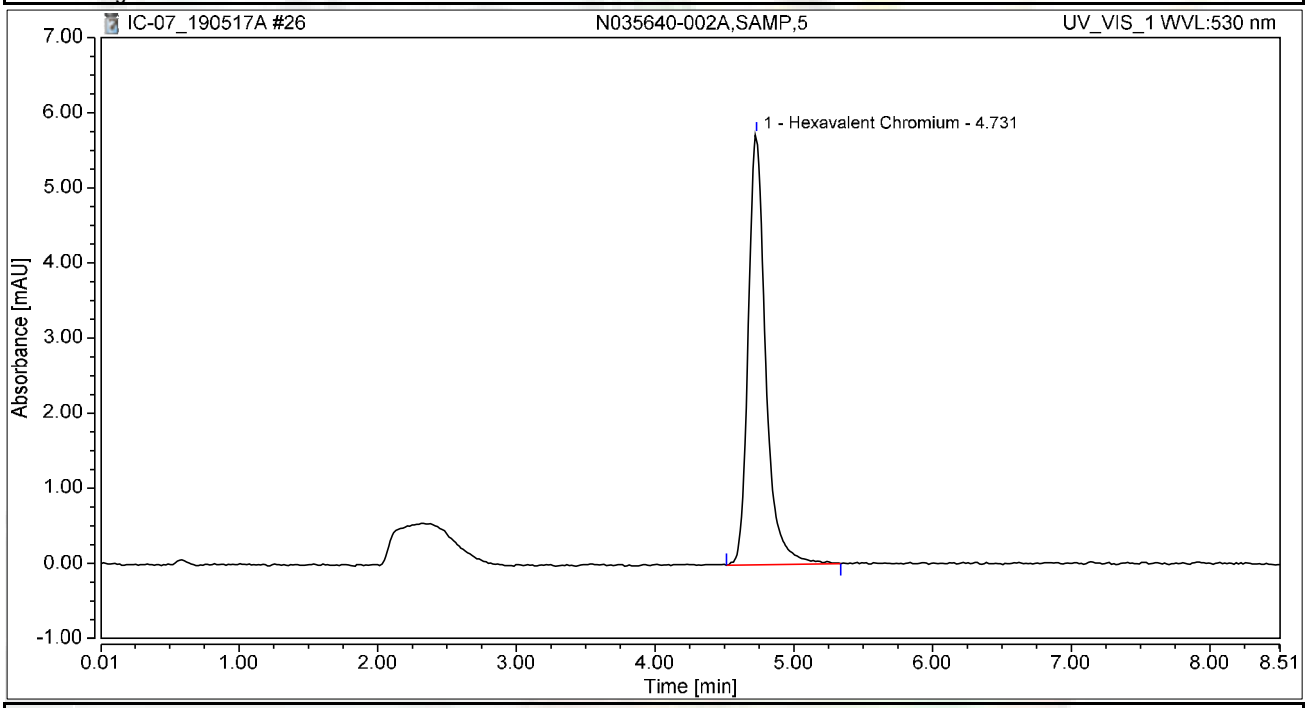
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 11:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

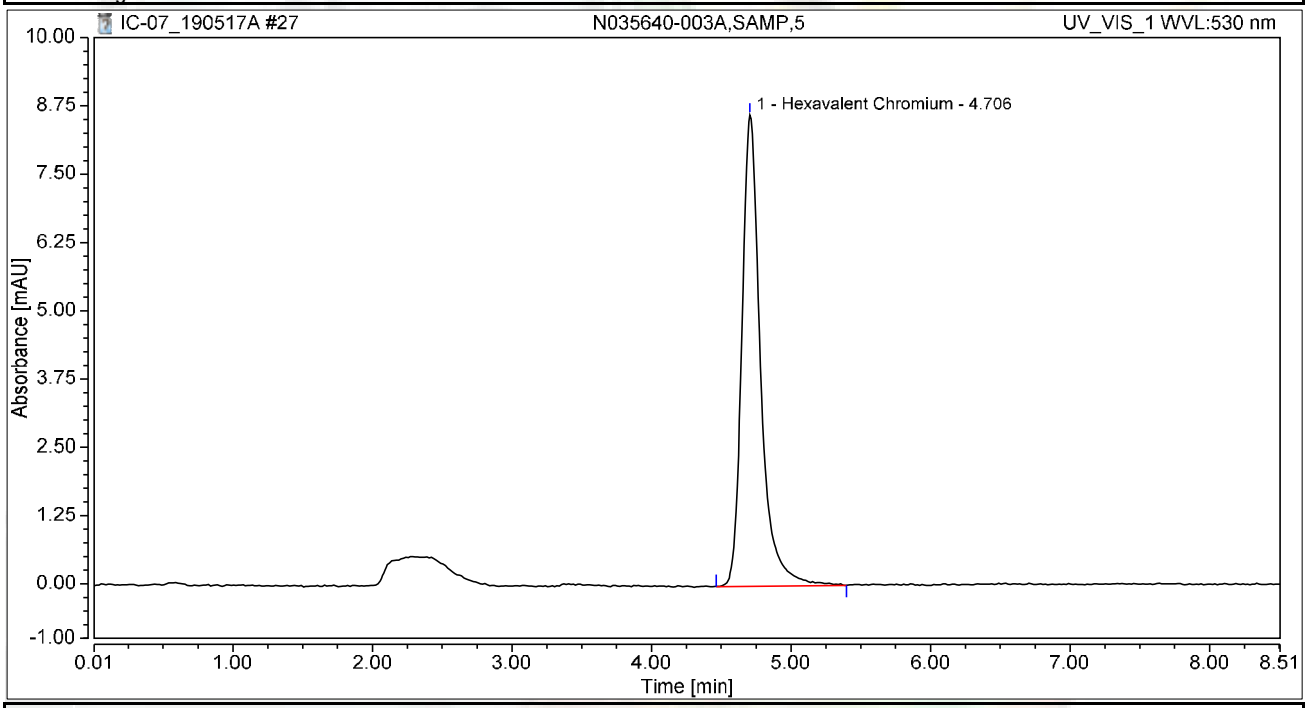
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.837	5.737	100.00	100.00	3.3202
Total:			**0.837**	**5.737**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 12:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

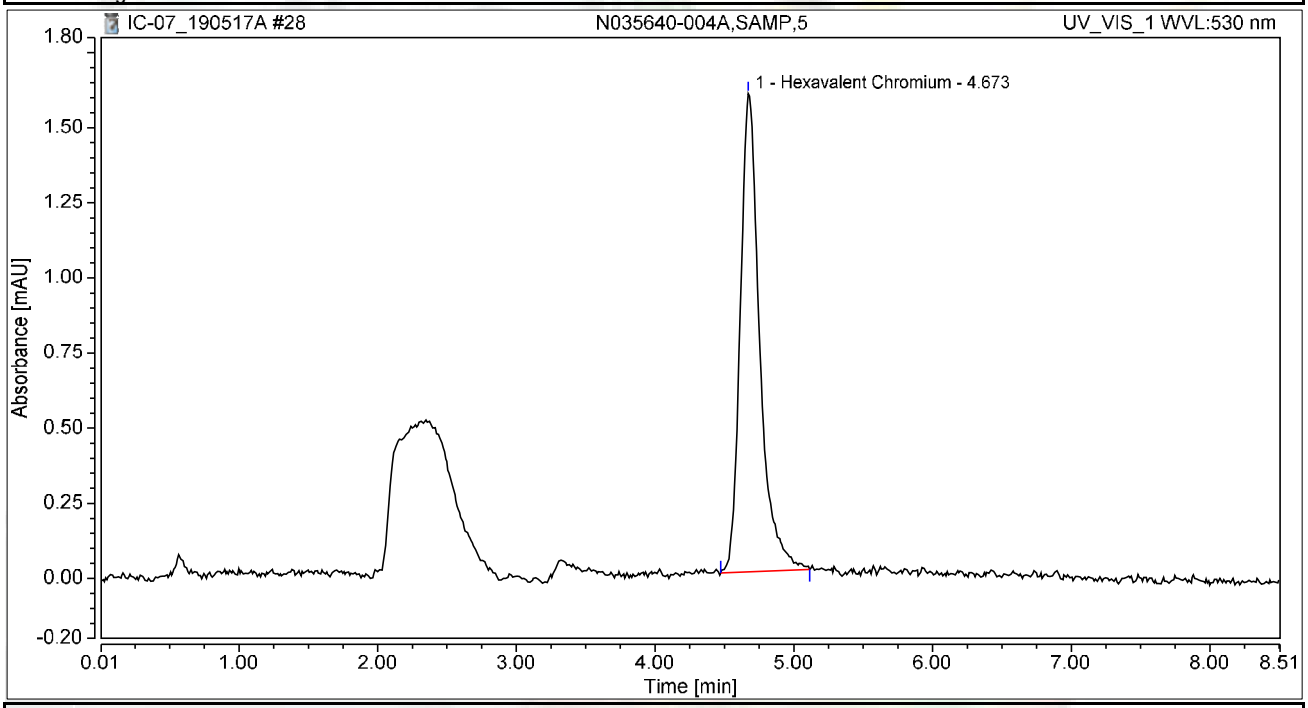
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.339	8.626	100.00	100.00	5.3094
Total:			**1.339**	**8.626**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-004A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 12:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

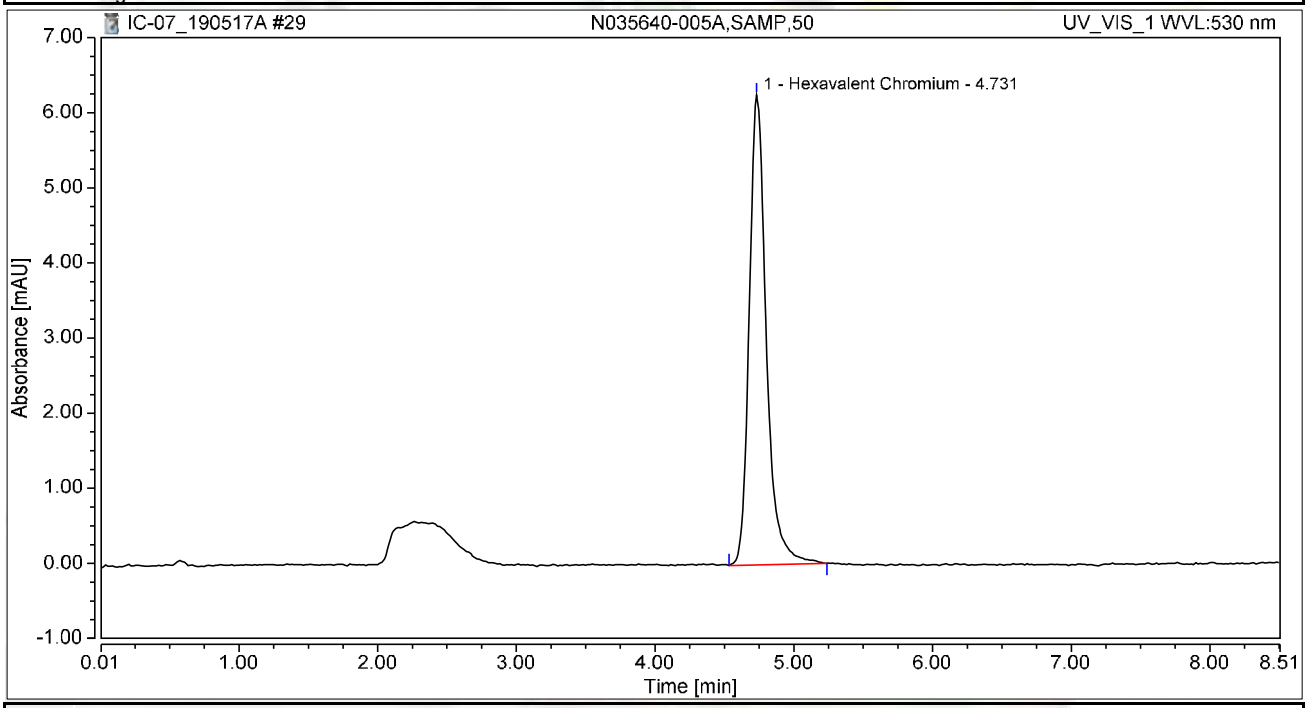
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.259	1.592	100.00	100.00	1.0276
Total:			**0.259**	**1.592**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-005A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 12:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

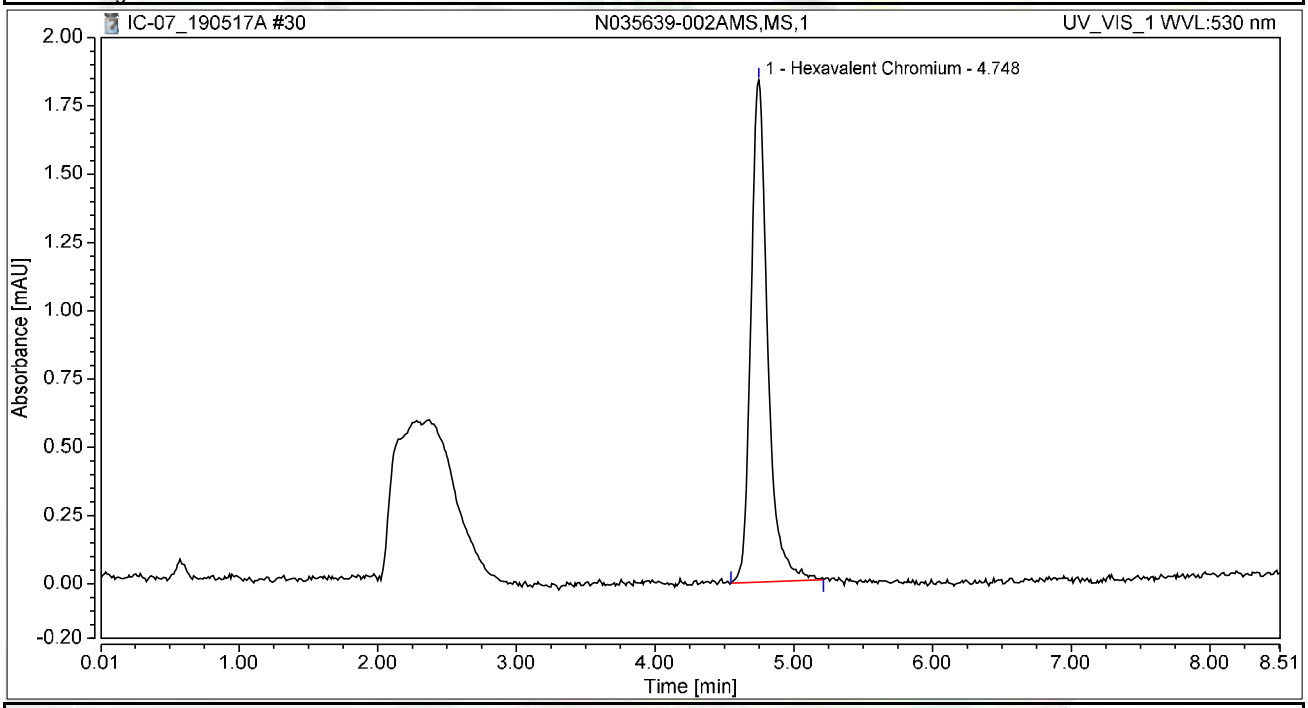
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.892	6.256	100.00	100.00	3.5384
Total:			**0.892**	**6.256**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035639-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 12:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

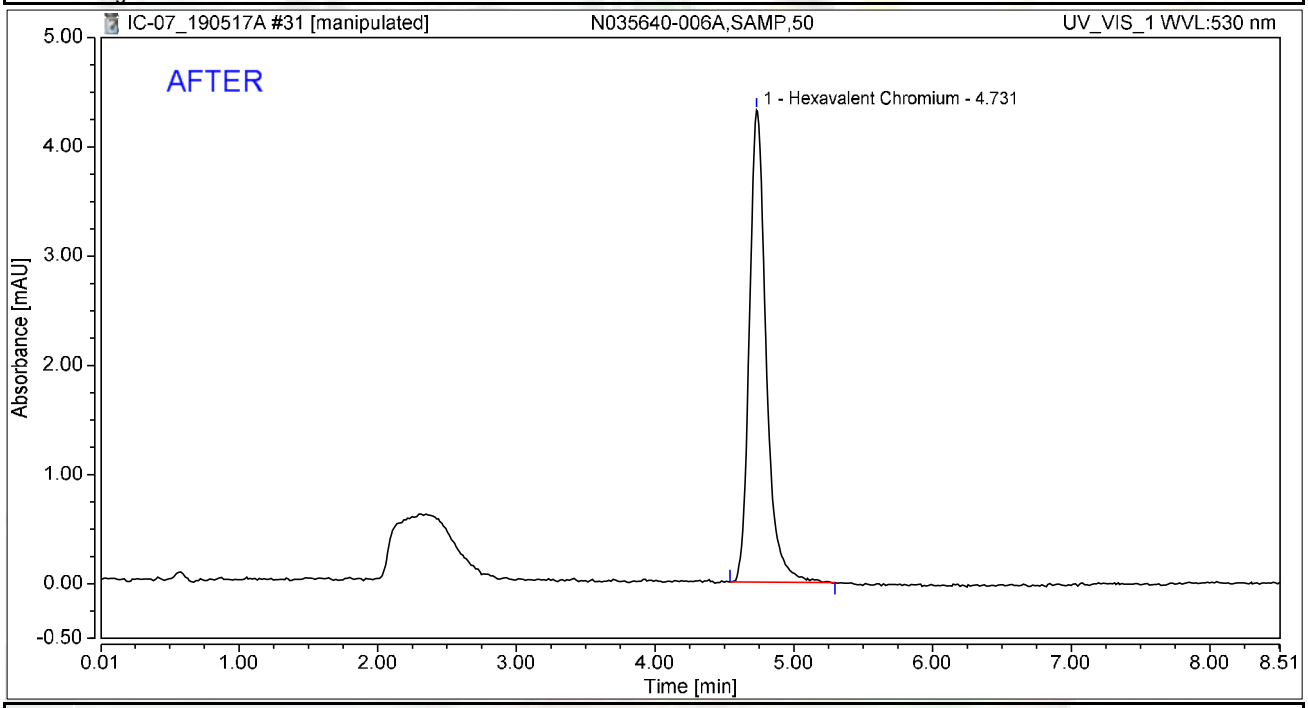
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.258	1.840	100.00	100.00	1.0217
Total:			**0.258**	**1.840**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-006A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 12:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.604	4.319	100.00	100.00	2.3958
Total:			**0.604**	**4.319**	**100.00**	**100.00**	

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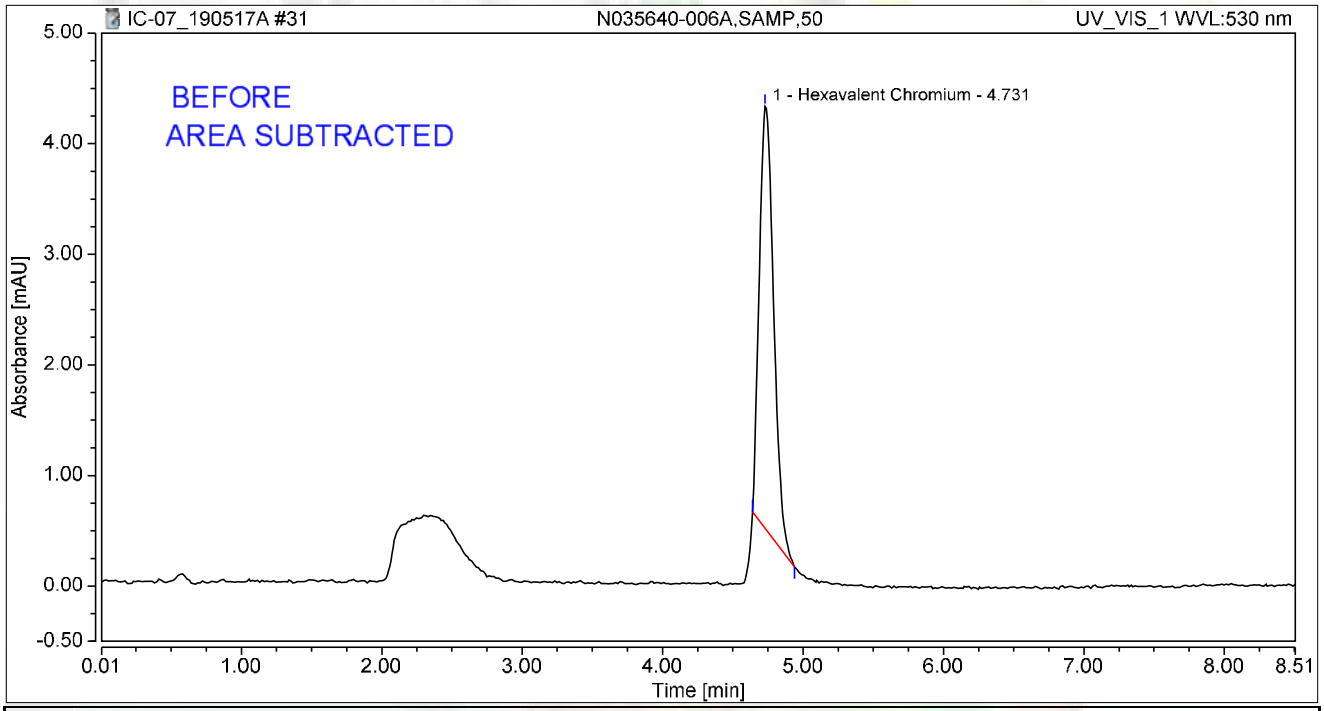
Chromatogram and Results

Injection Details

Injection Name:	**N035640-006A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 12:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.454	3.818	100.00	100.00	1.8023
Total:			**0.454**	**3.818**	**100.00**	**100.00**	

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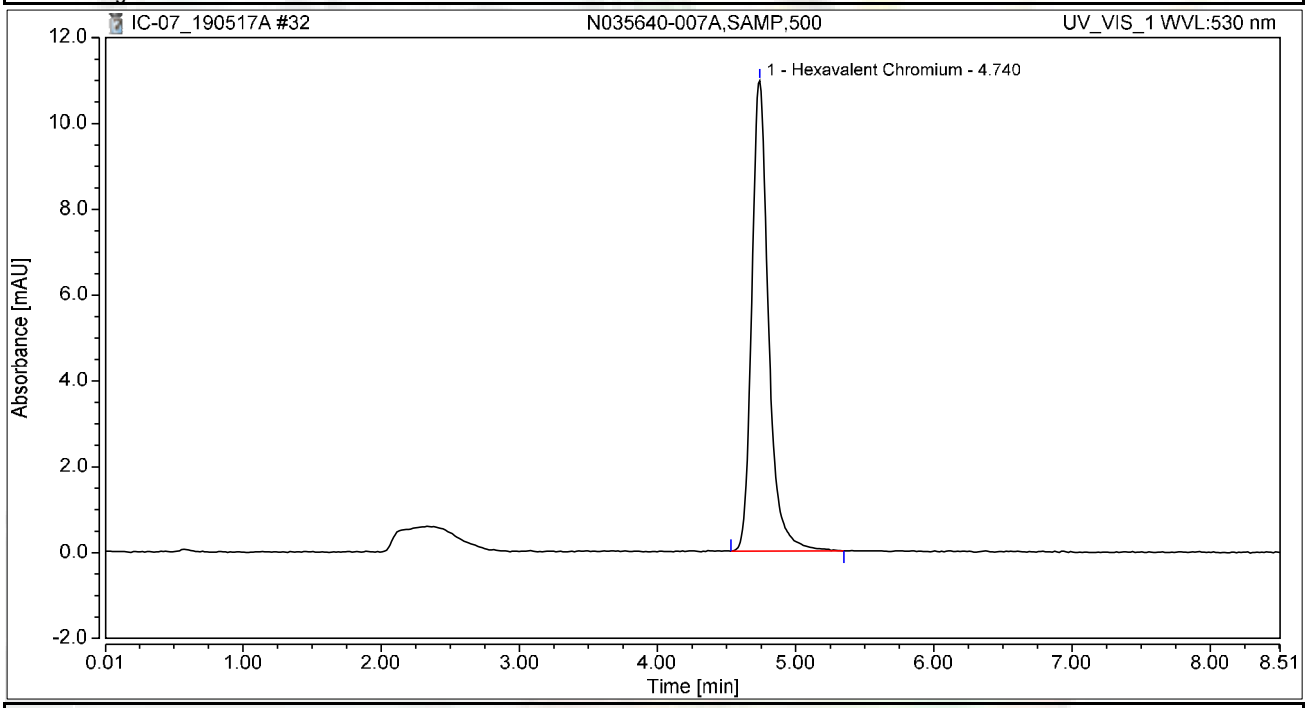
Chromatogram and Results

Injection Details

Injection Name:	**N035640-007A,SAMP,500**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 12:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

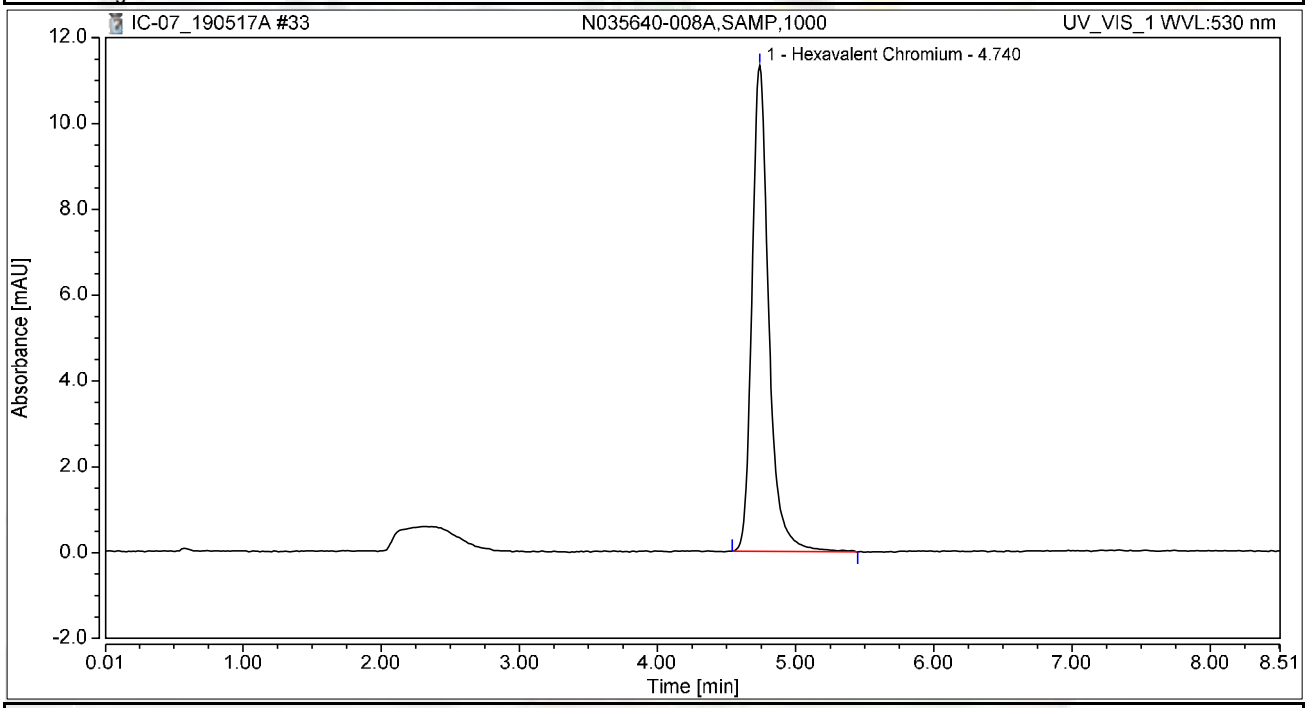
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.546	10.963	100.00	100.00	6.1333
Total:			**1.546**	**10.963**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-008A,SAMP,1000**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 12:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

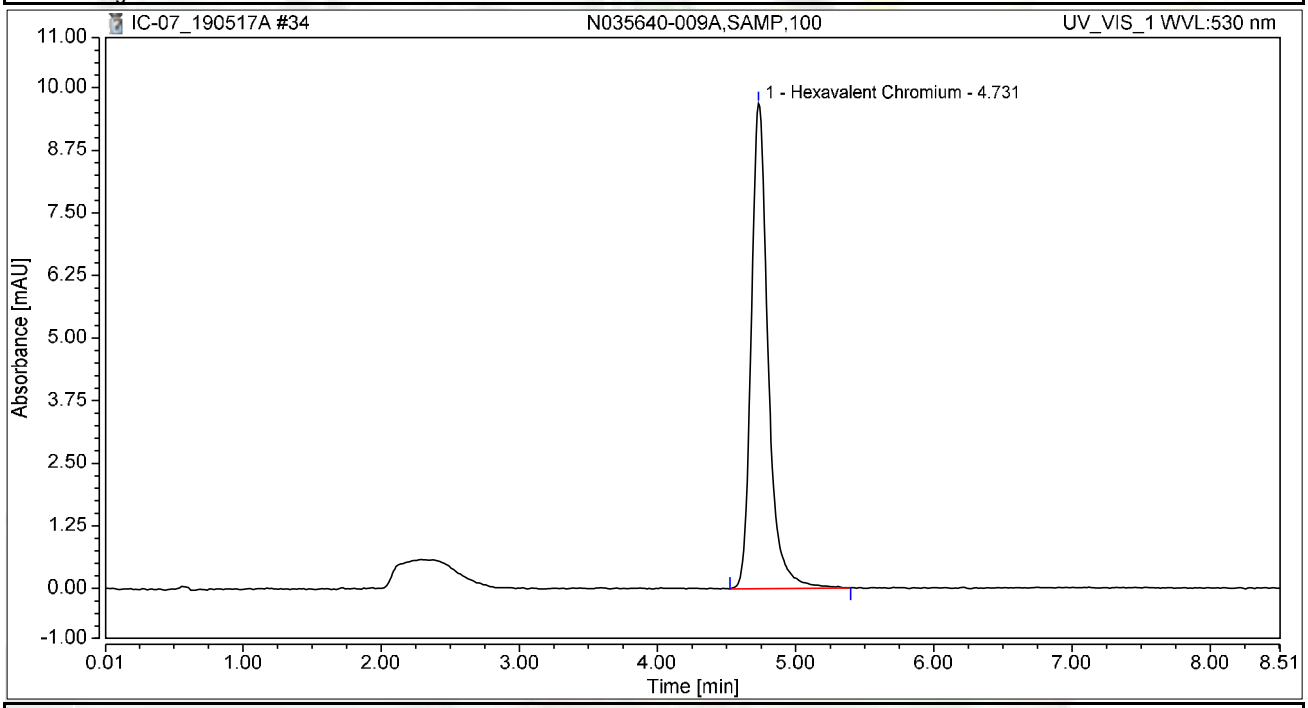
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.603	11.322	100.00	100.00	6.3562
Total:			**1.603**	**11.322**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-009A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 13:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

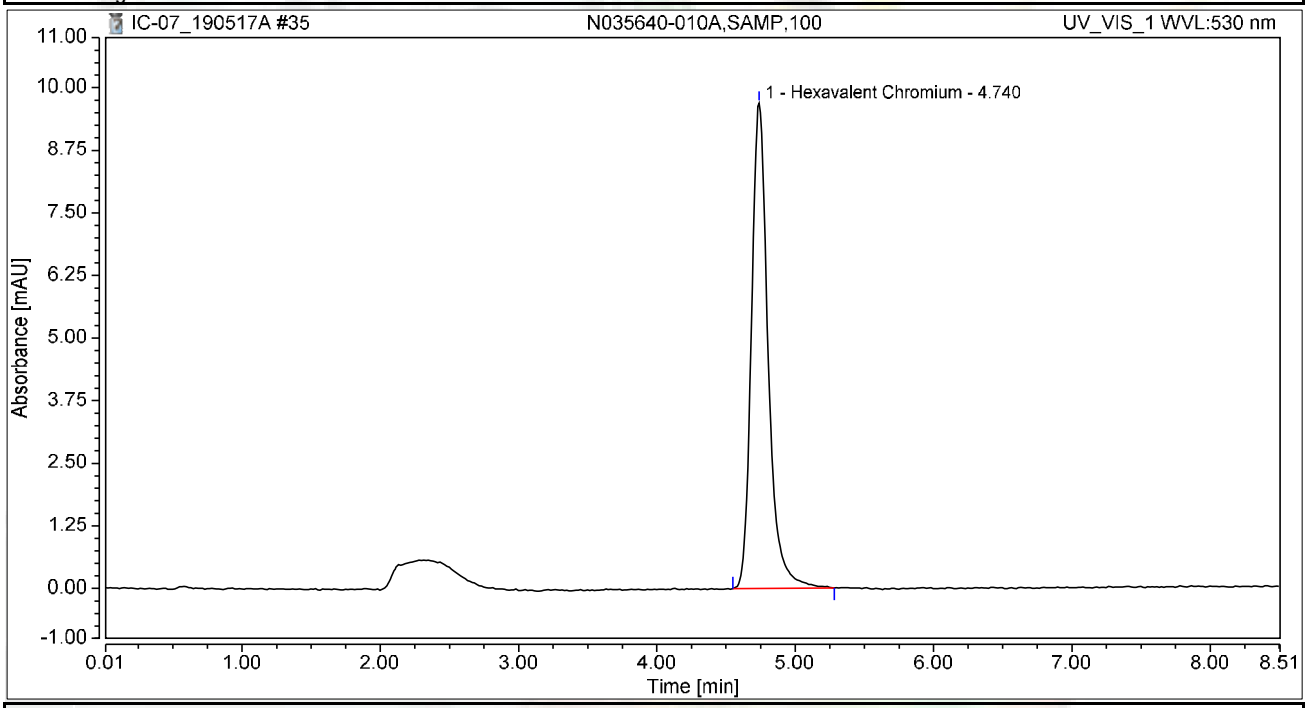
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.375	9.692	100.00	100.00	5.4532
Total:			**1.375**	**9.692**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-010A,SAMP,100**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 13:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

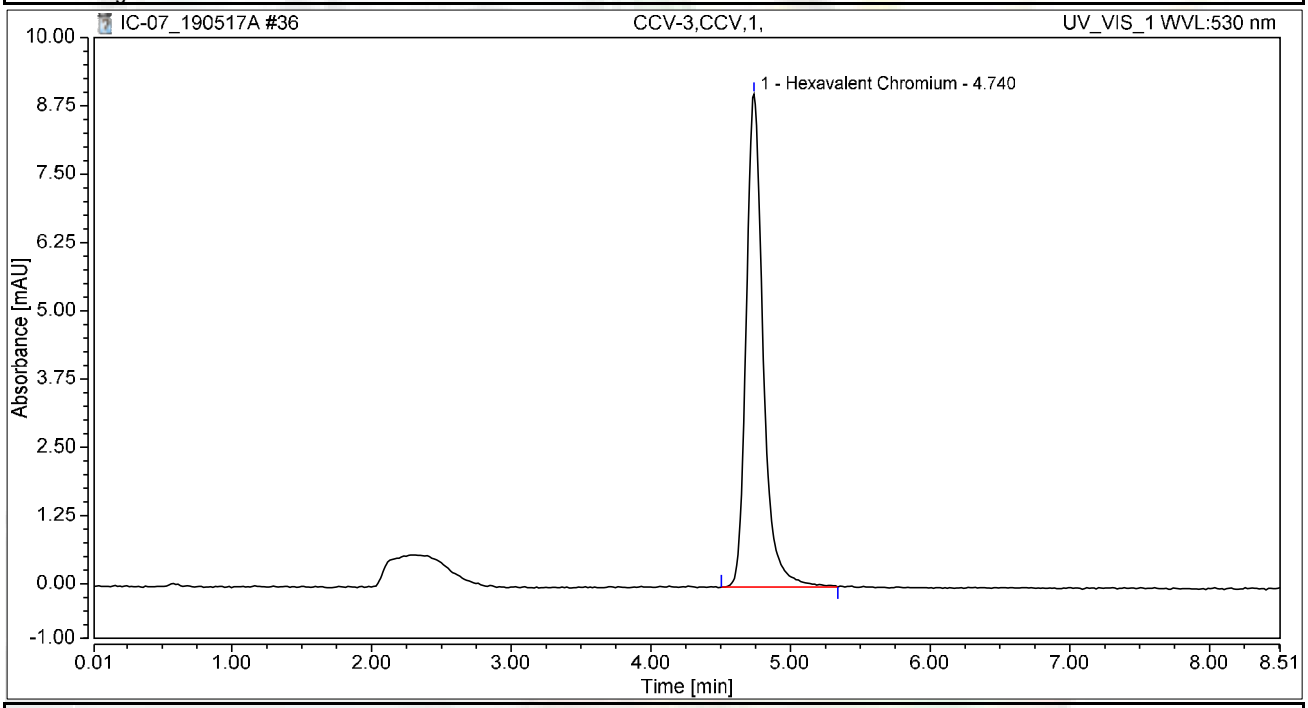
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.360	9.691	100.00	100.00	5.3933
Total:			**1.360**	**9.691**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 13:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

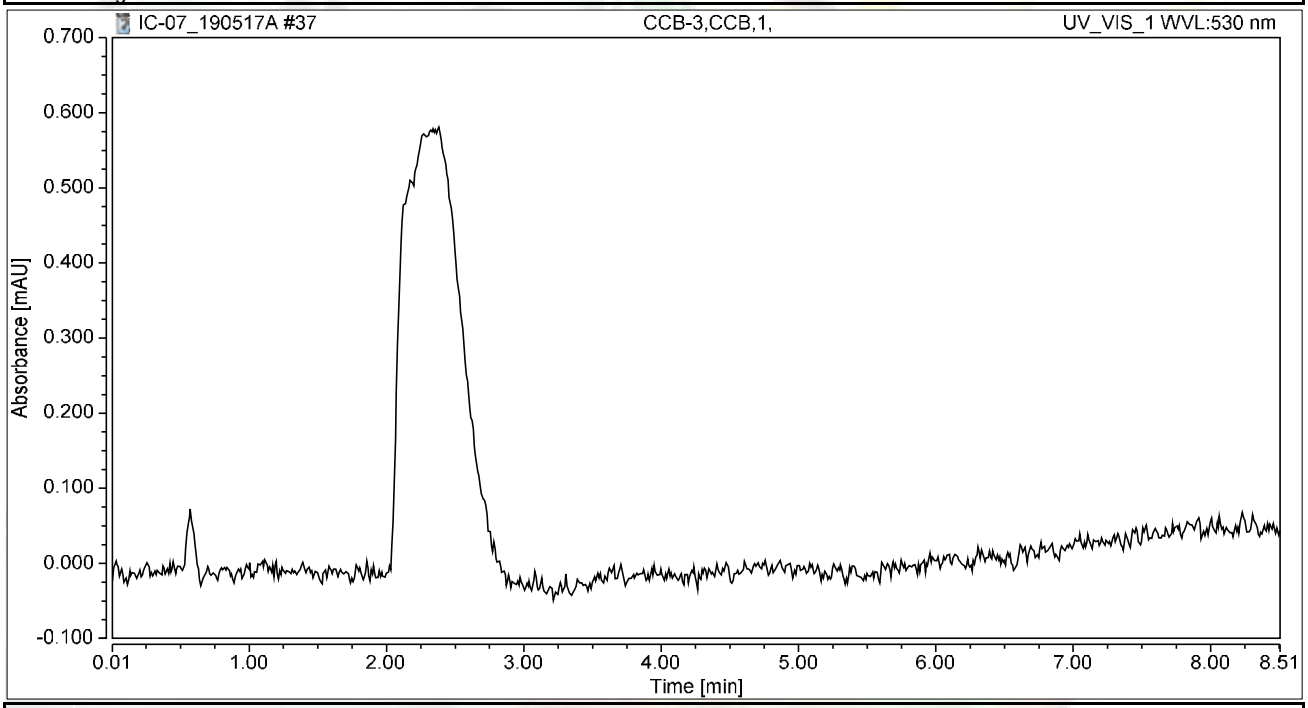
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.272	9.019	100.00	100.00	5.0470
Total:			**1.272**	**9.019**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 13:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

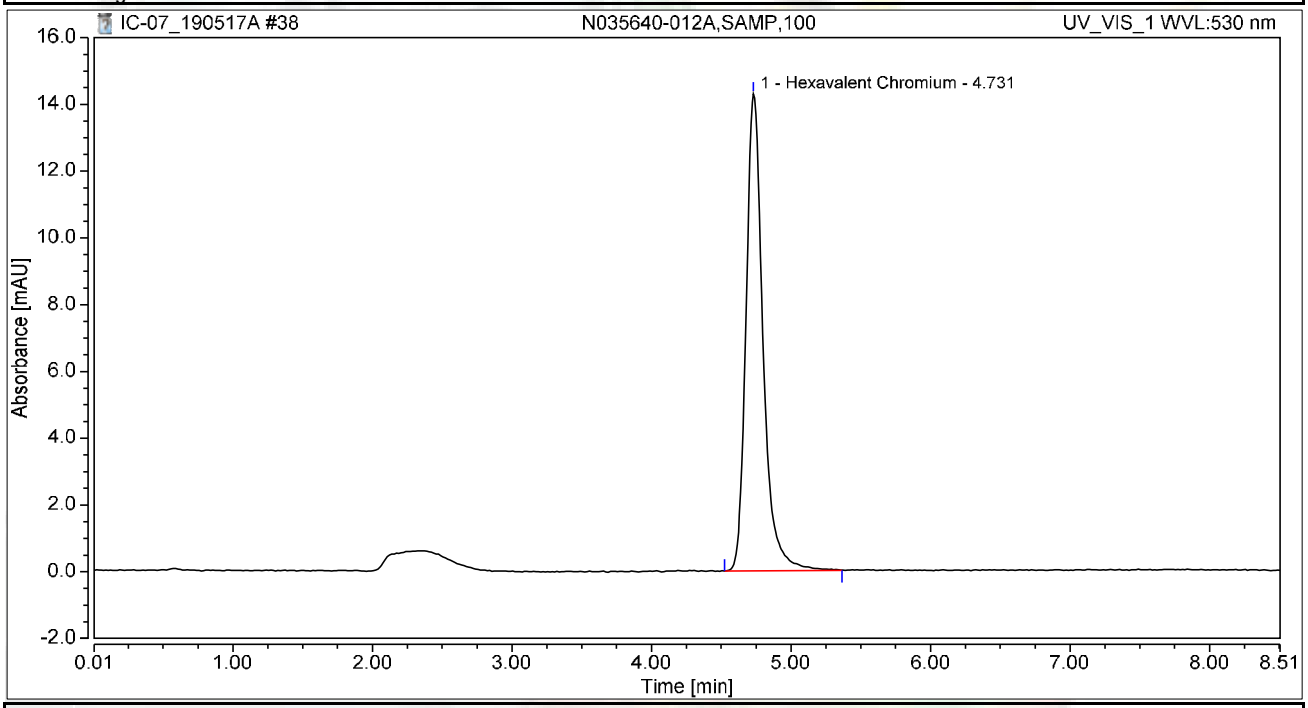
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-012A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 13:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

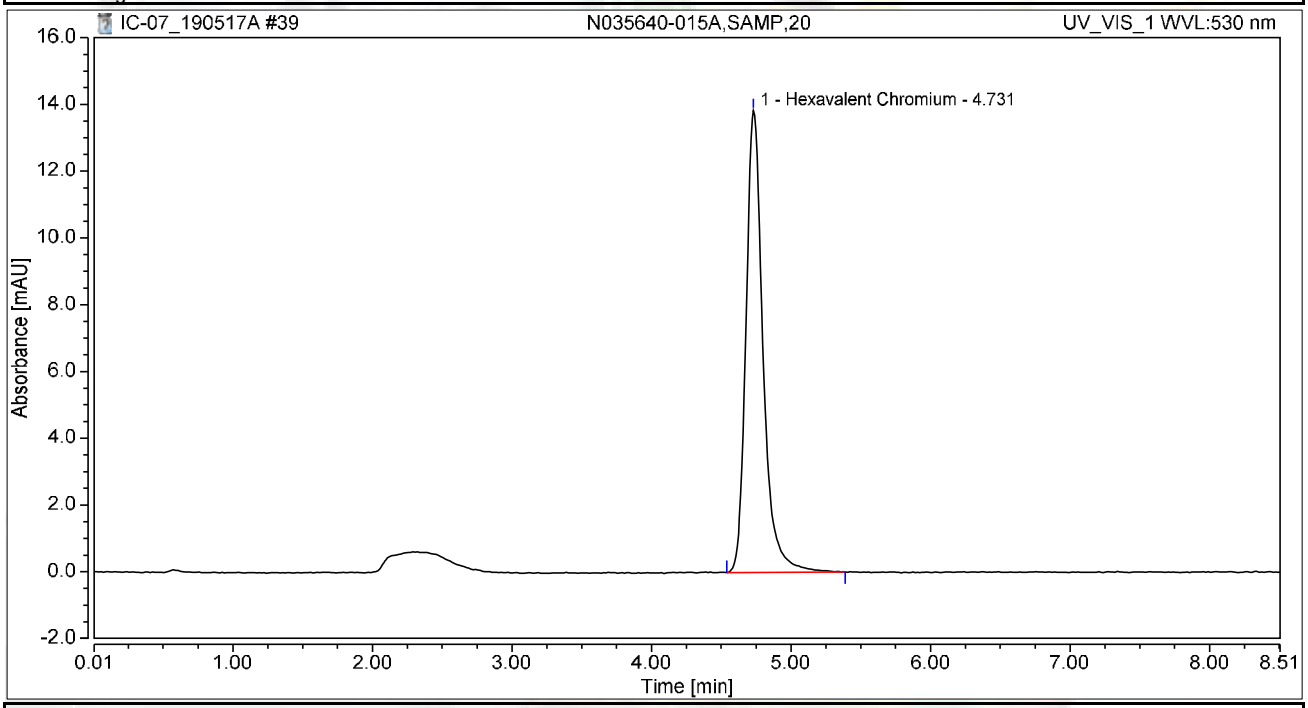
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.023	14.296	100.00	100.00	8.0242
Total:			**2.023**	**14.296**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-015A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 13:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

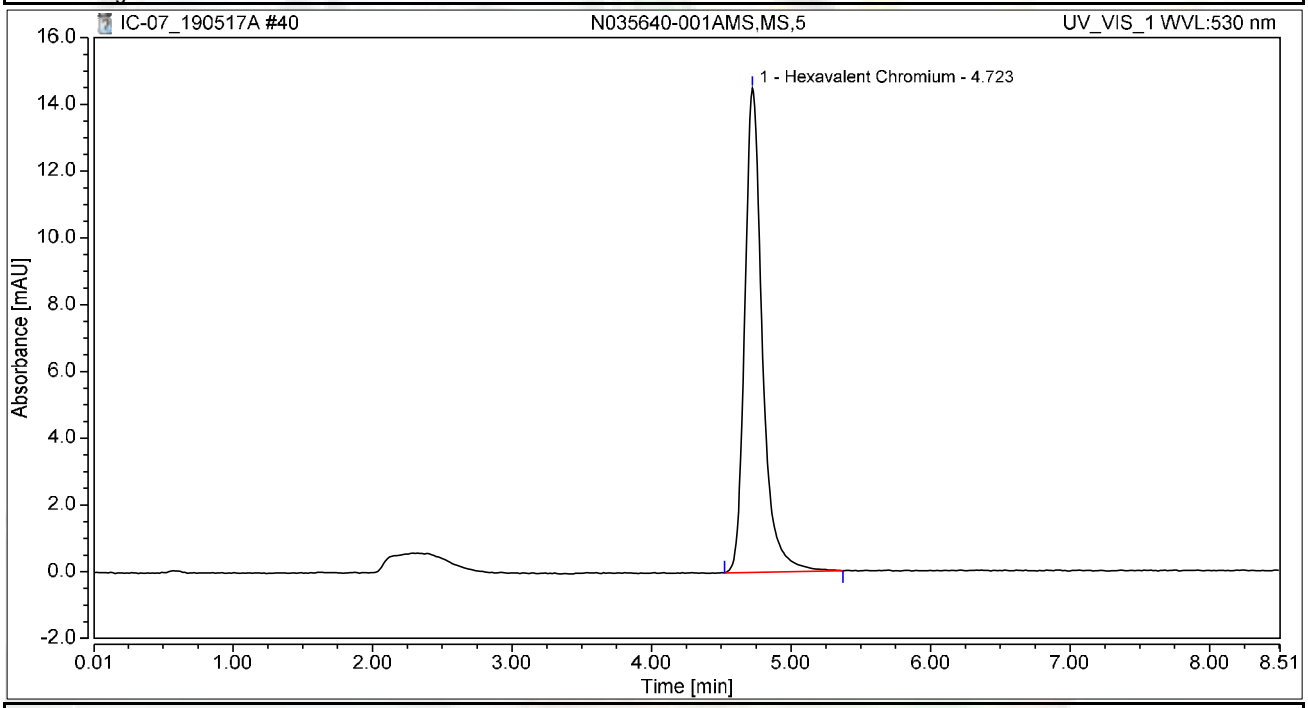
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.963	13.836	100.00	100.00	7.7841
Total:			**1.963**	**13.836**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 14:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

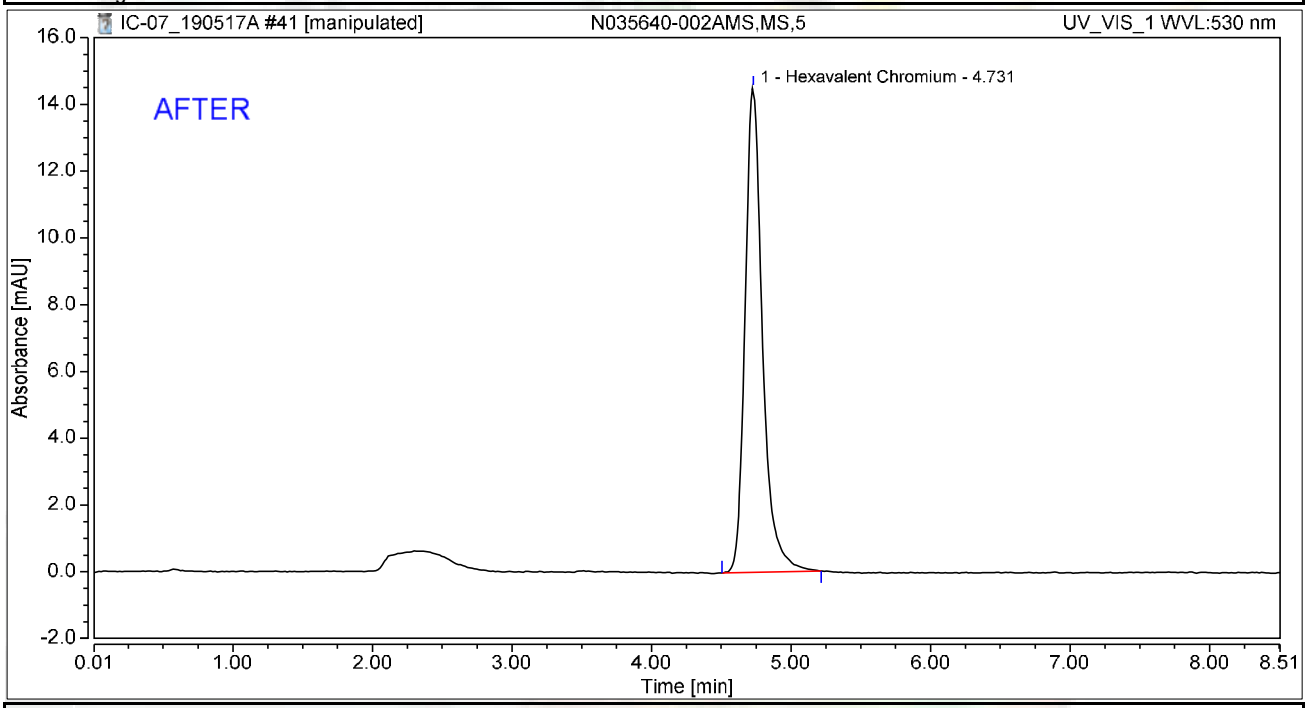
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.114	14.506	100.00	100.00	8.3828
Total:			**2.114**	**14.506**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 14:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.100	14.505	100.00	100.00	8.3285
Total:			**2.100**	**14.505**	**100.00**	**100.00**	

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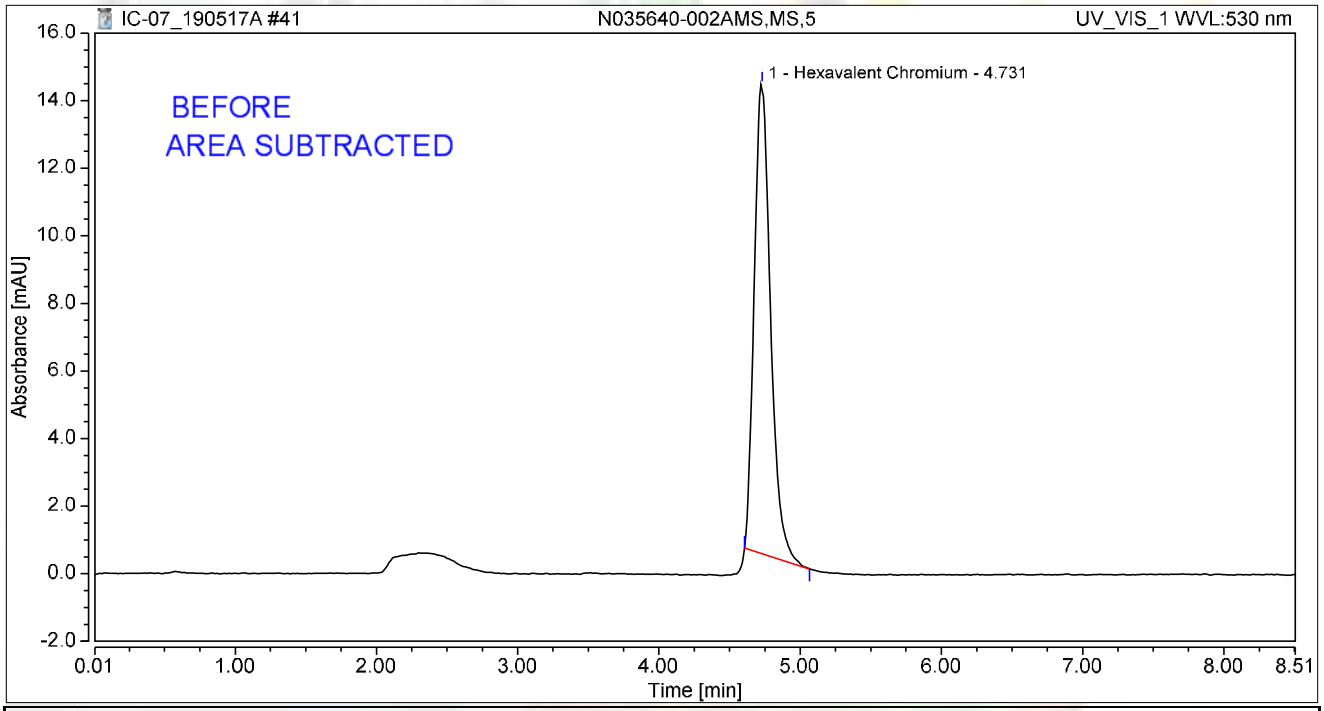
Chromatogram and Results

Injection Details

Injection Name:	**N035640-002AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 14:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.864	13.894	100.00	100.00	7.3933
Total:			**1.864**	**13.894**	**100.00**	**100.00**	

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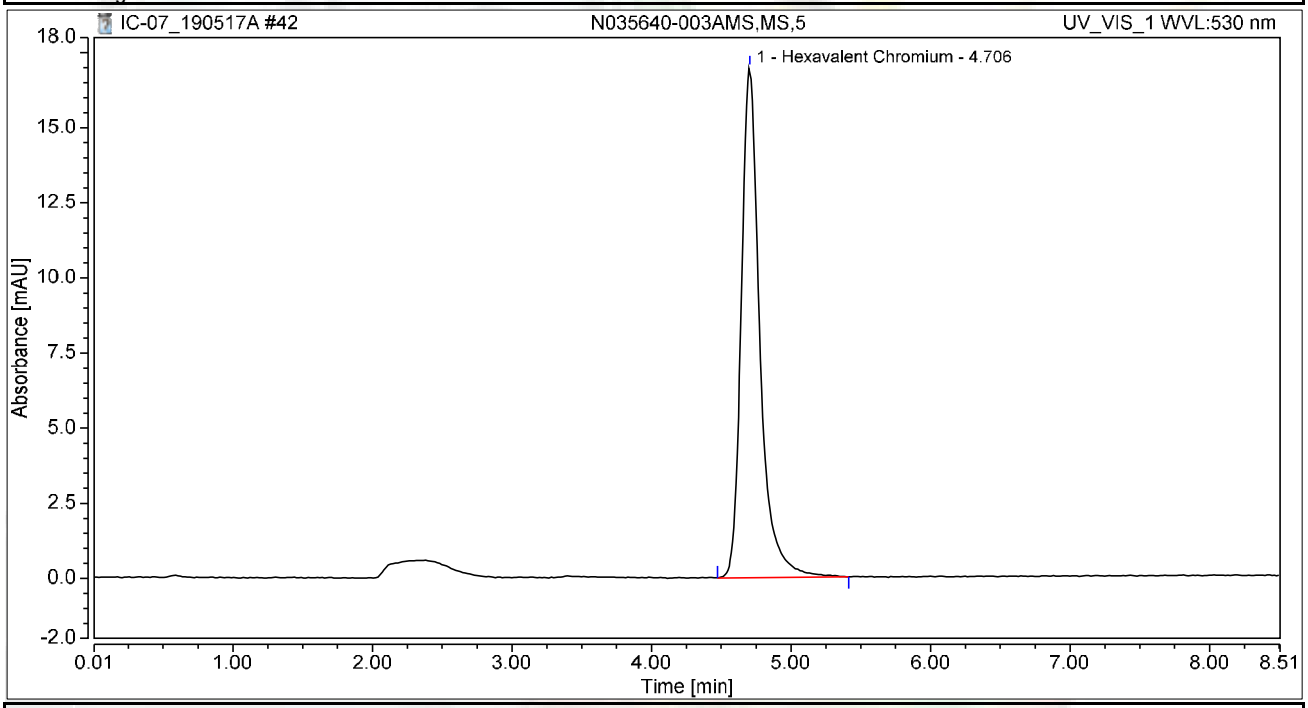
Chromatogram and Results

Injection Details

Injection Name:	**N035640-003AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 14:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

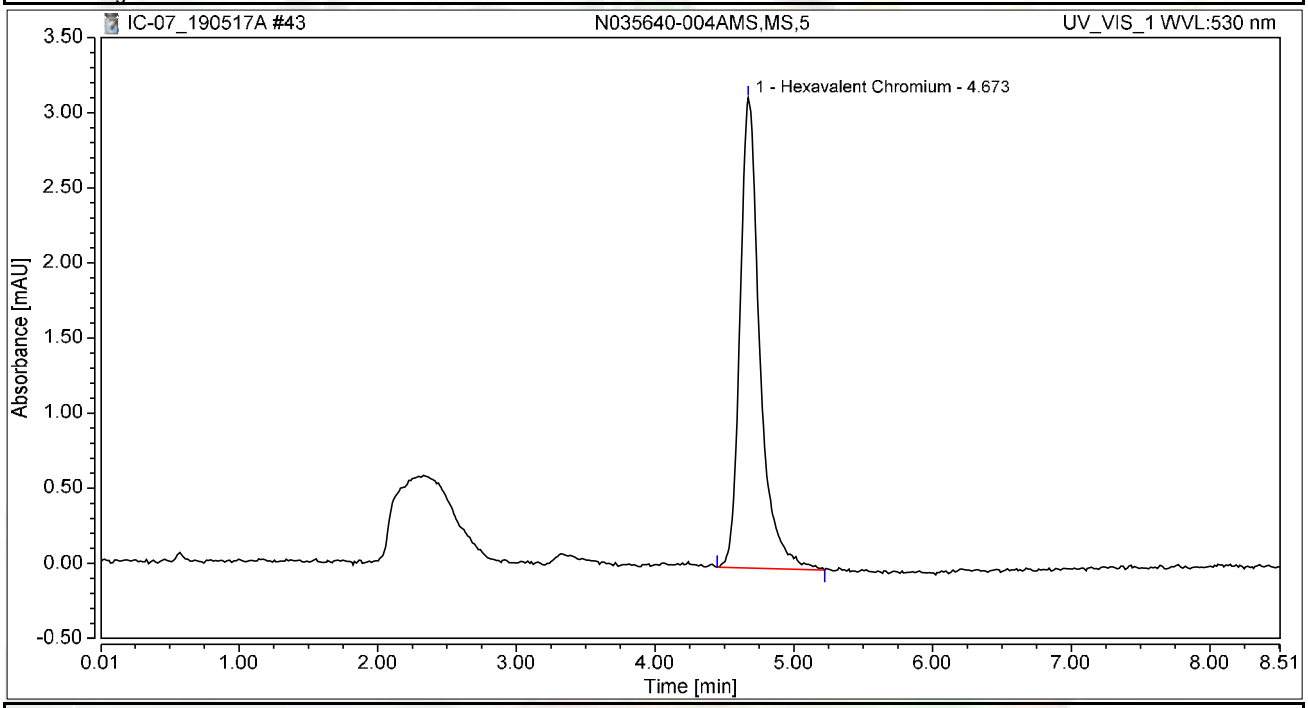
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.624	16.973	100.00	100.00	10.4066
Total:			**2.624**	**16.973**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-004AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 14:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

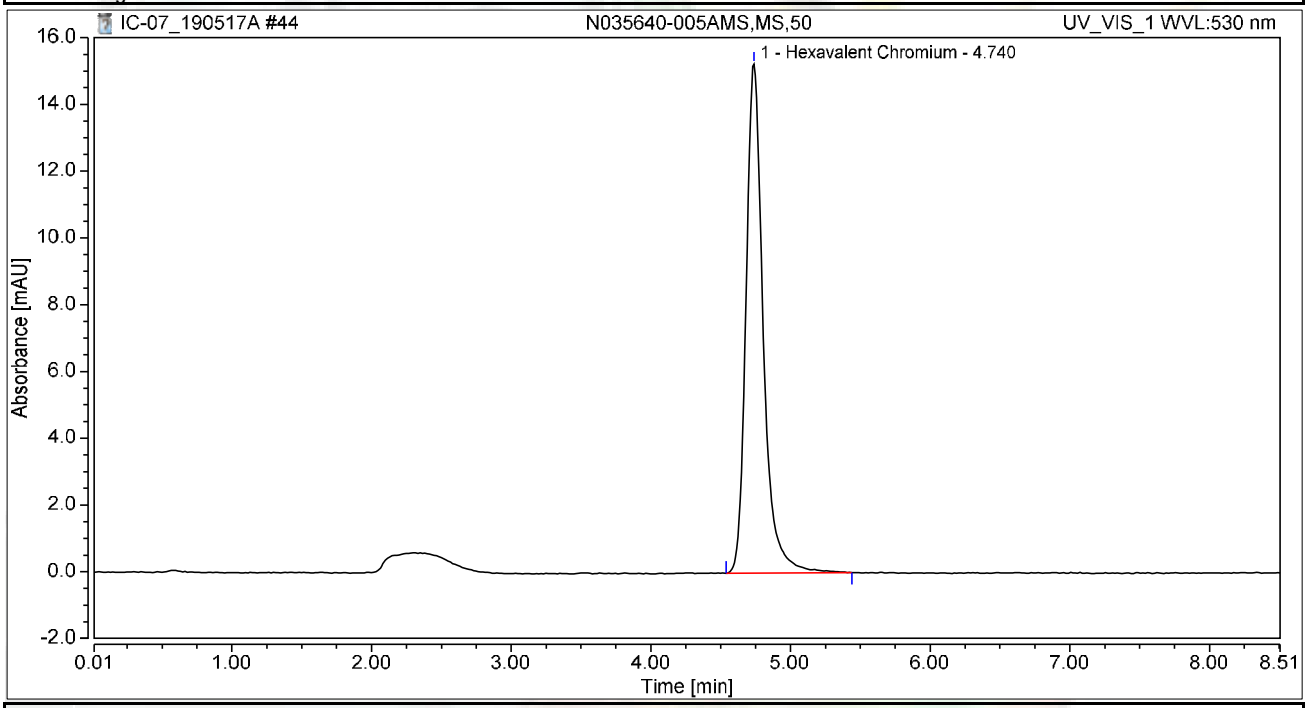
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.520	3.130	100.00	100.00	2.0625
Total:			**0.520**	**3.130**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-005AMS,MS,50**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 15:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

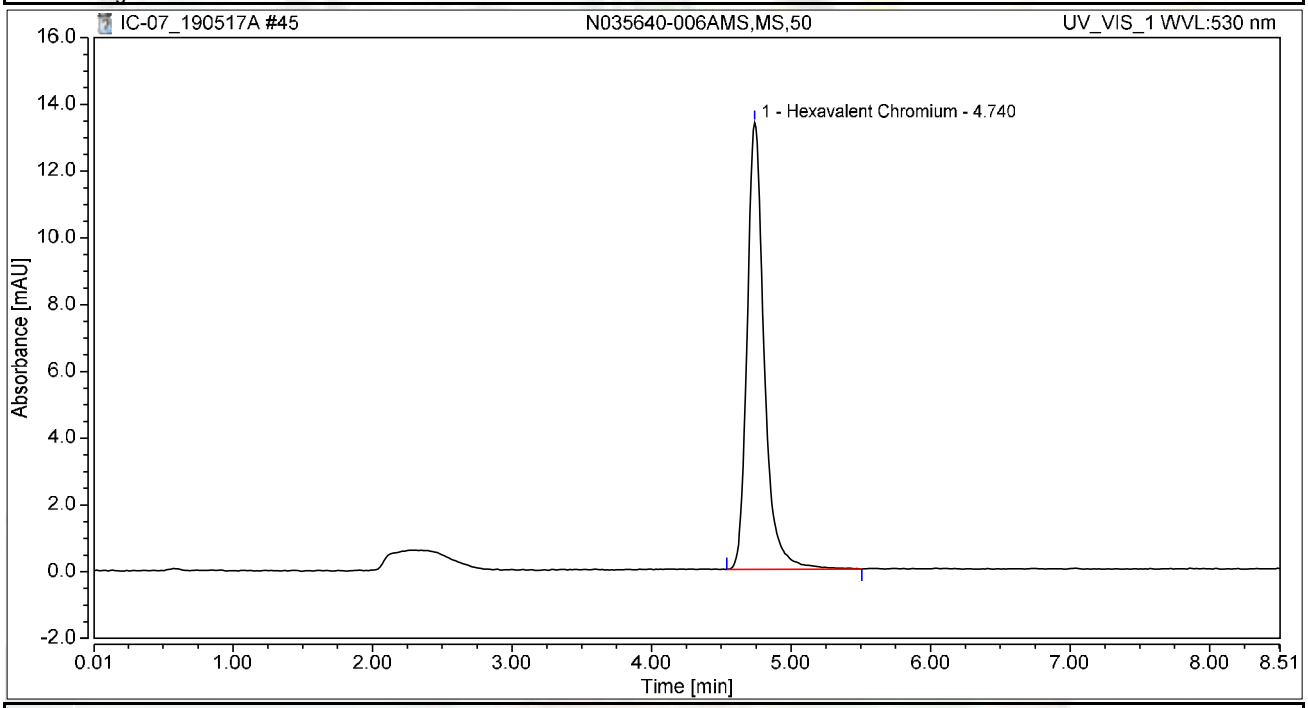
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.180	15.250	100.00	100.00	8.6485
Total:			**2.180**	**15.250**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-006AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 15:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

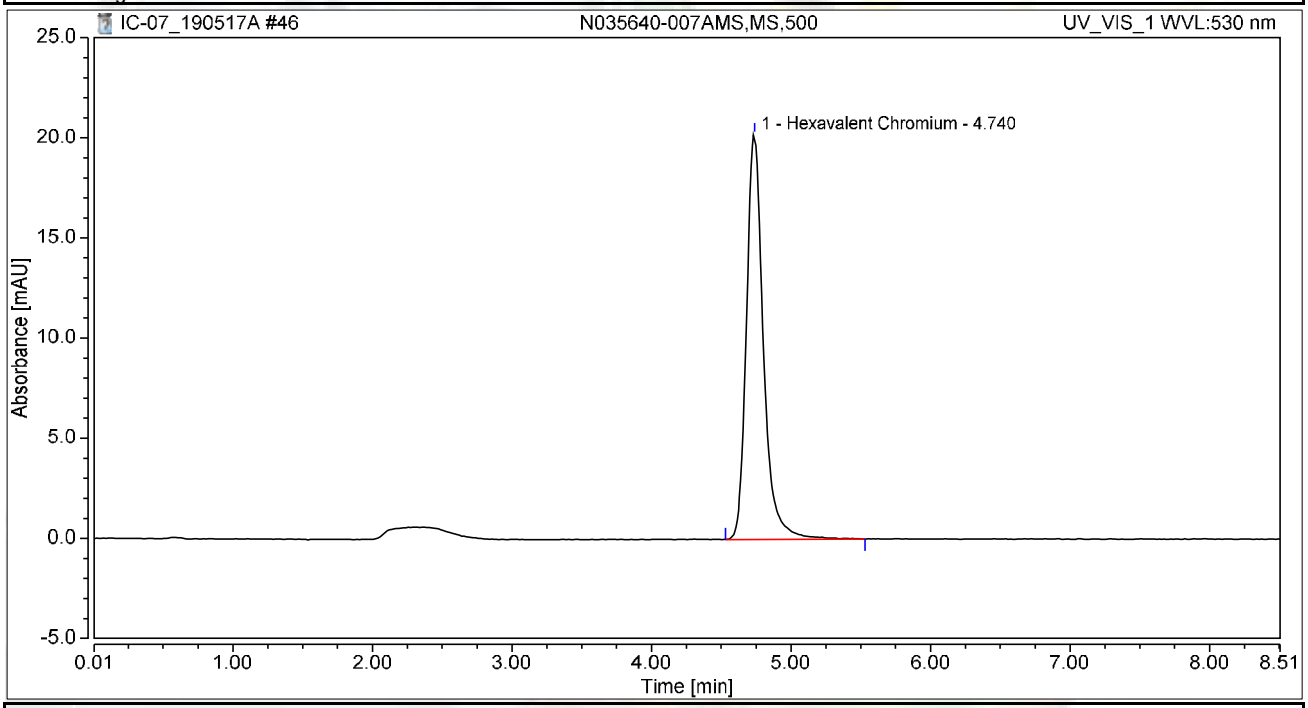
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.897	13.384	100.00	100.00	7.5239
Total:			**1.897**	**13.384**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-007AMS,MS,500**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 15:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

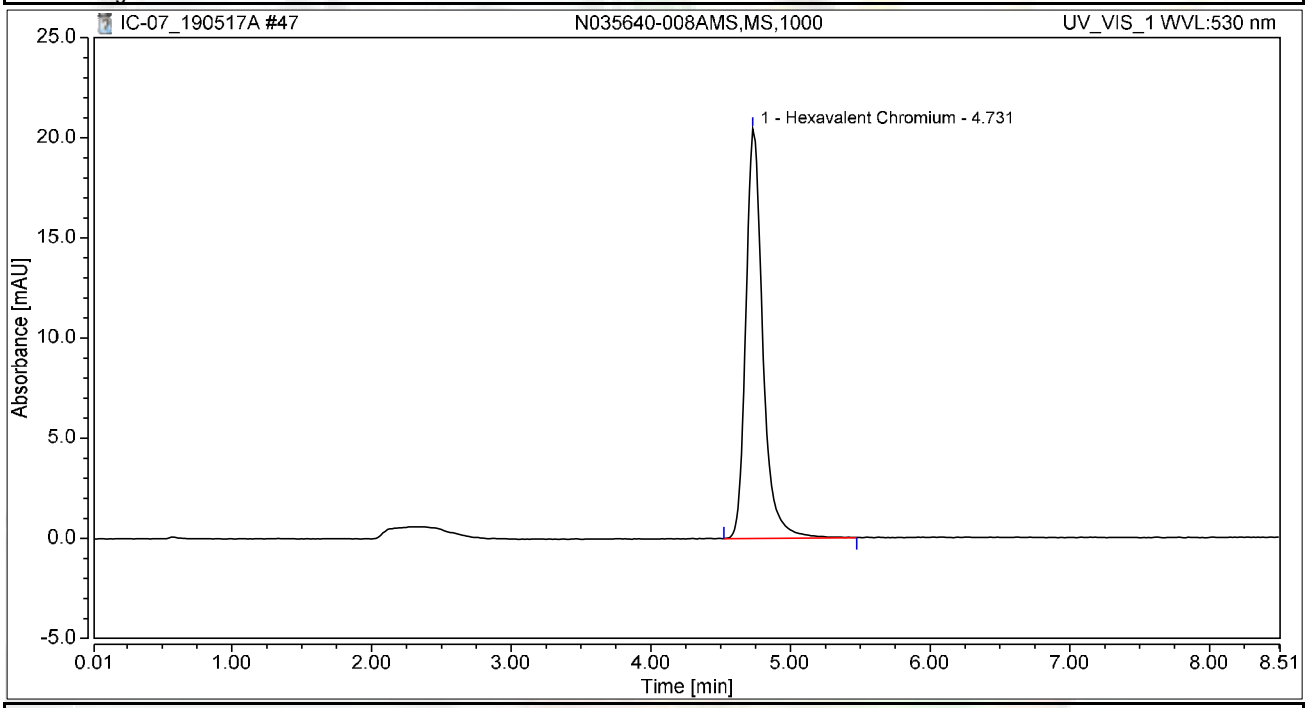
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.857	20.207	100.00	100.00	11.3329
Total:			**2.857**	**20.207**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-008AMS,MS,1000**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 15:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

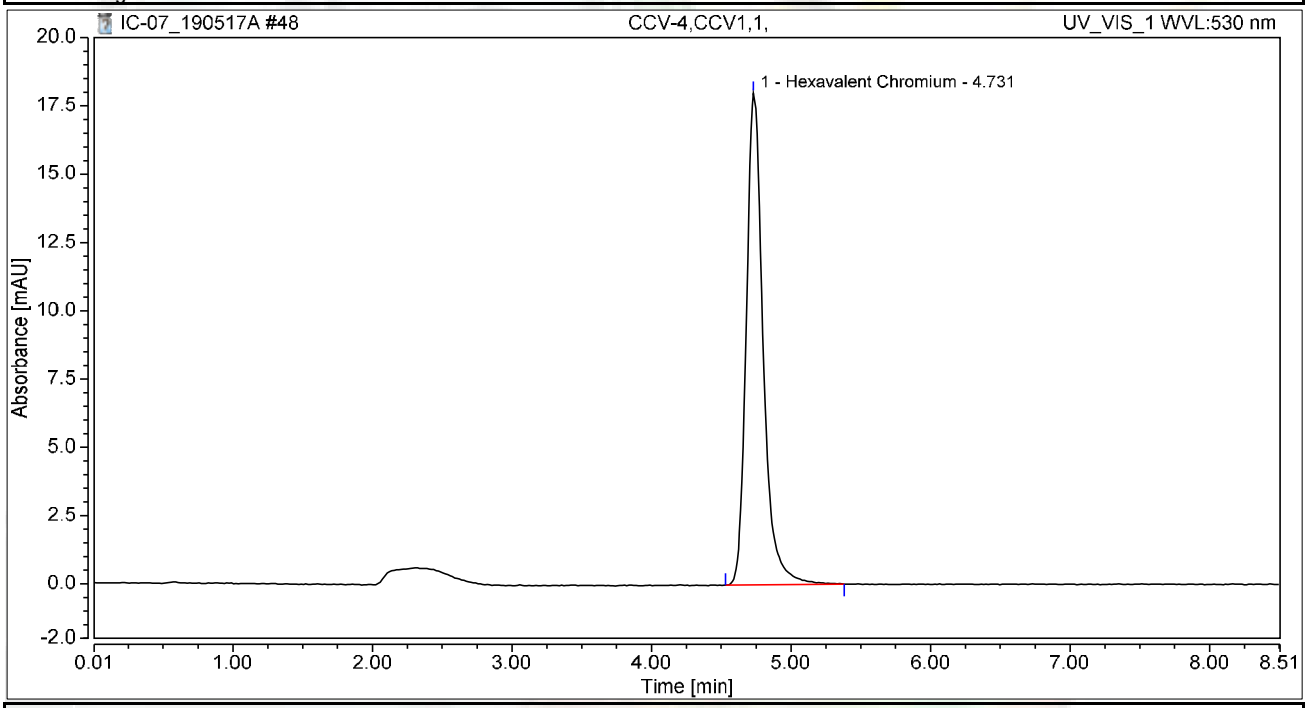
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.889	20.446	100.00	100.00	11.4602
Total:			**2.889**	**20.446**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 15:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

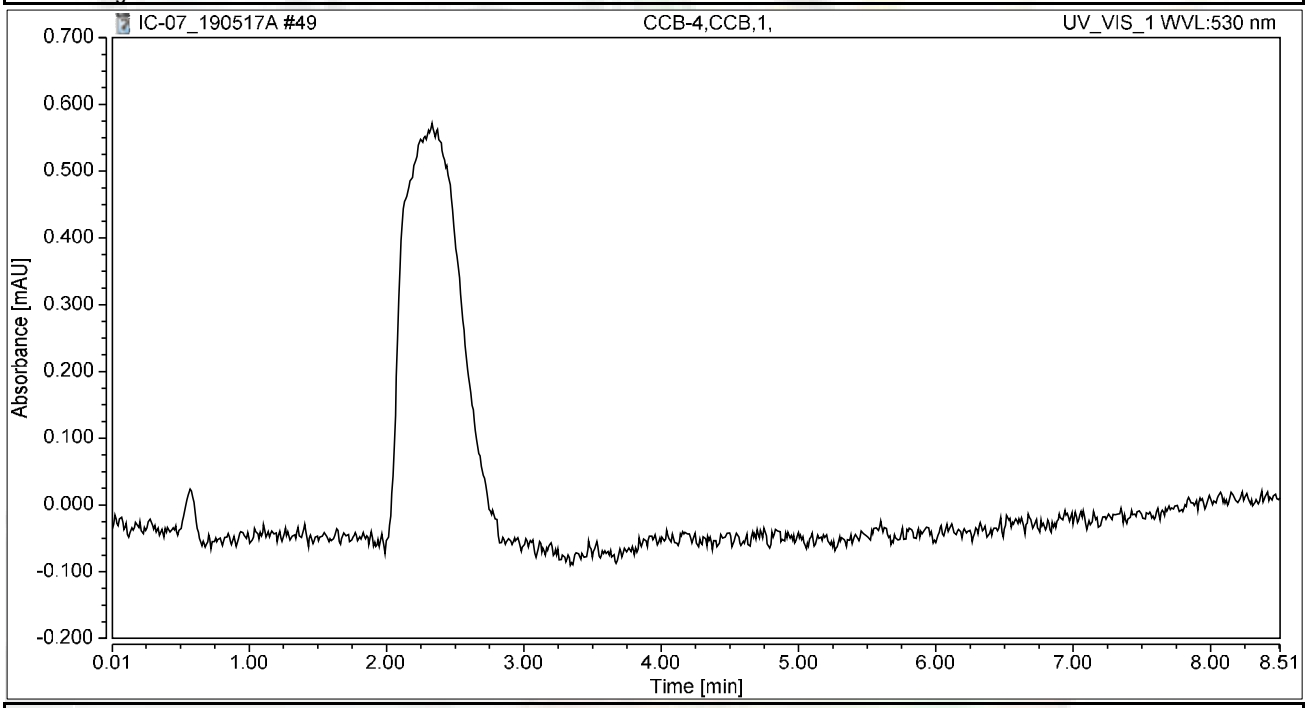
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.534	18.006	100.00	100.00	10.0515
Total:			**2.534**	**18.006**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 15:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

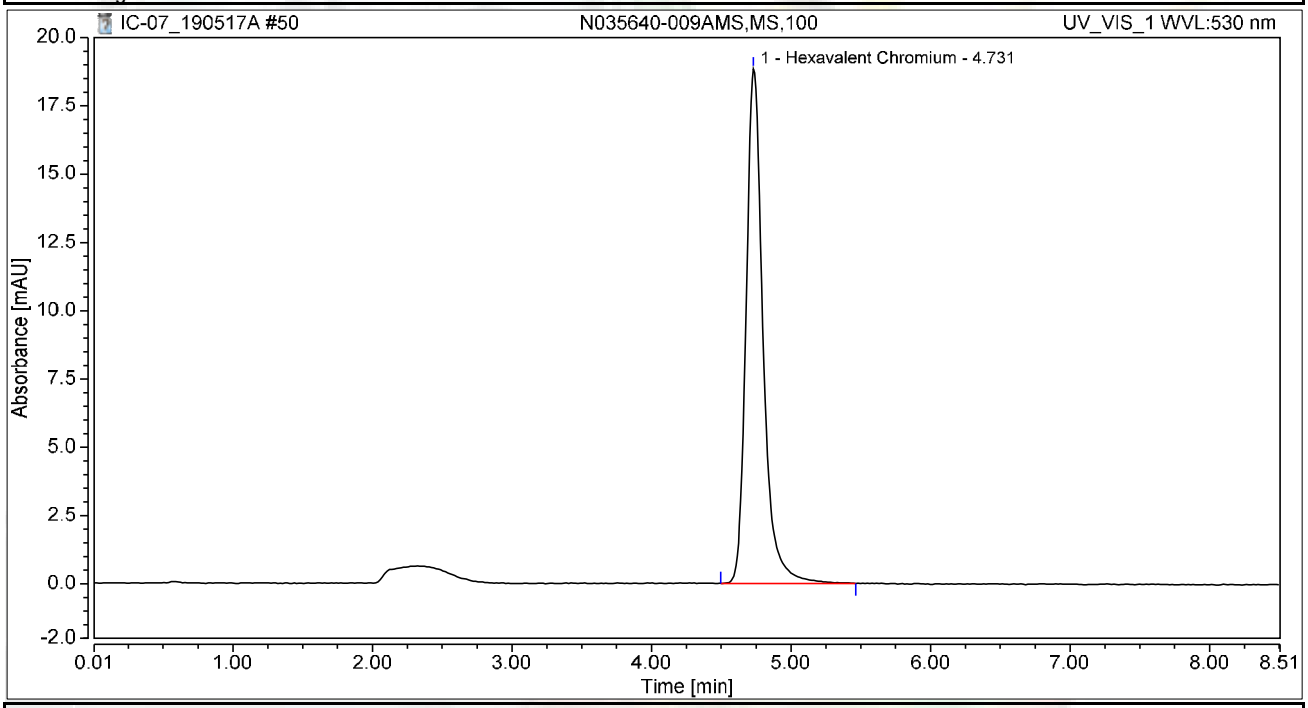
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-009AMS,MS,100**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 15:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

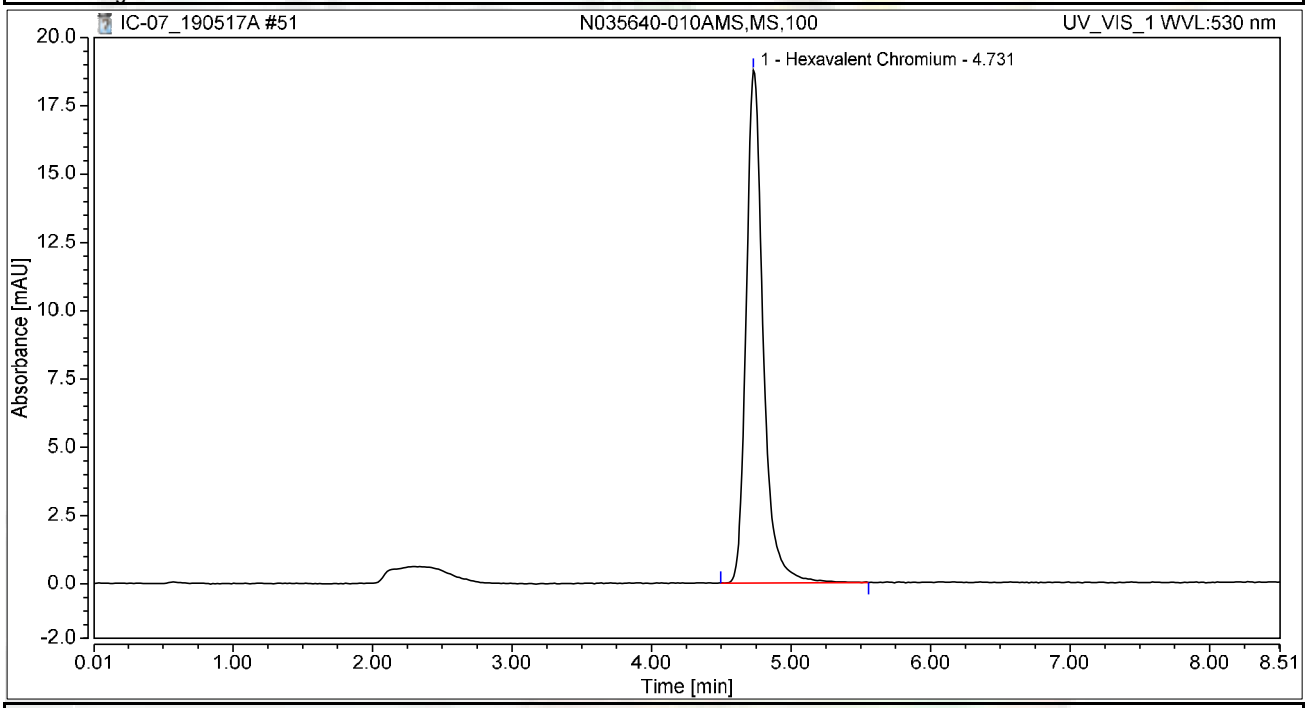
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.665	18.848	100.00	100.00	10.5683
Total:			**2.665**	**18.848**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-010AMS,MS,100**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 16:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

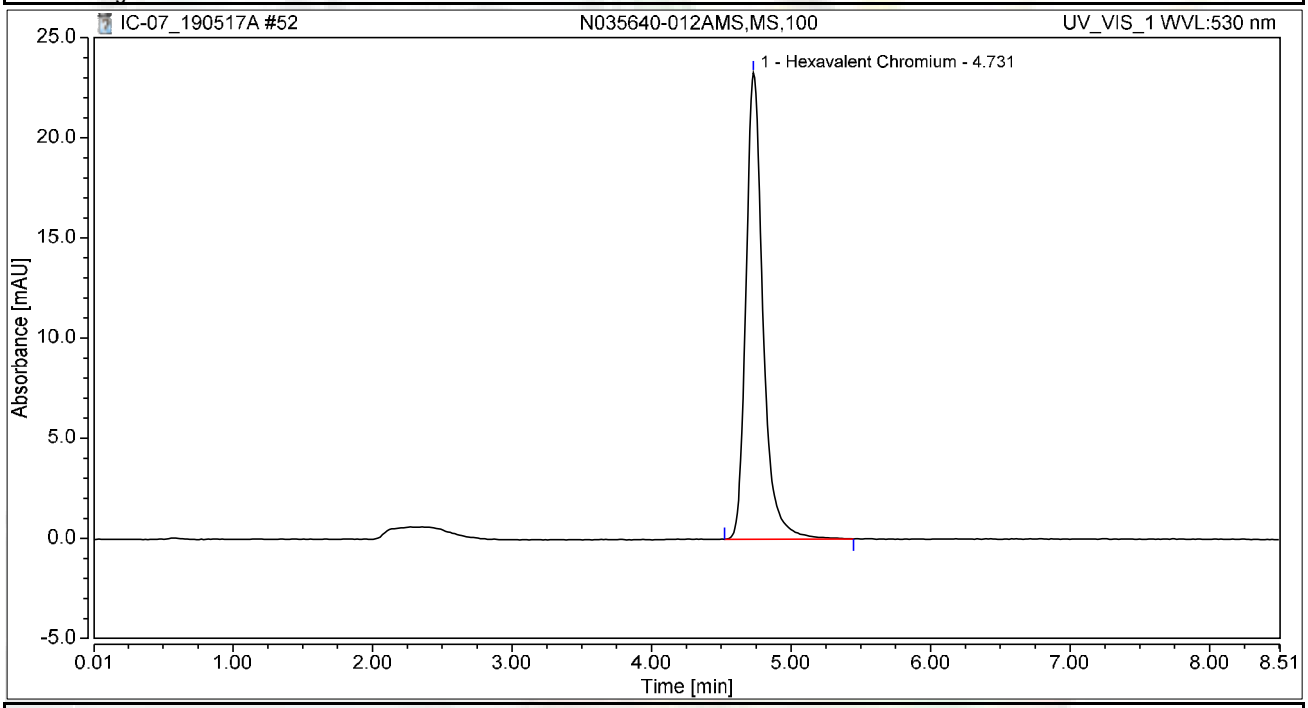
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.657	18.774	100.00	100.00	10.5382
Total:			**2.657**	**18.774**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-012AMS,MS,100**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 16:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

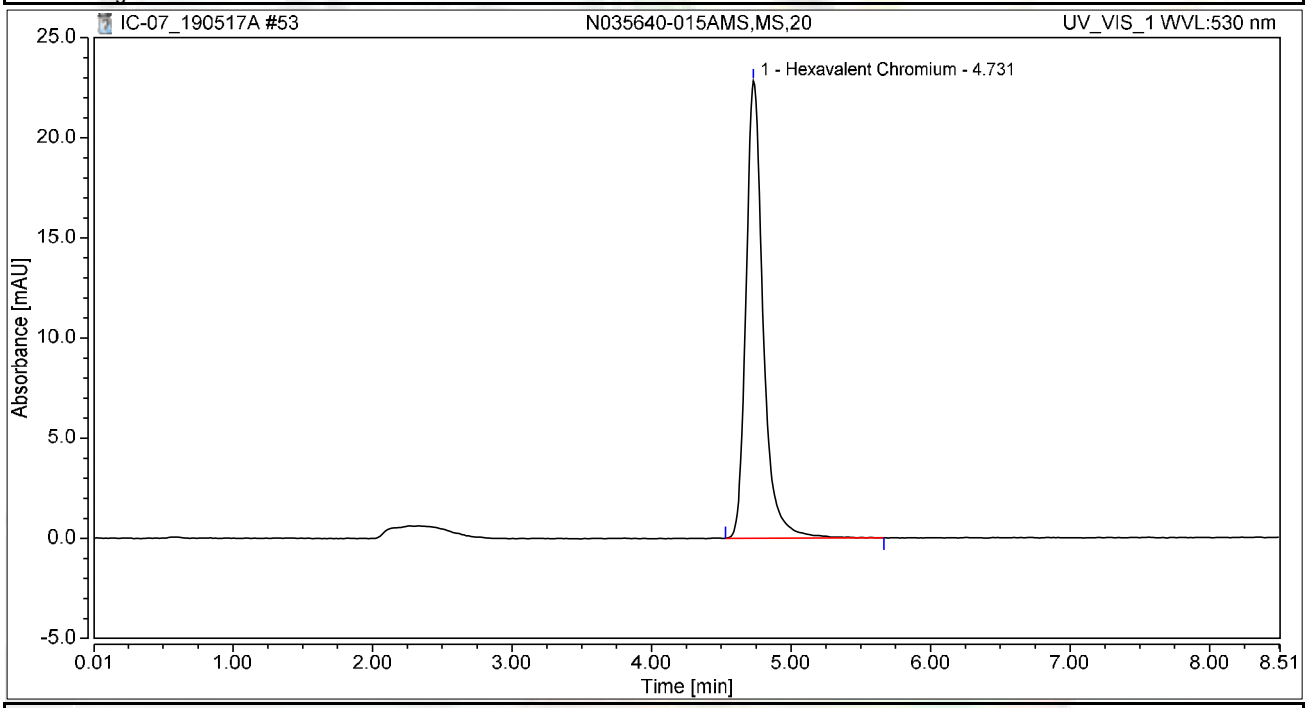
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.295	23.288	100.00	100.00	13.0691
Total:			**3.295**	**23.288**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-015AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 16:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

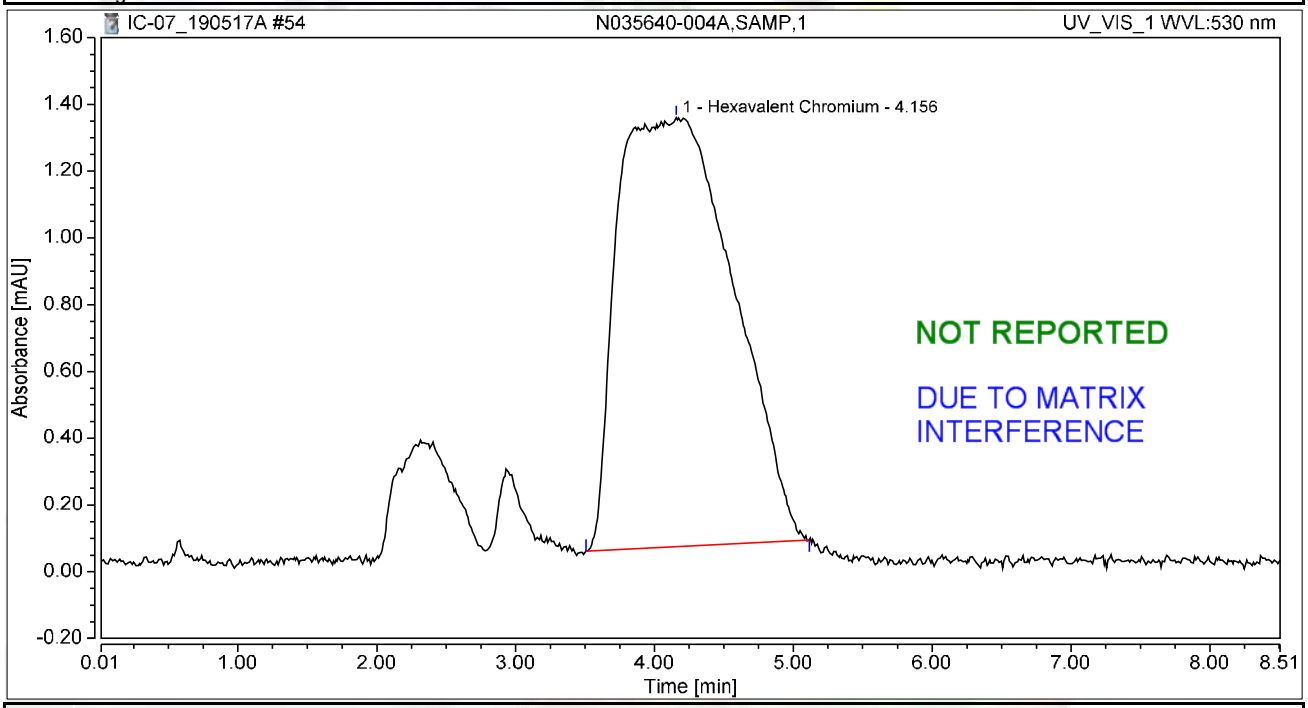
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.251	22.844	100.00	100.00	12.8958
Total:			**3.251**	**22.844**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 16:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

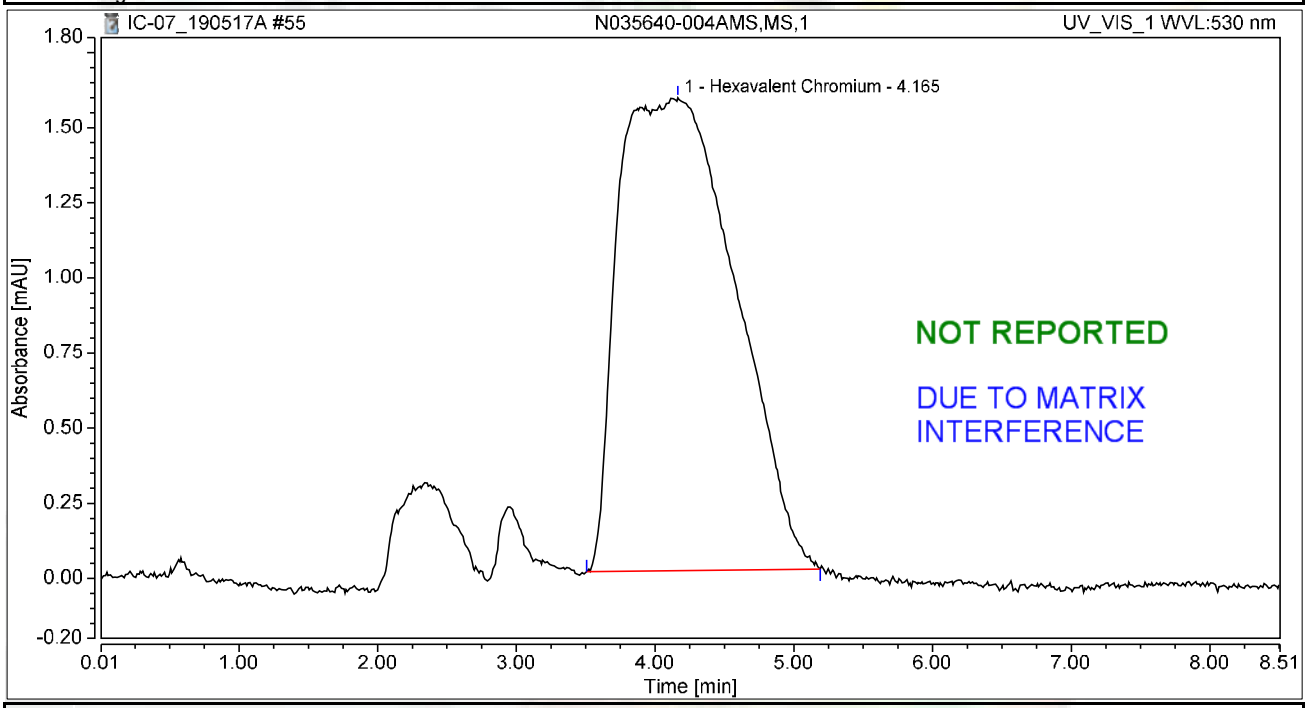
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.156	1.236	1.285	100.00	100.00	4.9042
Total:			**1.236**	**1.285**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 16:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

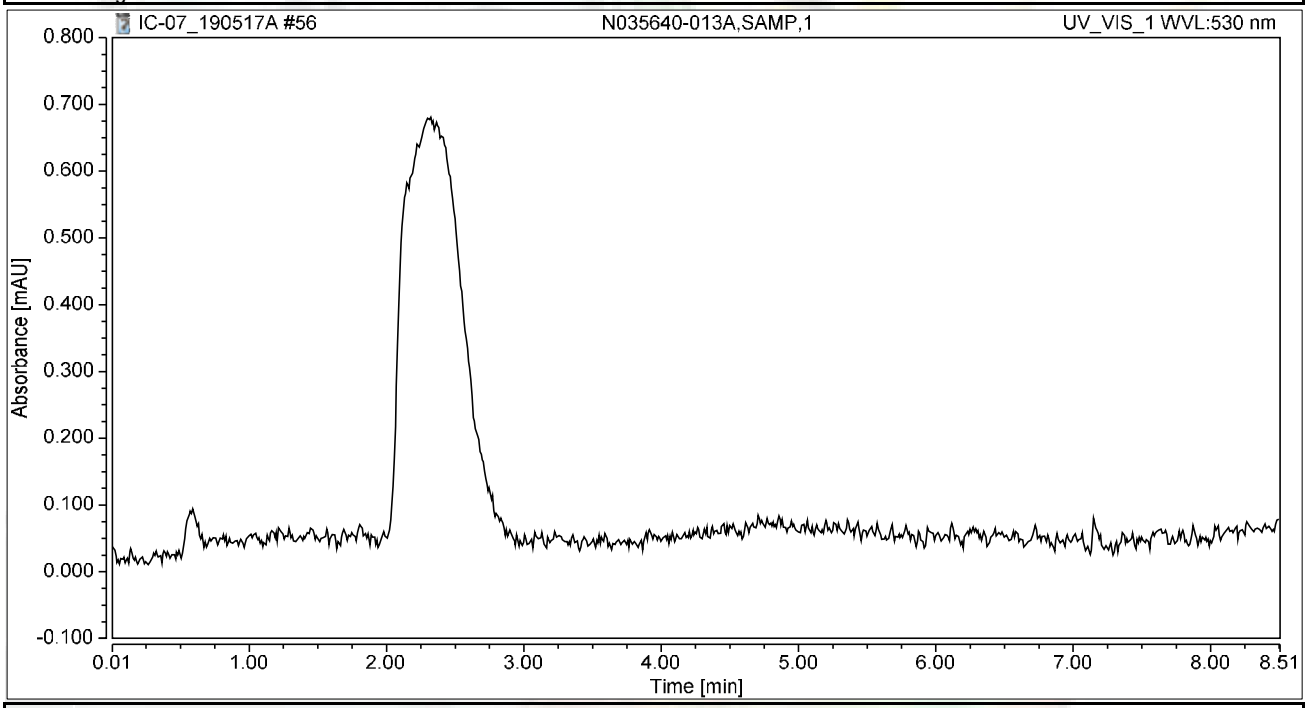
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.165	1.532	1.574	100.00	100.00	6.0751
Total:			**1.532**	**1.574**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-013A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 16:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

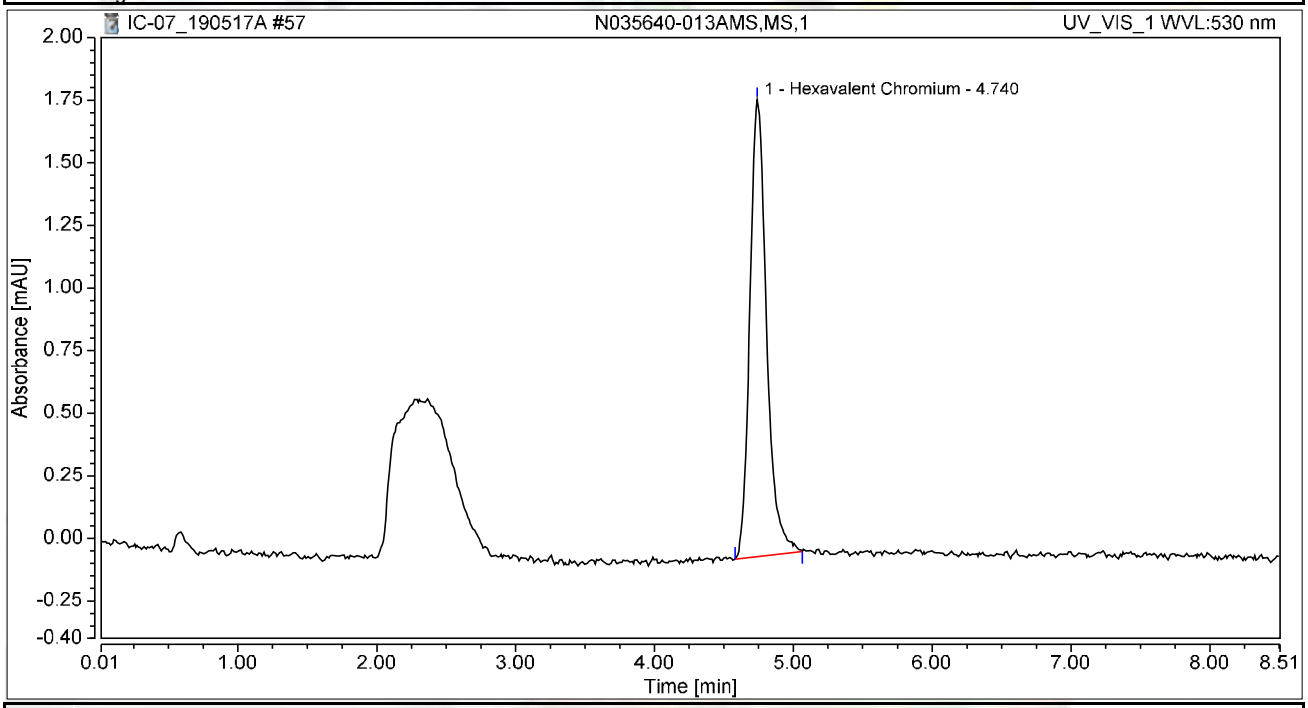
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-013AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 17:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

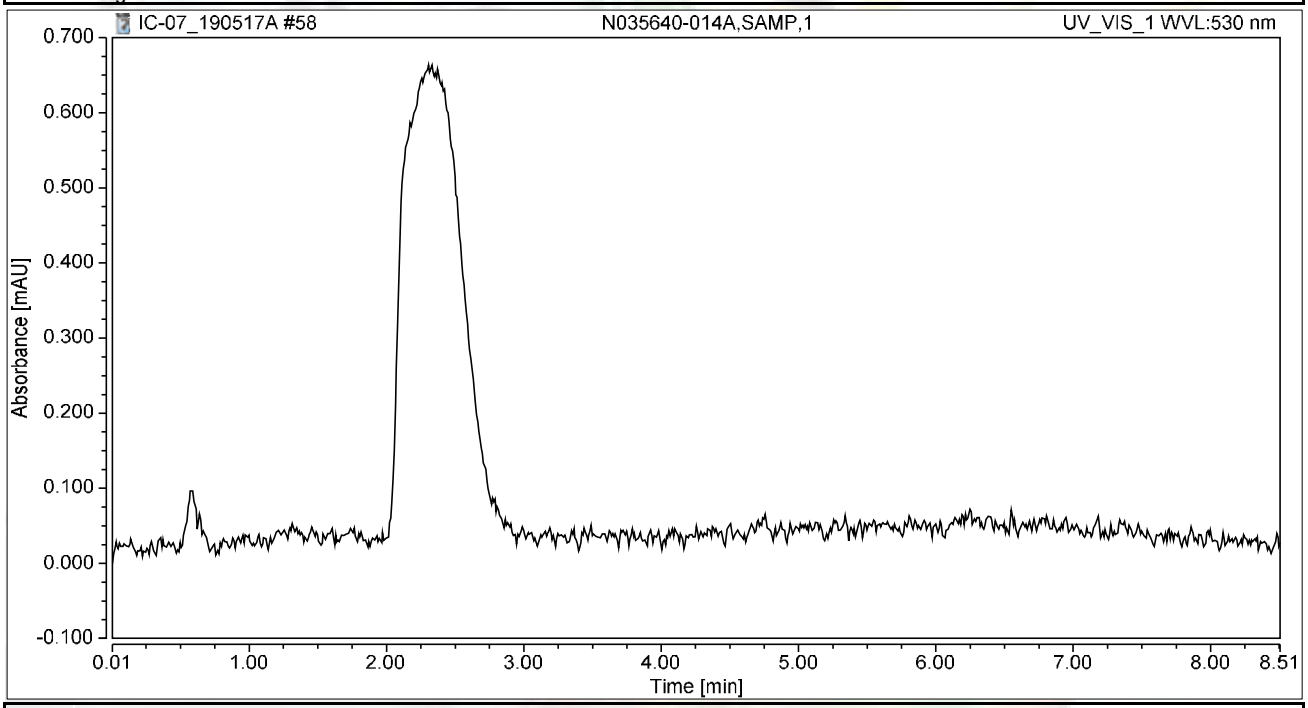
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.255	1.825	100.00	100.00	1.0118
Total:			**0.255**	**1.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-014A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 17:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

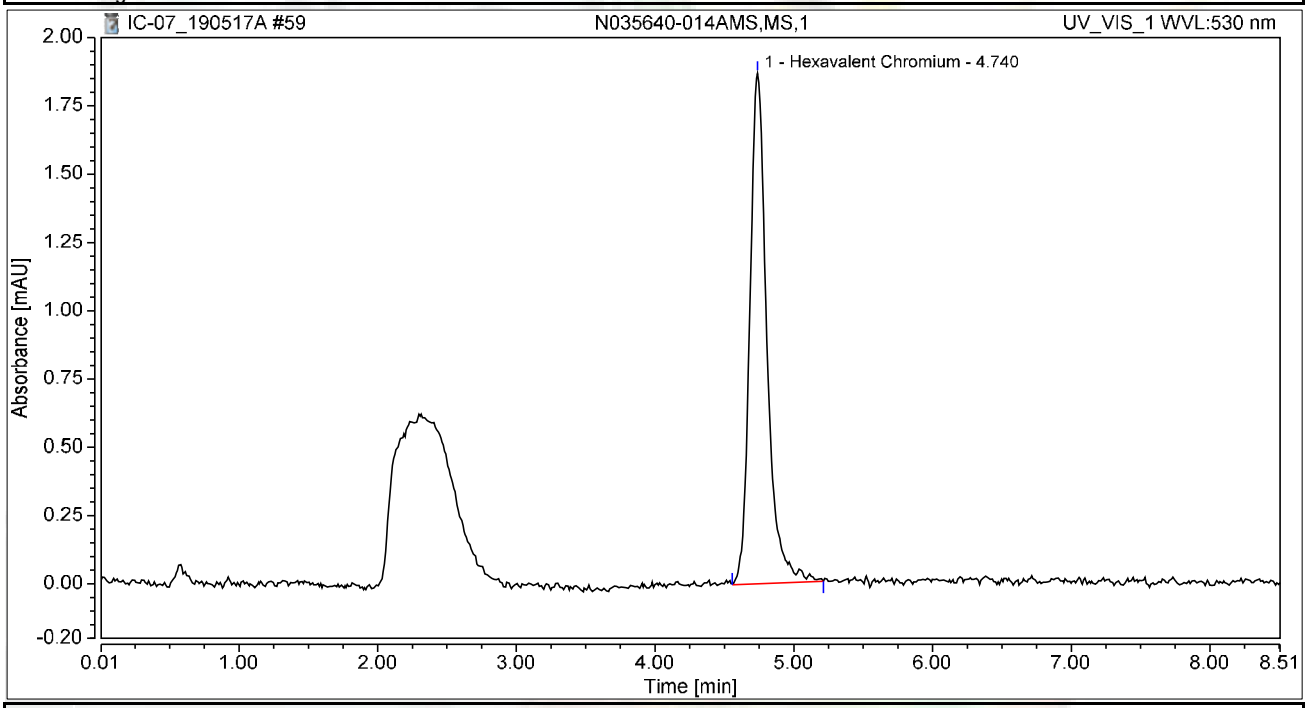
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035640-014AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 17:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

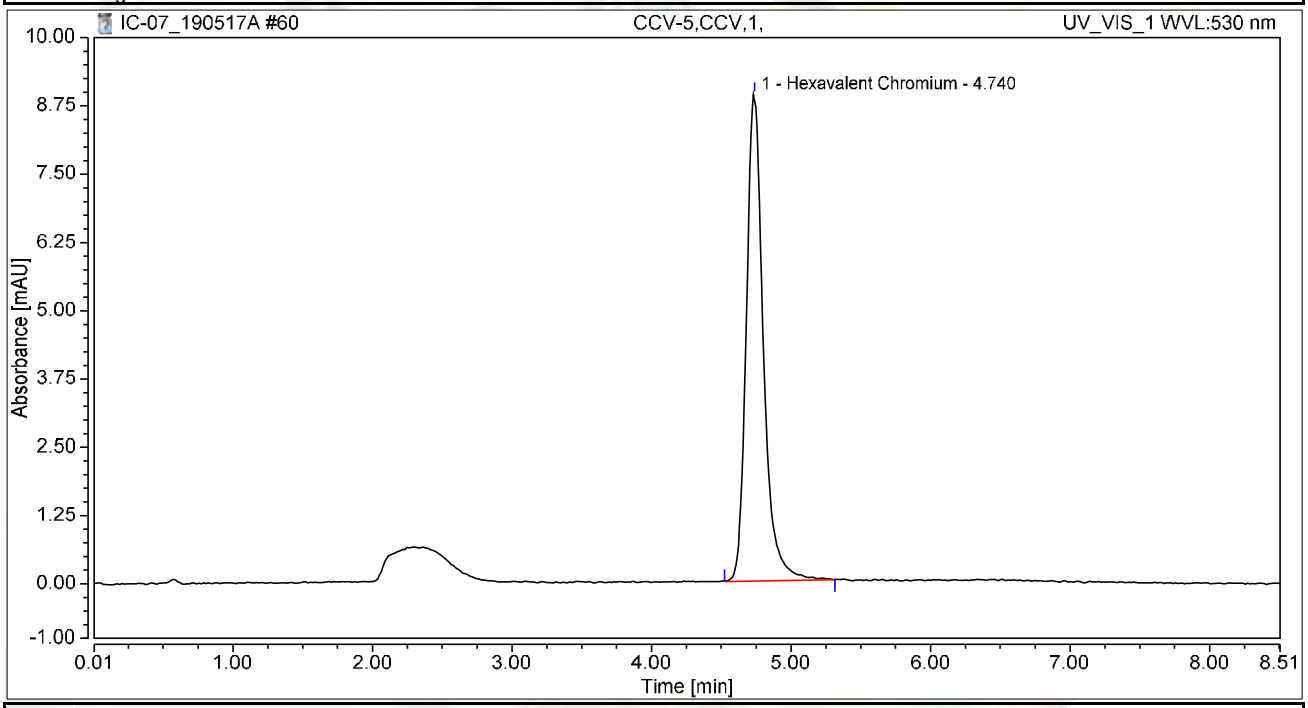
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.267	1.870	100.00	100.00	1.0592
Total:			**0.267**	**1.870**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 17:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

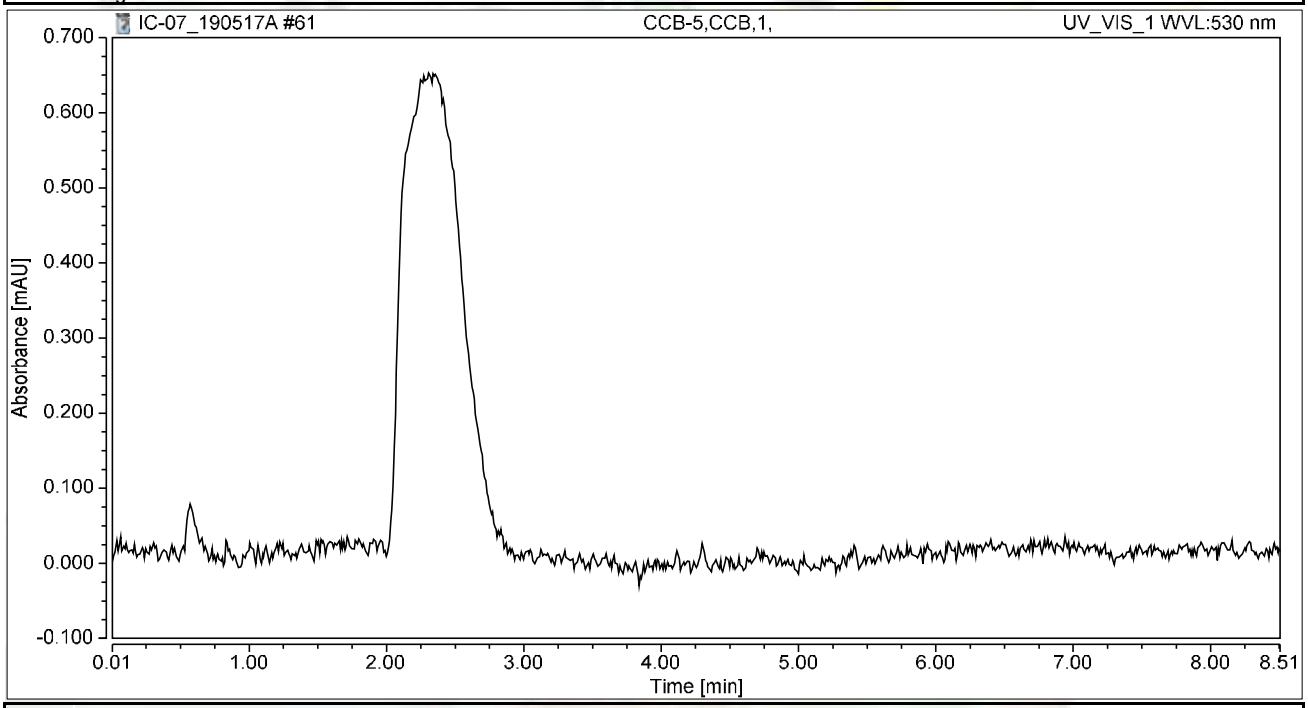
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.265	8.911	100.00	100.00	5.0161
Total:			**1.265**	**8.911**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 17:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

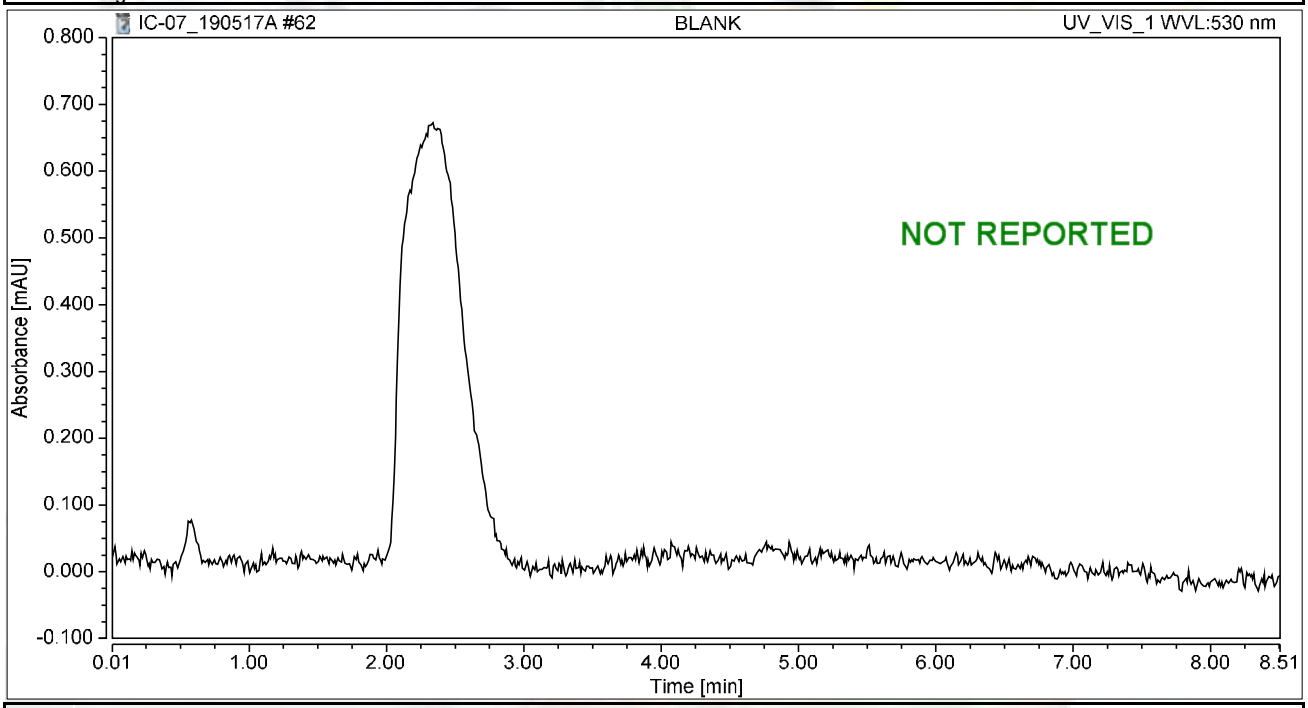
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**17/May/19 17:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134094 **Analyst:** QBM

ASSET #: N035599, 640, 662, 705 **Date Analyzed:** 5/22/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 6/3/2019

2nd Level Reviewer NS Date: 6/3/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N035640-005C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.5187	*	5
	=	2.5935	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 2.6 mg/L

NS 6/3/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

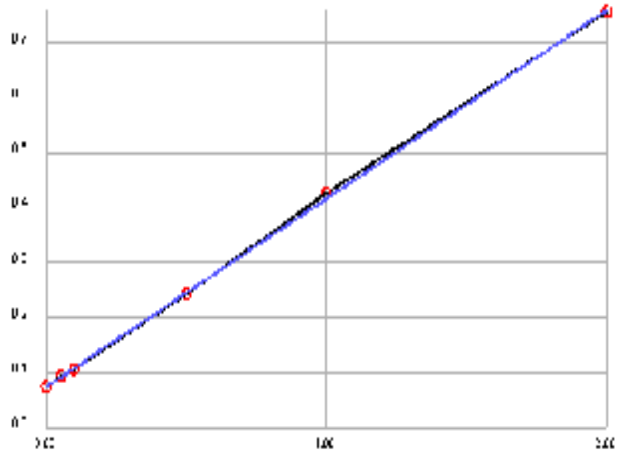
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3424x + 0.0756
Correlation	.999822

Calibrant	Energy	Set	Conc
1	0.0742	0.0000	-0.0040
2	0.0935	0.0500	0.0523
3	0.1070	0.1000	0.0918
4	0.2447	0.5000	0.4939
5	0.4277	1.0000	1.0283
6	0.7562	2.0000	1.9877

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **ICV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.499	0.050	0.5000	0	99.9	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393913**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.479	0.050	0.5000	0	95.7	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.481	0.050	0.5000	0	96.1	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **ICB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393914**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393933**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 05-22-2019 18:03
Time end: 05-22-2019 20:51

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	20:12:05	0.0053		0.0774
2	<BLANK>	20:12:59	-0.0046		0.0740
3	<CAL1>	20:13:54	-0.0040	[0]	0.0742
4	<CAL2>	20:14:55	0.0523	[0.05]	0.0935
5	<CAL3>	20:15:51	0.0918	[0.1]	0.1070
6	<CAL4>	20:16:45	0.4939	[0.5]	0.2447
7	<CAL5>	20:17:47	1.0283	[1]	0.4277
8	<CAL6>	20:18:42	1.9877	[2]	0.7562
9	,BLANK,BLANK,1, NOT REPORTED	20:19:36	0.0135		0.0802
10	,ICV,ICV,1,	20:20:38	0.4994		0.2466
11	,ICB,ICB,1,	20:21:33	0.0053		0.0774
12	,MB-H2O,MBLK,1,	20:22:29	-0.0014		0.0751
13	,LCS-H2O,LCS,1,	20:23:23	0.4778		0.2392
14	,N035599-004C,SAMP,1,	20:24:25	0.0234		0.0836
15	,N035599-002C,SAMP,5,	20:25:20	0.6119		0.2851
16	,N035599-002CDUP,DUP,5,	20:26:14	0.6315		0.2918
17	,N035599-003C,SAMP,20,	20:27:10	0.5856		0.2761
18	,N035599-003CMS,MS,20,	20:28:12	1.0505		0.4353
19	,N035599-003CMSD,MSD,20,	20:29:07	1.0494		0.4349
20	,N035640-005C,SAMP,5,	20:30:02	0.5187		0.2532
21	,BLANK, NOT REPORTED	20:31:03	0.0006		0.0758
22	,CCV-1,CCV,1,	20:31:59	0.4787		0.2395
23	,CCB-1,CCB,1,	20:32:53	0.0001		0.0756
24	,N035640-006C,SAMP,20,	20:33:54	0.5050		0.2485
25	,N035640-007C,SAMP,50,	20:34:50	0.5146		0.2518
26	,N035640-008C,SAMP,20,	20:35:38	0.5371		0.2595

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035640-009C,SAMP,50,	20:36:22	0.4992		0.2465
28	,N035640-010C,SAMP,50,	20:37:05	0.4936		0.2446
29	,N035640-011C,SAMP,100,	20:37:53	0.7857		0.3446
30	,N035640-012C,SAMP,2,	20:38:37	0.2725		0.1689
31	,N035640-015C,SAMP,20,	20:39:19	0.6875		0.3110
32	,N035662-001B,SAMP,20,	20:40:02	0.5287		0.2566
33	,BLANK, NOT REPORTED	20:40:50	-0.0058		0.0736
34	,CCV-2,CCV,1,	20:41:34	0.4805		0.2401
35	,CCB-2,CCB,1,	20:42:16	-0.0096		0.0723
36	,N035705-002C,SAMP,1,	20:43:05	0.1113		0.1137
37	,N035705-003C,SAMP,1,	20:43:49	0.1008		0.1101
38	,N035705-001C,SAMP,20,	20:44:31	0.4816		0.2405
39	,N035705-008C,SAMP,5,	20:45:14	0.3458		0.1940
40	,N035705-009C,SAMP,5,	20:46:02	0.3473		0.1945
41	,N035705-015C,SAMP,1,	20:46:45	0.5532		0.2650
42	,BLANK, NOT REPORTED	20:47:33	-0.0116		0.0716
43	,CCV-3,CCV,1,	20:48:17	0.4723		0.2373
44	,CCB-3,CCB,1,	20:49:00	0.0117		0.0796

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 5/22/2019
Time Analyzed: 6:03 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190424E
Color reagent: R190424F
2% Copper Sulfate: R190424D
Ammonium Hydroxide: CINV-190402B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035599-002C		7.80							
N035599-003C		8.29							
N035599-004C		8.57							
N035640-005C		8.46							
N035640-006C		8.33							
N035640-007C		7.80							
N035640-008C		7.40							
N035640-009C		8.45							
N035640-010C		8.66							
N035640-011C		7.55							
N035640-012C		8.84							
N035640-015C		8.21							
N035662-001B		7.34							
N035705-001C		7.76							
N035705-002C		8.23							
N035705-003C		8.18							
N035705-008C		7.62							
N035705-009C		6.43							
N035705-015C		8.01							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73911
ASSET #: N035640

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/13/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X	X		~~X~~
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			~~X~~	X	
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Cr in N035599-001B PS/MS/MSD failed, low bias. However, LCS passed criteria.
Dilution was necessary for samples N035640-004B, 8B, 12B due to failing IS. Possibly due to matrix interference.
Samples reported where IS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 6/14/2019

2nd Level Reviewer HSG 6/14/2019 Date: –

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035640-001B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 14.7086 * 1 *(25 / 25)

Chromium , ug/L = 14.7086

Reporting results in two significant figures,

Chromium , ug/L = 15

NS 6/17/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.056	22.29	15	<PQL	0.092	12.62	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.47	5.21	15	PASS	0.55	11.37	15	PASS
Std3-5/50 ppb	ICAL	1	5.08	3.27	15	PASS	5.23	3.51	15	PASS
Std4-10/100 ppb	ICAL	1	10.011	1.78	15	PASS	10.45	1.72	15	PASS
Std5-20/200 ppb	ICAL	1	19.62	1.68	15	PASS	20.33	1.086	15	PASS
Std6-40/400 ppb	ICAL	1	38.76	1.59	15	PASS	40.28	1.65	15	PASS
Std7-100/1000 ppb	ICAL	1	96.86	2.14	15	PASS	100.14	1.6	15	PASS
Std8-200/2000 ppb	ICAL	1	201.85	2.9	15	PASS	199.82	1.9	15	PASS
ICV	ICV	1	10.7	2.9	15	PASS	106.8	2.36	15	PASS
ICB	ICB	1	0.0021	254.37	15	<PQL	0.0036	354.91	15	<PQL
LLICV	CCV1	1	1.0089	4.21	20	PASS	0.52	5.66	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.38	2.38	15	PASS	17.31	2.83	15	PASS
LLICV	CCV1	1	0.97	4.45	20	PASS	0.55	5.68	20	PASS
MB-73911	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-73911	LCS	1	10.18	2.66	15	PASS	105.13	2.21	15	PASS
N035596-001A	SAMP	1	<0.000	N/A	15	<PQL	396.89	1.58	15	PASS
N035599-001B	SAMP	1	242.81	1.41	15	PASS	<0.000	N/A	15	<PQL
N035599-001B	SAMP	5	50.17	3.29	15	PASS	0.23	7.62	15	PASS
N035599-001B-PS	PS	1	240.46	3.44	15	PASS	93.7	2.32	15	PASS
N035599-001B-MS	MS	1	242.41	1.98	15	PASS	95.21	0.57	15	PASS
N035599-001B-MSD	MSD	1	239.071	2.39	15	PASS	94.23	2.57	15	PASS
N035599-001B	SAMP	25	10.25	2.77	15	PASS	0.035	29.53	15	<PQL
N035599-001B-PS	PS	5	50.081	2.75	15	PASS	20.84	2.95	15	PASS
CCV1	CCV	1	20.065	1.36	15	PASS	21.056	1.87	15	PASS
CCB1	CCB	1	0.0076	24.71	15	<PQL	<0.000	N/A	15	<PQL
N035599-001B-MS	MS	5	50.82	1.71	15	PASS	20.57	2.2	15	PASS
N035599-001B-MSD	MSD	5	51.34	2.52	15	PASS	21.33	2.63	15	PASS
N035599-002B	SAMP	1	12.8	3.013	15	PASS	<0.000	N/A	15	<PQL
N035599-003B	SAMP	1	66.019	1.43	15	PASS	<0.000	N/A	15	<PQL
N035599-004B	SAMP	1	0.16	7.49	15	PASS	175.5	2.59	15	PASS
N035599-004B	SAMP	5	<0.000	N/A	15	<PQL	42	2.52	15	PASS
N035639-001A	SAMP	1	<0.000	N/A	15	<PQL	114.3	1.73	15	PASS
N035640-001B	SAMP	1	14.71	1.31	15	PASS	<0.000	N/A	15	<PQL
N035640-002B	SAMP	1	14.99	1.59	15	PASS	<0.000	N/A	15	<PQL
N035640-003B	SAMP	1	22.96	2.41	15	PASS	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.31	3.38	15	PASS	21.2	4.1	15	PASS
CCB2	CCB	1	0.0037	213.79	15	<PQL	0.0065	46.94	15	<PQL
N035640-004B	SAMP	1	4.47	1.42	15	PASS	15.65	2.6	15	PASS
N035640-004B	SAMP	5	0.83	2.76	15	PASS	4.86	1.42	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035640-005B	SAMP	1	161.65	2.56	15	PASS	39.57	1.38	15	PASS
N035640-006B	SAMP	1	116.41	1.81	15	PASS	0.54	7.91	15	PASS
N035640-007B	SAMP	1	2896.11	2.54	15	PASS	2.9	2.68	15	PASS
N035640-007B	SAMP	25	133.15	2.78	15	PASS	0.12	7.97	15	PASS
N035640-008B	SAMP	1	5477.56	1.8	15	PASS	3.6	2.077	15	PASS
N035640-008B	SAMP	5	1299.94	2.8	15	PASS	2.048	1.5	15	PASS
N035640-008B	SAMP	50	139.58	3.66	15	PASS	0.21	1.86	15	PASS
N035640-009B	SAMP	1	513.54	2.086	15	PASS	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.34	2.42	15	PASS	20.87	1.61	15	PASS
CCB3	CCB	1	0.19	12.33	15	PASS	<0.000	N/A	15	<PQL
N035640-009B	SAMP	5	114.27	2.64	15	PASS	<0.000	N/A	15	<PQL
N035640-010B	SAMP	1	519.76	1.8	15	PASS	<0.000	N/A	15	<PQL
N035640-010B	SAMP	5	116.75	1.51	15	PASS	<0.000	N/A	15	<PQL
N035640-011B	SAMP	1	1938.27	1.75	15	PASS	<0.000	N/A	15	<PQL
N035640-011B	SAMP	5	443.77	3.31	15	PASS	<0.000	N/A	15	<PQL
N035640-011B	SAMP	25	88.042	2.62	15	PASS	<0.000	N/A	15	<PQL
N035640-012B	SAMP	1	715.54	1.76	15	PASS	125.79	1.84	15	PASS
N035640-012B	SAMP	5	169.32	2.24	15	PASS	30.18	2.47	15	PASS
N035640-015B	SAMP	1	178.97	2.095	15	PASS	76.2	1.51	15	PASS
N035640-015B	SAMP	5	37.12	3.25	15	PASS	17.071	2.94	15	PASS
CCV4	CCV	1	20.027	2.93	15	PASS	20.8	2.18	15	PASS
CCB4	CCB	1	0.07	16.43	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.013	230.04	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.74	2.82	15	PASS	17.26	2.78	15	PASS
CCV5	CCV	1	19.55	2.58	15	PASS	18.69	0.3	15	PASS
CCB5	CCB	1	0.0076	76.39	15	<PQL	<0.000	N/A	15	<PQL
CCV6	CCV	1	20.18	2.52	15	PASS	21.17	2.54	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	20.32	2.93	15	PASS	21.34	2.32	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV8	CCV	1	20.29	2.89	15	PASS	21.23	2.44	15	PASS
CCB8	CCB	1	0.14	8.89	15	PASS	<0.000	N/A	15	<PQL
CCV9	CCV	1	18.22	1.14	15	PASS	19.045	1.14	15	PASS
CCB9	CCB	1	0.003	190.96	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	18.54	1.14	15	PASS	16.75	1.064	15	PASS
CCV10	CCV	1	20.086	1.84	15	PASS	20.64	1.95	15	PASS
CCB10	CCB	1	0.22	7.79	15	PASS	<0.000	N/A	15	<PQL
CCV11	CCV	1	17.51	0.9	15	PASS	18.19	0.18	15	PASS
CCB11	CCB	1	0.0068	86.43	15	<PQL	<0.000	N/A	15	<PQL
CCV11	CCV	1	17.74	2.62	15	PASS	18.82	1.47	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB11	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV12	CCV	1	17.81	2.73	15	PASS	18.96	3.43	15	PASS
CCB12	CCB	1	<0.000	N/A	15	<PQL	0.0019	203.33	15	<PQL
CCV13	CCV	1	17.75	2.95	15	PASS	18.94	2.49	15	PASS
CCB13	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	17.16	2.52	15	PASS	16.29	1.17	15	PASS
CCV14	CCV	1	17.86	2.11	15	PASS	19.21	3.27	15	PASS
CCB14	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV15	CCV	1	18.13	2.93	15	PASS	19.58	2.14	15	PASS
CCB15	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	17.33	2.085	15	PASS	16.89	2.036	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.088	5.36	15	PASS	0.097	26.055	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.5	7.018	15	PASS	0.49	18.76	15	<PQL
Std3-5/50 ppb	ICAL	1	4.81	1.96	15	PASS	5.069	9.24	15	PASS
Std4-10/100 ppb	ICAL	1	9.74	1.84	15	PASS	9.3	1.75	15	PASS
Std5-20/200 ppb	ICAL	1	19.57	0.62	15	PASS	19.43	3.0015	15	PASS
Std6-40/400 ppb	ICAL	1	38.59	0.22	15	PASS	38.99	1.37	15	PASS
Std7-100/1000 ppb	ICAL	1	98.57	1.27	15	PASS	97.26	0.95	15	PASS
Std8-200/2000 ppb	ICAL	1	201.059	0.73	15	PASS	201.66	1.96	15	PASS
ICV	ICV	1	9.87	0.93	15	PASS	9.93	4.51	15	PASS
ICB	ICB	1	0.0092	45.16	15	<PQL	0.017	115.59	15	<PQL
LLICV	CCV1	1	0.11	12.81	20	PASS	0.48	43.92	20	<PQL
ICSA1	ICSA	1	0.039	26.45	15	<PQL	0.024	43.24	15	<PQL
ICSAB1	ICSAB	1	19.86	1.77	15	PASS	18.072	2.29	15	PASS
LLICV	CCV1	1	0.12	3.87	20	PASS	0.53	6.79	20	PASS
MB-73911	MBLK	1	0.016	56.54	15	<PQL	0.0097	271.59	15	<PQL
LCS-73911	LCS	1	9.86	1.22	15	PASS	9.53	12.36	15	PASS
N035596-001A	SAMP	1	0.42	8.21	15	PASS	0.88	8.74	15	PASS
N035599-001B	SAMP	1	0.94	4.13	15	PASS	3.81	13.15	15	PASS
N035599-001B	SAMP	5	0.19	10.31	15	PASS	0.75	22.31	15	NR!
N035599-001B-PS	PS	1	11.11	1.52	15	PASS	13.18	8.063	15	PASS
N035599-001B-MS	MS	1	11.01	2.87	15	PASS	13.22	4.76	15	PASS
N035599-001B-MSD	MSD	1	11.18	0.74	15	PASS	13.39	4.064	15	PASS
N035599-001B	SAMP	25	0.044	18.1	15	<PQL	0.24	45.2	15	<PQL
N035599-001B-PS	PS	5	2.28	0.92	15	PASS	2.61	4.8	15	PASS
CCV1	CCV	1	19.37	1.095	15	PASS	19.15	0.85	15	PASS
CCB1	CCB	1	0.031	26.11	15	<PQL	0.015	155.43	15	<PQL
N035599-001B-MS	MS	5	2.29	2.44	15	PASS	2.67	5.77	15	PASS
N035599-001B-MSD	MSD	5	2.23	4.21	15	PASS	2.58	3.42	15	PASS
N035599-002B	SAMP	1	0.7	7.92	15	PASS	1.99	14.75	15	PASS
N035599-003B	SAMP	1	1.28	5.78	15	PASS	8.36	4.36	15	PASS
N035599-004B	SAMP	1	2.4	1.85	15	PASS	0.09	79.82	15	<PQL
N035599-004B	SAMP	5	0.49	2.88	15	PASS	<0.000	N/A	15	<PQL
N035639-001A	SAMP	1	0.8	3.36	15	PASS	1.031	42.63	15	NR!
N035640-001B	SAMP	1	1.056	3.84	15	PASS	1.0089	2.38	15	PASS
N035640-002B	SAMP	1	1.068	6.18	15	PASS	0.99	8.33	15	PASS
N035640-003B	SAMP	1	1.93	1.83	15	PASS	1.19	2.068	15	PASS
CCV2	CCV	1	19.53	0.93	15	PASS	18.53	2.28	15	PASS
CCB2	CCB	1	0.021	67.75	15	<PQL	0.047	46.64	15	<PQL
N035640-004B	SAMP	1	1.68	0.47	15	PASS	0.58	38.93	15	NR!
N035640-004B	SAMP	5	0.34	0.71	15	PASS	0.15	47.51	15	<PQL

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035640-005B	SAMP	1	2.51	2.46	15	PASS	2.32	2.68	15	PASS
N035640-006B	SAMP	1	2.19	2.2	15	PASS	8.0062	5.39	15	PASS
N035640-007B	SAMP	1	3.42	5.088	15	PASS	92.74	2.69	15	PASS
N035640-007B	SAMP	25	0.14	5.088	15	PASS	3.47	18.41	15	NR!
N035640-008B	SAMP	1	9.75	1.18	15	PASS	9.037	4.26	15	PASS
N035640-008B	SAMP	5	1.93	3.1	15	PASS	1.84	15.44	15	NR!
N035640-008B	SAMP	50	0.17	12.41	15	PASS	0.12	27.63	15	<PQL
N035640-009B	SAMP	1	1.21	3.77	15	PASS	27.97	3.49	15	PASS
CCV3	CCV	1	19.47	1.48	15	PASS	19.02	2.71	15	PASS
CCB3	CCB	1	0.017	26.87	15	<PQL	0.019	160.49	15	<PQL
N035640-009B	SAMP	5	0.24	9.76	15	PASS	5.61	5.88	15	PASS
N035640-010B	SAMP	1	1.17	2.29	15	PASS	28.26	1.74	15	PASS
N035640-010B	SAMP	5	0.26	9.68	15	PASS	6.21	7.82	15	PASS
N035640-011B	SAMP	1	1	3.81	15	PASS	403.3	1.29	15	PASS
N035640-011B	SAMP	5	0.2	9.77	15	PASS	80.17	1.74	15	PASS
N035640-011B	SAMP	25	0.044	10.88	15	PASS	16.59	3.85	15	PASS
N035640-012B	SAMP	1	8.95	1.4	15	PASS	1.18	4.32	15	PASS
N035640-012B	SAMP	5	1.85	2.93	15	PASS	0.21	23.14	15	<PQL
N035640-015B	SAMP	1	0.69	3.16	15	PASS	9.36	3.51	15	PASS
N035640-015B	SAMP	5	0.14	9.69	15	PASS	2.086	10.28	15	PASS
CCV4	CCV	1	19.32	0.36	15	PASS	20.41	1.17	15	PASS
CCB4	CCB	1	0.014	36.86	15	<PQL	0.005	363.4	15	<PQL
ICSA2	ICSA	1	0.033	47.66	15	<PQL	0.017	228.55	15	<PQL
ICSAB2	ICSAB	1	19.44	1.49	15	PASS	18.24	1.65	15	PASS
CCV5	CCV	1	19.39	0.64	15	PASS	20.022	4.19	15	PASS
CCB5	CCB	1	0.02	52.37	15	<PQL	0.064	78.057	15	<PQL
CCV6	CCV	1	19.36	1	15	PASS	19.068	4.51	15	PASS
CCB6	CCB	1	0.023	32.73	15	<PQL	0.02	42.52	15	<PQL
CCV7	CCV	1	18.98	0.54	15	PASS	18.99	2.73	15	PASS
CCB7	CCB	1	0.022	69.56	15	<PQL	0.016	61.46	15	<PQL
CCV8	CCV	1	19.27	0.77	15	PASS	19.82	3.2	15	PASS
CCB8	CCB	1	0.03	3.65	15	PASS	0.022	116.59	15	<PQL
CCV9	CCV	1	19.39	1.16	15	PASS	18.89	0.99	15	PASS
CCB9	CCB	1	0.014	48.65	15	<PQL	0.045	78.16	15	<PQL
ICSA3	ICSA	1	0.031	40.24	15	<PQL	0.00023	4371.42	15	<PQL
ICSAB3	ICSAB	1	19.47	1.096	15	PASS	19.12	2.95	15	PASS
CCV10	CCV	1	19.2	2.11	15	PASS	18.67	2.57	15	PASS
CCB10	CCB	1	0.013	11.78	15	PASS	0.027	4.68	15	PASS
CCV11	CCV	1	19.45	0.67	15	PASS	19.93	0.57	15	PASS
CCB11	CCB	1	0.021	69.67	15	<PQL	0.038	65.5	15	<PQL
CCV11	CCV	1	19.15	1.65	15	PASS	20.4	3.12	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB11	CCB	1	0.017	40.26	15	<PQL	0.01	155.37	15	<PQL
CCV12	CCV	1	19.27	1.056	15	PASS	19.81	2.27	15	PASS
CCB12	CCB	1	0.0057	81.75	15	<PQL	0.014	243.59	15	<PQL
CCV13	CCV	1	19.14	1.74	15	PASS	19.82	2.95	15	PASS
CCB13	CCB	1	0.016	29.54	15	<PQL	0.013	248.18	15	<PQL
ICSA4	ICSA	1	0.048	23.2	15	<PQL	0.023	123.83	15	<PQL
ICSAB4	ICSAB	1	19.48	0.78	15	PASS	18.72	1.42	15	PASS
CCV14	CCV	1	19.15	1.19	15	PASS	19.64	0.91	15	PASS
CCB14	CCB	1	0.017	70.44	15	<PQL	0.021	1.88	15	PASS
CCV15	CCV	1	19.11	0.47	15	PASS	19.34	1.33	15	PASS
CCB15	CCB	1	0.019	31.75	15	<PQL	0.049	82.45	15	<PQL
ICSA5	ICSA	1	0.055	37.35	15	<PQL	0.0038	422.29	15	<PQL
ICSAB5	ICSAB	1	19.73	1.057	15	PASS	18.54	2.088	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.083	9.77	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.46	5.86	15	PASS
Std3-5/50 ppb	ICAL	1	4.57	1.21	15	PASS
Std4-10/100 ppb	ICAL	1	9.37	1.84	15	PASS
Std5-20/200 ppb	ICAL	1	18.88	1.65	15	PASS
Std6-40/400 ppb	ICAL	1	38.55	1.59	15	PASS
Std7-100/1000 ppb	ICAL	1	98.69	2.57	15	PASS
Std8-200/2000 ppb	ICAL	1	201.1	1.61	15	PASS
ICV	ICV	1	9.5	2.069	15	PASS
ICB	ICB	1	0.095	4.083	15	PASS
LLICV	CCV1	1	0.5	1.86	20	PASS
ICSA1	ICSA	1	0.061	19.25	15	<PQL
ICSAB1	ICSAB	1	20.55	0.5	15	PASS
LLICV	CCV1	1	0.66	2.82	20	PASS
MB-73911	MBLK	1	0.059	9.14	15	PASS
LCS-73911	LCS	1	9.63	1.73	15	PASS
N035596-001A	SAMP	1	19.96	1.47	15	PASS
N035599-001B	SAMP	1	7.57	1.019	15	PASS
N035599-001B	SAMP	5	1.55	4.22	15	PASS
N035599-001B-PS	PS	1	18.41	0.43	15	PASS
N035599-001B-MS	MS	1	18.7	0.75	15	PASS
N035599-001B-MSD	MSD	1	18.79	0.29	15	PASS
N035599-001B	SAMP	25	0.4	1.5	15	PASS
N035599-001B-PS	PS	5	3.66	1.22	15	PASS
CCV1	CCV	1	19.23	1.2	15	PASS
CCB1	CCB	1	0.16	12.48	15	PASS
N035599-001B-MS	MS	5	3.55	1.82	15	PASS
N035599-001B-MSD	MSD	5	3.56	1.2	15	PASS
N035599-002B	SAMP	1	10.55	0.65	15	PASS
N035599-003B	SAMP	1	4.17	1.73	15	PASS
N035599-004B	SAMP	1	74.2	0.22	15	PASS
N035599-004B	SAMP	5	14.55	1.72	15	PASS
N035639-001A	SAMP	1	39.72	0.27	15	PASS
N035640-001B	SAMP	1	7.69	1.17	15	PASS
N035640-002B	SAMP	1	7.52	1.043	15	PASS
N035640-003B	SAMP	1	20.01	0.5	15	PASS
CCV2	CCV	1	18.95	2.15	15	PASS
CCB2	CCB	1	0.18	7.2	15	PASS
N035640-004B	SAMP	1	43.98	3.078	15	PASS
N035640-004B	SAMP	5	8.46	1.65	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035640-005B	SAMP	1	44.23	1.26	15	PASS
N035640-006B	SAMP	1	58.035	0.35	15	PASS
N035640-007B	SAMP	1	47.81	1.38	15	PASS
N035640-007B	SAMP	25	2.066	0.87	15	PASS
N035640-008B	SAMP	1	72.85	1.53	15	PASS
N035640-008B	SAMP	5	14.25	0.56	15	PASS
N035640-008B	SAMP	50	1.48	2.86	15	PASS
N035640-009B	SAMP	1	5.52	0.87	15	PASS
CCV3	CCV	1	19.062	0.58	15	PASS
CCB3	CCB	1	0.18	12.55	15	PASS
N035640-009B	SAMP	5	1.12	2.17	15	PASS
N035640-010B	SAMP	1	5.45	0.72	15	PASS
N035640-010B	SAMP	5	1.13	3.048	15	PASS
N035640-011B	SAMP	1	5.7	0.37	15	PASS
N035640-011B	SAMP	5	1.11	0.81	15	PASS
N035640-011B	SAMP	25	0.23	8.93	15	PASS
N035640-012B	SAMP	1	71.37	0.89	15	PASS
N035640-012B	SAMP	5	13.87	0.77	15	PASS
N035640-015B	SAMP	1	109.91	1.6	15	PASS
N035640-015B	SAMP	5	21.69	1.39	15	PASS
CCV4	CCV	1	19.15	1.53	15	PASS
CCB4	CCB	1	0.21	12.69	15	PASS
ICSA2	ICSA	1	0.12	8.23	15	PASS
ICSAB2	ICSAB	1	20.33	1.87	15	PASS
CCV5	CCV	1	18.3	0.65	15	PASS
CCB5	CCB	1	0.18	5.28	15	PASS
CCV6	CCV	1	19	1.85	15	PASS
CCB6	CCB	1	0.22	5.52	15	PASS
CCV7	CCV	1	18.64	2.13	15	PASS
CCB7	CCB	1	0.17	5.52	15	PASS
CCV8	CCV	1	18.55	0.68	15	PASS
CCB8	CCB	1	0.15	11.39	15	PASS
CCV9	CCV	1	18.77	1.35	15	PASS
CCB9	CCB	1	0.14	19.048	15	<PQL
ICSA3	ICSA	1	0.087	7.032	15	PASS
ICSAB3	ICSAB	1	20.11	0.97	15	PASS
CCV10	CCV	1	18.53	1.61	15	PASS
CCB10	CCB	1	0.16	11.97	15	PASS
CCV11	CCV	1	18.99	2.22	15	PASS
CCB11	CCB	1	0.16	7.024	15	PASS
CCV11	CCV	1	19.015	1.33	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
CCB11	CCB	1	0.16	12.5	15	PASS
CCV12	CCV	1	19.17	1.83	15	PASS
CCB12	CCB	1	0.14	3.9	15	PASS
CCV13	CCV	1	19.51	0.97	15	PASS
CCB13	CCB	1	0.23	3.16	15	PASS
ICSA4	ICSA	1	0.14	7.78	15	PASS
ICSAB4	ICSAB	1	20.73	1.4	15	PASS
CCV14	CCV	1	19.026	1.26	15	PASS
CCB14	CCB	1	0.15	3.47	15	PASS
CCV15	CCV	1	20.43	0.66	15	PASS
CCB15	CCB	1	0.41	8.44	15	PASS
ICSA5	ICSA	1	0.23	10.077	15	PASS
ICSAB5	ICSAB	1	20.77	2.54	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613001.D	RINSE	RINSE	1	06/13/19 4:20 AM
A0613002.D	Cal Blank	IBLK	1	06/13/19 4:25 AM
A0613003.D	Std1-0.1/1 ppb	ICAL	1	06/13/19 4:30 AM
A0613004.D	Std2-0.5/5 ppb	ICAL	1	06/13/19 4:34 AM
A0613005.D	Std3-5/50 ppb	ICAL	1	06/13/19 4:39 AM
A0613006.D	Std4-10/100 ppb	ICAL	1	06/13/19 4:44 AM
A0613007.D	Std5-20/200 ppb	ICAL	1	06/13/19 4:49 AM
A0613008.D	Std6-40/400 ppb	ICAL	1	06/13/19 4:54 AM
A0613009.D	Std7-100/1000 ppb	ICAL	1	06/13/19 4:59 AM
A0613010.D	Std8-200/2000 ppb	ICAL	1	06/13/19 5:04 AM
A0613011.D	ICV	ICV	1	06/13/19 5:09 AM
A0613012.D	ICB	ICB	1	06/13/19 5:14 AM
A0613013.D	LLICV	CCV1	1	06/13/19 5:19 AM
A0613014.D	ICSA1	ICSA	1	06/13/19 5:24 AM
A0613015.D	ICSAB1	ICSAB	1	06/13/19 5:29 AM
A0613016.D	LLICV	CCV1	1	06/13/19 5:34 AM
A0613017.D	MB-73911	MBLK	1	06/13/19 5:39 AM
A0613018.D	LCS-73911	LCS	1	06/13/19 5:44 AM
A0613019.D	N035596-001A	SAMP	1	06/13/19 5:49 AM
A0613020.D	N035599-001B	SAMP	1	06/13/19 5:54 AM
A0613021.D	N035599-001B	SAMP	5	06/13/19 5:59 AM
A0613022.D	N035599-001B-PS	PS	1	06/13/19 6:04 AM
A0613023.D	N035599-001B-MS	MS	1	06/13/19 6:09 AM
A0613024.D	N035599-001B-MSD	MSD	1	06/13/19 6:14 AM
A0613025.D	N035599-001B	SAMP	25	06/13/19 6:18 AM
A0613026.D	N035599-001B-PS	PS	5	06/13/19 6:23 AM
A0613027.D	CCV1	CCV	1	06/13/19 6:29 AM
A0613028.D	CCB1	CCB	1	06/13/19 6:34 AM
A0613029_190613A1.D	N035599-001B-MS	MS	5	06/13/19 6:41 AM
A0613030_190613A1.D	N035599-001B-MSD	MSD	5	06/13/19 6:46 AM
A0613031_190613A1.D	N035599-002B	SAMP	1	06/13/19 6:51 AM
A0613032_190613A1.D	N035599-003B	SAMP	1	06/13/19 6:56 AM
A0613033_190613A1.D	N035599-004B	SAMP	1	06/13/19 7:00 AM
A0613034_190613A1.D	N035599-004B	SAMP	5	06/13/19 7:05 AM
A0613035_190613A1.D	N035639-001A	SAMP	1	06/13/19 7:10 AM
A0613036_190613A1.D	N035640-001B	SAMP	1	06/13/19 7:15 AM
A0613037_190613A1.D	N035640-002B	SAMP	1	06/13/19 7:20 AM
A0613038_190613A1.D	N035640-003B	SAMP	1	06/13/19 7:25 AM
A0613039_190613A1.D	CCV2	CCV	1	06/13/19 7:30 AM
A0613040_190613A1.D	CCB2	CCB	1	06/13/19 7:35 AM
A0613041_190613A1.D	N035640-004B	SAMP	1	06/13/19 7:40 AM
A0613042_190613A1.D	N035640-004B	SAMP	5	06/13/19 7:45 AM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613043_190613A1.D	N035640-005B	SAMP	1	06/13/19 7:50 AM
A0613044_190613A1.D	N035640-006B	SAMP	1	06/13/19 7:55 AM
A0613045_190613A1.D	N035640-007B	SAMP	1	06/13/19 8:00 AM
A0613046_190613A1.D	N035640-007B	SAMP	25	06/13/19 8:05 AM
A0613047_190613A1.D	N035640-008B	SAMP	1	06/13/19 8:10 AM
A0613048_190613A1.D	N035640-008B	SAMP	5	06/13/19 8:15 AM
A0613049_190613A1.D	N035640-008B	SAMP	50	06/13/19 8:20 AM
A0613050_190613A1.D	N035640-009B	SAMP	1	06/13/19 8:25 AM
A0613051_190613A1.D	CCV3	CCV	1	06/13/19 8:30 AM
A0613052_190613A1.D	CCB3	CCB	1	06/13/19 8:35 AM
A0613053_190613A1.D	N035640-009B	SAMP	5	06/13/19 8:40 AM
A0613054_190613A1.D	N035640-010B	SAMP	1	06/13/19 8:45 AM
A0613055_190613A1.D	N035640-010B	SAMP	5	06/13/19 8:49 AM
A0613056_190613A1.D	N035640-011B	SAMP	1	06/13/19 8:54 AM
A0613057_190613A1.D	N035640-011B	SAMP	5	06/13/19 8:59 AM
A0613058_190613A1.D	N035640-011B	SAMP	25	06/13/19 9:04 AM
A0613059_190613A1.D	N035640-012B	SAMP	1	06/13/19 9:09 AM
A0613060_190613A1.D	N035640-012B	SAMP	5	06/13/19 9:14 AM
A0613061_190613A1.D	N035640-015B	SAMP	1	06/13/19 9:19 AM
A0613062_190613A1.D	N035640-015B	SAMP	5	06/13/19 9:24 AM
A0613063_190613A1.D	CCV4	CCV	1	06/13/19 9:29 AM
A0613064_190613A1.D	CCB4	CCB	1	06/13/19 9:34 AM
A0613065_190613A1.D	ICSA2	ICSA	1	06/13/19 9:39 AM
A0613066_190613A1.D	ICSAB2	ICSAB	1	06/13/19 9:44 AM
A0613067_190613A1.D	MB-73996	MBLK	1	06/13/19 9:49 AM
A0613068_190613A1.D	LCS-73996	LCS	1	06/13/19 9:54 AM
A0613069_190613A1.D	N035660-001A	SAMP	1	06/13/19 9:59 AM
A0613070_190613A1.D	N035660-001A	SAMP	5	06/13/19 10:04 AM
A0613071_190613A1.D	N035660-001A-PS	PS	1	06/13/19 10:09 AM
A0613072_190613A1.D	N035660-001A-MS	MS	1	06/13/19 10:14 AM
A0613073_190613A1.D	N035660-001A-MSD	MSD	1	06/13/19 10:19 AM
A0613074_190613A1.D	N035663-001B	SAMP	1	06/13/19 10:23 AM
A0613075_190613A1.D	N035663-002B	SAMP	1	06/13/19 10:28 AM
A0613076_190613A1.D	N035663-002B	SAMP	5	06/13/19 10:33 AM
A0613077.D	CCV5	CCV	1	06/13/19 11:36 AM
A0613078.D	CCB5	CCB	1	06/13/19 11:41 AM
A0613079.D	N035663-003B	SAMP	1	06/13/19 11:47 AM
A0613080.D	N035663-003B	SAMP	5	06/13/19 11:51 AM
A0613081.D	N035663-004B	SAMP	1	06/13/19 11:56 AM
A0613082.D	N035663-005B	SAMP	1	06/13/19 12:01 PM
A0613083.D	N035663-005B	SAMP	5	06/13/19 12:06 PM
A0613084.D	N035663-006B	SAMP	1	06/13/19 12:11 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613085.D	N035663-007B	SAMP	1	06/13/19 12:16 PM
A0613086.D	N035663-008B	SAMP	1	06/13/19 12:21 PM
A0613087.D	N035663-008B	SAMP	5	06/13/19 12:26 PM
A0613088.D	N035663-009B	SAMP	1	06/13/19 12:31 PM
A0613089.D	CCV6	CCV	1	06/13/19 12:36 PM
A0613090.D	CCB6	CCB	1	06/13/19 12:41 PM
A0613091.D	N035663-009B	SAMP	5	06/13/19 12:46 PM
A0613092.D	N035663-004B	SAMP	1	06/13/19 12:51 PM
A0613093.D	N035705-001B	SAMP	1	06/13/19 12:57 PM
A0613094.D	N035705-001B	SAMP	5	06/13/19 1:02 PM
A0613095.D	N035705-002B	SAMP	1	06/13/19 1:07 PM
A0613096.D	N035705-002B	SAMP	5	06/13/19 1:12 PM
A0613097.D	N035705-003B	SAMP	1	06/13/19 1:17 PM
A0613098.D	N035705-003B	SAMP	5	06/13/19 1:22 PM
A0613099.D	N035705-004B	SAMP	1	06/13/19 1:26 PM
A0613100.D	N035705-005B	SAMP	1	06/13/19 1:32 PM
A0613101.D	CCV7	CCV	1	06/13/19 1:41 PM
A0613102.D	CCB7	CCB	1	06/13/19 1:46 PM
A0613103.D	N035705-006B	SAMP	1	06/13/19 1:51 PM
A0613104.D	N035705-006B	SAMP	5	06/13/19 1:56 PM
A0613105.D	N035705-007B	SAMP	1	06/13/19 2:01 PM
A0613106.D	N035705-007B	SAMP	5	06/13/19 2:06 PM
A0613107.D	N035705-008B	SAMP	1	06/13/19 2:11 PM
A0613108.D	N035705-008B	SAMP	5	06/13/19 2:16 PM
A0613109.D	N035705-008B	SAMP	25	06/13/19 2:21 PM
A0613110.D	N035705-009B	SAMP	1	06/13/19 2:26 PM
A0613111.D	N035705-009B	SAMP	5	06/13/19 2:31 PM
A0613112.D	N035705-009B	SAMP	25	06/13/19 2:36 PM
A0613113.D	CCV8	CCV	1	06/13/19 2:40 PM
A0613114.D	CCB8	CCB	1	06/13/19 2:45 PM
A0613115.D	N035705-010B	SAMP	1	06/13/19 2:51 PM
A0613116.D	N035705-001B	SAMP	1	06/13/19 2:55 PM
A0613117.D	N035705-004B	SAMP	1	06/13/19 3:00 PM
A0613118.D	N035705-005B	SAMP	1	06/13/19 3:05 PM
A0613119.D	N035705-004B	SAMP	1	06/13/19 3:10 PM
A0613120.D	MB-74192	MBLK	1	06/13/19 3:15 PM
A0613121.D	LCS-74192	LCS	1	06/13/19 3:20 PM
A0613122.D	N035824-005A	SAMP	1	06/13/19 3:25 PM
A0613123.D	N035824-005A	SAMP	5	06/13/19 3:30 PM
A0613124.D	N035824-005A-PS	PS	1	06/13/19 3:35 PM
A0613125.D	CCV9	CCV	1	06/13/19 3:40 PM
A0613126.D	CCB9	CCB	1	06/13/19 3:45 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613127.D	ICSA3	ICSA	1	06/13/19 3:50 PM
A0613128.D	ICSAB3	ICSAB	1	06/13/19 3:55 PM
A0613129.D	N035824-005A-MS	MS	1	06/13/19 4:00 PM
A0613130.D	N035824-005A-MSD	MSD	1	06/13/19 4:05 PM
A0613131.D	N035956-001A	SAMP	5	06/13/19 4:10 PM
A0613132.D	N035956-001A	SAMP	25	06/13/19 4:15 PM
A0613133.D	N035705-004B	SAMP	1	06/13/19 4:20 PM
A0613134.D	MB-73997	MBLK	1	06/13/19 4:25 PM
A0613135.D	LCS-73997	LCS	1	06/13/19 4:30 PM
A0613136.D	N035705-014B	SAMP	1	06/13/19 4:35 PM
A0613137.D	N035705-014B	SAMP	5	06/13/19 4:40 PM
A0613138.D	N035705-014B	SAMP	50	06/13/19 4:45 PM
A0613139.D	CCV10	CCV	1	06/13/19 4:50 PM
A0613140.D	CCB10	CCB	1	06/13/19 4:55 PM
A0613141.D	N035705-015B	SAMP	1	06/13/19 5:00 PM
A0613142.D	N035705-015B	SAMP	5	06/13/19 5:05 PM
A0613143.D	N035705-015B-PS	PS	1	06/13/19 5:10 PM
A0613144.D	N035705-015B-MS	MS	1	06/13/19 5:15 PM
A0613145.D	N035705-015B-MSD	MSD	1	06/13/19 5:20 PM
A0613146.D	N035705-015B	SAMP	25	06/13/19 5:34 PM
A0613147.D	N035705-015B-PS	PS	5	06/13/19 5:38 PM
A0613148.D	N035705-015B-MS	MS	5	06/13/19 5:43 PM
A0613149.D	N035705-015B-MSD	MSD	5	06/13/19 5:48 PM
A0613150.D	N035705-004B	SAMP	1	06/13/19 5:59 PM
A0613151.D	CCV11	CCV	1	06/13/19 6:12 PM
A0613152.D	CCB11	CCB	1	06/13/19 6:17 PM
A0613153.D	CCV11	CCV	1	06/13/19 6:22 PM
A0613154.D	CCB11	CCB	1	06/13/19 6:27 PM
A0613155.D	N035705-004B	SAMP	1	06/13/19 6:32 PM
A0613156.D	N035705-014B	SAMP	5	06/13/19 6:37 PM
A0613157.D	N035705-015B-MS	MS	5	06/13/19 6:42 PM
A0613158.D	N035712-002B	SAMP	1	06/13/19 6:46 PM
A0613159.D	N035712-004B	SAMP	1	06/13/19 6:51 PM
A0613160.D	N035712-004B	SAMP	5	06/13/19 6:57 PM
A0613161.D	N035705-004B	SAMP	1	06/13/19 7:01 PM
A0613162.D	N035712-006B	SAMP	1	06/13/19 7:06 PM
A0613163.D	N035712-006B	SAMP	5	06/13/19 7:11 PM
A0613164.D	N035712-007B	SAMP	1	06/13/19 7:16 PM
A0613165.D	CCV12	CCV	1	06/13/19 7:21 PM
A0613166.D	CCB12	CCB	1	06/13/19 7:26 PM
A0613167.D	N035712-007B	SAMP	5	06/13/19 7:31 PM
A0613168.D	N035712-008B	SAMP	1	06/13/19 7:36 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613169.D	N035712-008B	SAMP	5	06/13/19 7:41 PM
A0613170.D	N035712-009B	SAMP	1	06/13/19 7:46 PM
A0613171.D	N035712-009B	SAMP	5	06/13/19 7:51 PM
A0613172.D	N035712-009B	SAMP	10	06/13/19 7:56 PM
A0613173.D	N035712-010B	SAMP	1	06/13/19 8:01 PM
A0613174.D	N035712-010B	SAMP	5	06/13/19 8:06 PM
A0613175.D	N035712-011B	SAMP	1	06/13/19 8:11 PM
A0613176.D	N035712-011B	SAMP	5	06/13/19 8:16 PM
A0613177.D	CCV13	CCV	1	06/13/19 8:21 PM
A0613178.D	CCB13	CCB	1	06/13/19 8:26 PM
A0613179.D	ICSA4	ICSA	1	06/13/19 8:31 PM
A0613180.D	ICSAB4	ICSAB	1	06/13/19 8:35 PM
A0613181.D	N035712-012B	SAMP	1	06/13/19 8:40 PM
A0613182.D	N035712-012B	SAMP	5	06/13/19 8:45 PM
A0613183.D	N035712-013B	SAMP	1	06/13/19 8:50 PM
A0613184.D	N035712-013B	SAMP	5	06/13/19 8:55 PM
A0613185.D	N035712-013B	SAMP	10	06/13/19 9:00 PM
A0613186.D	N035712-016B	SAMP	1	06/13/19 9:05 PM
A0613187.D	N035712-017B	SAMP	1	06/13/19 9:11 PM
A0613188.D	N035712-018B	SAMP	1	06/13/19 9:16 PM
A0613189.D	N035712-020B	SAMP	1	06/13/19 9:21 PM
A0613190.D	N035712-016B	SAMP	5	06/13/19 9:26 PM
A0613191.D	CCV14	CCV	1	06/13/19 9:31 PM
A0613192.D	CCB14	CCB	1	06/13/19 9:36 PM
A0613193.D	N035712-017B	SAMP	5	06/13/19 9:41 PM
A0613194.D	N035712-018B	SAMP	5	06/13/19 9:46 PM
A0613195.D	N035712-020B	SAMP	5	06/13/19 9:51 PM
A0613196.D	N035712-010B	SAMP	1	06/13/19 9:55 PM
A0613197.D	N035712-011B	SAMP	1	06/13/19 10:00 PM
A0613198.D	N035712-012B	SAMP	1	06/13/19 10:05 PM
A0613199.D	CCV15	CCV	1	06/13/19 10:10 PM
A0613200.D	CCB15	CCB	1	06/13/19 10:15 PM
A0613201.D	ICSA5	ICSA	1	06/13/19 10:20 PM
A0613202.D	ICSAB5	ICSAB	1	06/13/19 10:25 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/18/2019 6:47:36**
Prep End Date: **5/18/2019 11:00:00**
Reviewed/ Date: NS 6/17/2019
Initials/ Date: for
Prep Batch **73911** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73911	Aqueous		25	☐	0	0	25	1.000		
MB-73911	Aqueous		25	☐	0	0	25	1.000		
N035596-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035599-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035639-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-004B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/18/2019 6:47:36**
Prep End Date: **5/18/2019 11:00:00**
Reviewed/ Date: NS 6/17/2019
Initials/ Date: for

Prep Batch **73911** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035640-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-011B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N035640-015B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 13 Jun 2019 03:50:19 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	189117.00	0.00	
24	Mg	466211.00	0.00	
25	Mg	61234.40	0.00	
26	Mg	70391.80	0.00	
59	Co	588709.00	0.00	
115	In	839911.00	0.00	
206	Pb	222452.00	0.00	
207	Pb	196044.00	0.00	
208	Pb	479118.00	0.00	

RSD (%)

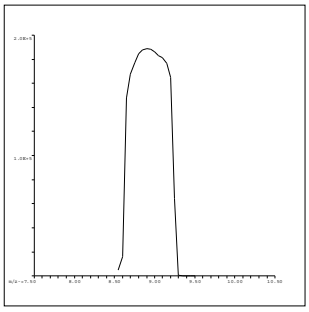
Element		Actual	Required	Flag
9	Be	0.26	5.00	
24	Mg	0.80	5.00	
25	Mg	0.82	5.00	
26	Mg	1.11	5.00	
59	Co	0.66	5.00	
115	In	0.60	5.00	
206	Pb	0.85	5.00	
207	Pb	1.04	5.00	
208	Pb	0.56	5.00	

Ion Ratio

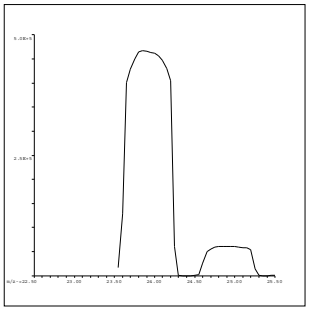
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

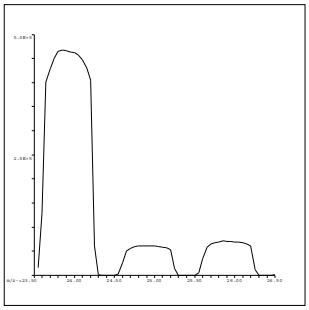
Element	Actual	Required	Flag



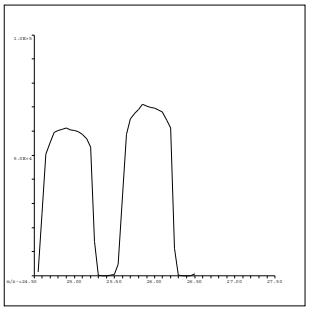
9 Be
Mass Calib.
Actual: 8.90
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



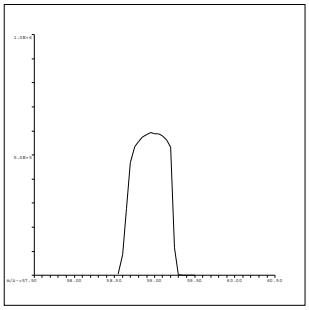
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



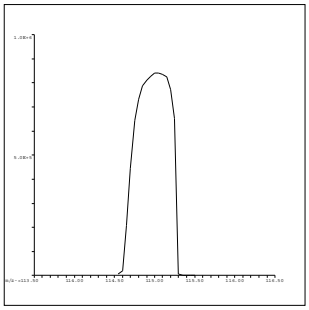
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



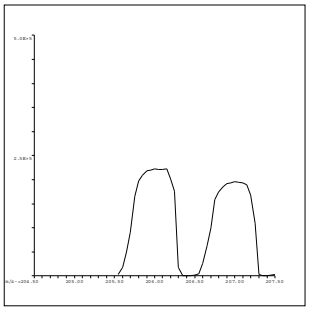
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



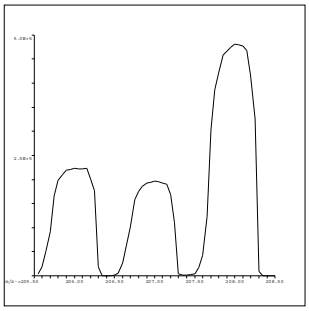
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



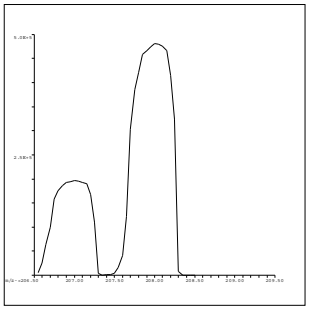
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190613A

Instrument ID: ICPMS-02

Analyte	Data File	A0613002.D	A0613003.D	A0613004.D	A0613005.D	A0613006.D	A0613007.D	A0613008.D	A0613009.D	A0613010.D	
	Acq. Date-Time	06/13/2019 04:25 AM	06/13/2019 04:30 AM	06/13/2019 04:34 AM	06/13/2019 04:39 AM	06/13/2019 04:44 AM	06/13/2019 04:49 AM	06/13/2019 04:54 AM	06/13/2019 04:59 AM	06/13/2019 05:04 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	118299.9		119867.1	119272.4	118909.5	123008	123835.8	123010	120294.7	
55 Mn [2]	CPS	155.5		2913.2	26071.6	51762.2	104092.5	207457.2	511984.7	998890.8	1.0000
52 Cr [2]	CPS	744.3		5335.4	49830.7	97211.2	196338.1	389716.7	966206.2	1968079.5	0.9998
72 Ge (ISTD) [1]	CPS	52885.6		53986.2	54439.8	52967.2	53485.6	53722.5	52414.3	50289.6	
78 Se [1]	CPS	1.1		101.1	1045.6	1865.8	3932.9	7927.8	19292.3	38379.9	0.9999
72 Ge (ISTD) [2]	CPS	84806.3	86959.6	85862.7	85668.5	85550.4	85531.1	86259.6	83976.2	80020	
75 As [2]	CPS	25.8	124.9	575.6	5307.1	10697.8	21470.3	42664.1	106037.5	206119.6	0.9999
103 Rh (ISTD) [2]	CPS	2396812.1		2410984	2394967.6	2359479.3	2385170.2	2326277.7	2269384.6	2185897.5	
95 Mo [2]	CPS	62.2		2590.3	25126.2	50703.3	103222.5	205459.7	512984.2	1006879.5	0.9999

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.869	0.10	10.00	0	98.7	90	110				
Manganese	106.801	0.50	100.0	0	107	90	110				
Molybdenum	9.499	0.50	10.00	0	95.0	90	110				
Selenium	9.930	0.50	10.00	0	99.3	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ZZZZZZ** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.108	0.10	0.1000	0	108	80	120				
Manganese	0.520	0.50	0.5000	0	104	80	120				
Molybdenum	0.497	0.50	0.5000	0	99.4	80	120				
Selenium	0.485	0.50	0.5000	0	97.0	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.375	0.10	20.00	0	96.9	90	110				
Manganese	21.056	0.50	20.00	0	105	90	110				
Molybdenum	19.228	0.50	20.00	0	96.1	90	110				
Selenium	19.147	0.50	20.00	0	95.7	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.530	0.10	20.00	0	97.7	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.199	0.50	20.00	0	106	90	110				
Molybdenum	18.955	0.50	20.00	0	94.8	90	110				
Selenium	18.535	0.50	20.00	0	92.7	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.467	0.10	20.00	0	97.3	90	110				
Manganese	20.869	0.50	20.00	0	104	90	110				
Molybdenum	19.062	0.50	20.00	0	95.3	90	110				
Selenium	19.020	0.50	20.00	0	95.1	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.322	0.10	20.00	0	96.6	90	110				
Manganese	20.803	0.50	20.00	0	104	90	110				
Molybdenum	19.152	0.50	20.00	0	95.8	90	110				
Selenium	20.412	0.50	20.00	0	102	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.387	0.10	20.00	0	96.9	90	110				
Manganese	18.694	0.50	20.00	0	93.5	90	110				
Molybdenum	18.301	0.50	20.00	0	91.5	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.022	0.50	20.00	0	100	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.357	0.10	20.00	0	96.8	90	110				
Manganese	21.167	0.50	20.00	0	106	90	110				
Molybdenum	18.998	0.50	20.00	0	95.0	90	110				
Selenium	19.068	0.50	20.00	0	95.3	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409931**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.981	0.10	20.00	0	94.9	90	110				
Manganese	21.343	0.50	20.00	0	107	90	110				
Molybdenum	18.641	0.50	20.00	0	93.2	90	110				
Selenium	18.994	0.50	20.00	0	95.0	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409943**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.271	0.10	20.00	0	96.4	90	110				
Manganese	21.230	0.50	20.00	0	106	90	110				
Molybdenum	18.548	0.50	20.00	0	92.7	90	110				
Selenium	19.825	0.50	20.00	0	99.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.387	0.10	20.00	0	96.9	90	110				
Manganese	19.045	0.50	20.00	0	95.2	90	110				
Molybdenum	18.771	0.50	20.00	0	93.9	90	110				
Selenium	18.888	0.50	20.00	0	94.4	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.695	1.0	10.00	0	107	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.009	1.0	1.000	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.065	1.0	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.314	1.0	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.342	1.0	20.00	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4** SampType: **CCV** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **134492**
Client ID: **CCV** Batch ID: **R134492** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.027	1.0	20.00	0	100	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **134492**
Client ID: **CCV** Batch ID: **R134492** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.551	1.0	20.00	0	97.8	90	110				

Sample ID **CCV6** SampType: **CCV** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **134492**
Client ID: **CCV** Batch ID: **R134492** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.183	1.0	20.00	0	101	90	110				

Sample ID **CCV7** SampType: **CCV** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **134492**
Client ID: **CCV** Batch ID: **R134492** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.319	1.0	20.00	0	102	90	110				

Sample ID **CCV8** SampType: **CCV** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **134492**
Client ID: **CCV** Batch ID: **R134492** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.292	1.0	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.221	1.0	20.00	0	91.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.216	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409944**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.190	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409816**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.140	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSA**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSAB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.856	0.10	20.00	0	99.3	80	120				
Manganese	17.305	0.50	20.00	0	86.5	80	120				
Molybdenum	20.553	0.50	20.00	0	103	80	120				
Selenium	18.072	0.50	20.00	0	90.4	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSA**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSAB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.436	0.10	20.00	0	97.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSAB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.264	0.50	20.00	0	86.3	80	120				
Molybdenum	20.328	0.50	20.00	0	102	80	120				
Selenium	18.241	0.50	20.00	0	91.2	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSA**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSAB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.471	0.10	20.00	0	97.4	80	120				
Manganese	16.754	0.50	20.00	0	83.8	80	120				
Molybdenum	20.106	0.50	20.00	0	101	80	120				
Selenium	19.121	0.50	20.00	0	95.6	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.378	1.0	20.00	0	96.9	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.742	1.0	20.00	0	98.7	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.542	1.0	20.00	0	92.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	118299.9	118299.9	100	PASS	70-125	84806.3	84806.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	121078	118299.9	102.35	PASS	70-125	86959.6	84806.3	102.54	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	119867.1	118299.9	101.32	PASS	70-125	85862.7	84806.3	101.25	PASS	70-125
Std3-5/50 ppb	ICAL	1	119272.4	118299.9	100.82	PASS	70-125	85668.5	84806.3	101.02	PASS	70-125
Std4-10/100 ppb	ICAL	1	118909.5	118299.9	100.52	PASS	70-125	85550.4	84806.3	100.88	PASS	70-125
Std5-20/200 ppb	ICAL	1	123008	118299.9	103.98	PASS	70-125	85531.1	84806.3	100.85	PASS	70-125
Std6-40/400 ppb	ICAL	1	123835.8	118299.9	104.68	PASS	70-125	86259.6	84806.3	101.71	PASS	70-125
Std7-100/1000 ppb	ICAL	1	123010	118299.9	103.98	PASS	70-125	83976.2	84806.3	99.021	PASS	70-125
Std8-200/2000 ppb	ICAL	1	120294.7	118299.9	101.69	PASS	70-125	80020	84806.3	94.36	PASS	70-125
ICV	ICV	1	107067.5	118299.9	90.51	PASS	70-125	79175	84806.3	93.36	PASS	70-125
ICB	ICB	1	113385.9	118299.9	95.85	PASS	70-125	83289.3	84806.3	98.21	PASS	70-125
LLICV	CCV1	1	114048.8	118299.9	96.41	PASS	70-125	84285.8	84806.3	99.39	PASS	70-125
ICSA1	ICSA	1	116558.7	118299.9	98.53	PASS	70-125	82217.4	84806.3	96.95	PASS	70-125
ICSAB1	ICSAB	1	121151.6	118299.9	102.41	PASS	70-125	83592	84806.3	98.57	PASS	70-125
LLICV	CCV1	1	130218.2	118299.9	110.08	PASS	70-125	93292	84806.3	110.01	PASS	70-125
MB-73911	MBLK	1	122803	118299.9	103.81	PASS	70-125	88624.1	84806.3	104.5	PASS	70-125
LCS-73911	LCS	1	118610.7	118299.9	100.26	PASS	70-125	85998.8	84806.3	101.41	PASS	70-125
N035596-001A	SAMP	1	129228.9	118299.9	109.24	PASS	70-125	80810	84806.3	95.29	PASS	70-125
N035599-001B	SAMP	1	129629.1	118299.9	109.58	PASS	70-125	85962.8	84806.3	101.36	PASS	70-125
N035599-001B	SAMP	5	132508	118299.9	112.01	PASS	70-125	93389.5	84806.3	110.12	PASS	70-125
N035599-001B-PS	PS	1	136608.1	118299.9	115.48	PASS	70-125	89831	84806.3	105.92	PASS	70-125
N035599-001B-MS	MS	1	132317.7	118299.9	111.85	PASS	70-125	87788.5	84806.3	103.52	PASS	70-125
N035599-001B-MSD	MSD	1	133933.8	118299.9	113.22	PASS	70-125	88407.4	84806.3	104.25	PASS	70-125
N035599-001B	SAMP	25	134250.1	118299.9	113.48	PASS	70-125	96102.4	84806.3	113.32	PASS	70-125
N035599-001B-PS	PS	5	134502.4	118299.9	113.7	PASS	70-125	93495.3	84806.3	110.25	PASS	70-125
CCV1	CCV	1	131653.7	118299.9	111.29	PASS	70-125	93444.8	84806.3	110.19	PASS	70-125
CCB1	CCB	1	124611.9	118299.9	105.34	PASS	70-125	91023.7	84806.3	107.33	PASS	70-125
N035599-001B-MS	MS	5	110270.9	118299.9	93.21	PASS	70-125	77440.8	84806.3	91.31	PASS	70-125
N035599-001B-MSD	MSD	5	112945.4	118299.9	95.47	PASS	70-125	81073	84806.3	95.6	PASS	70-125
N035599-002B	SAMP	1	120650	118299.9	101.99	PASS	70-125	80226.9	84806.3	94.6	PASS	70-125
N035599-003B	SAMP	1	127119.3	118299.9	107.46	PASS	70-125	84003.3	84806.3	99.053	PASS	70-125
N035599-004B	SAMP	1	116808	118299.9	98.74	PASS	70-125	69050.2	84806.3	81.42	PASS	70-125
N035599-004B	SAMP	5	129504.2	118299.9	109.47	PASS	70-125	88041.2	84806.3	103.81	PASS	70-125
N035639-001A	SAMP	1	127335.8	118299.9	107.64	PASS	70-125	77880.6	84806.3	91.83	PASS	70-125
N035640-001B	SAMP	1	130446.9	118299.9	110.27	PASS	70-125	83586.6	84806.3	98.56	PASS	70-125
N035640-002B	SAMP	1	134541.2	118299.9	113.73	PASS	70-125	85601.2	84806.3	100.94	PASS	70-125
N035640-003B	SAMP	1	122851.2	118299.9	103.85	PASS	70-125	75823.5	84806.3	89.41	PASS	70-125
CCV2	CCV	1	137138.8	118299.9	115.92	PASS	70-125	98271.7	84806.3	115.88	PASS	70-125
CCB2	CCB	1	133901.7	118299.9	113.19	PASS	70-125	97139.8	84806.3	114.54	PASS	70-125
N035640-004B	SAMP	1	115123.1	118299.9	97.31	PASS	70-125	69112.6	84806.3	81.49	PASS	70-125
N035640-004B	SAMP	5	128910.8	118299.9	108.97	PASS	70-125	88054.3	84806.3	103.83	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035640-005B	SAMP	1	124907.1	118299.9	105.59	PASS	70-125	75970.1	84806.3	89.58	PASS	70-125
N035640-006B	SAMP	1	137700.3	118299.9	116.4	PASS	70-125	90676.2	84806.3	106.92	PASS	70-125
N035640-007B	SAMP	1	132267.8	118299.9	111.81	PASS	70-125	85943.2	84806.3	101.34	PASS	70-125
N035640-007B	SAMP	25	132884.3	118299.9	112.33	PASS	70-125	97833.2	84806.3	115.36	PASS	70-125
N035640-008B	SAMP	1	117616.1	118299.9	99.42	PASS	70-125	70618.8	84806.3	83.27	PASS	70-125
N035640-008B	SAMP	5	129391.8	118299.9	109.38	PASS	70-125	88396.5	84806.3	104.23	PASS	70-125
N035640-008B	SAMP	50	132899.4	118299.9	112.34	PASS	70-125	97920.1	84806.3	115.46	PASS	70-125
N035640-009B	SAMP	1	131365	118299.9	111.04	PASS	70-125	86819.7	84806.3	102.37	PASS	70-125
CCV3	CCV	1	137592.8	118299.9	116.31	PASS	70-125	98647.8	84806.3	116.32	PASS	70-125
CCB3	CCB	1	130525.4	118299.9	110.33	PASS	70-125	96350.6	84806.3	113.61	PASS	70-125
N035640-009B	SAMP	5	127662.8	118299.9	107.91	PASS	70-125	91583.7	84806.3	107.99	PASS	70-125
N035640-010B	SAMP	1	128039.5	118299.9	108.23	PASS	70-125	85103.6	84806.3	100.35	PASS	70-125
N035640-010B	SAMP	5	126437.4	118299.9	106.88	PASS	70-125	91796.1	84806.3	108.24	PASS	70-125
N035640-011B	SAMP	1	128651	118299.9	108.75	PASS	70-125	79999.8	84806.3	94.33	PASS	70-125
N035640-011B	SAMP	5	125893.4	118299.9	106.42	PASS	70-125	89572.9	84806.3	105.62	PASS	70-125
N035640-011B	SAMP	25	127374.2	118299.9	107.67	PASS	70-125	94516.8	84806.3	111.45	PASS	70-125
N035640-012B	SAMP	1	116054.8	118299.9	98.1	PASS	70-125	71059.9	84806.3	83.79	PASS	70-125
N035640-012B	SAMP	5	129984.9	118299.9	109.88	PASS	70-125	89945.6	84806.3	106.06	PASS	70-125
N035640-015B	SAMP	1	135816.7	118299.9	114.81	PASS	70-125	88836.4	84806.3	104.75	PASS	70-125
N035640-015B	SAMP	5	133620.2	118299.9	112.95	PASS	70-125	95841.1	84806.3	113.01	PASS	70-125
CCV4	CCV	1	138359.3	118299.9	116.96	PASS	70-125	99023.2	84806.3	116.76	PASS	70-125
CCB4	CCB	1	129876.9	118299.9	109.79	PASS	70-125	96572.2	84806.3	113.87	PASS	70-125
ICSA2	ICSA	1	127416.6	118299.9	107.71	PASS	70-125	90619.8	84806.3	106.86	PASS	70-125
ICSAB2	ICSAB	1	129109.7	118299.9	109.14	PASS	70-125	91644.4	84806.3	108.06	PASS	70-125
CCV5	CCV	1	120169.2	118299.9	101.58	PASS	70-125	79871.9	84806.3	94.18	PASS	70-125
CCB5	CCB	1	112973.5	118299.9	95.5	PASS	70-125	81724.4	84806.3	96.37	PASS	70-125
CCV6	CCV	1	130365.4	118299.9	110.2	PASS	70-125	95358.3	84806.3	112.44	PASS	70-125
CCB6	CCB	1	128516.5	118299.9	108.64	PASS	70-125	93763.2	84806.3	110.56	PASS	70-125
CCV7	CCV	1	129951.8	118299.9	109.85	PASS	70-125	97687	84806.3	115.19	PASS	70-125
CCB7	CCB	1	121923.9	118299.9	103.06	PASS	70-125	92957.1	84806.3	109.61	PASS	70-125
CCV8	CCV	1	123209.4	118299.9	104.15	PASS	70-125	91092.5	84806.3	107.41	PASS	70-125
CCB8	CCB	1	115201.6	118299.9	97.38	PASS	70-125	86809.3	84806.3	102.36	PASS	70-125
CCV9	CCV	1	132929.8	118299.9	112.37	PASS	70-125	89958	84806.3	106.08	PASS	70-125
CCB9	CCB	1	122515.4	118299.9	103.56	PASS	70-125	86943.7	84806.3	102.52	PASS	70-125
ICSA3	ICSA	1	120646.9	118299.9	101.98	PASS	70-125	82979.6	84806.3	97.85	PASS	70-125
ICSAB3	ICSAB	1	122250.3	118299.9	103.34	PASS	70-125	84116.8	84806.3	99.19	PASS	70-125
CCV10	CCV	1	126311.1	118299.9	106.77	PASS	70-125	91611	84806.3	108.02	PASS	70-125
CCB10	CCB	1	122094.1	118299.9	103.21	PASS	70-125	89692.6	84806.3	105.76	PASS	70-125
CCV11	CCV	1	147709.8	118299.9	124.86	PASS	70-125	94478.5	84806.3	111.41	PASS	70-125
CCB11	CCB	1	143820.2	118299.9	121.57	PASS	70-125	96776.4	84806.3	114.11	PASS	70-125
CCV11	CCV	1	146814.8	118299.9	124.1	PASS	70-125	97466.2	84806.3	114.93	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB11	CCB	1	137425.9	118299.9	116.17	PASS	70-125	94192.4	84806.3	111.07	PASS	70-125
CCV12	CCV	1	149318.2	118299.9	126.22	NR!	70-125	98987.9	84806.3	116.72	PASS	70-125
CCB12	CCB	1	139329	118299.9	117.78	PASS	70-125	94352	84806.3	111.26	PASS	70-125
CCV13	CCV	1	155808.6	118299.9	131.71	NR!	70-125	104956.3	84806.3	123.76	PASS	70-125
CCB13	CCB	1	146712.9	118299.9	124.02	PASS	70-125	100434	84806.3	118.43	PASS	70-125
ICSA4	ICSA	1	147712.9	118299.9	124.86	PASS	70-125	98365.8	84806.3	115.99	PASS	70-125
ICSAB4	ICSAB	1	150301.7	118299.9	127.05	NR!	70-125	98183.3	84806.3	115.77	PASS	70-125
CCV14	CCV	1	140471.2	118299.9	118.74	PASS	70-125	96391.8	84806.3	113.66	PASS	70-125
CCB14	CCB	1	141379.3	118299.9	119.51	PASS	70-125	98448	84806.3	116.09	PASS	70-125
CCV15	CCV	1	144515.8	118299.9	122.16	PASS	70-125	100360.5	84806.3	118.34	PASS	70-125
CCB15	CCB	1	144951.9	118299.9	122.53	PASS	70-125	102142.4	84806.3	120.44	PASS	70-125
ICSA5	ICSA	1	140709.1	118299.9	118.94	PASS	70-125	95807.8	84806.3	112.97	PASS	70-125
ICSAB5	ICSAB	1	141283.8	118299.9	119.43	PASS	70-125	93986.6	84806.3	110.83	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	52885.6	52885.6	100	PASS	70-125	2396812.1	2396812.1	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	54733.9	52885.6	103.49	PASS	70-125	2447111.2	2396812.1	102.1	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	53986.2	52885.6	102.08	PASS	70-125	2410984	2396812.1	100.59	PASS	70-125
Std3-5/50 ppb	ICAL	1	54439.8	52885.6	102.94	PASS	70-125	2394967.6	2396812.1	99.92	PASS	70-125
Std4-10/100 ppb	ICAL	1	52967.2	52885.6	100.15	PASS	70-125	2359479.3	2396812.1	98.44	PASS	70-125
Std5-20/200 ppb	ICAL	1	53485.6	52885.6	101.13	PASS	70-125	2385170.2	2396812.1	99.51	PASS	70-125
Std6-40/400 ppb	ICAL	1	53722.5	52885.6	101.58	PASS	70-125	2326277.7	2396812.1	97.057	PASS	70-125
Std7-100/1000 ppb	ICAL	1	52414.3	52885.6	99.11	PASS	70-125	2269384.6	2396812.1	94.68	PASS	70-125
Std8-200/2000 ppb	ICAL	1	50289.6	52885.6	95.091	PASS	70-125	2185897.5	2396812.1	91.2	PASS	70-125
ICV	ICV	1	47132.7	52885.6	89.12	PASS	70-125	2267150	2396812.1	94.59	PASS	70-125
ICB	ICB	1	53234.5	52885.6	100.66	PASS	70-125	2304559.4	2396812.1	96.15	PASS	70-125
LLICV	CCV1	1	52815.6	52885.6	99.87	PASS	70-125	2346500.7	2396812.1	97.9	PASS	70-125
ICSA1	ICSA	1	50145.9	52885.6	94.82	PASS	70-125	2124323.6	2396812.1	88.63	PASS	70-125
ICSAB1	ICSAB	1	51617.3	52885.6	97.6	PASS	70-125	2120252	2396812.1	88.46	PASS	70-125
LLICV	CCV1	1	60802.1	52885.6	114.97	PASS	70-125	2538827	2396812.1	105.93	PASS	70-125
MB-73911	MBLK	1	57363	52885.6	108.47	PASS	70-125	2427728	2396812.1	101.29	PASS	70-125
LCS-73911	LCS	1	55630.4	52885.6	105.19	PASS	70-125	2375689.1	2396812.1	99.12	PASS	70-125
N035596-001A	SAMP	1	46062.9	52885.6	87.099	PASS	70-125	1898444.4	2396812.1	79.21	PASS	70-125
N035599-001B	SAMP	1	52967.9	52885.6	100.16	PASS	70-125	2122215.4	2396812.1	88.54	PASS	70-125
N035599-001B	SAMP	5	55688.1	52885.6	105.3	PASS	70-125	2354977	2396812.1	98.25	PASS	70-125
N035599-001B-PS	PS	1	53810.7	52885.6	101.75	PASS	70-125	2203113.8	2396812.1	91.92	PASS	70-125
N035599-001B-MS	MS	1	52371.8	52885.6	99.028	PASS	70-125	2146628.2	2396812.1	89.56	PASS	70-125
N035599-001B-MSD	MSD	1	53029.3	52885.6	100.27	PASS	70-125	2172454.2	2396812.1	90.64	PASS	70-125
N035599-001B	SAMP	25	58201.6	52885.6	110.05	PASS	70-125	2489793.5	2396812.1	103.88	PASS	70-125
N035599-001B-PS	PS	5	56803.3	52885.6	107.41	PASS	70-125	2354924.4	2396812.1	98.25	PASS	70-125
CCV1	CCV	1	56614.7	52885.6	107.05	PASS	70-125	2501641.2	2396812.1	104.37	PASS	70-125
CCB1	CCB	1	56838.9	52885.6	107.48	PASS	70-125	2491903.6	2396812.1	103.97	PASS	70-125
N035599-001B-MS	MS	5	47275.3	52885.6	89.39	PASS	70-125	2119773.6	2396812.1	88.44	PASS	70-125
N035599-001B-MSD	MSD	5	50851.6	52885.6	96.15	PASS	70-125	2166804.5	2396812.1	90.4	PASS	70-125
N035599-002B	SAMP	1	46839.5	52885.6	88.57	PASS	70-125	2028345	2396812.1	84.63	PASS	70-125
N035599-003B	SAMP	1	49441.5	52885.6	93.49	PASS	70-125	2102642	2396812.1	87.73	PASS	70-125
N035599-004B	SAMP	1	37099.8	52885.6	70.15	PASS	70-125	1595051.6	2396812.1	66.55	NR!	70-125
N035599-004B	SAMP	5	53970.6	52885.6	102.05	PASS	70-125	2177965.6	2396812.1	90.87	PASS	70-125
N035639-001A	SAMP	1	46845.1	52885.6	88.58	PASS	70-125	1882689.1	2396812.1	78.55	PASS	70-125
N035640-001B	SAMP	1	51541.2	52885.6	97.46	PASS	70-125	2052584.7	2396812.1	85.64	PASS	70-125
N035640-002B	SAMP	1	52253.6	52885.6	98.8	PASS	70-125	2111351.5	2396812.1	88.09	PASS	70-125
N035640-003B	SAMP	1	41912.8	52885.6	79.25	PASS	70-125	1763968.5	2396812.1	73.6	PASS	70-125
CCV2	CCV	1	61854	52885.6	116.96	PASS	70-125	2637526.6	2396812.1	110.04	PASS	70-125
CCB2	CCB	1	61945.2	52885.6	117.13	PASS	70-125	2575075.8	2396812.1	107.44	PASS	70-125
N035640-004B	SAMP	1	36825.8	52885.6	69.63	NR!	70-125	1577226.4	2396812.1	65.81	NR!	70-125
N035640-004B	SAMP	5	52353.9	52885.6	98.99	PASS	70-125	2190613.8	2396812.1	91.4	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035640-005B	SAMP	1	41513.8	52885.6	78.5	PASS	70-125	1744606.4	2396812.1	72.79	PASS	70-125
N035640-006B	SAMP	1	54499.6	52885.6	103.05	PASS	70-125	2233980.1	2396812.1	93.21	PASS	70-125
N035640-007B	SAMP	1	51229.5	52885.6	96.87	PASS	70-125	2051722.4	2396812.1	85.6	PASS	70-125
N035640-007B	SAMP	25	60769.6	52885.6	114.91	PASS	70-125	2531409.8	2396812.1	105.62	PASS	70-125
N035640-008B	SAMP	1	37553.2	52885.6	71.008	PASS	70-125	1602531.7	2396812.1	66.86	NR!	70-125
N035640-008B	SAMP	5	51215.9	52885.6	96.84	PASS	70-125	2191075.9	2396812.1	91.42	PASS	70-125
N035640-008B	SAMP	50	59035.8	52885.6	111.63	PASS	70-125	2498395.9	2396812.1	104.24	PASS	70-125
N035640-009B	SAMP	1	50641.9	52885.6	95.76	PASS	70-125	2119941.5	2396812.1	88.45	PASS	70-125
CCV3	CCV	1	60233.1	52885.6	113.89	PASS	70-125	2626607.6	2396812.1	109.59	PASS	70-125
CCB3	CCB	1	58767	52885.6	111.12	PASS	70-125	2580943.9	2396812.1	107.68	PASS	70-125
N035640-009B	SAMP	5	54245.8	52885.6	102.57	PASS	70-125	2330514.3	2396812.1	97.23	PASS	70-125
N035640-010B	SAMP	1	48200.3	52885.6	91.14	PASS	70-125	2100926.8	2396812.1	87.66	PASS	70-125
N035640-010B	SAMP	5	54260.2	52885.6	102.6	PASS	70-125	2327768.3	2396812.1	97.12	PASS	70-125
N035640-011B	SAMP	1	43543.7	52885.6	82.34	PASS	70-125	1940856.6	2396812.1	80.98	PASS	70-125
N035640-011B	SAMP	5	51239.2	52885.6	96.89	PASS	70-125	2261694.1	2396812.1	94.36	PASS	70-125
N035640-011B	SAMP	25	54112	52885.6	102.32	PASS	70-125	2413690.9	2396812.1	100.7	PASS	70-125
N035640-012B	SAMP	1	35067.6	52885.6	66.31	NR!	70-125	1639626	2396812.1	68.41	NR!	70-125
N035640-012B	SAMP	5	51318.4	52885.6	97.037	PASS	70-125	2209746.8	2396812.1	92.2	PASS	70-125
N035640-015B	SAMP	1	50648.8	52885.6	95.77	PASS	70-125	2160119.5	2396812.1	90.12	PASS	70-125
N035640-015B	SAMP	5	56141.2	52885.6	106.16	PASS	70-125	2384778.8	2396812.1	99.5	PASS	70-125
CCV4	CCV	1	57448.9	52885.6	108.63	PASS	70-125	2624575.8	2396812.1	109.5	PASS	70-125
CCB4	CCB	1	55462	52885.6	104.87	PASS	70-125	2559089.3	2396812.1	106.77	PASS	70-125
ICSA2	ICSA	1	51264.8	52885.6	96.94	PASS	70-125	2289759.1	2396812.1	95.53	PASS	70-125
ICSAB2	ICSAB	1	51946.1	52885.6	98.22	PASS	70-125	2277901	2396812.1	95.039	PASS	70-125
CCV5	CCV	1	42360.7	52885.6	80.099	PASS	70-125	2248826.9	2396812.1	93.83	PASS	70-125
CCB5	CCB	1	47151.4	52885.6	89.16	PASS	70-125	2266355	2396812.1	94.56	PASS	70-125
CCV6	CCV	1	58321.1	52885.6	110.28	PASS	70-125	2543894.4	2396812.1	106.14	PASS	70-125
CCB6	CCB	1	57574.2	52885.6	108.87	PASS	70-125	2511700.8	2396812.1	104.79	PASS	70-125
CCV7	CCV	1	59262.3	52885.6	112.06	PASS	70-125	2562067.6	2396812.1	106.89	PASS	70-125
CCB7	CCB	1	56050.8	52885.6	105.98	PASS	70-125	2447922.6	2396812.1	102.13	PASS	70-125
CCV8	CCV	1	54644.7	52885.6	103.33	PASS	70-125	2449837.7	2396812.1	102.21	PASS	70-125
CCB8	CCB	1	52684.1	52885.6	99.62	PASS	70-125	2339360.9	2396812.1	97.6	PASS	70-125
CCV9	CCV	1	55313.8	52885.6	104.59	PASS	70-125	2436501.1	2396812.1	101.66	PASS	70-125
CCB9	CCB	1	52765.6	52885.6	99.77	PASS	70-125	2351258.9	2396812.1	98.099	PASS	70-125
ICSA3	ICSA	1	50052.5	52885.6	94.64	PASS	70-125	2146100.3	2396812.1	89.54	PASS	70-125
ICSAB3	ICSAB	1	49589.7	52885.6	93.77	PASS	70-125	2140563.6	2396812.1	89.31	PASS	70-125
CCV10	CCV	1	54610.9	52885.6	103.26	PASS	70-125	2449064	2396812.1	102.18	PASS	70-125
CCB10	CCB	1	53794.4	52885.6	101.72	PASS	70-125	2382349.3	2396812.1	99.4	PASS	70-125
CCV11	CCV	1	56431.9	52885.6	106.71	PASS	70-125	2622300.7	2396812.1	109.41	PASS	70-125
CCB11	CCB	1	61021.5	52885.6	115.38	PASS	70-125	2637261.4	2396812.1	110.03	PASS	70-125
CCV11	CCV	1	60712.3	52885.6	114.8	PASS	70-125	2651908.5	2396812.1	110.64	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB11	CCB	1	56182.2	52885.6	106.23	PASS	70-125	2573807.2	2396812.1	107.38	PASS	70-125
CCV12	CCV	1	62220.4	52885.6	117.65	PASS	70-125	2667290.8	2396812.1	111.28	PASS	70-125
CCB12	CCB	1	59512.9	52885.6	112.53	PASS	70-125	2577460.6	2396812.1	107.54	PASS	70-125
CCV13	CCV	1	67499	52885.6	127.63	NR!	70-125	2774619.7	2396812.1	115.76	PASS	70-125
CCB13	CCB	1	65250.1	52885.6	123.38	PASS	70-125	2676741.9	2396812.1	111.68	PASS	70-125
ICSA4	ICSA	1	60682.7	52885.6	114.74	PASS	70-125	2461665.8	2396812.1	102.71	PASS	70-125
ICSAB4	ICSAB	1	61276.8	52885.6	115.87	PASS	70-125	2433637.9	2396812.1	101.54	PASS	70-125
CCV14	CCV	1	64170	52885.6	121.34	PASS	70-125	2588998.9	2396812.1	108.02	PASS	70-125
CCB14	CCB	1	67120.6	52885.6	126.92	NR!	70-125	2663601.6	2396812.1	111.13	PASS	70-125
CCV15	CCV	1	67642	52885.6	127.9	NR!	70-125	2656766.3	2396812.1	110.85	PASS	70-125
CCB15	CCB	1	69949.6	52885.6	132.27	NR!	70-125	2705951	2396812.1	112.9	PASS	70-125
ICSA5	ICSA	1	63117.1	52885.6	119.35	PASS	70-125	2395525.5	2396812.1	99.95	PASS	70-125
ICSAB5	ICSAB	1	62251.7	52885.6	117.71	PASS	70-125	2357064.5	2396812.1	98.34	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035640
Test Method: EPA 6020
Analysis Date: 6/13/2019

Matrix: Groundwater
Batch No.: 73911

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035599-001B DT 25x	Chromium	Cr	µg/L	256.2871	PASS	250.8685	2.16%	10
N035599-001B DT 5x	Arsenic	As	µg/L	0.9292635	NA	0.9424185	1.40%	10
N035599-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10
N035599-001B DT 5x	Molybdenum	Mo	µg/L	7.7366	NA	7.568782	2.22%	10
N035599-001B DT 5x	Selenium	Se	µg/L	3.75276	NA	3.811676	1.55%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035599-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ZZZZZZ** Batch ID: **73911** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/13/2019** SeqNo: **3409852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.110	0.10	10.00	0.9424	102	80	120				
Manganese	93.704	0.50	100.0	0	93.7	80	120				
Molybdenum	18.410	0.50	10.00	7.569	108	80	120				
Selenium	13.183	0.50	10.00	3.812	93.7	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035640
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N035599-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID:	**ZZZZZZ**	Batch ID: **73911**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	250.406	5.0	10.00	250.9	-4.62	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

June 17, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035663

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 17, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburcano for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Since the actual result of total dissolved chromium (20.9 ug/L) differs with hexavalent chromium (17.5 ug/L) by no more than 20% for sample N035663-005 (MW-38D-Q219), reanalysis of the sample was not necessary.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for samples N035663-005, -008 and -009 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Since the actual result of total dissolved chromium (20.9 ug/L) differs with hexavalent chromium (17.5 ug/L) by no more than 20% for sample N035663-005 (MW-38D-Q219), reanalysis of the sample was not necessary.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035663
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035663-001A	MW-09-Q219	Groundwater	5/17/2019 10:10:00 AM	5/17/2019	6/17/2019
N035663-001B	MW-09-Q219	Groundwater	5/17/2019 10:10:00 AM	5/17/2019	6/17/2019
N035663-001C	MW-09-Q219	Groundwater	5/17/2019 10:10:00 AM	5/17/2019	6/17/2019
N035663-001D	MW-09-Q219	Groundwater	5/17/2019 10:10:00 AM	5/17/2019	6/17/2019
N035663-002A	MW-10-Q219	Groundwater	5/17/2019 8:53:00 AM	5/17/2019	6/17/2019
N035663-002B	MW-10-Q219	Groundwater	5/17/2019 8:53:00 AM	5/17/2019	6/17/2019
N035663-002C	MW-10-Q219	Groundwater	5/17/2019 8:53:00 AM	5/17/2019	6/17/2019
N035663-002D	MW-10-Q219	Groundwater	5/17/2019 8:53:00 AM	5/17/2019	6/17/2019
N035663-003A	MW-901-Q219	Groundwater	5/17/2019 9:03:00 AM	5/17/2019	6/17/2019
N035663-003B	MW-901-Q219	Groundwater	5/17/2019 9:03:00 AM	5/17/2019	6/17/2019
N035663-003C	MW-901-Q219	Groundwater	5/17/2019 9:03:00 AM	5/17/2019	6/17/2019
N035663-003D	MW-901-Q219	Groundwater	5/17/2019 9:03:00 AM	5/17/2019	6/17/2019
N035663-004A	MW-11-Q219	Groundwater	5/17/2019 10:57:00 AM	5/17/2019	6/17/2019
N035663-004B	MW-11-Q219	Groundwater	5/17/2019 10:57:00 AM	5/17/2019	6/17/2019
N035663-004C	MW-11-Q219	Groundwater	5/17/2019 10:57:00 AM	5/17/2019	6/17/2019
N035663-004D	MW-11-Q219	Groundwater	5/17/2019 10:57:00 AM	5/17/2019	6/17/2019
N035663-005A	MW-38D-Q219	Groundwater	5/17/2019 9:17:00 AM	5/17/2019	6/17/2019
N035663-005B	MW-38D-Q219	Groundwater	5/17/2019 9:17:00 AM	5/17/2019	6/17/2019
N035663-005C	MW-38D-Q219	Groundwater	5/17/2019 9:17:00 AM	5/17/2019	6/17/2019
N035663-005D	MW-38D-Q219	Groundwater	5/17/2019 9:17:00 AM	5/17/2019	6/17/2019
N035663-006A	MW-38S-Q219	Groundwater	5/17/2019 8:34:00 AM	5/17/2019	6/17/2019
N035663-006B	MW-38S-Q219	Groundwater	5/17/2019 8:34:00 AM	5/17/2019	6/17/2019
N035663-006C	MW-38S-Q219	Groundwater	5/17/2019 8:34:00 AM	5/17/2019	6/17/2019
N035663-006D	MW-38S-Q219	Groundwater	5/17/2019 8:34:00 AM	5/17/2019	6/17/2019
N035663-007A	MW-24A-Q219	Groundwater	5/17/2019 10:21:00 AM	5/17/2019	6/17/2019
N035663-007B	MW-24A-Q219	Groundwater	5/17/2019 10:21:00 AM	5/17/2019	6/17/2019
N035663-007C	MW-24A-Q219	Groundwater	5/17/2019 10:21:00 AM	5/17/2019	6/17/2019
N035663-007D	MW-24A-Q219	Groundwater	5/17/2019 10:21:00 AM	5/17/2019	6/17/2019
N035663-008A	MW-24B-Q219	Groundwater	5/17/2019 10:59:00 AM	5/17/2019	6/17/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035663
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035663-008B	MW-24B-Q219	Groundwater	5/17/2019 10:59:00 AM	5/17/2019	6/17/2019
N035663-008C	MW-24B-Q219	Groundwater	5/17/2019 10:59:00 AM	5/17/2019	6/17/2019
N035663-008D	MW-24B-Q219	Groundwater	5/17/2019 10:59:00 AM	5/17/2019	6/17/2019
N035663-009A	MW-903-Q219	Groundwater	5/17/2019 11:09:00 AM	5/17/2019	6/17/2019
N035663-009B	MW-903-Q219	Groundwater	5/17/2019 11:09:00 AM	5/17/2019	6/17/2019
N035663-009C	MW-903-Q219	Groundwater	5/17/2019 11:09:00 AM	5/17/2019	6/17/2019
N035663-009D	MW-903-Q219	Groundwater	5/17/2019 11:09:00 AM	5/17/2019	6/17/2019
N035663-010A	MW-713-Q219	Groundwater	5/17/2019 11:15:00 AM	5/17/2019	6/17/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	3200	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:53:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	3100	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:03:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	3100	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:57:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	2300	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38D-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	22000	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	1700	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24A-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:21:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	1600	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24B-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 11:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035663-001DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133991**
Client ID: **ZZZZZZ** Batch ID: **R133991** TestNo: **EPA 120.1** Analysis Date: **5/18/2019** SeqNo: **3389074**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3220.000	0.10						3210	0.311	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A**	QC Batch: **R134014**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	150	0.66	4.0		µg/L	20	5/20/2019 02:02 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	150	0.13	1.0		µg/L	1	6/13/2019 10:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:53:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A**	QC Batch: **R134014**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	180	0.66	4.0		µg/L	20	5/20/2019 02:11 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	180	0.65	5.0		µg/L	5	6/13/2019 10:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:03:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A**	QC Batch: **R134014**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	180	0.66	4.0		µg/L	20	5/20/2019 02:21 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	180	0.65	5.0		µg/L	5	6/13/2019 11:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:57:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A** QC Batch: **R134014**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	51	0.33	2.0		µg/L	10	5/20/2019 02:49 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	49	0.13	1.0		µg/L	1	6/13/2019 11:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38D-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A** QC Batch: **R134014**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	21	0.17	1.0		µg/L	5	5/20/2019 02:59 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	17	0.13	1.0		µg/L	1	6/13/2019 12:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A**	QC Batch: **R134014**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	6.0	0.033	0.20		µg/L	1	5/20/2019 03:08 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	5.7	0.13	1.0		µg/L	1	6/13/2019 12:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24A-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:21:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A**	QC Batch: **R134014**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/20/2019 03:18 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/13/2019 12:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24B-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A** QC Batch: **R134014**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	86	0.33	2.0		µg/L	10	5/20/2019 05:11 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	73	0.13	1.0		µg/L	1	6/13/2019 12:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 11:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A** QC Batch: **R134014**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	84	0.33	2.0		µg/L	10	5/20/2019 05:30 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	73	0.13	1.0		µg/L	1	6/13/2019 12:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-713-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 11:15:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A**	QC Batch: **R134014**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/20/2019 01:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R134014**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **PBW**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R134014**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **LCSW**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390131**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.169	0.20	5.000	0	103	90	110				

Sample ID: **N035659-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **ZZZZZZ**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.083	0.20	1.000	0	108	90	110				

Sample ID: **N035661-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **ZZZZZZ**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390135**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	133.720	4.0						134.9	0.893	20	

Sample ID: **N035664-001BMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **ZZZZZZ**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390137**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	159.451	2.0	50.00	109.1	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035664-001BMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3390138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	158.378	2.0	50.00	109.1	98.5	90	110	159.5	0.675	20	

Sample ID: **N035661-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3390141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	231.604	4.0	100.0	134.9	96.7	90	110				

Sample ID: **N035660-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3390143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.984	0.20	1.000	0	98.4	90	110				

Sample ID: **N035662-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3390145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.016	0.20	1.000	0	102	90	110				

Sample ID: **N035663-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3390147**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.018	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035663-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	248.282	4.0	100.0	148.6	99.7	90	110				

Sample ID: **N035663-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	280.112	4.0	100.0	178.6	102	90	110				

Sample ID: **N035663-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	278.264	4.0	100.0	181.0	97.2	90	110				

Sample ID: **N035663-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	102.342	2.0	50.00	51.25	102	90	110				

Sample ID: **N035663-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	46.743	1.0	25.00	20.90	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035663-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.322	0.20	5.000	5.960	107	90	110				

Sample ID: **N035663-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.100	0.20	1.000	0	110	90	110				

Sample ID: **N035663-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	136.481	2.0	50.00	85.76	101	90	110				

Sample ID: **N035663-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	136.919	2.0	50.00	84.26	105	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-73996**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134492**
Client ID: **PBW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-73996**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134492**
Client ID: **LCSW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.313	1.0	10.00	0	103	85	115				

Sample ID: **N035660-001A-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.569	1.0	10.00	0	85.7	75	125				

Sample ID: **N035660-001A-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.604	1.0	10.00	0	86.0	75	125	8.569	0.399	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	12	0.63	1.0		mg/L	20	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:53:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	12	0.63	1.0		mg/L	20	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:03:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	12	0.63	1.0		mg/L	20	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:57:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	5.1	0.32	0.50		mg/L	10	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38D-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	5.2	0.16	0.25		mg/L	5	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24A-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:21:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.051	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24B-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.71	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 11:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.71	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134192**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **PBW**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134192**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **LCSW**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.503	0.050	0.5000	0	101	85	115				

Sample ID: **N035663-003CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **ZZZZZZ**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	11.362	1.0						11.55	1.68	20	

Sample ID: **N035663-004CMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **ZZZZZZ**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.816	0.50	5.000	5.115	94.0	75	125				

Sample ID: **N035663-004CMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **ZZZZZZ**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.772	0.50	5.000	5.115	93.1	75	125	9.816	0.449	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-001

Client Sample ID: MW-09-Q219
Collection Date: 5/17/2019 10:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate:	**5/24/2019**	Analyst: **CEI**
Arsenic	1.8	0.081	0.10		µg/L	1	6/13/2019 10:23 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 10:23 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	6/13/2019 10:23 AM
Selenium	5.7	0.36	0.50		µg/L	1	6/13/2019 10:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-002

Client Sample ID: MW-10-Q219
Collection Date: 5/17/2019 8:53:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Molybdenum	20	0.21	0.50		µg/L	1	6/13/2019 10:28 AM
Selenium	6.4	0.36	0.50		µg/L	1	6/13/2019 10:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:03:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C** QC Batch: **73996**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Molybdenum	19	0.21	0.50		µg/L	1	6/13/2019 11:47 AM
Selenium	6.7	0.36	0.50		µg/L	1	6/13/2019 11:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-004

Client Sample ID: MW-11-Q219
Collection Date: 5/17/2019 10:57:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate:	**5/24/2019**	Analyst: **CEI**
Arsenic	1.4	0.081	0.10		µg/L	1	6/13/2019 11:56 AM
Manganese	1.5	0.26	0.50		µg/L	1	6/13/2019 11:56 AM
Molybdenum	4.8	0.21	0.50		µg/L	1	6/13/2019 11:56 AM
Selenium	4.7	0.36	0.50		µg/L	1	6/13/2019 12:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38D-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Arsenic	7.2	0.081	0.10		µg/L	1	6/13/2019 12:01 PM
Manganese	21	0.26	0.50		µg/L	1	6/13/2019 12:01 PM
Molybdenum	80	1.1	2.5		µg/L	5	6/13/2019 12:06 PM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 12:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate:	**5/24/2019**	Analyst: **CEI**
Arsenic	5.8	0.081	0.10		µg/L	1	6/13/2019 12:11 PM
Manganese	46	0.26	0.50		µg/L	1	6/13/2019 12:11 PM
Molybdenum	22	0.21	0.50		µg/L	1	6/13/2019 12:11 PM
Selenium	3.7	0.36	0.50		µg/L	1	6/13/2019 12:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24A-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:21:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate:	**5/24/2019**	Analyst: **CEI**
Arsenic	ND	0.081	0.10		µg/L	1	6/13/2019 12:16 PM
Manganese	16	0.26	0.50		µg/L	1	6/13/2019 12:16 PM
Molybdenum	110	0.21	0.50		µg/L	1	6/13/2019 12:16 PM
Selenium	ND	0.36	0.50		µg/L	1	6/13/2019 12:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24B-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Arsenic	3.1	0.081	0.10		µg/L	1	6/13/2019 12:21 PM
Manganese	100	0.26	0.50		µg/L	1	6/13/2019 12:21 PM
Molybdenum	56	1.1	2.5		µg/L	5	6/13/2019 12:26 PM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 12:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-009

Client Sample ID: MW-903-Q219
Collection Date: 5/17/2019 11:09:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	3.0	0.081	0.10		µg/L	1	6/13/2019 12:31 PM
Manganese	100	0.26	0.50		µg/L	1	6/13/2019 12:31 PM
Molybdenum	55	1.1	2.5		µg/L	5	6/13/2019 12:46 PM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 12:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-73996**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **PBW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-73996**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **LCSW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.713	0.10	10.00	0	97.1	85	115				
Manganese	105.002	0.50	100.0	0	105	85	115				
Molybdenum	9.480	0.50	10.00	0	94.8	85	115				
Selenium	9.458	0.50	10.00	0	94.6	85	115				

Sample ID: **N035660-001A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.191	0.10	10.00	1.675	105	75	125				
Manganese	137.622	0.50	100.0	50.58	87.0	75	125				
Molybdenum	51.611	0.50	10.00	41.00	106	75	125				
Selenium	11.767	0.50	10.00	1.494	103	75	125				

Sample ID: **N035660-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.791	0.10	10.00	1.675	101	75	125	12.19	3.34	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035660-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	138.789	0.50	100.0	50.58	88.2	75	125	137.6	0.845	20	
Molybdenum	51.640	0.50	10.00	41.00	106	75	125	51.61	0.0575	20	
Selenium	10.831	0.50	10.00	1.494	93.4	75	125	11.77	8.29	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

ARCUS02 C: 6/3/2019 12:00 AM
FOLDER R: 5/17/2019
N035663-011A 1 of 1

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com daniel.moore@arcadis.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		
Signature: Date: 5/17/19	Sampled By:		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - GMP	Signature: Date: 5/17/2019		
Project Number: RC000753.801D			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact	✓	
Others	✓	LEVEL III		4. Seal Present	✓	
Specify: RWQCB		LEVEL IV		5. IR number	2	
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 2.5		

Courier:

Tracking No.:

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 500 mL poly	Nitrate/Nitrite (SM4500NO3) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035663-01	MW-9-Q219	5/17/2019	10:10		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-02	MW-10-Q219	5/17/2019	8:53		X			X		X	X	X		X						E	4	P	BNS	
3	-03	MW-901-Q219	5/17/2019	9:03		X			X		X	X	X		X						E	4	P	BNS	
4	-04	MW-11-Q219	5/17/2019	10:57		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	-05	MW-38D-Q219	5/17/2019	9:17		X		X	X	X	X	X	X		X						E	4	P	BNS	
6	-06	MW-38S-Q219	5/17/2019	8:34		X		X	X	X	X	X	X		X						E	4	P	BNS	
7	-07	MW-24A-Q219	5/17/2019	10:21		X		X	X	X	X	X	X		X						E	4	P	BNS	
8	-08	MW-24B-Q219	5/17/2019	10:59		X		X	X	X	X	X	X		X						E	4	P	BNS	
9	-09	MW-903-Q219	5/17/2019	11:09		X		X	X	X	X	X	X		X						E	4	P	BNS	
10	-10	MW-713-Q219	5/17/2019	11:15		X			X		X	X	X		X						E	1	P	B	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Joe Gatel	5/17/19 1144	Stan McGrane STAN McGRANE	5/17/19 1144
Stan McGrane STAN McGRANE	5/17/19 1907	[illegible]	5-17-19 1907
Jordan Lee	5-17-19 1738	[illegible]	5/17/19 1700

Terms:
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Yellow=Customer's Copy

ASSET LABORATORIES
CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/17/2019	Workorder:	N035663
Rep sample Temp (Deg C):	3.5	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For: YRJ

Checklist Completed By: RM 5/21/2019

Reviewed By: LG 060319

Subject: Sample ID Correction - N035663
From: Tina Rice <Tina.Rice@critigen.com>
Date: 5/21/2019, 10:56 AM
To: Yoandra Rodriguez <yoandra@assetlaboratories.com>
CC: "Laura.Madsen@arcadis.com" <Laura.Madsen@arcadis.com>

Hi Yoandra,

Please make this sample ID update:

ClientSampID	sample_delivery_group	Correct ClientSampID
MW-9-Q219	N035663	MW-09-Q219

Thank you,
Tina

Tina Rice
Database Analyst

CRITIGEN

Tina.Rice@critigen.com
1 360 600 3562 Direct
1 360 600 3562 Mobile

critigen.com

ASSET Laboratories

WORK ORDER Summary

21-May-19

WorkOrder: N035663

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/17/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035663-001A	MW-09-Q219	5/17/2019 10:10:00 AM	6/3/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-001B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-001C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-001D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-002A	MW-10-Q219	5/17/2019 8:53:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-002B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-002C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-002D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-003A	MW-901-Q219	5/17/2019 9:03:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-003B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-003C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-003D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-004A	MW-11-Q219	5/17/2019 10:57:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-004B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

21-May-19

WorkOrder: N035663

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/17/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035663-004B	MW-11-Q219	5/17/2019 10:57:00 AM	6/3/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-004C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-004D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-005A	MW-38D-Q219	5/17/2019 9:17:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-005B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-005C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-005D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-006A	MW-38S-Q219	5/17/2019 8:34:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-006B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-006C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-006D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-007A	MW-24A-Q219	5/17/2019 10:21:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-007B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-007C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-007D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

21-May-19

WorkOrder: N035663

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/17/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035663-008A	MW-24B-Q219	5/17/2019 10:59:00 AM	6/3/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-008B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-008C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-008D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-009A	MW-903-Q219	5/17/2019 11:09:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-009B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-009C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-009D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-010A	MW-713-Q219	5/17/2019 11:15:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-011A	FOLDER	6/3/2019	6/3/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/3/2019		Folder	Folder	☐	☐	☐	LAB
			6/3/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035663

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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June 17, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035663

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 17, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburcano for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035663

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Since the actual result of total dissolved chromium (20.9 ug/L) differs with hexavalent chromium (17.5 ug/L) by no more than 20% for sample N035663-005 (MW-38D-Q219), reanalysis of the sample was not necessary.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for samples N035663-005, -008 and -009 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Since the actual result of total dissolved chromium (20.9 ug/L) differs with hexavalent chromium (17.5 ug/L) by no more than 20% for sample N035663-005 (MW-38D-Q219), reanalysis of the sample was not necessary.

ASSET Laboratories

Date: *17-Jun-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035663
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035663-001A	MW-09-Q219	Groundwater	5/17/2019 10:10:00 AM	5/17/2019	6/17/2019
N035663-001B	MW-09-Q219	Groundwater	5/17/2019 10:10:00 AM	5/17/2019	6/17/2019
N035663-001C	MW-09-Q219	Groundwater	5/17/2019 10:10:00 AM	5/17/2019	6/17/2019
N035663-001D	MW-09-Q219	Groundwater	5/17/2019 10:10:00 AM	5/17/2019	6/17/2019
N035663-002A	MW-10-Q219	Groundwater	5/17/2019 8:53:00 AM	5/17/2019	6/17/2019
N035663-002B	MW-10-Q219	Groundwater	5/17/2019 8:53:00 AM	5/17/2019	6/17/2019
N035663-002C	MW-10-Q219	Groundwater	5/17/2019 8:53:00 AM	5/17/2019	6/17/2019
N035663-002D	MW-10-Q219	Groundwater	5/17/2019 8:53:00 AM	5/17/2019	6/17/2019
N035663-003A	MW-901-Q219	Groundwater	5/17/2019 9:03:00 AM	5/17/2019	6/17/2019
N035663-003B	MW-901-Q219	Groundwater	5/17/2019 9:03:00 AM	5/17/2019	6/17/2019
N035663-003C	MW-901-Q219	Groundwater	5/17/2019 9:03:00 AM	5/17/2019	6/17/2019
N035663-003D	MW-901-Q219	Groundwater	5/17/2019 9:03:00 AM	5/17/2019	6/17/2019
N035663-004A	MW-11-Q219	Groundwater	5/17/2019 10:57:00 AM	5/17/2019	6/17/2019
N035663-004B	MW-11-Q219	Groundwater	5/17/2019 10:57:00 AM	5/17/2019	6/17/2019
N035663-004C	MW-11-Q219	Groundwater	5/17/2019 10:57:00 AM	5/17/2019	6/17/2019
N035663-004D	MW-11-Q219	Groundwater	5/17/2019 10:57:00 AM	5/17/2019	6/17/2019
N035663-005A	MW-38D-Q219	Groundwater	5/17/2019 9:17:00 AM	5/17/2019	6/17/2019
N035663-005B	MW-38D-Q219	Groundwater	5/17/2019 9:17:00 AM	5/17/2019	6/17/2019
N035663-005C	MW-38D-Q219	Groundwater	5/17/2019 9:17:00 AM	5/17/2019	6/17/2019
N035663-005D	MW-38D-Q219	Groundwater	5/17/2019 9:17:00 AM	5/17/2019	6/17/2019
N035663-006A	MW-38S-Q219	Groundwater	5/17/2019 8:34:00 AM	5/17/2019	6/17/2019
N035663-006B	MW-38S-Q219	Groundwater	5/17/2019 8:34:00 AM	5/17/2019	6/17/2019
N035663-006C	MW-38S-Q219	Groundwater	5/17/2019 8:34:00 AM	5/17/2019	6/17/2019
N035663-006D	MW-38S-Q219	Groundwater	5/17/2019 8:34:00 AM	5/17/2019	6/17/2019
N035663-007A	MW-24A-Q219	Groundwater	5/17/2019 10:21:00 AM	5/17/2019	6/17/2019
N035663-007B	MW-24A-Q219	Groundwater	5/17/2019 10:21:00 AM	5/17/2019	6/17/2019
N035663-007C	MW-24A-Q219	Groundwater	5/17/2019 10:21:00 AM	5/17/2019	6/17/2019
N035663-007D	MW-24A-Q219	Groundwater	5/17/2019 10:21:00 AM	5/17/2019	6/17/2019
N035663-008A	MW-24B-Q219	Groundwater	5/17/2019 10:59:00 AM	5/17/2019	6/17/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035663
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035663-008B	MW-24B-Q219	Groundwater	5/17/2019 10:59:00 AM	5/17/2019	6/17/2019
N035663-008C	MW-24B-Q219	Groundwater	5/17/2019 10:59:00 AM	5/17/2019	6/17/2019
N035663-008D	MW-24B-Q219	Groundwater	5/17/2019 10:59:00 AM	5/17/2019	6/17/2019
N035663-009A	MW-903-Q219	Groundwater	5/17/2019 11:09:00 AM	5/17/2019	6/17/2019
N035663-009B	MW-903-Q219	Groundwater	5/17/2019 11:09:00 AM	5/17/2019	6/17/2019
N035663-009C	MW-903-Q219	Groundwater	5/17/2019 11:09:00 AM	5/17/2019	6/17/2019
N035663-009D	MW-903-Q219	Groundwater	5/17/2019 11:09:00 AM	5/17/2019	6/17/2019
N035663-010A	MW-713-Q219	Groundwater	5/17/2019 11:15:00 AM	5/17/2019	6/17/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	3200	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:53:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	3100	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:03:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	3100	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:57:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	2300	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38D-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	22000	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	1700	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24A-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:21:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	1600	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24B-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 11:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190518A**	QC Batch: **R133991**			PrepDate:			Analyst: **LR**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	5/18/2019 08:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035663-001DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **133991**
Client ID: **ZZZZZZ** Batch ID: **R133991** TestNo: **EPA 120.1** Analysis Date: **5/18/2019** SeqNo: **3389074**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	3220.000	0.10						3210	0.311	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A**	QC Batch: **R134014**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	150	0.66	4.0		µg/L	20	5/20/2019 02:02 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	150	0.13	1.0		µg/L	1	6/13/2019 10:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-002

Client Sample ID: MW-10-Q219
Collection Date: 5/17/2019 8:53:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A**	QC Batch: **R134014**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	180	0.66	4.0		µg/L	20	5/20/2019 02:11 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	180	0.65	5.0		µg/L	5	6/13/2019 10:33 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:03:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A**	QC Batch: **R134014**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	180	0.66	4.0		µg/L	20	5/20/2019 02:21 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	180	0.65	5.0		µg/L	5	6/13/2019 11:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-004

Client Sample ID: MW-11-Q219
Collection Date: 5/17/2019 10:57:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A** QC Batch: **R134014**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	51	0.33	2.0		µg/L	10	5/20/2019 02:49 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	49	0.13	1.0		µg/L	1	6/13/2019 11:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38D-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A** QC Batch: **R134014**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	21	0.17	1.0		µg/L	5	5/20/2019 02:59 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	17	0.13	1.0		µg/L	1	6/13/2019 12:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-006

Client Sample ID: MW-38S-Q219
Collection Date: 5/17/2019 8:34:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A** QC Batch: **R134014**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	6.0	0.033	0.20		µg/L	1	5/20/2019 03:08 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate: **5/24/2019**			Analyst: **CEI**
Chromium	5.7	0.13	1.0		µg/L	1	6/13/2019 12:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-007

Client Sample ID: MW-24A-Q219
Collection Date: 5/17/2019 10:21:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A** QC Batch: **R134014**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/20/2019 03:18 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/13/2019 12:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-008

Client Sample ID: MW-24B-Q219
Collection Date: 5/17/2019 10:59:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A** QC Batch: **R134014**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	86	0.33	2.0		µg/L	10	5/20/2019 05:11 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	73	0.13	1.0		µg/L	1	6/13/2019 12:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-009

Client Sample ID: MW-903-Q219
Collection Date: 5/17/2019 11:09:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A** QC Batch: **R134014**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	84	0.33	2.0		µg/L	10	5/20/2019 05:30 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	73	0.13	1.0		µg/L	1	6/13/2019 12:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-713-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 11:15:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190520A**	QC Batch: **R134014**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/20/2019 01:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R134014**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **134014**			
Client ID: **PBW**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**			SeqNo: **3390130**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R134014**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **134014**			
Client ID: **LCSW**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**			SeqNo: **3390131**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.169	0.20	5.000	0	103	90	110				

Sample ID: **N035659-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **134014**			
Client ID: **ZZZZZZ**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**			SeqNo: **3390134**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.083	0.20	1.000	0	108	90	110				

Sample ID: **N035661-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **134014**			
Client ID: **ZZZZZZ**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**			SeqNo: **3390135**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	133.720	4.0						134.9	0.893	20	

Sample ID: **N035664-001BMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:			RunNo: **134014**			
Client ID: **ZZZZZZ**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**			SeqNo: **3390137**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	159.451	2.0	50.00	109.1	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035664-001BMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3390138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	158.378	2.0	50.00	109.1	98.5	90	110	159.5	0.675	20	

Sample ID: **N035661-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3390141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	231.604	4.0	100.0	134.9	96.7	90	110				

Sample ID: **N035660-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3390143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.984	0.20	1.000	0	98.4	90	110				

Sample ID: **N035662-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3390145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.016	0.20	1.000	0	102	90	110				

Sample ID: **N035663-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3390147**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.018	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035663-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	248.282	4.0	100.0	148.6	99.7	90	110				

Sample ID: **N035663-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	280.112	4.0	100.0	178.6	102	90	110				

Sample ID: **N035663-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	278.264	4.0	100.0	181.0	97.2	90	110				

Sample ID: **N035663-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	102.342	2.0	50.00	51.25	102	90	110				

Sample ID: **N035663-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	46.743	1.0	25.00	20.90	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035663-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.322	0.20	5.000	5.960	107	90	110				

Sample ID: **N035663-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.100	0.20	1.000	0	110	90	110				

Sample ID: **N035663-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	136.481	2.0	50.00	85.76	101	90	110				

Sample ID: **N035663-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **ZZZZZZ** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	136.919	2.0	50.00	84.26	105	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-73996**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134492**
Client ID: **PBW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-73996**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134492**
Client ID: **LCSW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.313	1.0	10.00	0	103	85	115				

Sample ID: **N035660-001A-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409774**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.569	1.0	10.00	0	85.7	75	125				

Sample ID: **N035660-001A-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409775**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.604	1.0	10.00	0	86.0	75	125	8.569	0.399	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-09-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	12	0.63	1.0		mg/L	20	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:53:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	12	0.63	1.0		mg/L	20	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:03:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	12	0.63	1.0		mg/L	20	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:57:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	5.1	0.32	0.50		mg/L	10	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38D-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	5.2	0.16	0.25		mg/L	5	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24A-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:21:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.051	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24B-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.71	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-903-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 11:09:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.71	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134192**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134192**			
Client ID: **PBW**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**			SeqNo: **3398376**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134192**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134192**			
Client ID: **LCSW**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**			SeqNo: **3398377**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.503	0.050	0.5000	0	101	85	115				

Sample ID: **N035663-003CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134192**			
Client ID: **ZZZZZZ**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**			SeqNo: **3398381**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	11.362	1.0						11.55	1.68	20	

Sample ID: **N035663-004CMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134192**			
Client ID: **ZZZZZZ**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**			SeqNo: **3398383**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.816	0.50	5.000	5.115	94.0	75	125				

Sample ID: **N035663-004CMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134192**			
Client ID: **ZZZZZZ**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**			SeqNo: **3398384**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.772	0.50	5.000	5.115	93.1	75	125	9.816	0.449	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-001

Client Sample ID: MW-09-Q219
Collection Date: 5/17/2019 10:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	1.8	0.081	0.10		µg/L	1	6/13/2019 10:23 AM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 10:23 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	6/13/2019 10:23 AM
Selenium	5.7	0.36	0.50		µg/L	1	6/13/2019 10:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-10-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:53:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Molybdenum	20	0.21	0.50		µg/L	1	6/13/2019 10:28 AM
Selenium	6.4	0.36	0.50		µg/L	1	6/13/2019 10:28 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-901-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:03:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Molybdenum	19	0.21	0.50		µg/L	1	6/13/2019 11:47 AM
Selenium	6.7	0.36	0.50		µg/L	1	6/13/2019 11:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-11-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:57:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate:	**5/24/2019**	Analyst: **CEI**
Arsenic	1.4	0.081	0.10		µg/L	1	6/13/2019 11:56 AM
Manganese	1.5	0.26	0.50		µg/L	1	6/13/2019 11:56 AM
Molybdenum	4.8	0.21	0.50		µg/L	1	6/13/2019 11:56 AM
Selenium	4.7	0.36	0.50		µg/L	1	6/13/2019 12:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38D-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 9:17:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate:	**5/24/2019**	Analyst: **CEI**
Arsenic	7.2	0.081	0.10		µg/L	1	6/13/2019 12:01 PM
Manganese	21	0.26	0.50		µg/L	1	6/13/2019 12:01 PM
Molybdenum	80	1.1	2.5		µg/L	5	6/13/2019 12:06 PM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 12:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-38S-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 8:34:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Arsenic	5.8	0.081	0.10		µg/L	1	6/13/2019 12:11 PM
Manganese	46	0.26	0.50		µg/L	1	6/13/2019 12:11 PM
Molybdenum	22	0.21	0.50		µg/L	1	6/13/2019 12:11 PM
Selenium	3.7	0.36	0.50		µg/L	1	6/13/2019 12:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24A-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:21:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate:	**5/24/2019**	Analyst: **CEI**
Arsenic	ND	0.081	0.10		µg/L	1	6/13/2019 12:16 PM
Manganese	16	0.26	0.50		µg/L	1	6/13/2019 12:16 PM
Molybdenum	110	0.21	0.50		µg/L	1	6/13/2019 12:16 PM
Selenium	ND	0.36	0.50		µg/L	1	6/13/2019 12:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-24B-Q219
Lab Order:	N035663	**Collection Date:**	5/17/2019 10:59:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035663-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate:	**5/24/2019**	Analyst: **CEI**
Arsenic	3.1	0.081	0.10		µg/L	1	6/13/2019 12:21 PM
Manganese	100	0.26	0.50		µg/L	1	6/13/2019 12:21 PM
Molybdenum	56	1.1	2.5		µg/L	5	6/13/2019 12:26 PM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 12:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035663
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035663-009

Client Sample ID: MW-903-Q219
Collection Date: 5/17/2019 11:09:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	3.0	0.081	0.10		µg/L	1	6/13/2019 12:31 PM
Manganese	100	0.26	0.50		µg/L	1	6/13/2019 12:31 PM
Molybdenum	55	1.1	2.5		µg/L	5	6/13/2019 12:46 PM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 12:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-73996**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **PBW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-73996**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **LCSW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.713	0.10	10.00	0	97.1	85	115				
Manganese	105.002	0.50	100.0	0	105	85	115				
Molybdenum	9.480	0.50	10.00	0	94.8	85	115				
Selenium	9.458	0.50	10.00	0	94.6	85	115				

Sample ID: **N035660-001A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.191	0.10	10.00	1.675	105	75	125				
Manganese	137.622	0.50	100.0	50.58	87.0	75	125				
Molybdenum	51.611	0.50	10.00	41.00	106	75	125				
Selenium	11.767	0.50	10.00	1.494	103	75	125				

Sample ID: **N035660-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.791	0.10	10.00	1.675	101	75	125	12.19	3.34	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035660-001A-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/24/2019** RunNo: **134493**
Client ID: **ZZZZZZ** Batch ID: **73996** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/13/2019** SeqNo: **3409903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	138.789	0.50	100.0	50.58	88.2	75	125	137.6	0.845	20	
Molybdenum	51.640	0.50	10.00	41.00	106	75	125	51.61	0.0575	20	
Selenium	10.831	0.50	10.00	1.494	93.4	75	125	11.77	8.29	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

ARCUS02 C: 6/3/2019 12:00 AM
FOLDER R: 5/17/2019
N035663-011A 1 of 1

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@arcadis.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		
Signature: Date: 5/17/19	Sampled By:		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - GMP	Signature: Date: 5/17/2019		
Project Number: RC000753.801D			

EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB

QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:

Sample Receipt Condition: Y N
1. Chilled ✓
2. Headspace
3. Container Intact ✓
4. Seal Present ✓
5. IR number 2
6. Method of Cooling: ICE
Sample Temp: 2.5

Courier:
Tracking No.:

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 500 mL poly	Nitrate/Nitrite (SM4500NO3) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035663-01	MW-9-Q219	5/17/2019	10:10		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-02	MW-10-Q219	5/17/2019	8:53		X			X		X	X	X		X						E	4	P	BNS	
3	-03	MW-901-Q219	5/17/2019	9:03		X			X		X	X	X		X						E	4	P	BNS	
4	-04	MW-11-Q219	5/17/2019	10:57		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	-05	MW-38D-Q219	5/17/2019	9:17		X		X	X	X	X	X	X		X						E	4	P	BNS	
6	-06	MW-38S-Q219	5/17/2019	8:34		X		X	X	X	X	X	X		X						E	4	P	BNS	
7	-07	MW-24A-Q219	5/17/2019	10:21		X		X	X	X	X	X	X		X						E	4	P	BNS	
8	-08	MW-24B-Q219	5/17/2019	10:59		X		X	X	X	X	X	X		X						E	4	P	BNS	
9	-09	MW-903-Q219	5/17/2019	11:09		X		X	X	X	X	X	X		X						E	4	P	BNS	
10	-10	MW-713-Q219	5/17/2019	11:15		X			X		X	X	X		X						E	1	P	B	

Relinquished by (Signature and Printed Name): Joe Gatel Date/Time: 5/17/19 1144
Relinquished by (Signature and Printed Name): SEAN McGRANE Date/Time: 5/17/19 1144
Relinquished by (Signature and Printed Name): SEAN McGRANE Date/Time: 5/17/19
Relinquished by (Signature and Printed Name): JORDAN Lee Date/Time: 5-17-19 1738
Relinquished by (Signature and Printed Name): LEDUC Lee Date/Time: 5-17-19 1907
Relinquished by (Signature and Printed Name): Date/Time: 5/17/19 1700

Turn Around Time (TAT)
- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms:
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/17/2019	Workorder:	N035663
Rep sample Temp (Deg C):	3.5	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For: YRJ

Checklist Completed By: RM 5/21/2019

Reviewed By: LG 060319

Subject: Sample ID Correction - N035663
From: Tina Rice <Tina.Rice@critigen.com>
Date: 5/21/2019, 10:56 AM
To: Yoandra Rodriguez <yoandra@assetlaboratories.com>
CC: "Laura.Madsen@arcadis.com" <Laura.Madsen@arcadis.com>

Hi Yoandra,

Please make this sample ID update:

ClientSampID	sample_delivery_group	Correct ClientSampID
MW-9-Q219	N035663	MW-09-Q219

Thank you,
Tina

Tina Rice
Database Analyst

CRITIGEN

Tina.Rice@critigen.com
1 360 600 3562 Direct
1 360 600 3562 Mobile

critigen.com

ASSET Laboratories

WORK ORDER Summary

21-May-19

WorkOrder: N035663

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/17/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035663-001A	MW-09-Q219	5/17/2019 10:10:00 AM	6/3/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-001B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-001C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-001D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-002A	MW-10-Q219	5/17/2019 8:53:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-002B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-002C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-002D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-003A	MW-901-Q219	5/17/2019 9:03:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-003B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-003C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-003D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-004A	MW-11-Q219	5/17/2019 10:57:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-004B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

21-May-19

WorkOrder: N035663

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/17/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035663-004B	MW-11-Q219	5/17/2019 10:57:00 AM	6/3/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-004C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-004D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-005A	MW-38D-Q219	5/17/2019 9:17:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-005B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-005C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-005D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-006A	MW-38S-Q219	5/17/2019 8:34:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-006B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-006C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-006D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-007A	MW-24A-Q219	5/17/2019 10:21:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-007B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-007C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-007D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

WORK ORDER Summary

21-May-19

WorkOrder: N035663

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/17/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035663-008A	MW-24B-Q219	5/17/2019 10:59:00 AM	6/3/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-008B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-008C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-008D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-009A	MW-903-Q219	5/17/2019 11:09:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-009B			6/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035663-009C			6/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035663-009D			6/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035663-010A	MW-713-Q219	5/17/2019 11:15:00 AM	6/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035663-011A	FOLDER	6/3/2019	6/3/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/3/2019		Folder	Folder	☐	☐	☐	LAB
			6/3/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035663

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R133991 **Analyst:** LSR

ASSET #: N035663 **Date Analyzed:** 18-May

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: Julia Ramit Date: 5/30/2019

2nd Level Reviewer: 6/13/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 5/18/19 @ 840
Analyst: LSR

Standard	Std ID	Reading	Comments
9.52 mS/cm	CNV-181121A	9.88 @19.7C	% Rec: (90-110%)
1411	190425C	1422 @19.8C	
9965	190218B	9950 @19.8C	
100390	190218C	102300 @19.9C	

	Sample ID	Matrix	Reading	Comments
1	N035663-1D	H2O	3210 @19.9C	
2	1DDUP		3220 @19.8C	
3	2D		3070 @19.5C	
4	3D		3080 @19.6C	
5	4D		2340 @19.7C	
6	5D		22000 @19.8C	
7	6D		1689 @19.8C	
8	7D		1627 @19.9C	
9	8D		19790 @19.9C	
10	9D		19770 @19.8C	
Dup	1437 uS/cm	CNV-190313A	1438 @20.1C	RPD Criteria: 2%
Std Chk:	10000	B	9850 @20.1C	% Rec: (90-110%)
	99922	CNV-190111H	98200 @20.2C	

Date: 5/20/19 1645
Analyst: LSR

Julia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
9.52 mS/cm	CNV-181121A	9.74 @20.8C	% Rec: (90-110%)
1411	190425C	1421 @21.0C	
9965	190218B	10050 @21.1°C	
100390	190218C	100100 @21.0°C	

	Sample ID	Matrix	Reading	Comments
1	N035683-1A	H2O	3.54 @19.0C	
2	N035684-1A		1.42 @19.5C	
3	N035685-1A		1693 @19.5C	1413 CNV190313A
4	N035686-1A		1012 @18.7C	= 1443 @22.2°C
5	1ADUP		1015 @18.6C	10000 CNV190313B
6	N035687-1A		1020 @19.3C	= 9870 @22.5C
7	N035688-1A		998 @19.8C	99922 CNV190111H
8	N035689-1A		10123 @19.5C	= 97300 @ 22.1°C
9	N035690-1A		37100 @19.4C	
10	N035691-1A		2260 @18.5C	
Dup	N035692-1A		123800 @20.4°C	RPD Criteria: 2%
Std Chk:				% Rec: (90-110%)

Logbook # 7

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R134014
ASSET #: N035663

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 5/20/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 6/10/2019

2nd Level Reviewer: [signature] Date: 6/10/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035663-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 7.4280 * 20$$

$$Cr^{+6}, \mu g/L = 148.5600$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 150}$$

6/10/2019

ANALYSIS RUN LOG

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

jrba 5/11/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 5/11/2019

INJECTION LOG: 190520A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/20/19 10:02 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/20/19 10:13 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/20/19 10:23 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/20/19 10:32 AM	Reported
14	MB-R134014	MBLK	1	Hexavalent Chromium	05/20/19 10:41 AM	Reported
15	LCS-R134014	LCS	1	Hexavalent Chromium	05/20/19 10:51 AM	Reported
16	N035659-001A	SAMP	1	Hexavalent Chromium	05/20/19 11:00 AM	Reported
17	N035661-001A	SAMP	20	Hexavalent Chromium	05/20/19 11:10 AM	Reported
18	N035664-001B	SAMP	1	Hexavalent Chromium	05/20/19 11:19 AM	Not Reported
19	N035659-001AMS	MS	1	Hexavalent Chromium	05/20/19 11:48 AM	Reported
20	N035661-001ADUP	DUP	20	Hexavalent Chromium	05/20/19 11:59 AM	Reported
21	N035664-001B	SAMP	10	Hexavalent Chromium	05/20/19 12:08 PM	Reported
22	N035664-001BMS	MS	10	Hexavalent Chromium	05/20/19 12:18 PM	Reported
23	N035664-001BMSD	MSD	10	Hexavalent Chromium	05/20/19 12:27 PM	Reported
24	CCV-2	CCV	1	Hexavalent Chromium	05/20/19 12:37 PM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/20/19 12:46 PM	Reported
26	N035661-001AMS	MS	20	Hexavalent Chromium	05/20/19 12:56 PM	Reported
27	N035660-002A	SAMP	1	Hexavalent Chromium	05/20/19 1:05 PM	Reported
28	N035660-002AMS	MS	1	Hexavalent Chromium	05/20/19 1:15 PM	Reported
29	N035662-002A	SAMP	1	Hexavalent Chromium	05/20/19 1:24 PM	Reported
30	N035662-002AMS	MS	1	Hexavalent Chromium	05/20/19 1:34 PM	Reported
31	N035663-010A	SAMP	1	Hexavalent Chromium	05/20/19 1:43 PM	Reported
32	N035663-010AMS	MS	1	Hexavalent Chromium	05/20/19 1:53 PM	Reported
33	N035663-001A	SAMP	20	Hexavalent Chromium	05/20/19 2:02 PM	Reported
34	N035663-002A	SAMP	20	Hexavalent Chromium	05/20/19 2:11 PM	Reported
35	N035663-003A	SAMP	20	Hexavalent Chromium	05/20/19 2:21 PM	Reported
36	CCV-3	CCV1	1	Hexavalent Chromium	05/20/19 2:30 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/20/19 2:40 PM	Reported
38	N035663-004A	SAMP	10	Hexavalent Chromium	05/20/19 2:49 PM	Reported
39	N035663-005A	SAMP	5	Hexavalent Chromium	05/20/19 2:59 PM	Reported
40	N035663-006A	SAMP	1	Hexavalent Chromium	05/20/19 3:08 PM	Reported
41	N035663-007A	SAMP	1	Hexavalent Chromium	05/20/19 3:18 PM	Reported
42	N035663-008A	SAMP	50	Hexavalent Chromium	05/20/19 3:27 PM	Not Reported

INJECTION LOG: 190520A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035663-009A	SAMP	50	Hexavalent Chromium	05/20/19 3:37 PM	Not Reported
44	N035663-001AMS	MS	20	Hexavalent Chromium	05/20/19 3:46 PM	Reported
45	N035663-002AMS	MS	20	Hexavalent Chromium	05/20/19 3:56 PM	Reported
46	N035663-003AMS	MS	20	Hexavalent Chromium	05/20/19 4:05 PM	Reported
47	N035663-004AMS	MS	10	Hexavalent Chromium	05/20/19 4:14 PM	Reported
48	CCV-4	CCV	1	Hexavalent Chromium	05/20/19 4:24 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	05/20/19 4:33 PM	Reported
50	N035663-005AMS	MS	5	Hexavalent Chromium	05/20/19 4:43 PM	Reported
51	N035663-006AMS	MS	1	Hexavalent Chromium	05/20/19 4:52 PM	Reported
52	N035663-007AMS	MS	1	Hexavalent Chromium	05/20/19 5:02 PM	Reported
53	N035663-008A	SAMP	10	Hexavalent Chromium	05/20/19 5:11 PM	Reported
54	N035663-008AMS	MS	10	Hexavalent Chromium	05/20/19 5:21 PM	Reported
55	N035663-009A	SAMP	10	Hexavalent Chromium	05/20/19 5:30 PM	Reported
56	N035663-009AMS	MS	10	Hexavalent Chromium	05/20/19 5:40 PM	Reported
57	N035661-001A	SAMP	20	Hexavalent Chromium	05/20/19 5:49 PM	Not Reported
58	N035664-001B	SAMP	10	Hexavalent Chromium	05/20/19 5:59 PM	Not Reported
59	CCV-5	CCV1	1	Hexavalent Chromium	05/20/19 6:08 PM	Reported
60	CCB-5	CCB	1	Hexavalent Chromium	05/20/19 6:17 PM	Reported
61	BLANK	BLANK	1	Hexavalent Chromium	05/20/19 6:27 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190520A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**21/May/19 16:33:41**
No. of Injections:	**64**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/20/2019 10:02	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/20/2019 10:13	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/20/2019 10:23	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/20/2019 10:32	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/20/2019 10:41	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/20/2019 10:51	Finished	LCS @5ppb, IWST-190423B
16	N035659-001A,SAMP	7	1000	Unknown		05/20/2019 11:00	Finished	SAMP, 10mL
17	N035661-001A,SAMP	8	1000	Unknown		05/20/2019 11:10	Finished	SAMP, 0.5>10mL
18	N035664-001B,SAMP	9	1000	Unknown		05/20/2019 11:19	Finished	SAMP, 10mL
19	N035659-001AMS,MS	1	1000	Unknown		05/20/2019 11:48	Finished	MS (1ppb), IWST-190423B,10
20	N035661-001ADUP,D	2	1000	Unknown		05/20/2019 11:59	Finished	DUP, 0.5>10mL
21	N035664-001B,SAMP	3	1000	Unknown		05/20/2019 12:08	Finished	MS (1ppb), IWST-190423B,10
22	N035664-001BMS,MS	4	1000	Unknown		05/20/2019 12:18	Finished	MSD (5ppb), IWST-190423B,0.
23	N035664-001BMSD,M	5	1000	Unknown		05/20/2019 12:27	Finished	DUP, 10mL
24	CCV-2,CCV,1,	6	1000	Unknown		05/20/2019 12:37	Finished	CCV @5ppb, IWST-190423A
25	CCB-2,CCB,1,	7	1000	Unknown		05/20/2019 12:46	Finished	CCB R190508A
26	N035661-001AMS,MS	8	1000	Unknown		05/20/2019 12:56	Finished	MS (5ppb), IWST-190423B,0.5
27	N035660-002A,SAMP	9	1000	Unknown		05/20/2019 13:05	Finished	SAMP, 10mL
28	N035660-002AMS,MS	10	1000	Unknown		05/20/2019 13:15	Finished	MS (1ppb), IWST-190423B,10
29	N035662-002A,SAMP	11	1000	Unknown		05/20/2019 13:24	Finished	SAMP, 10mL
30	N035662-002AMS,MS	12	1000	Unknown		05/20/2019 13:34	Finished	MS (1ppb), IWST-190423B,10
31	N035663-010A,SAMP	13	1000	Unknown		05/20/2019 13:43	Finished	SAMP, 10mL
32	N035663-010AMS,MS	14	1000	Unknown		05/20/2019 13:53	Finished	MS (1ppb), IWST-190423B,10
33	N035663-001A,SAMP	15	1000	Unknown		05/20/2019 14:02	Finished	SAMP, 0.5>10mL
34	N035663-002A,SAMP	16	1000	Unknown		05/20/2019 14:11	Finished	SAMP, 0.5>10mL
35	N035663-003A,SAMP	17	1000	Unknown		05/20/2019 14:21	Finished	SAMP, 0.5>10mL
36	CCV-3,CCV1,1,	18	1000	Unknown		05/20/2019 14:30	Finished	CCV @10ppb, IWST-190423A
37	CCB-3,CCB,1,	19	1000	Unknown		05/20/2019 14:40	Finished	CCB R190411C
38	N035663-004A,SAMP	20	1000	Unknown		05/20/2019 14:49	Finished	SAMP, 1>10mL
39	N035663-005A,SAMP	21	1000	Unknown		05/20/2019 14:59	Finished	SAMP, 2>10mL
40	N035663-006A,SAMP	22	1000	Unknown		05/20/2019 15:08	Finished	SAMP, 10mL
41	N035663-007A,SAMP	23	1000	Unknown		05/20/2019 15:18	Finished	SAMP, 10mL
42	N035663-008A,SAMP	24	1000	Unknown		05/20/2019 15:27	Finished	SAMP, 0.2>10mL
43	N035663-009A,SAMP	25	1000	Unknown		05/20/2019 15:37	Finished	SAMP, 0.2>10mL
44	N035663-001AMS,MS	26	1000	Unknown		05/20/2019 15:46	Finished	MS (5ppb), IWST-190423B,0.5
45	N035663-002AMS,MS	27	1000	Unknown		05/20/2019 15:56	Finished	MS (5ppb), IWST-190423B,0.5
46	N035663-003AMS,MS	28	1000	Unknown		05/20/2019 16:05	Finished	MS (5ppb), IWST-190423B,0.5
47	N035663-004AMS,MS	29	1000	Unknown		05/20/2019 16:14	Finished	MS (5ppb), IWST-190423B,1>1
48	CCV-4,CCV,1,	30	1000	Unknown		05/20/2019 16:24	Finished	CCV @5ppb, IWST-190423A
49	CCB-4,CCB,1,	31	1000	Unknown		05/20/2019 16:33	Finished	CCB R190411C
50	N035663-005AMS,MS	32	1000	Unknown		05/20/2019 16:43	Finished	MS (5ppb), IWST-190423B,2>1
51	N035663-006AMS,MS	33	1000	Unknown		05/20/2019 16:52	Finished	MS (5ppb), IWST-190423B,10
52	N035663-007AMS,MS	34	1000	Unknown		05/20/2019 17:02	Finished	MS (1ppb), IWST-190423B,10
53	N035663-008A,SAMP	35	1000	Unknown		05/20/2019 17:11	Finished	SAMP, 1>10mL
54	N035663-008AMS,MS	36	1000	Unknown		05/20/2019 17:21	Finished	MS (5ppb), IWST-190423B,1>1
55	N035663-009A,SAMP	37	1000	Unknown		05/20/2019 17:30	Finished	SAMP, 1>10mL
56	N035663-009AMS,MS	38	1000	Unknown		05/20/2019 17:40	Finished	MS (5ppb), IWST-190423B,1>1
57	N035661-001A,SAMP	39	1000	Unknown		05/20/2019 17:49	Finished	SAMP, 0.5>10mL
58	N035664-001B,SAMP	40	1000	Unknown		05/20/2019 17:59	Finished	SAMP, 1>10mL
59	CCV-5,CCV1,1,	41	1000	Unknown		05/20/2019 18:08	Finished	CCV @10ppb, IWST-190423A
60	CCB-5,CCB,1,	42	1000	Unknown		05/20/2019 18:17	Finished	CCB R190411C

61	BLANK	43	1000	Unknown		05/20/2019 18:27	Finished	BLANK
62	SHUTDOWN	44	1000	Unknown		05/20/2019 18:36	Finished	
63	Eluent: R190520A	45	1000	Unknown		n.a.	Finished	Eluent
64	PCR: R190520B	46	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: ~~NBA~~ 5/17/19 Slope: 97.56
Time Prepared: 0950H pH 4: 4.02
Prepared By: RBA 7: 7.02
10: 10.02

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90517A
NH4OH + NH4SO4 buffer: M90414 / M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N075638-001A	9.57	-	~250ml	~250ml		
2)	N075639-2A	9.63	-				
3)	N075640-1A	9.51	-				
4)	2A	9.47	-				
5)	3A	9.50	-				
6)	4A	9.51 / 9.52	-				1/2 & 2/2
7)	5A	9.58	-				
8)	6A	9.57	-				
9)	7A	9.36	-				
10)	8A	9.44	-				
11)	9A	9.46	-				
12)	10A	9.47	-				
13)	11A	9.32	-				
14)	12A	9.37	-				
15)	13A	9.69	-				
	14A	9.67	-				
	15A	9.38	-				

Sample Preparation

Date Prepared: 5/20/19 Slope: 97.62
Time Prepared: 1022H pH 4: 4.00
Prepared By: NBA 7: 7.00
10: 10.02

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90525A
NH4OH + NH4SO4 buffer: M90508A / M90414C

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N075659-001A	9.48	-	~250ml	~250ml		
2)	N075660-2A	9.65	-				
3)	N075661-1A	9.40	-				
4)	N075662-2A	9.62	-				
5)	N075663-1A	9.54	-				
6)	2A	9.53	-				
7)	3A	9.52	-				
8)	4A	9.56	-				
9)	5A	9.49	-				
10)	6A	9.68	-				
11)	7A	9.63	-				
12)	8A	9.59	-				
13)	9A	9.61	-				
14)	10A	9.64	-				
15)	N075664-1A	9.57	-				

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 5/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2514	1.2615	2.5188	3.7985	5.0310	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **ICV**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3390124**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.175	0.20	5.000	0	104	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **ZZZZZZ**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3390125**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **CCV**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390127**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.028	0.20	5.000	0	101	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **ZZZZZZ**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.218	0.20	0.2000	0	109	80	120				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **CCV**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.077	0.20	5.000	0	102	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **ZZZZZZ**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390151**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.083	0.20	10.00	0	101	95	105				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **CCV**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3391865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.060	0.20	5.000	0	101	95	105				

Sample ID **CCV-5**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **ZZZZZZ**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3391874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.052	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **ICB**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3390126**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **CCB**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **CCB**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **CCB**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3390152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134014**
Client ID: **CCB**	Batch ID: **R134014**	TestNo: **EPA 218.6**		Analysis Date: **5/20/2019**	SeqNo: **3391866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5** SampType: **CCB** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134014**
Client ID: **CCB** Batch ID: **R134014** TestNo: **EPA 218.6** Analysis Date: **5/20/2019** SeqNo: **3391875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/20/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.740	
CCV-4	4.731	
CCV-5	4.740	

Average	4.735
Actual RT Window	4.655 - 4.815
Applied RT Window	4.535 - 4.935

MB-R134014	N.A.	N.A.
LCS-R134014	4.740	PASS
N035659-001A	N.A.	N.A.
N035661-001A	4.731	PASS
N035664-001B	4.681	PASS
N035659-001AMS	4.548	PASS
N035661-001ADUP	4.731	PASS
N035664-001B	4.731	PASS
N035664-001BMS	4.731	PASS
N035664-001BMSD	4.731	PASS
N035661-001AMS	4.731	PASS
N035660-002A	N.A.	N.A.
N035660-002AMS	4.715	PASS
N035662-002A	N.A.	N.A.
N035662-002AMS	4.740	PASS
N035663-010A	N.A.	N.A.
N035663-010AMS	4.740	PASS
N035663-001A	4.740	PASS
N035663-002A	4.740	PASS
N035663-003A	4.740	PASS
N035663-004A	4.740	PASS
N035663-005A	4.665	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/20/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.740	
CCV-4	4.731	
CCV-5	4.740	
Average	4.735	
Actual RT Window	4.655 - 4.815	
Applied RT Window	4.535 - 4.935	
N035663-006A	4.715	PASS
N035663-007A	N.A.	N.A.
N035663-008A	4.723	PASS
N035663-009A	4.731	PASS
N035663-001AMS	4.731	PASS
N035663-002AMS	4.731	PASS
N035663-003AMS	4.731	PASS
N035663-004AMS	4.731	PASS
N035663-005AMS	4.665	PASS
N035663-006AMS	4.715	PASS
N035663-007AMS	4.723	PASS
N035663-008A	4.706	PASS
N035663-008AMS	4.706	PASS
N035663-009A	4.706	PASS
N035663-009AMS	4.706	PASS
N035661-001A	4.731	PASS
N035664-001B	4.731	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

rba 5/11/2019

5/15/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

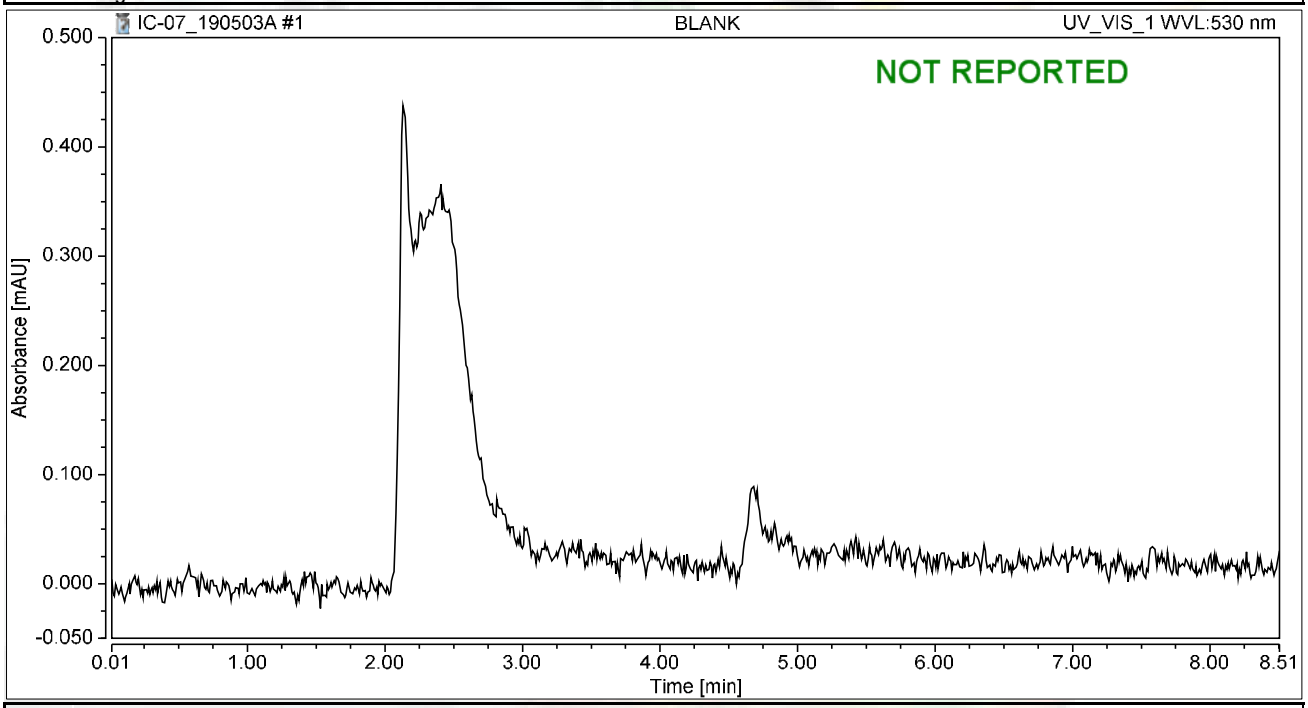
rba 5/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 09:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

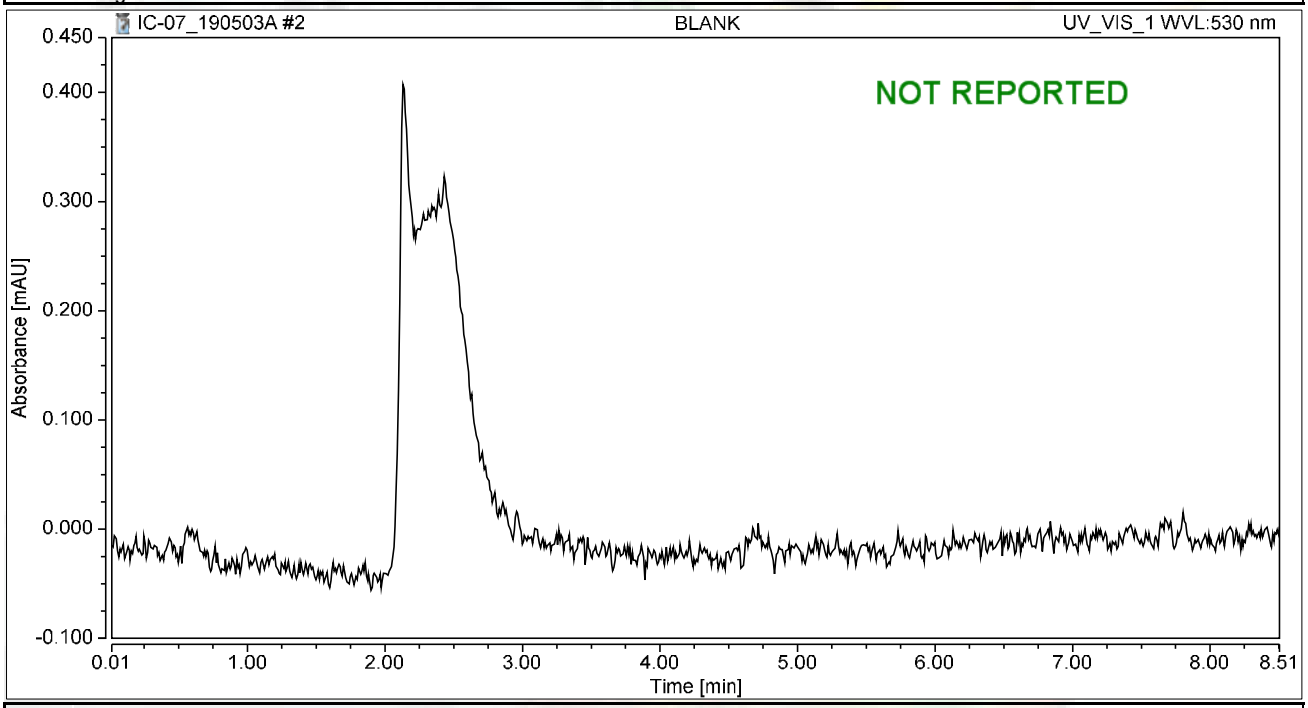
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

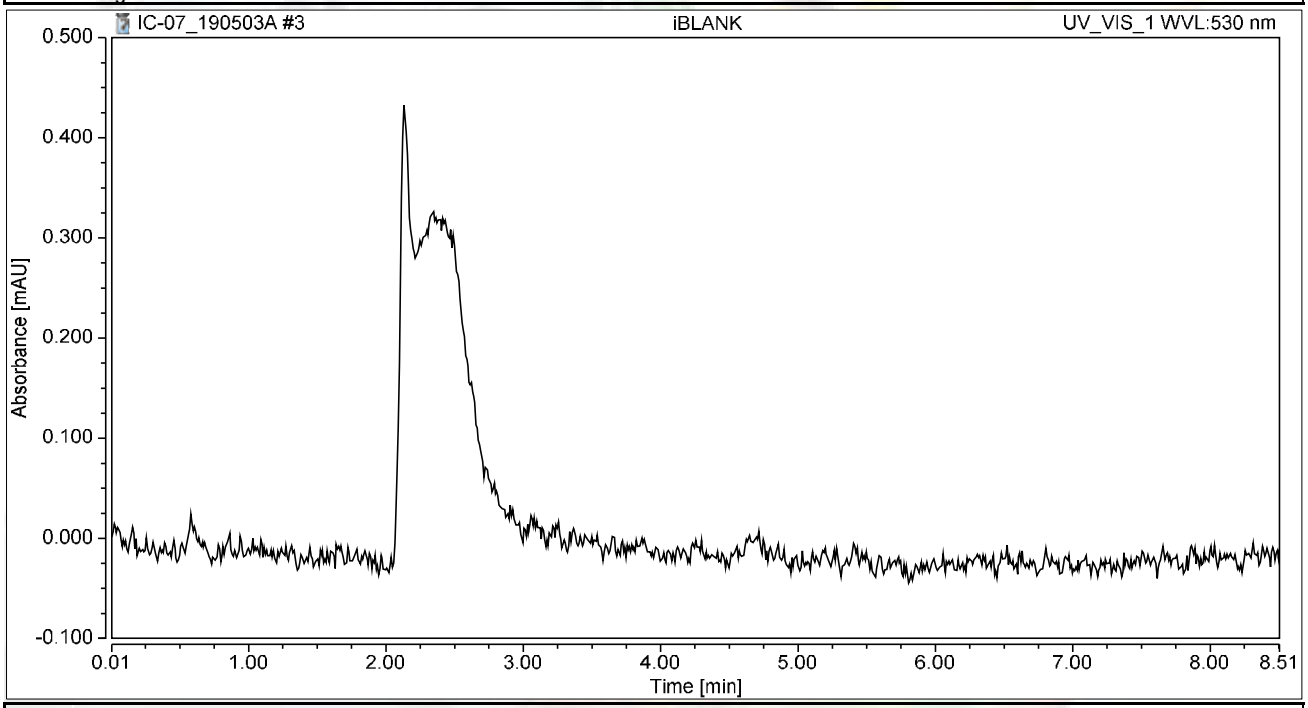
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

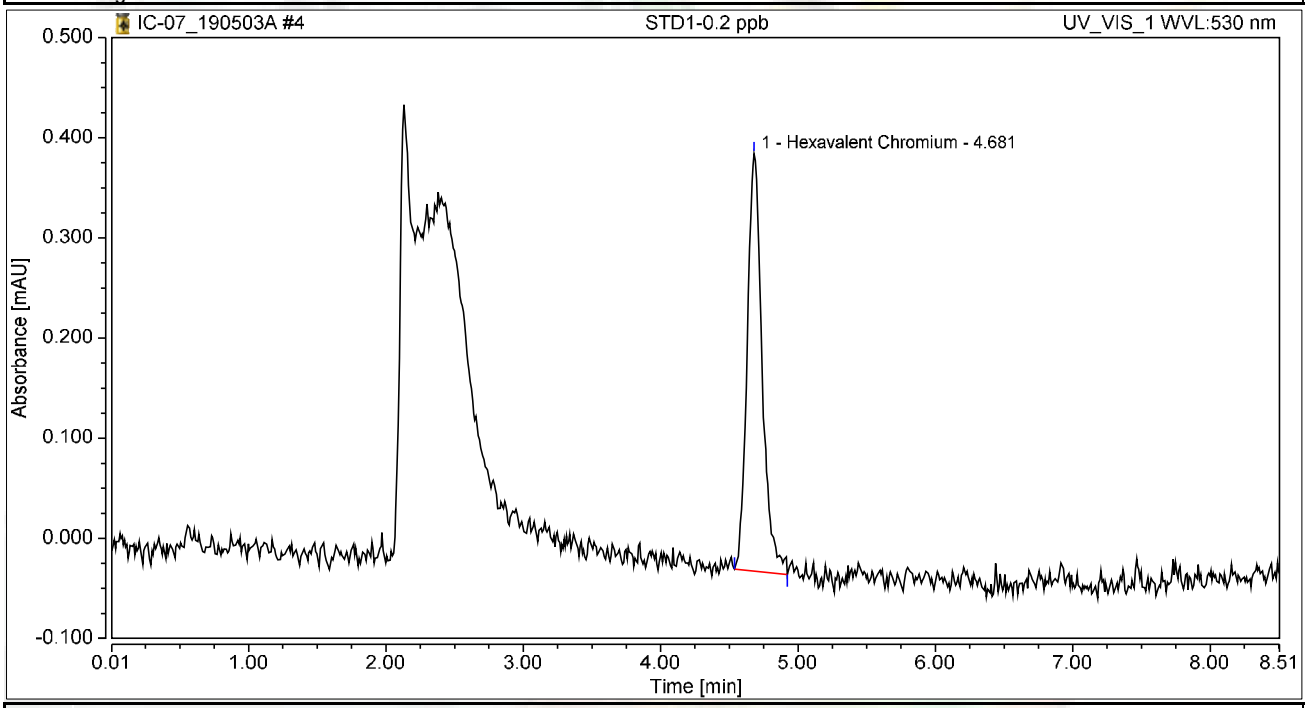
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

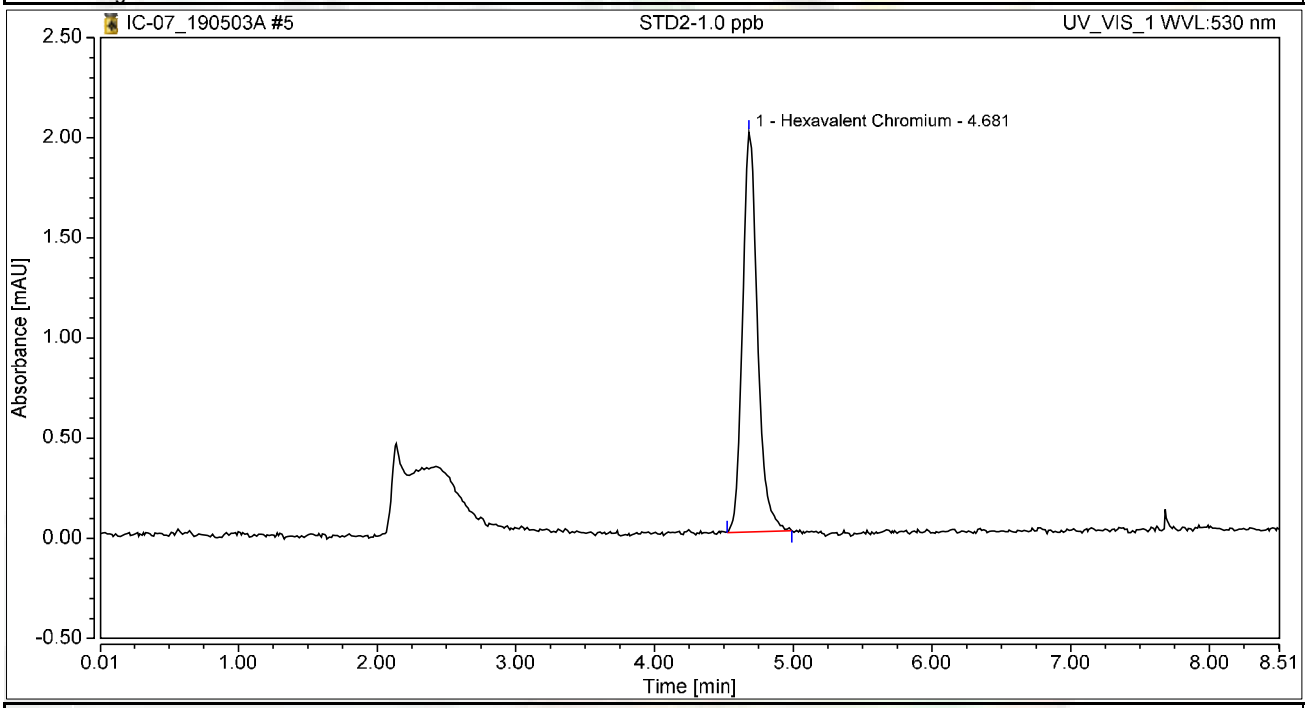
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.053	0.417	100.00	100.00	0.2092
Total:			**0.053**	**0.417**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

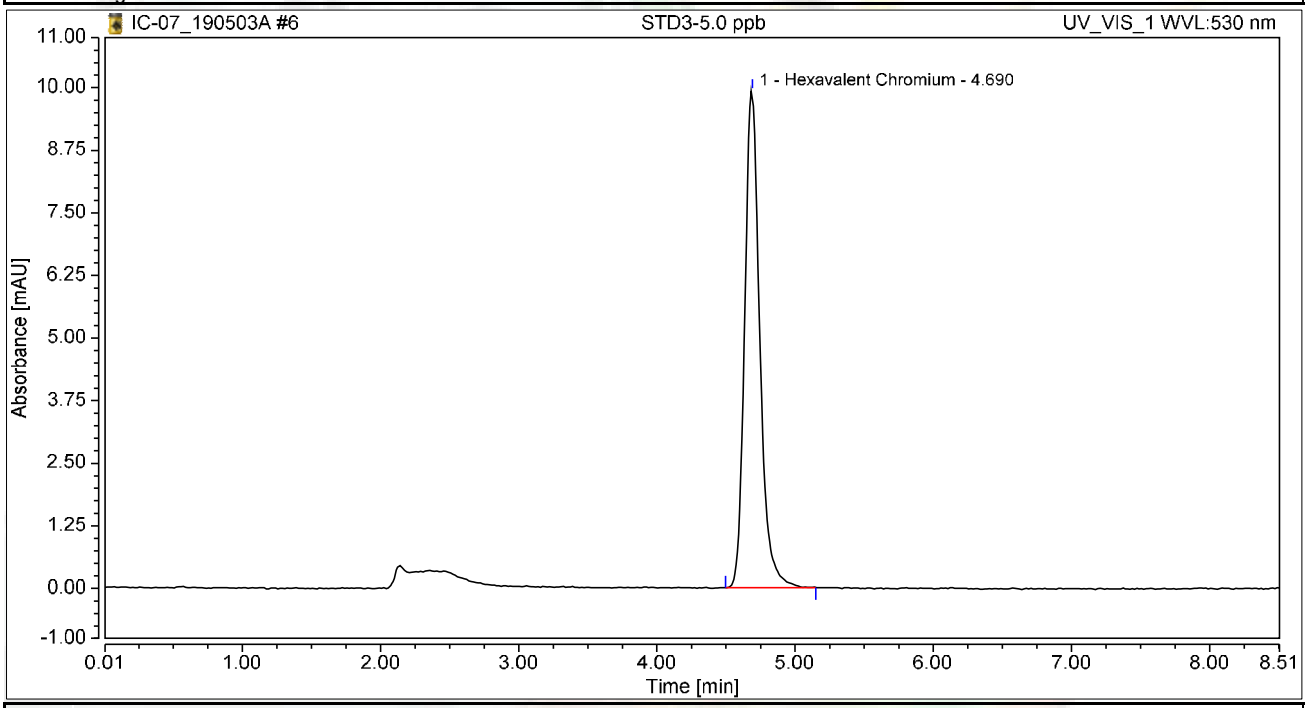
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.251	1.997	100.00	100.00	0.9971
Total:			**0.251**	**1.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

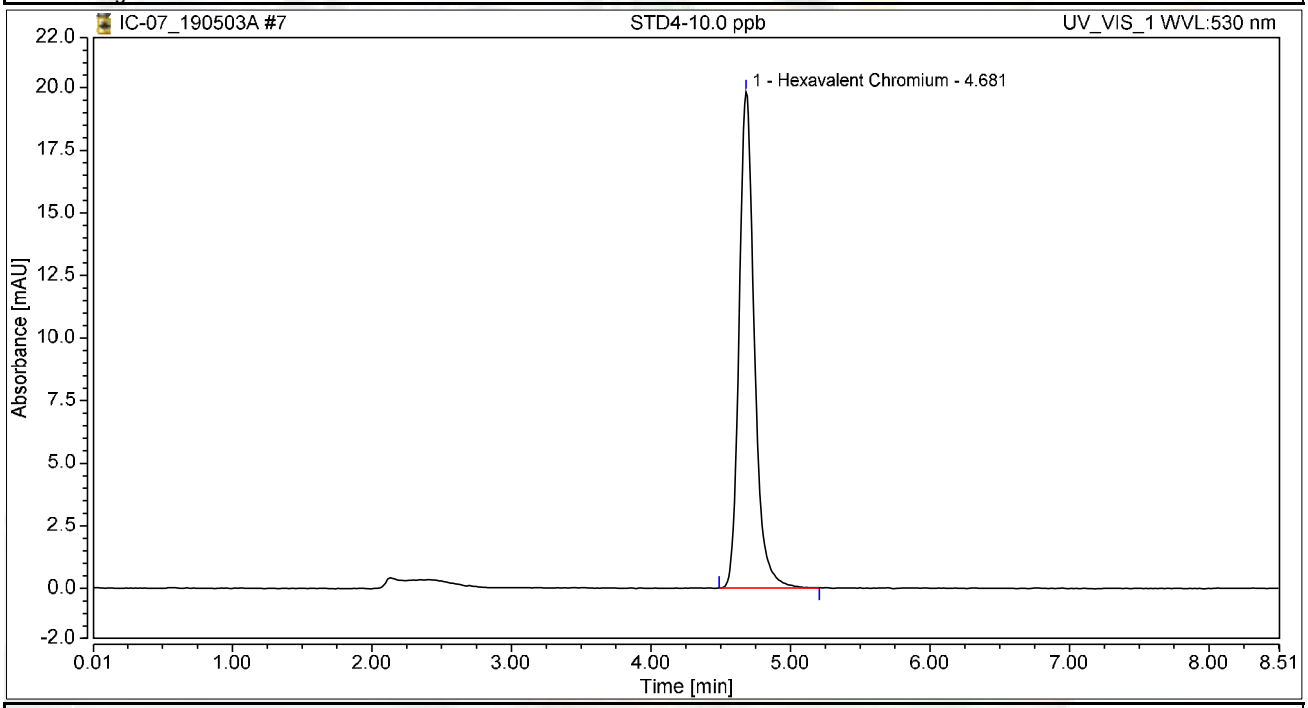
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.261	9.919	100.00	100.00	5.0034
Total:			**1.261**	**9.919**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

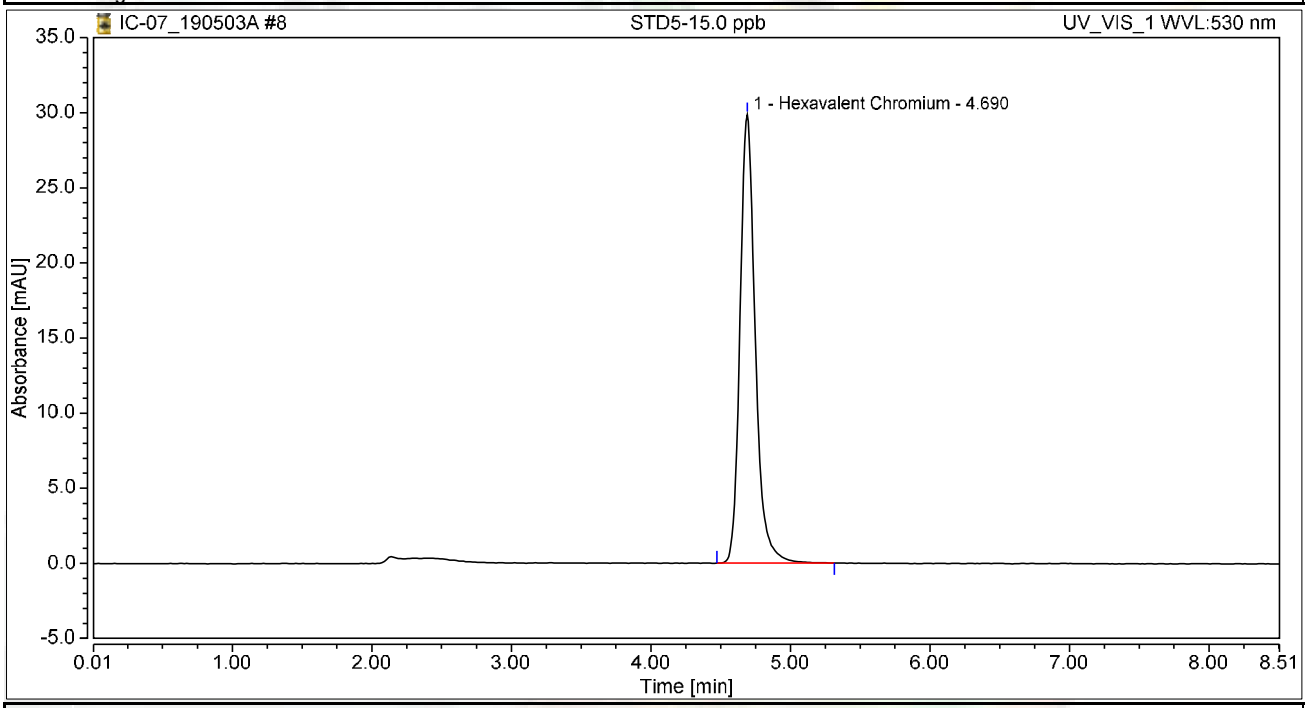
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	2.519	19.825	100.00	100.00	9.9901
Total:			**2.519**	**19.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

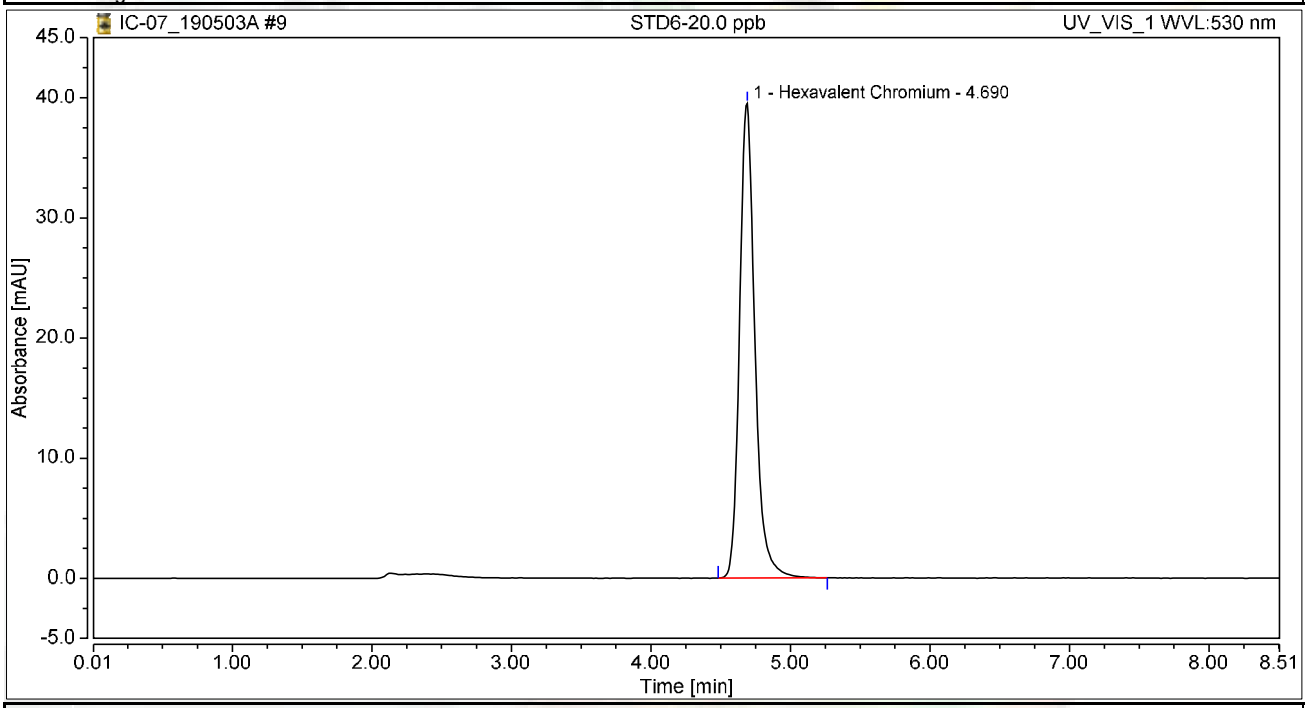
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.799	29.868	100.00	100.00	15.0660
Total:			**3.799**	**29.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



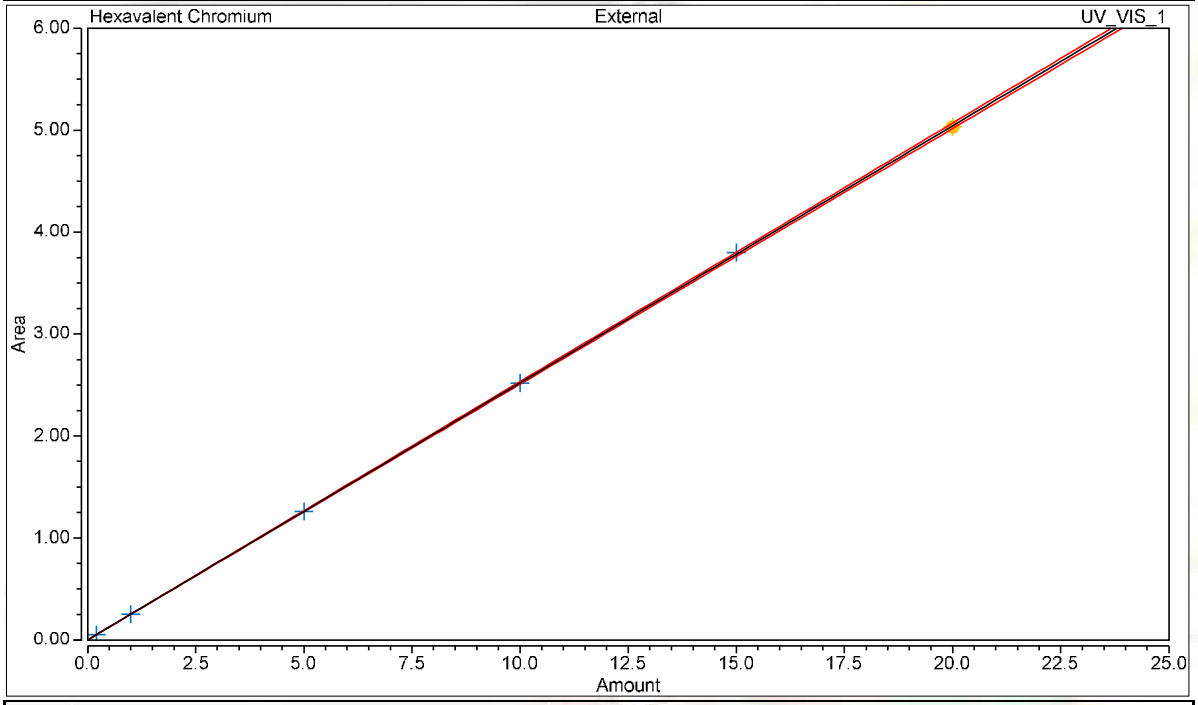
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	5.031	39.475	100.00	100.00	19.9546
Total:			**5.031**	**39.475**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2521
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

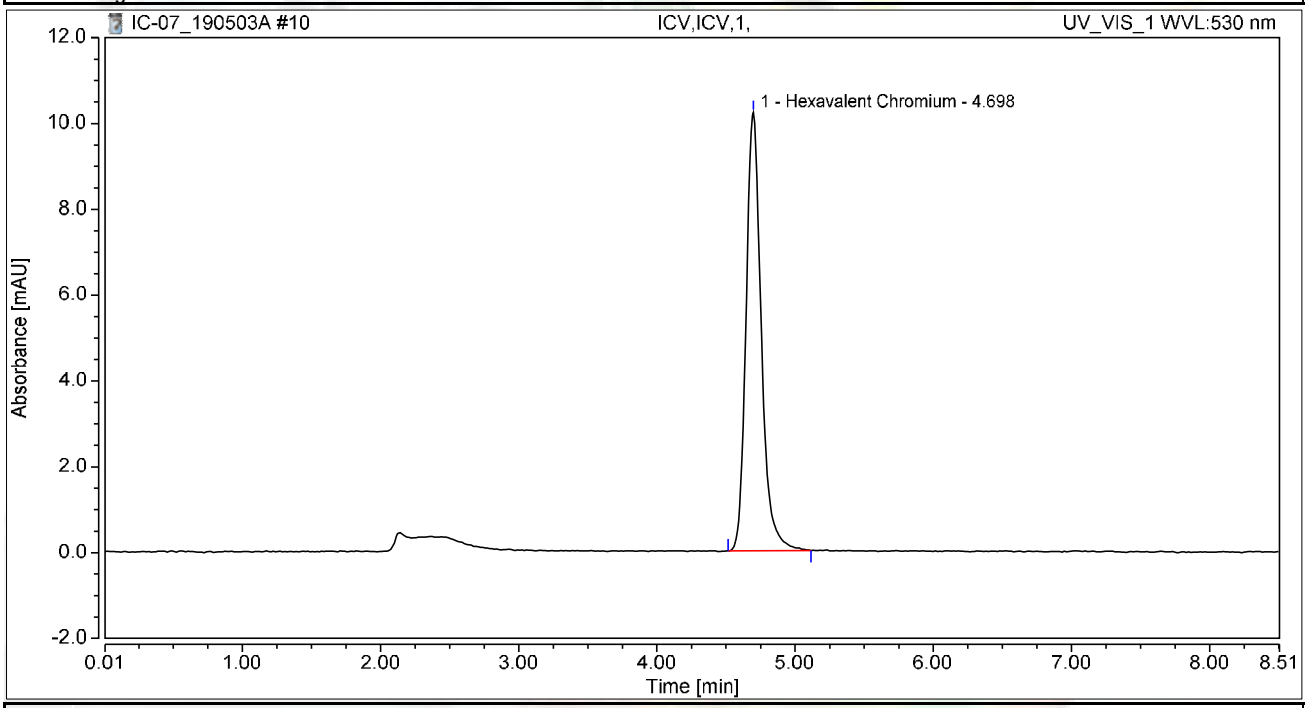
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.417
5	STD2-1.0 ppb	02	1.0000	0.2514	0.251	1.997
6	STD3-5.0 ppb	03	5.0000	1.2615	1.261	9.919
7	STD4-10.0 ppb	04	10.0000	2.5188	2.519	19.825
8	STD5-15.0 ppb	05	15.0000	3.7985	3.799	29.868
9	STD6-20.0 ppb	06	20.0000	5.0310	5.031	39.475

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

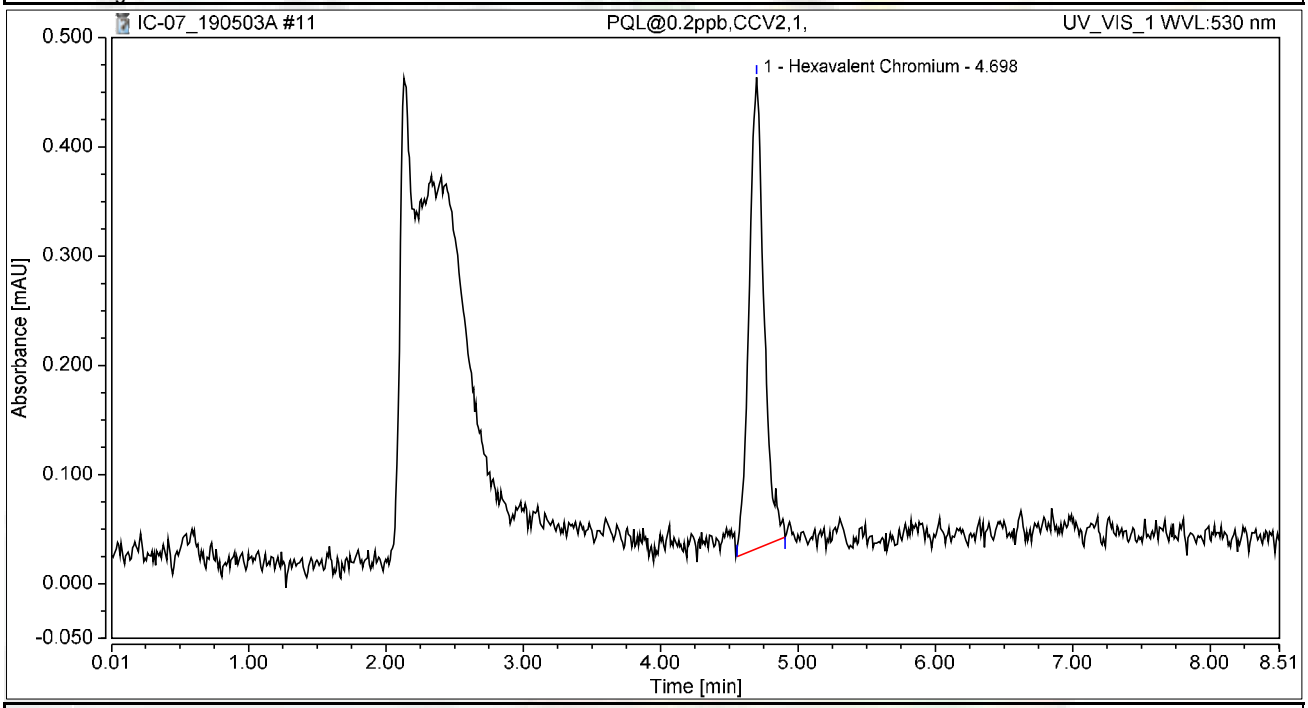
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.305	10.217	100.00	100.00	5.1753
Total:			**1.305**	**10.217**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

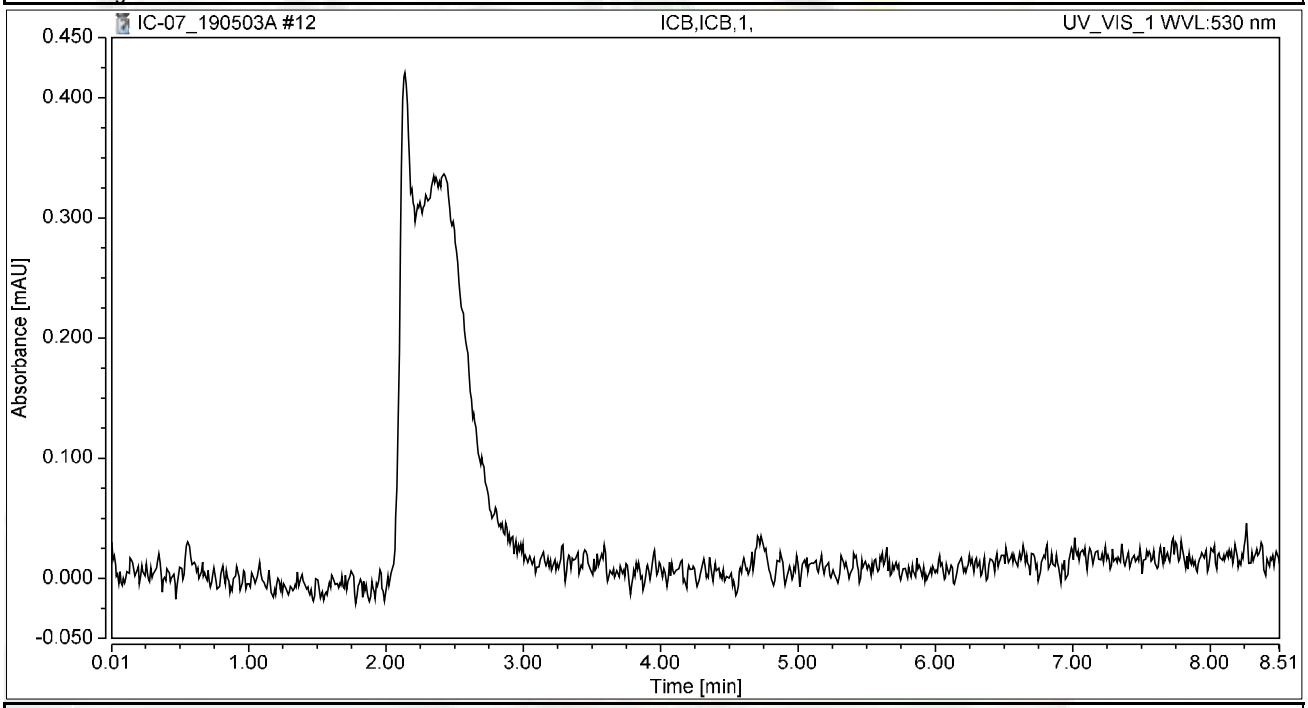
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.431	100.00	100.00	0.2143
Total:			**0.054**	**0.431**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190520A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/20/19 10:02 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/20/19 10:13 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/20/19 10:23 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/20/19 10:32 AM	Reported
14	MB-R134014	MBLK	1	Hexavalent Chromium	05/20/19 10:41 AM	Reported
15	LCS-R134014	LCS	1	Hexavalent Chromium	05/20/19 10:51 AM	Reported
16	N035659-001A	SAMP	1	Hexavalent Chromium	05/20/19 11:00 AM	Reported
17	N035661-001A	SAMP	20	Hexavalent Chromium	05/20/19 11:10 AM	Reported
18	N035664-001B	SAMP	1	Hexavalent Chromium	05/20/19 11:19 AM	Not Reported
19	N035659-001AMS	MS	1	Hexavalent Chromium	05/20/19 11:48 AM	Reported
20	N035661-001ADUP	DUP	20	Hexavalent Chromium	05/20/19 11:59 AM	Reported
21	N035664-001B	SAMP	10	Hexavalent Chromium	05/20/19 12:08 PM	Reported
22	N035664-001BMS	MS	10	Hexavalent Chromium	05/20/19 12:18 PM	Reported
23	N035664-001BMSD	MSD	10	Hexavalent Chromium	05/20/19 12:27 PM	Reported
24	CCV-2	CCV	1	Hexavalent Chromium	05/20/19 12:37 PM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/20/19 12:46 PM	Reported
26	N035661-001AMS	MS	20	Hexavalent Chromium	05/20/19 12:56 PM	Reported
27	N035660-002A	SAMP	1	Hexavalent Chromium	05/20/19 1:05 PM	Reported
28	N035660-002AMS	MS	1	Hexavalent Chromium	05/20/19 1:15 PM	Reported
29	N035662-002A	SAMP	1	Hexavalent Chromium	05/20/19 1:24 PM	Reported
30	N035662-002AMS	MS	1	Hexavalent Chromium	05/20/19 1:34 PM	Reported
31	N035663-010A	SAMP	1	Hexavalent Chromium	05/20/19 1:43 PM	Reported
32	N035663-010AMS	MS	1	Hexavalent Chromium	05/20/19 1:53 PM	Reported
33	N035663-001A	SAMP	20	Hexavalent Chromium	05/20/19 2:02 PM	Reported
34	N035663-002A	SAMP	20	Hexavalent Chromium	05/20/19 2:11 PM	Reported
35	N035663-003A	SAMP	20	Hexavalent Chromium	05/20/19 2:21 PM	Reported
36	CCV-3	CCV1	1	Hexavalent Chromium	05/20/19 2:30 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/20/19 2:40 PM	Reported
38	N035663-004A	SAMP	10	Hexavalent Chromium	05/20/19 2:49 PM	Reported
39	N035663-005A	SAMP	5	Hexavalent Chromium	05/20/19 2:59 PM	Reported
40	N035663-006A	SAMP	1	Hexavalent Chromium	05/20/19 3:08 PM	Reported
41	N035663-007A	SAMP	1	Hexavalent Chromium	05/20/19 3:18 PM	Reported
42	N035663-008A	SAMP	50	Hexavalent Chromium	05/20/19 3:27 PM	Not Reported

INJECTION LOG: 190520A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035663-009A	SAMP	50	Hexavalent Chromium	05/20/19 3:37 PM	Not Reported
44	N035663-001AMS	MS	20	Hexavalent Chromium	05/20/19 3:46 PM	Reported
45	N035663-002AMS	MS	20	Hexavalent Chromium	05/20/19 3:56 PM	Reported
46	N035663-003AMS	MS	20	Hexavalent Chromium	05/20/19 4:05 PM	Reported
47	N035663-004AMS	MS	10	Hexavalent Chromium	05/20/19 4:14 PM	Reported
48	CCV-4	CCV	1	Hexavalent Chromium	05/20/19 4:24 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	05/20/19 4:33 PM	Reported
50	N035663-005AMS	MS	5	Hexavalent Chromium	05/20/19 4:43 PM	Reported
51	N035663-006AMS	MS	1	Hexavalent Chromium	05/20/19 4:52 PM	Reported
52	N035663-007AMS	MS	1	Hexavalent Chromium	05/20/19 5:02 PM	Reported
53	N035663-008A	SAMP	10	Hexavalent Chromium	05/20/19 5:11 PM	Reported
54	N035663-008AMS	MS	10	Hexavalent Chromium	05/20/19 5:21 PM	Reported
55	N035663-009A	SAMP	10	Hexavalent Chromium	05/20/19 5:30 PM	Reported
56	N035663-009AMS	MS	10	Hexavalent Chromium	05/20/19 5:40 PM	Reported
57	N035661-001A	SAMP	20	Hexavalent Chromium	05/20/19 5:49 PM	Not Reported
58	N035664-001B	SAMP	10	Hexavalent Chromium	05/20/19 5:59 PM	Not Reported
59	CCV-5	CCV1	1	Hexavalent Chromium	05/20/19 6:08 PM	Reported
60	CCB-5	CCB	1	Hexavalent Chromium	05/20/19 6:17 PM	Reported
61	BLANK	BLANK	1	Hexavalent Chromium	05/20/19 6:27 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190520A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**21/May/19 16:33:41**
No. of Injections:	**64**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/20/2019 10:02	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/20/2019 10:13	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/20/2019 10:23	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/20/2019 10:32	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/20/2019 10:41	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/20/2019 10:51	Finished	LCS @5ppb, IWST-190423B
16	N035659-001A,SAMF	7	1000	Unknown		05/20/2019 11:00	Finished	SAMP, 10mL
17	N035661-001A,SAMF	8	1000	Unknown		05/20/2019 11:10	Finished	SAMP, 0.5>10mL
18	N035664-001B,SAMF	9	1000	Unknown		05/20/2019 11:19	Finished	SAMP, 10mL
19	N035659-001AMS,MS	1	1000	Unknown		05/20/2019 11:48	Finished	MS (1ppb), IWST-190423B,10
20	N035661-001ADUP,D	2	1000	Unknown		05/20/2019 11:59	Finished	DUP, 0.5>10mL
21	N035664-001B,SAMF	3	1000	Unknown		05/20/2019 12:08	Finished	MS (1ppb), IWST-190423B,10
22	N035664-001BMS,MS	4	1000	Unknown		05/20/2019 12:18	Finished	MSD (5ppb), IWST-190423B,0.
23	N035664-001BMSD,M	5	1000	Unknown		05/20/2019 12:27	Finished	DUP, 10mL
24	CCV-2,CCV,1,	6	1000	Unknown		05/20/2019 12:37	Finished	CCV @5ppb, IWST-190423A
25	CCB-2,CCB,1,	7	1000	Unknown		05/20/2019 12:46	Finished	CCB R190508A
26	N035661-001AMS,MS	8	1000	Unknown		05/20/2019 12:56	Finished	MS (5ppb), IWST-190423B,0.5
27	N035660-002A,SAMF	9	1000	Unknown		05/20/2019 13:05	Finished	SAMP, 10mL
28	N035660-002AMS,MS	10	1000	Unknown		05/20/2019 13:15	Finished	MS (1ppb), IWST-190423B,10
29	N035662-002A,SAMF	11	1000	Unknown		05/20/2019 13:24	Finished	SAMP, 10mL
30	N035662-002AMS,MS	12	1000	Unknown		05/20/2019 13:34	Finished	MS (1ppb), IWST-190423B,10
31	N035663-010A,SAMF	13	1000	Unknown		05/20/2019 13:43	Finished	SAMP, 10mL
32	N035663-010AMS,MS	14	1000	Unknown		05/20/2019 13:53	Finished	MS (1ppb), IWST-190423B,10
33	N035663-001A,SAMF	15	1000	Unknown		05/20/2019 14:02	Finished	SAMP, 0.5>10mL
34	N035663-002A,SAMF	16	1000	Unknown		05/20/2019 14:11	Finished	SAMP, 0.5>10mL
35	N035663-003A,SAMF	17	1000	Unknown		05/20/2019 14:21	Finished	SAMP, 0.5>10mL
36	CCV-3,CCV1,1,	18	1000	Unknown		05/20/2019 14:30	Finished	CCV @10ppb, IWST-190423A
37	CCB-3,CCB,1,	19	1000	Unknown		05/20/2019 14:40	Finished	CCB R190411C
38	N035663-004A,SAMF	20	1000	Unknown		05/20/2019 14:49	Finished	SAMP, 1>10mL
39	N035663-005A,SAMF	21	1000	Unknown		05/20/2019 14:59	Finished	SAMP, 2>10mL
40	N035663-006A,SAMF	22	1000	Unknown		05/20/2019 15:08	Finished	SAMP, 10mL
41	N035663-007A,SAMF	23	1000	Unknown		05/20/2019 15:18	Finished	SAMP, 10mL
42	N035663-008A,SAMF	24	1000	Unknown		05/20/2019 15:27	Finished	SAMP, 0.2>10mL
43	N035663-009A,SAMF	25	1000	Unknown		05/20/2019 15:37	Finished	SAMP, 0.2>10mL
44	N035663-001AMS,MS	26	1000	Unknown		05/20/2019 15:46	Finished	MS (5ppb), IWST-190423B,0.5
45	N035663-002AMS,MS	27	1000	Unknown		05/20/2019 15:56	Finished	MS (5ppb), IWST-190423B,0.5
46	N035663-003AMS,MS	28	1000	Unknown		05/20/2019 16:05	Finished	MS (5ppb), IWST-190423B,0.5
47	N035663-004AMS,MS	29	1000	Unknown		05/20/2019 16:14	Finished	MS (5ppb), IWST-190423B,1>1
48	CCV-4,CCV,1,	30	1000	Unknown		05/20/2019 16:24	Finished	CCV @5ppb, IWST-190423A
49	CCB-4,CCB,1,	31	1000	Unknown		05/20/2019 16:33	Finished	CCB R190411C
50	N035663-005AMS,MS	32	1000	Unknown		05/20/2019 16:43	Finished	MS (5ppb), IWST-190423B,2>1
51	N035663-006AMS,MS	33	1000	Unknown		05/20/2019 16:52	Finished	MS (5ppb), IWST-190423B,10
52	N035663-007AMS,MS	34	1000	Unknown		05/20/2019 17:02	Finished	MS (1ppb), IWST-190423B,10
53	N035663-008A,SAMF	35	1000	Unknown		05/20/2019 17:11	Finished	SAMP, 1>10mL
54	N035663-008AMS,MS	36	1000	Unknown		05/20/2019 17:21	Finished	MS (5ppb), IWST-190423B,1>1
55	N035663-009A,SAMF	37	1000	Unknown		05/20/2019 17:30	Finished	SAMP, 1>10mL
56	N035663-009AMS,MS	38	1000	Unknown		05/20/2019 17:40	Finished	MS (5ppb), IWST-190423B,1>1
57	N035661-001A,SAMF	39	1000	Unknown		05/20/2019 17:49	Finished	SAMP, 0.5>10mL
58	N035664-001B,SAMF	40	1000	Unknown		05/20/2019 17:59	Finished	SAMP, 1>10mL
59	CCV-5,CCV1,1,	41	1000	Unknown		05/20/2019 18:08	Finished	CCV @10ppb, IWST-190423A
60	CCB-5,CCB,1,	42	1000	Unknown		05/20/2019 18:17	Finished	CCB R190411C

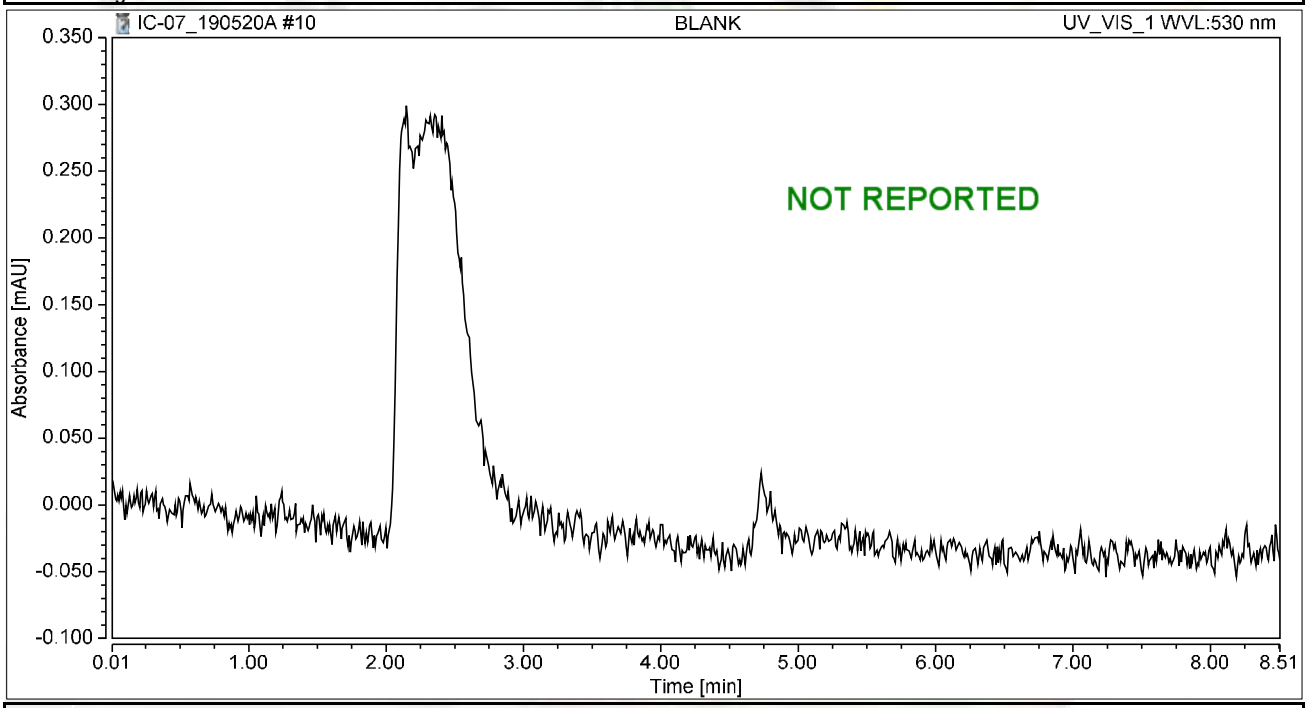
61	BLANK	43	1000	Unknown		05/20/2019 18:27	Finished	BLANK
62	SHUTDOWN	44	1000	Unknown		05/20/2019 18:36	Finished	
63	Eluent: R190520A	45	1000	Unknown		n.a.	Finished	Eluent
64	PCR: R190520B	46	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 10:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

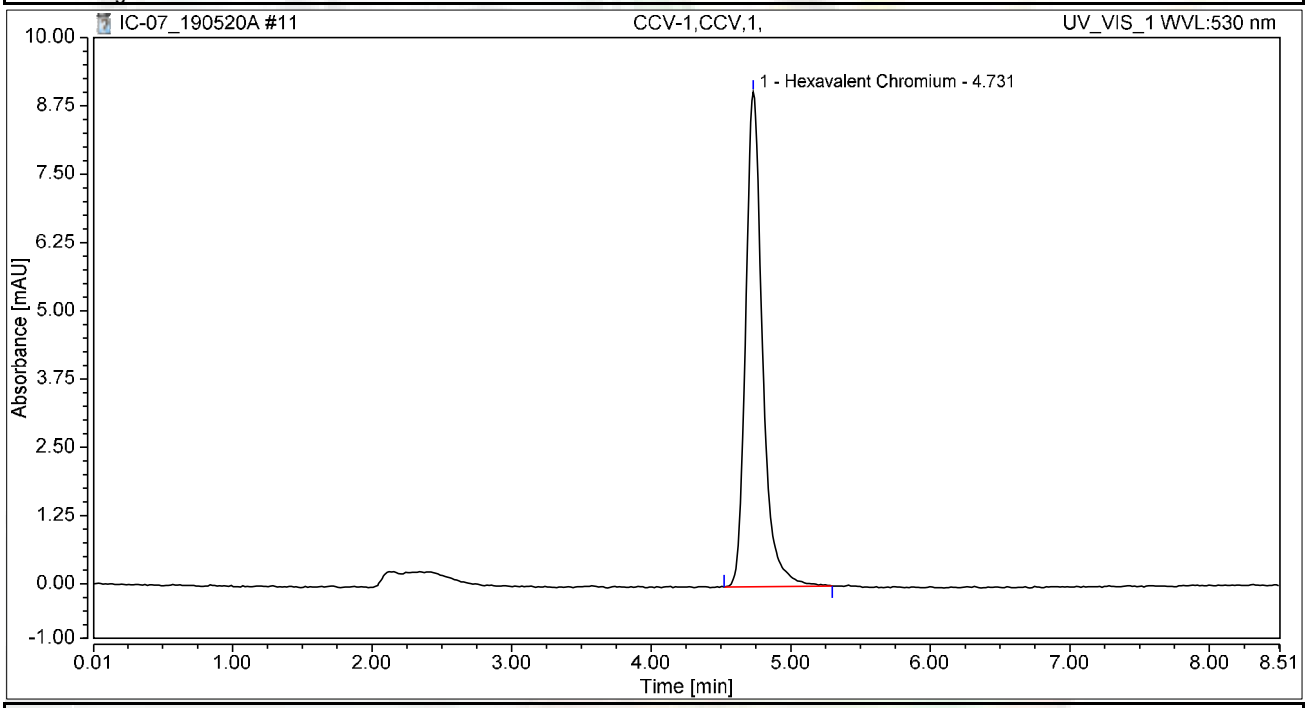
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

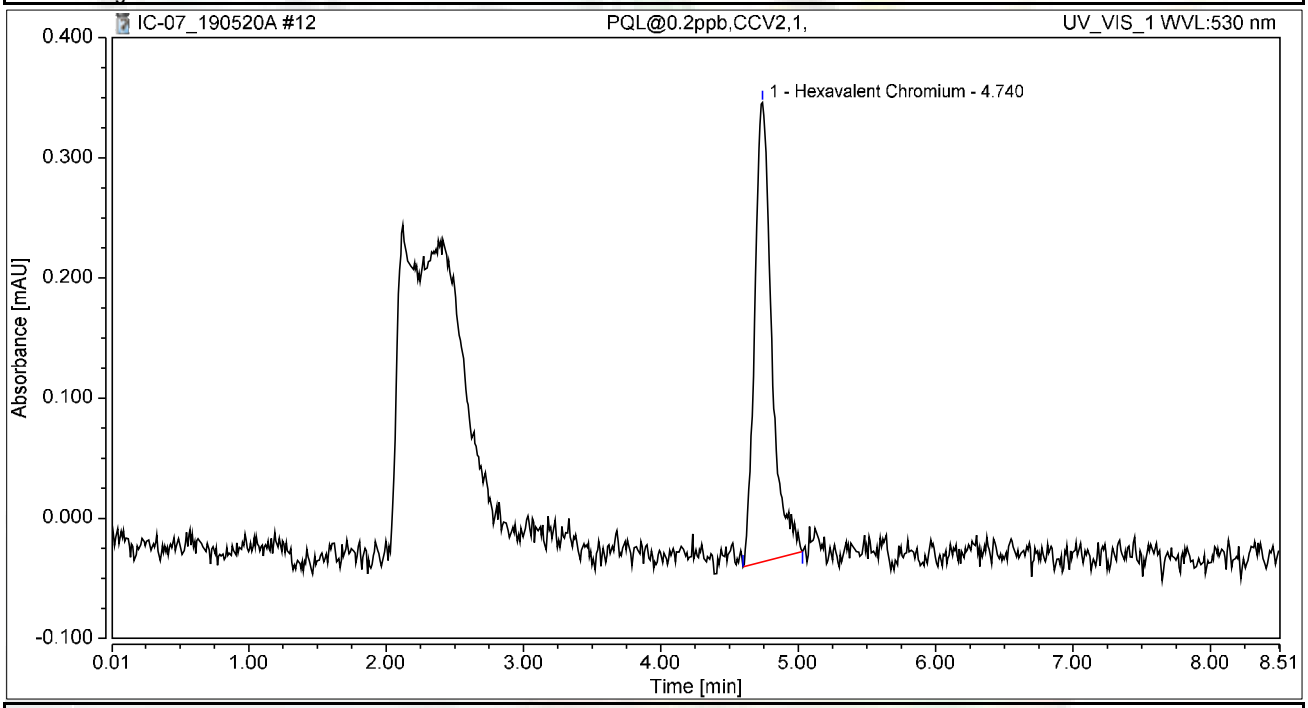
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.268	9.052	100.00	100.00	5.0282
Total:			**1.268**	**9.052**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 10:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

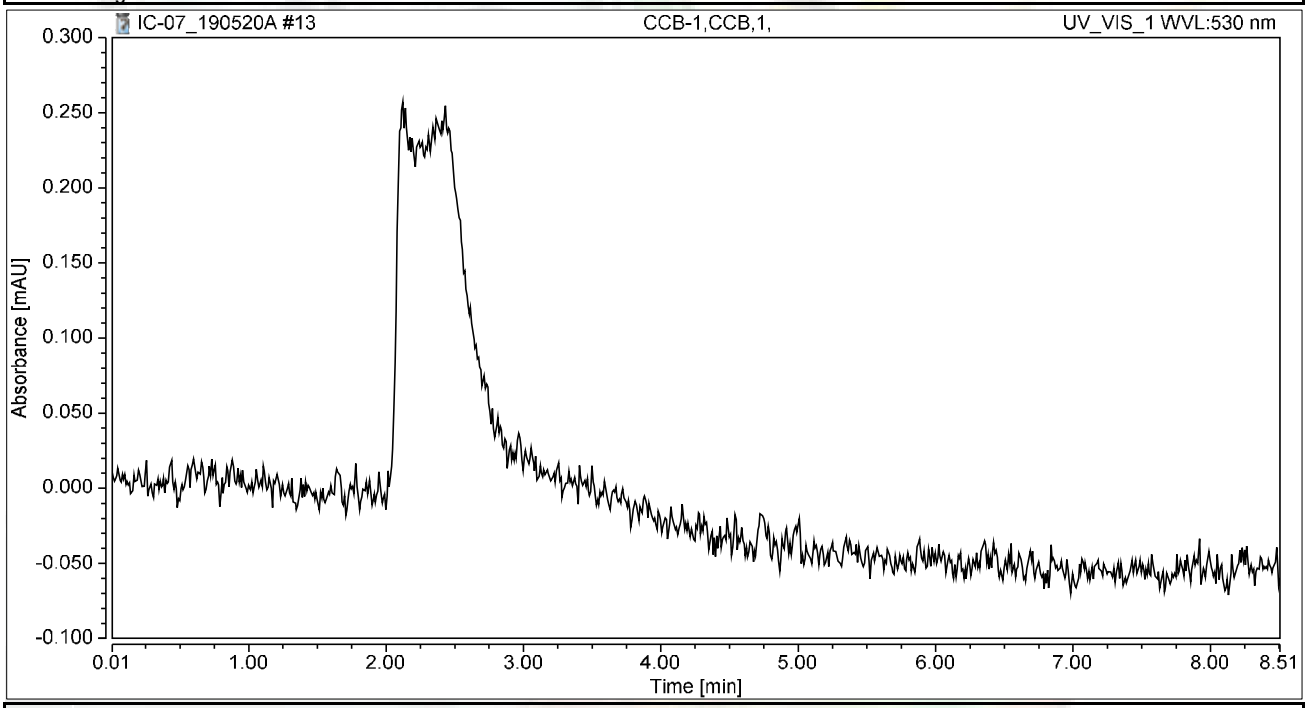
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.055	0.382	100.00	100.00	0.2184
Total:			**0.055**	**0.382**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

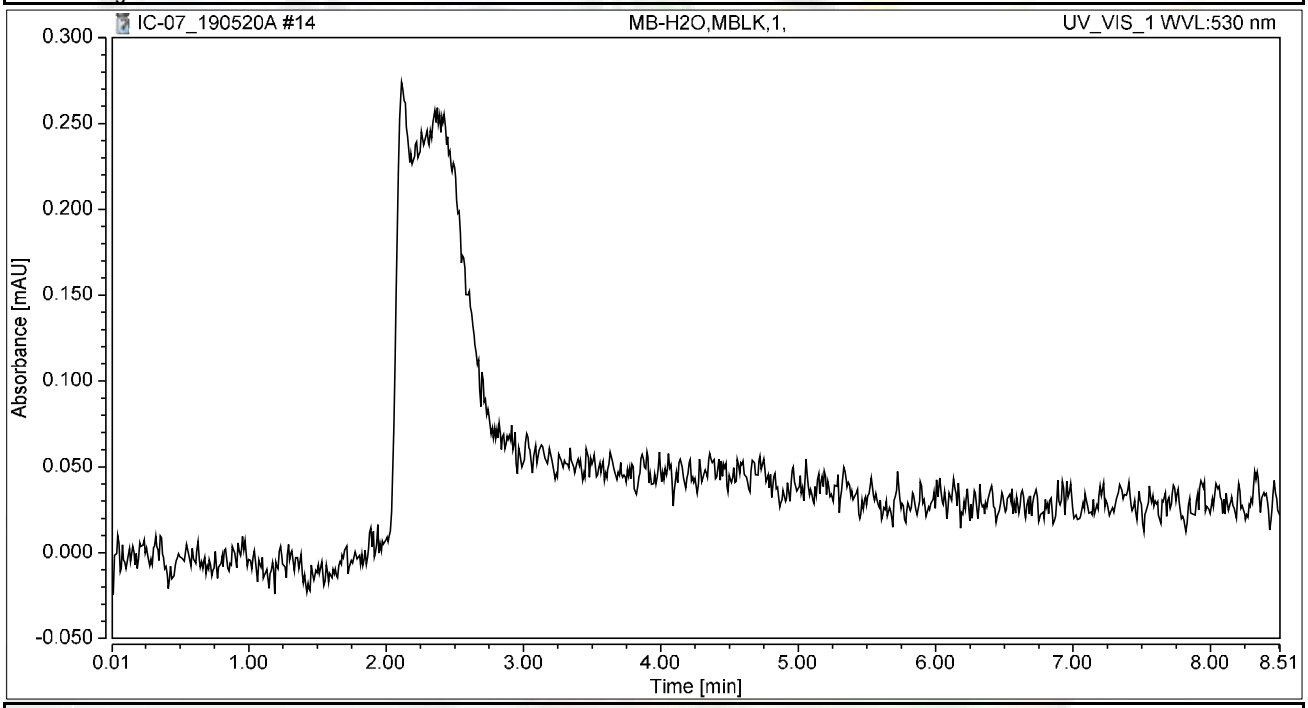
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

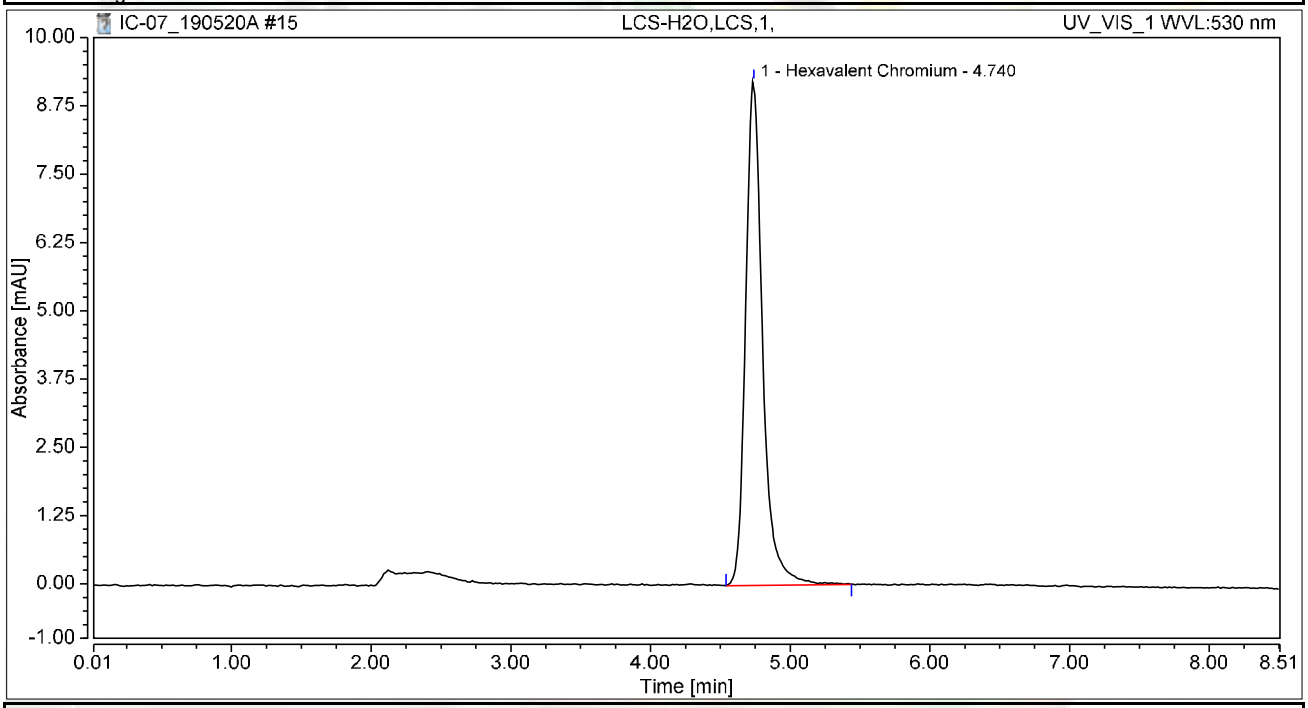
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

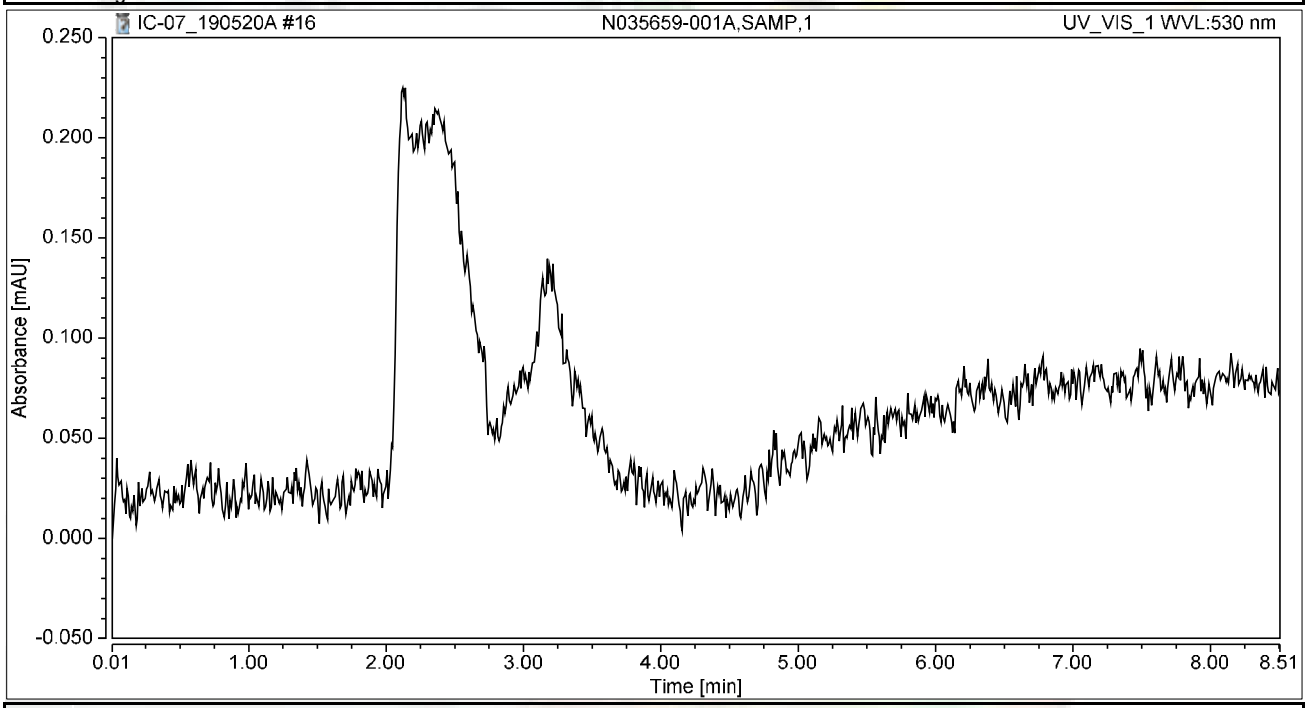
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.303	9.220	100.00	100.00	5.1688
Total:			**1.303**	**9.220**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035659-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

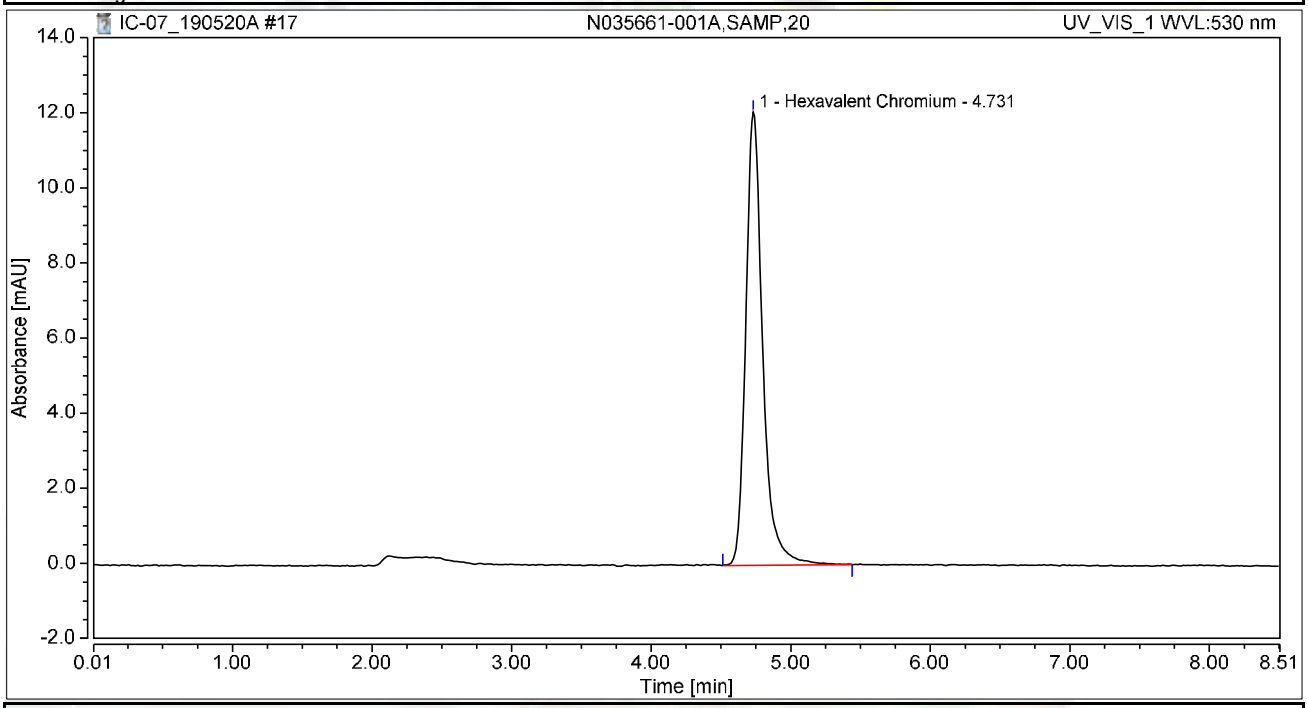
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035661-001A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

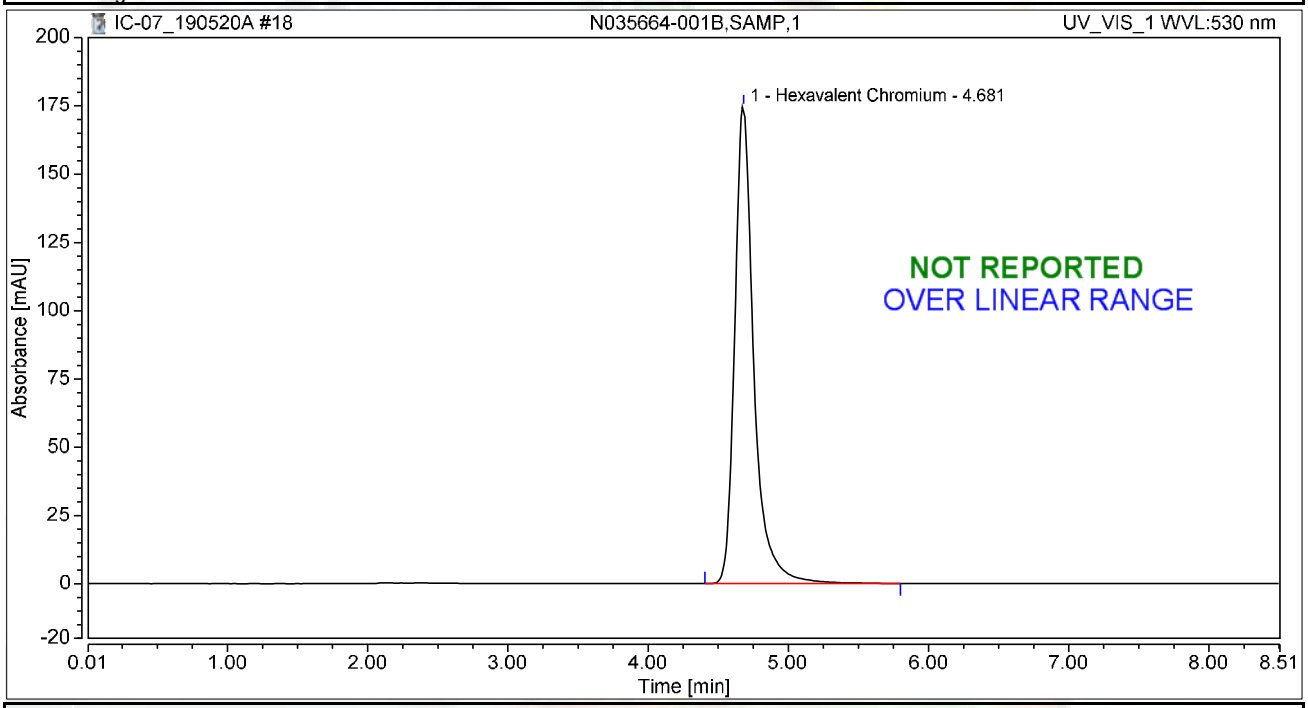
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.701	12.066	100.00	100.00	6.7460
Total:			**1.701**	**12.066**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035664-001B,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

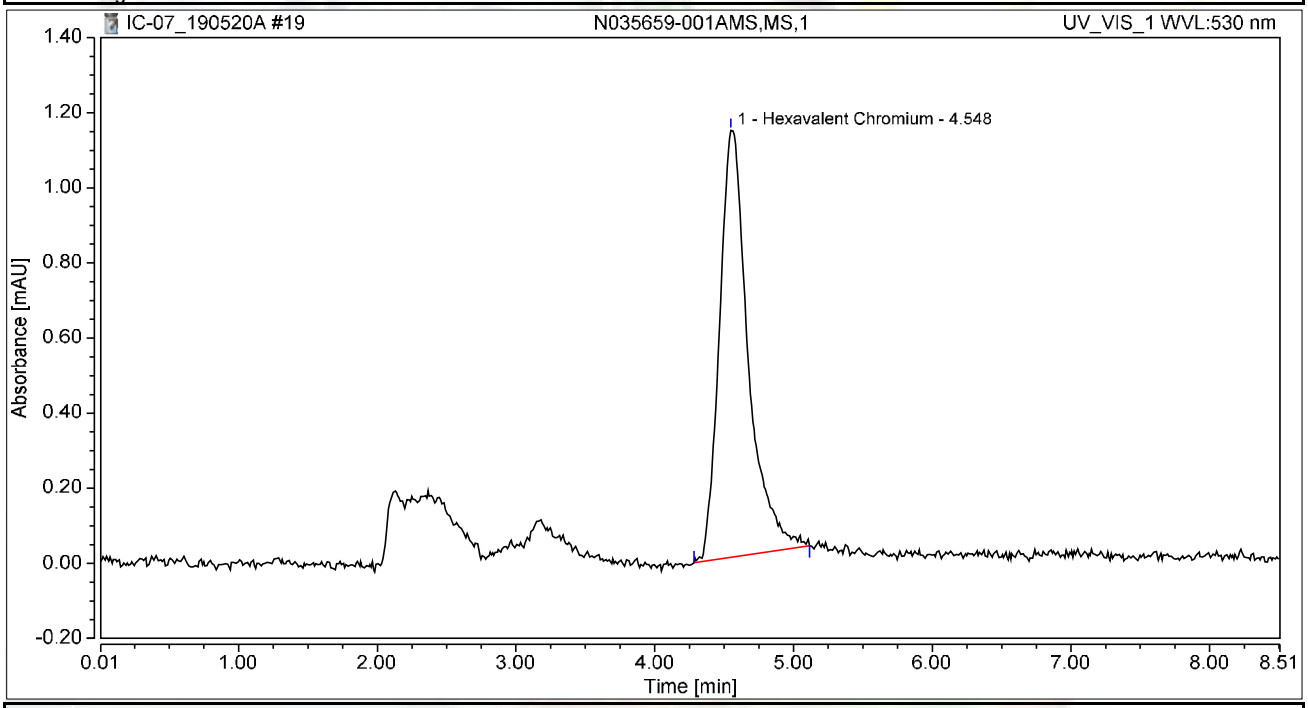
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	27.618	174.666	100.00	100.00	109.5394
Total:			**27.618**	**174.666**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035659-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 11:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

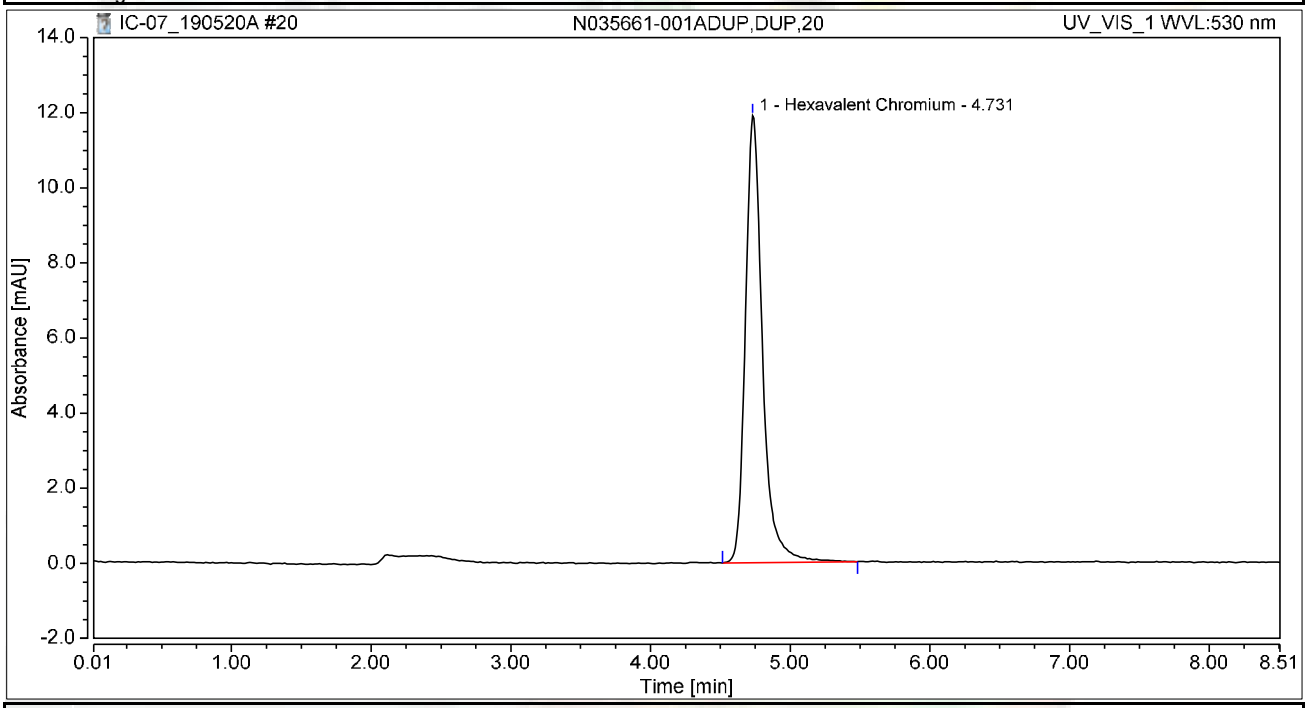
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	0.273	1.137	100.00	100.00	1.0826
Total:			**0.273**	**1.137**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035661-001ADUP,DUP,20**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 11:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

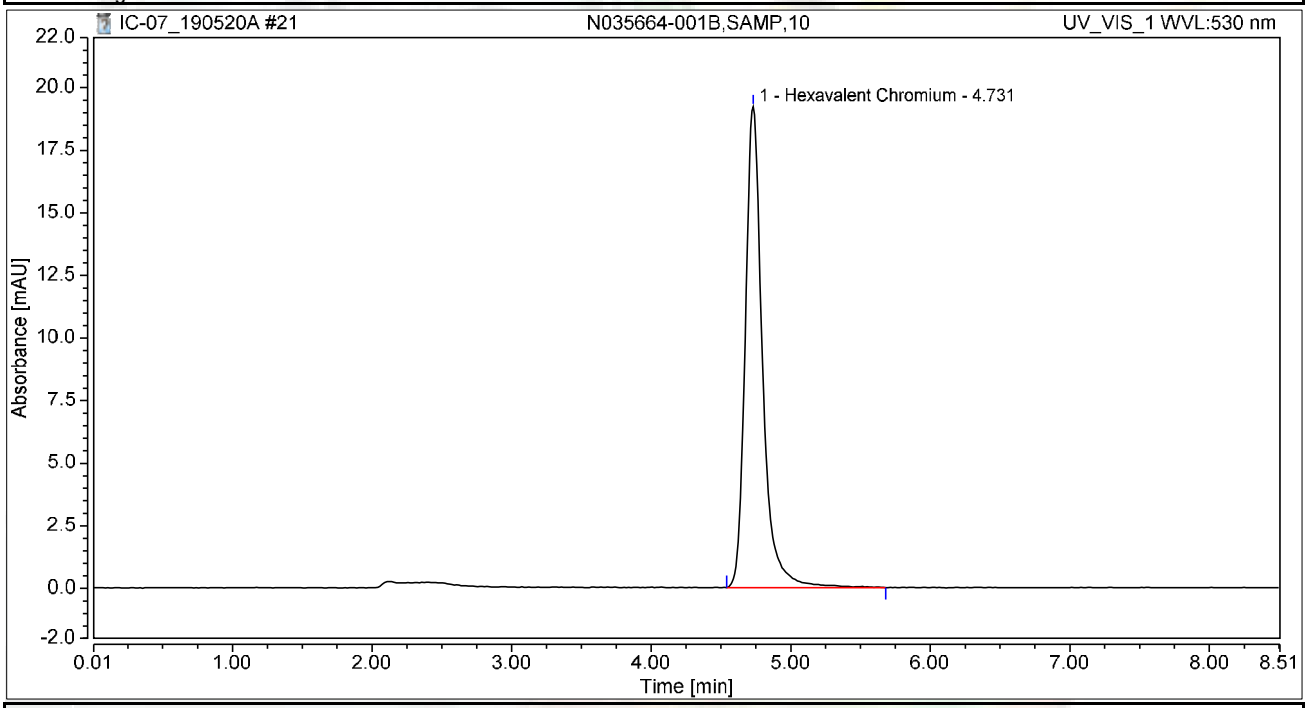
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.686	11.898	100.00	100.00	6.6860
Total:			**1.686**	**11.898**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035664-001B,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 12:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

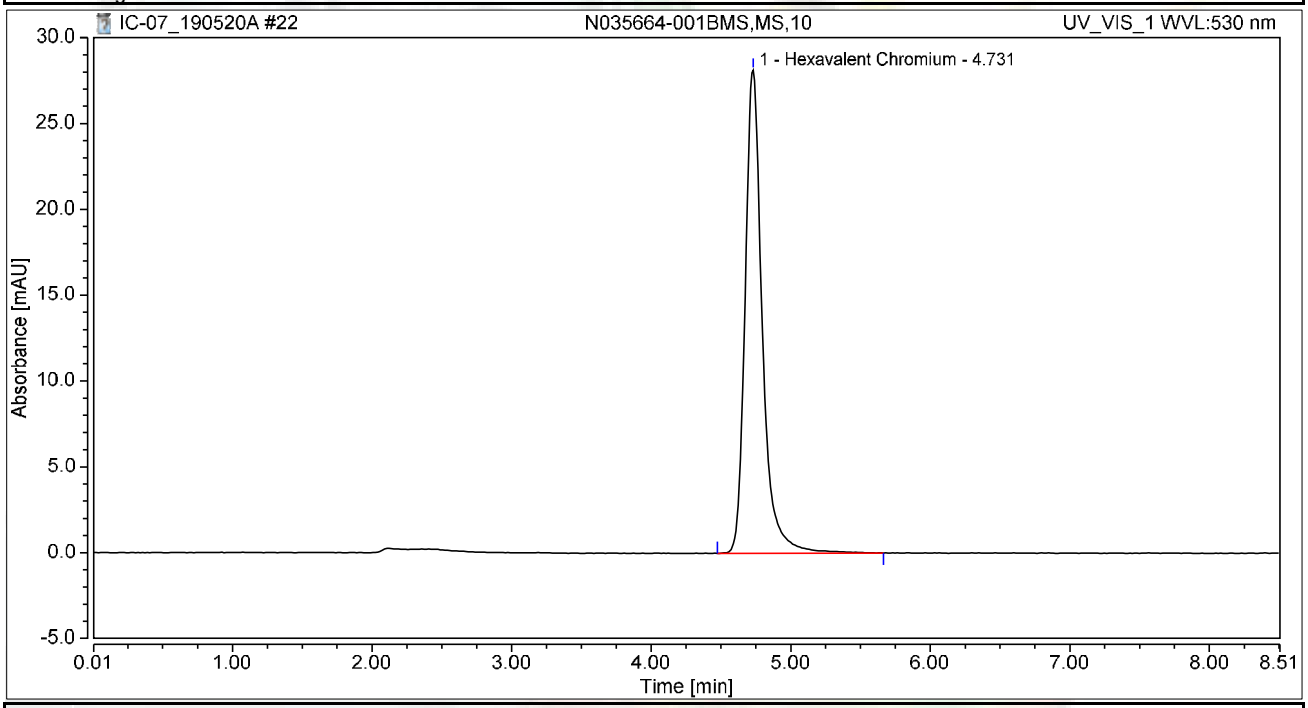
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.751	19.207	100.00	100.00	10.9106
Total:			**2.751**	**19.207**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035664-001BMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 12:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

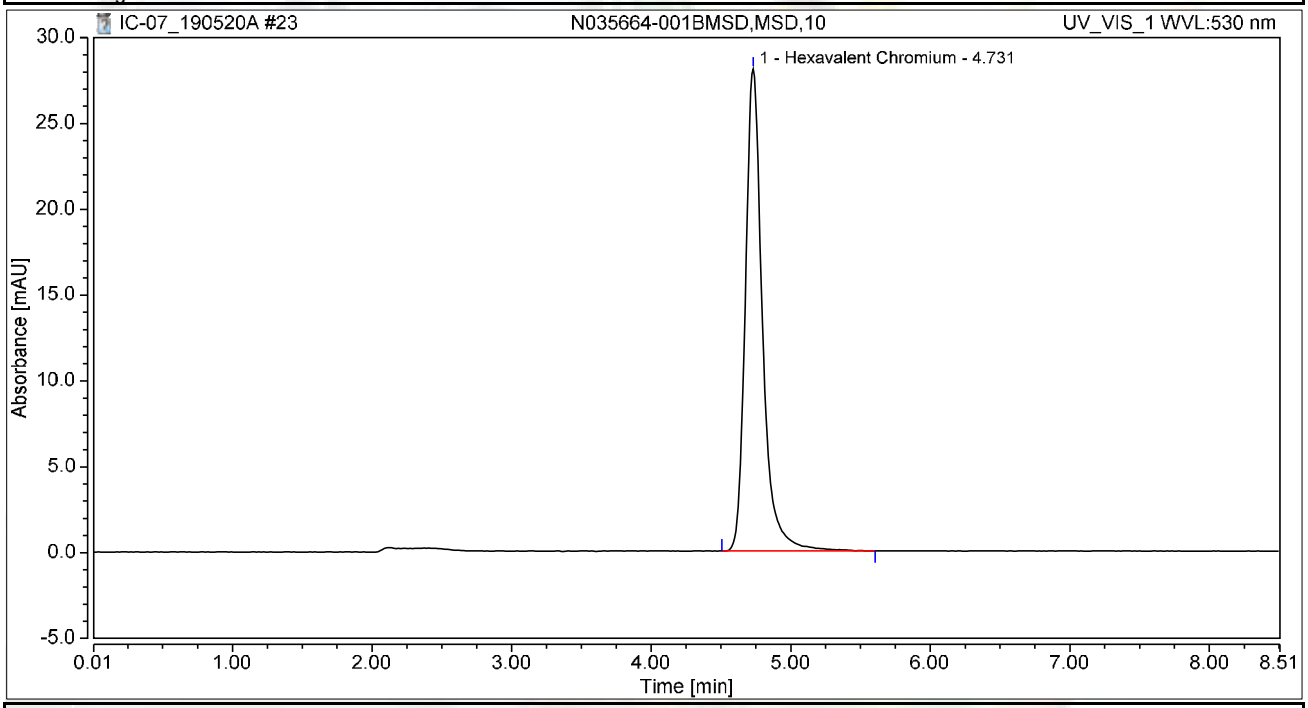
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	4.020	28.127	100.00	100.00	15.9451
Total:			**4.020**	**28.127**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035664-001BMSD,MSD,10**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 12:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

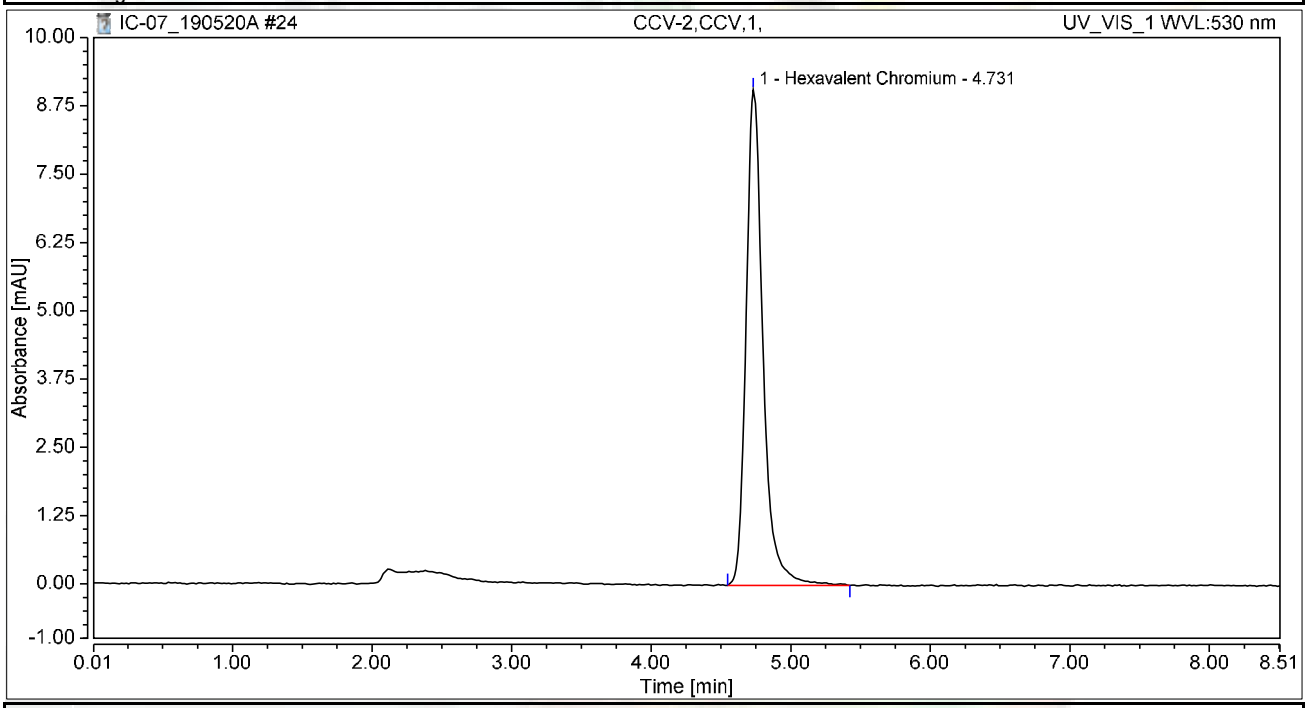
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.993	28.079	100.00	100.00	15.8378
Total:			**3.993**	**28.079**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 12:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

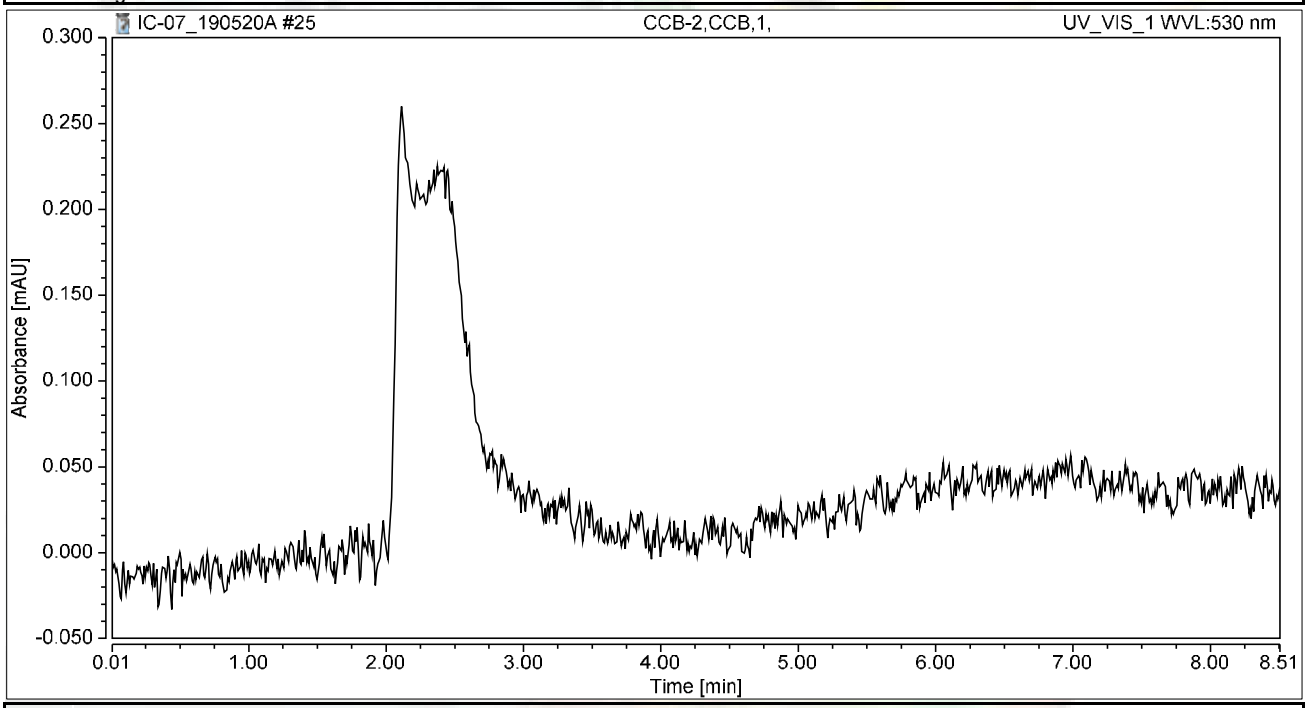
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.280	9.075	100.00	100.00	5.0769
Total:			**1.280**	**9.075**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 12:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

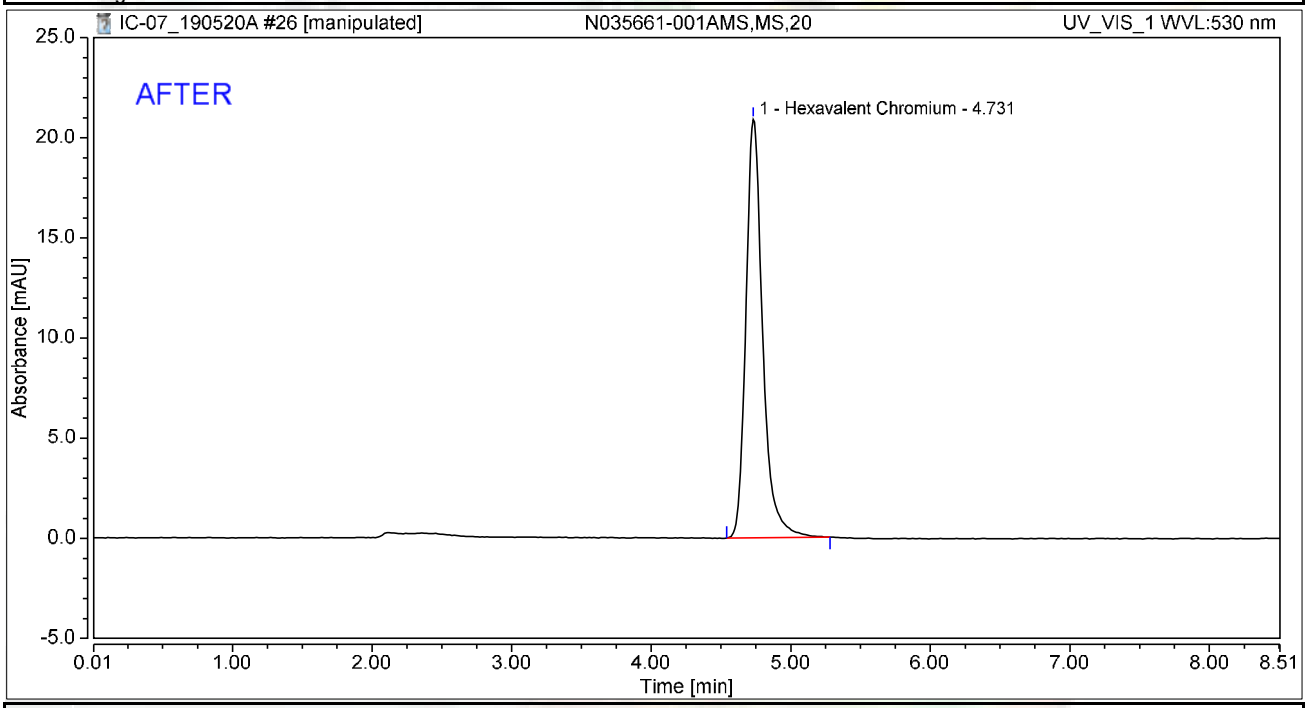
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035661-001AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 12:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.920	20.904	100.00	100.00	11.5802
Total:			**2.920**	**20.904**	**100.00**	**100.00**	

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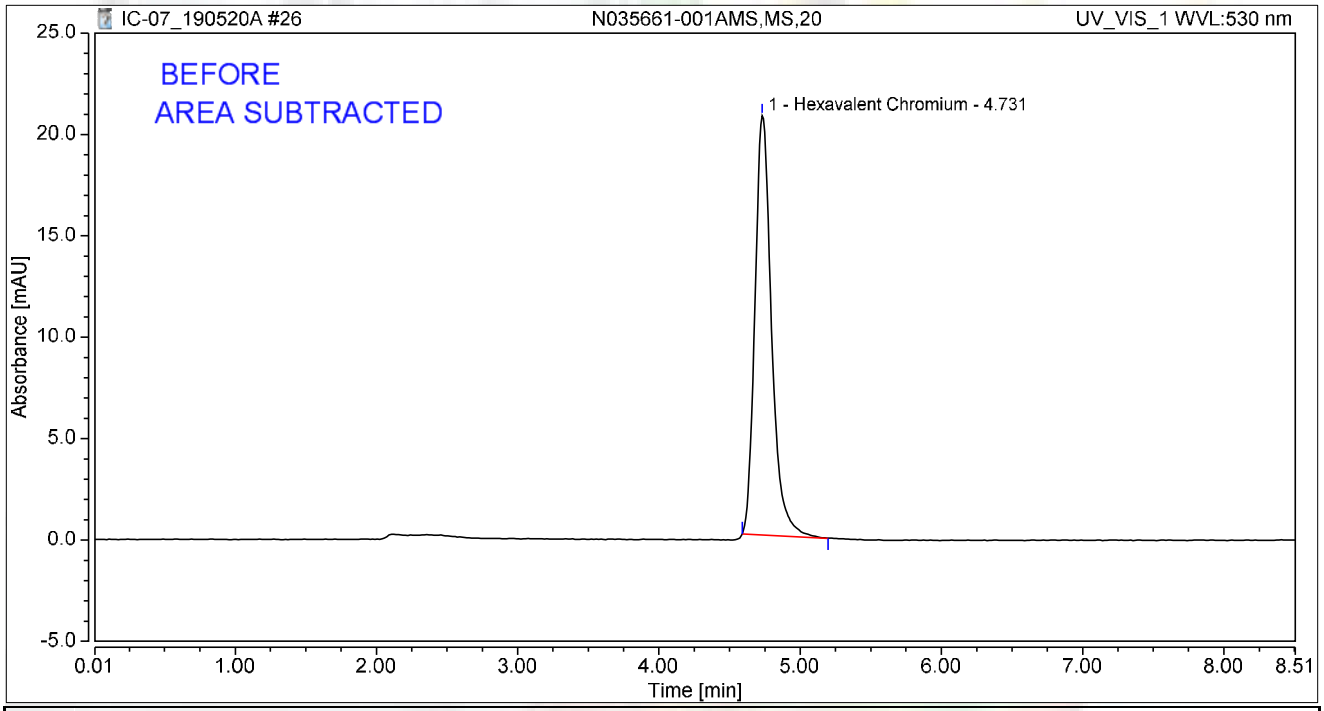
Chromatogram and Results

Injection Details

Injection Name:	**N035661-001AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 12:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.816	20.678	100.00	100.00	11.1702
Total:			**2.816**	**20.678**	**100.00**	**100.00**	

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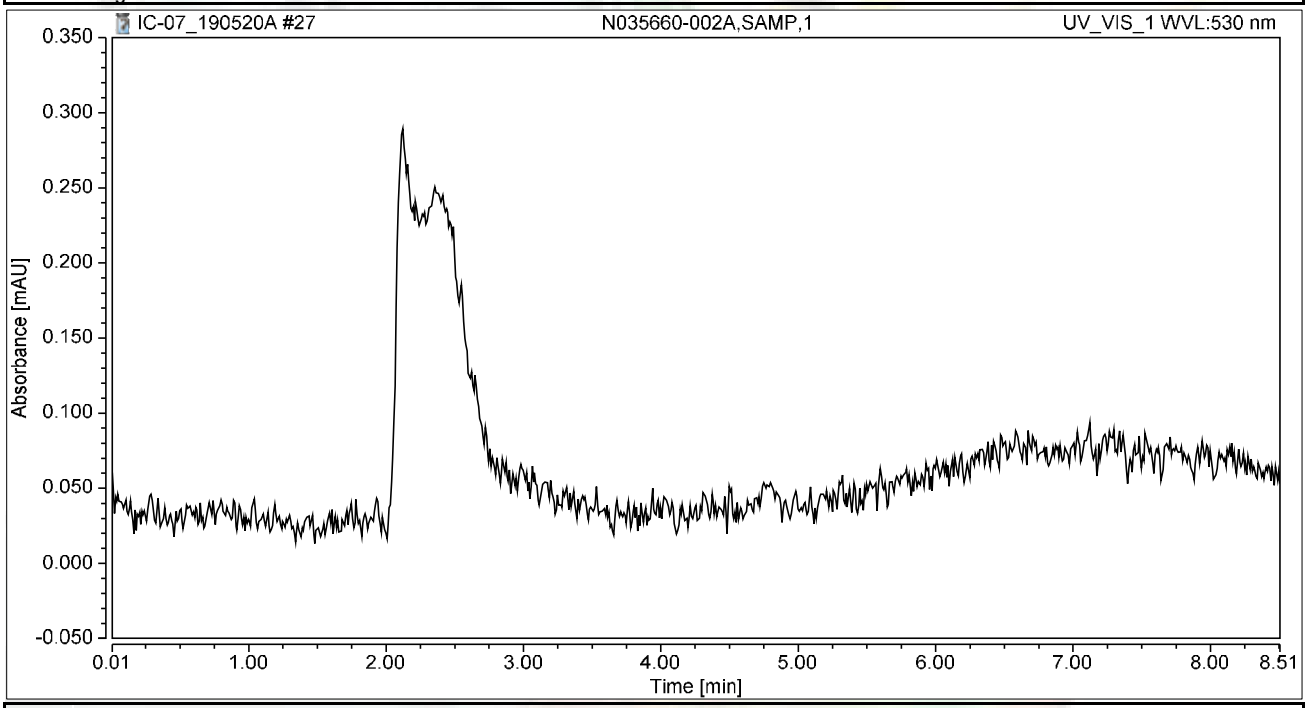
Chromatogram and Results

Injection Details

Injection Name:	**N035660-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 13:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

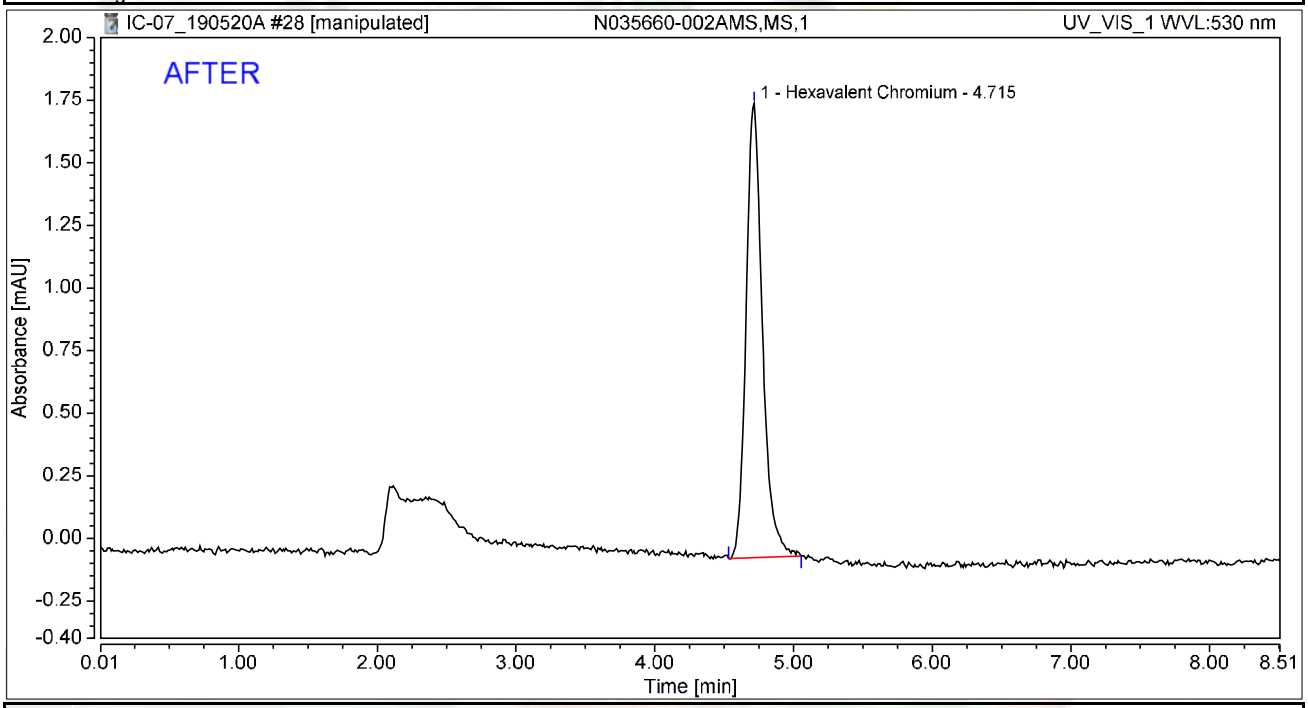
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035660-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 13:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.248	1.815	100.00	100.00	0.9835
Total:			**0.248**	**1.815**	**100.00**	**100.00**	

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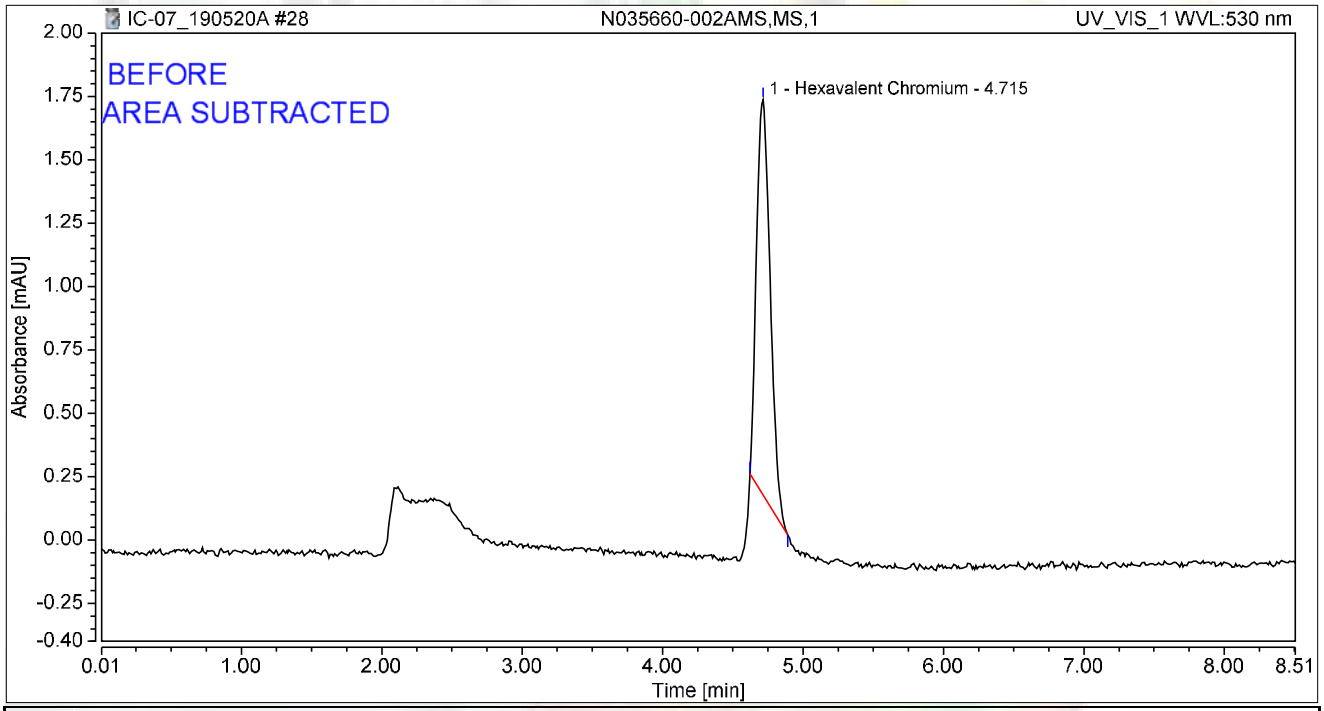
Chromatogram and Results

Injection Details

Injection Name:	**N035660-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 13:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.177	1.559	100.00	100.00	0.7013
Total:			**0.177**	**1.559**	**100.00**	**100.00**	

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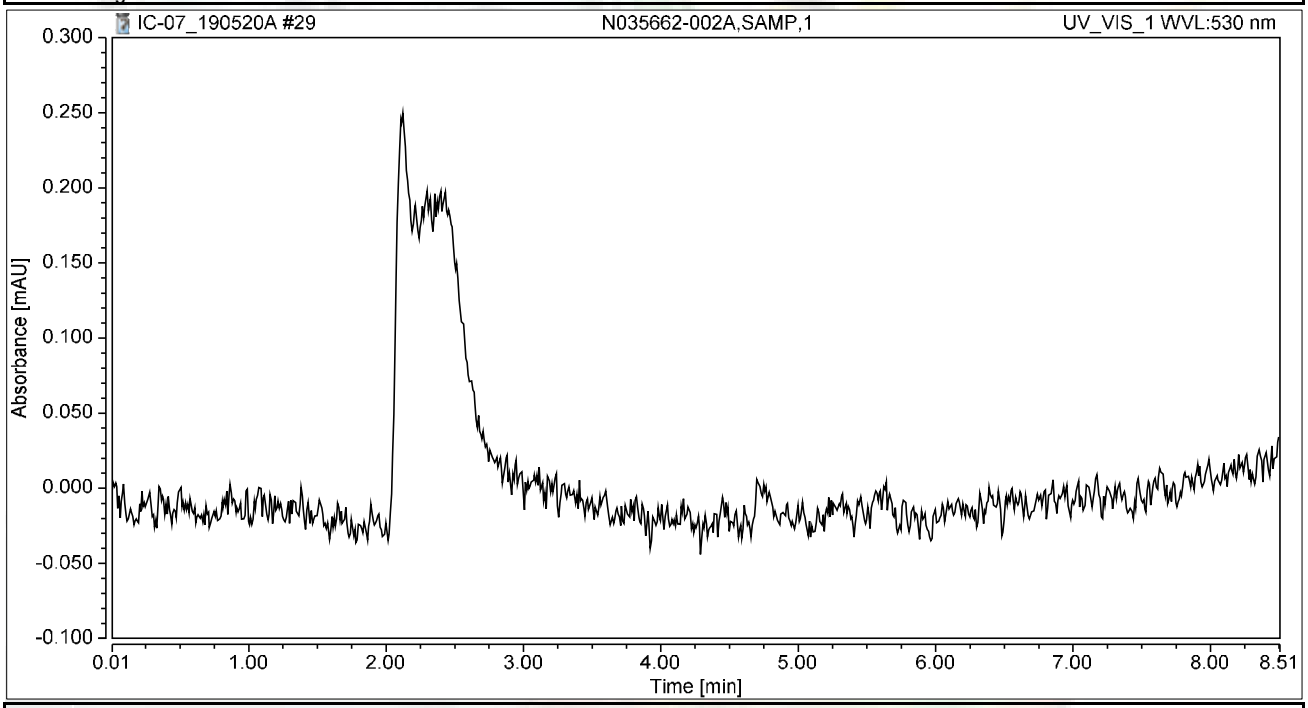
Chromatogram and Results

Injection Details

Injection Name:	**N035662-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 13:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

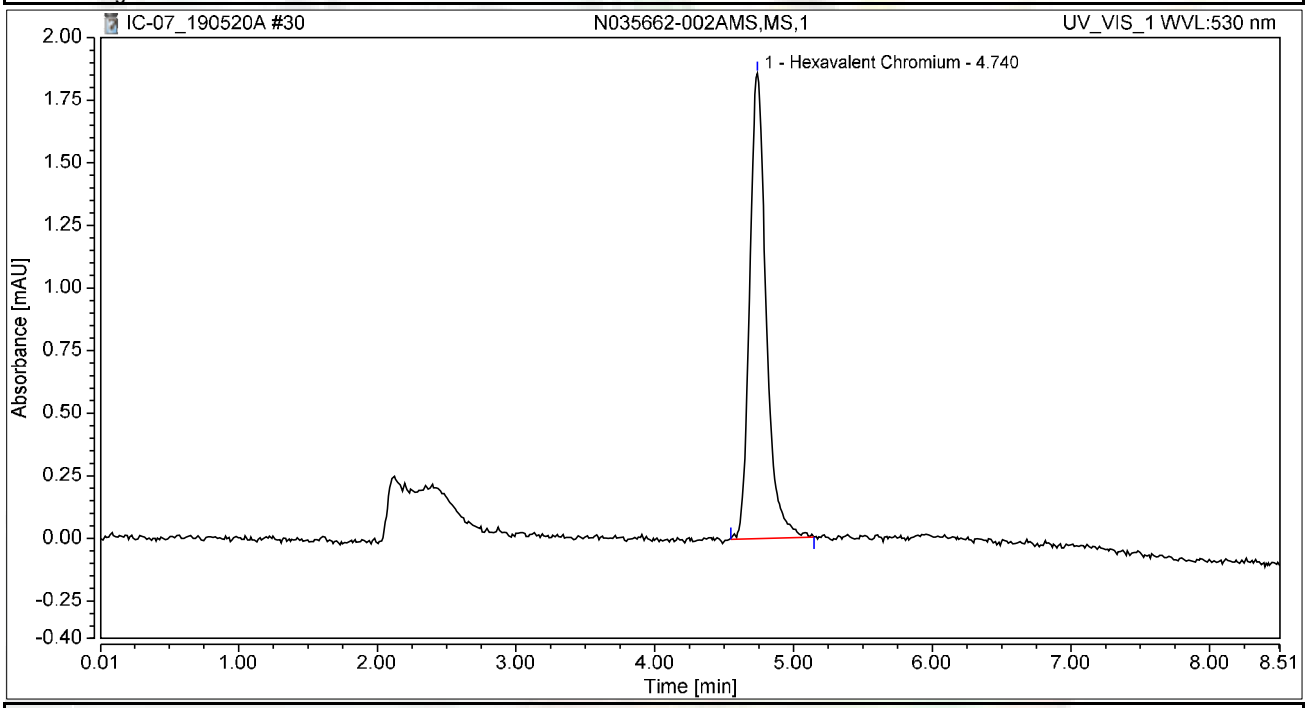
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035662-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 13:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

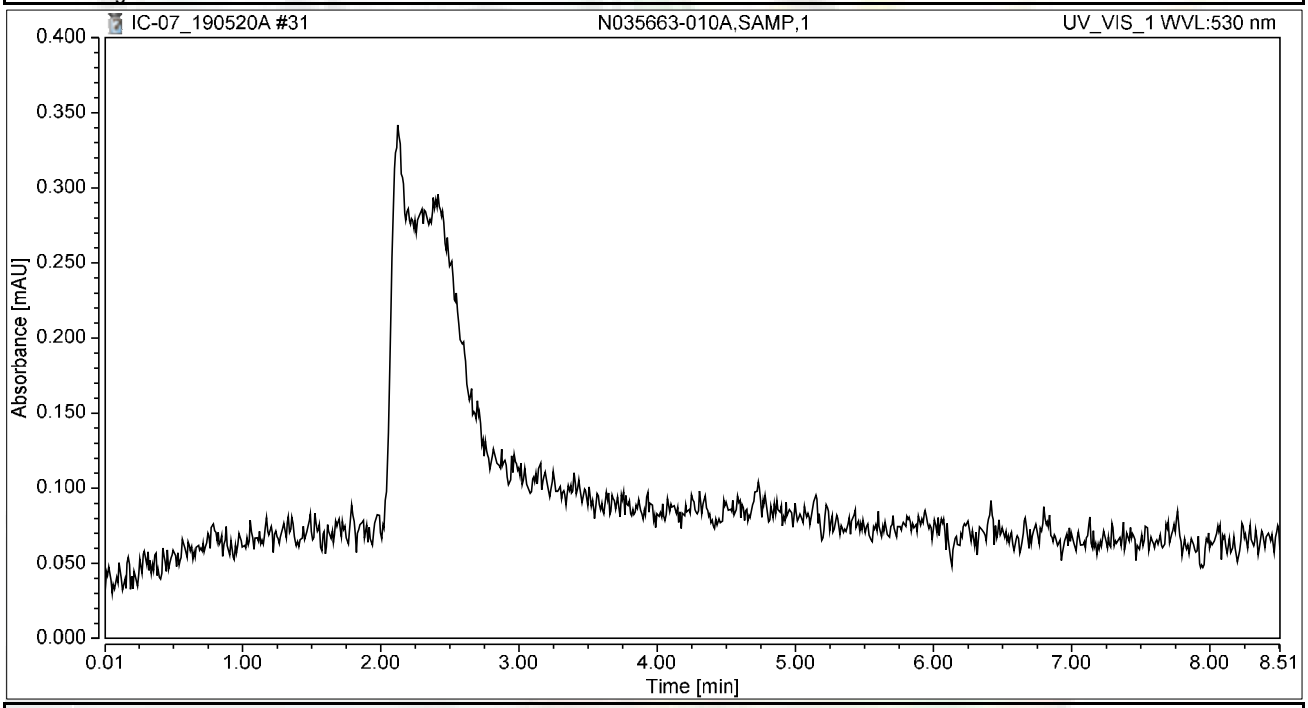
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.256	1.857	100.00	100.00	1.0157
Total:			**0.256**	**1.857**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 13:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

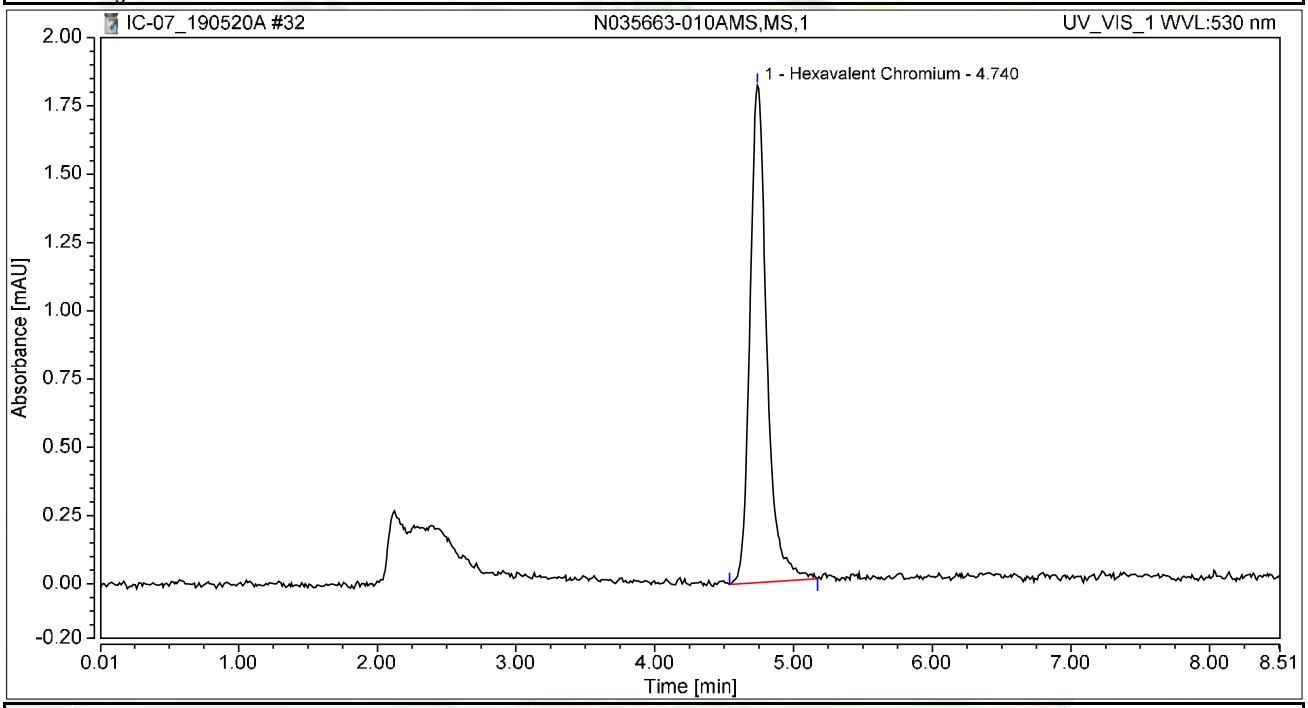
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 13:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

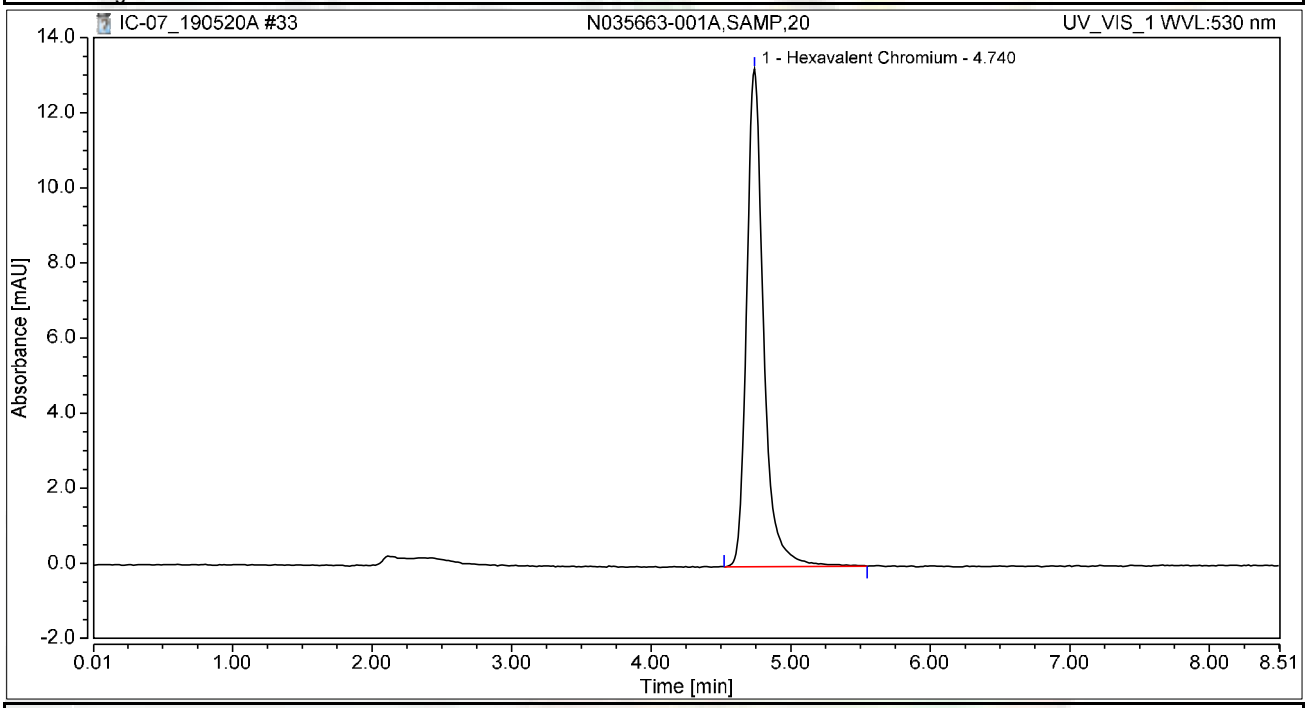
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.257	1.822	100.00	100.00	1.0183
Total:			**0.257**	**1.822**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-001A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 14:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

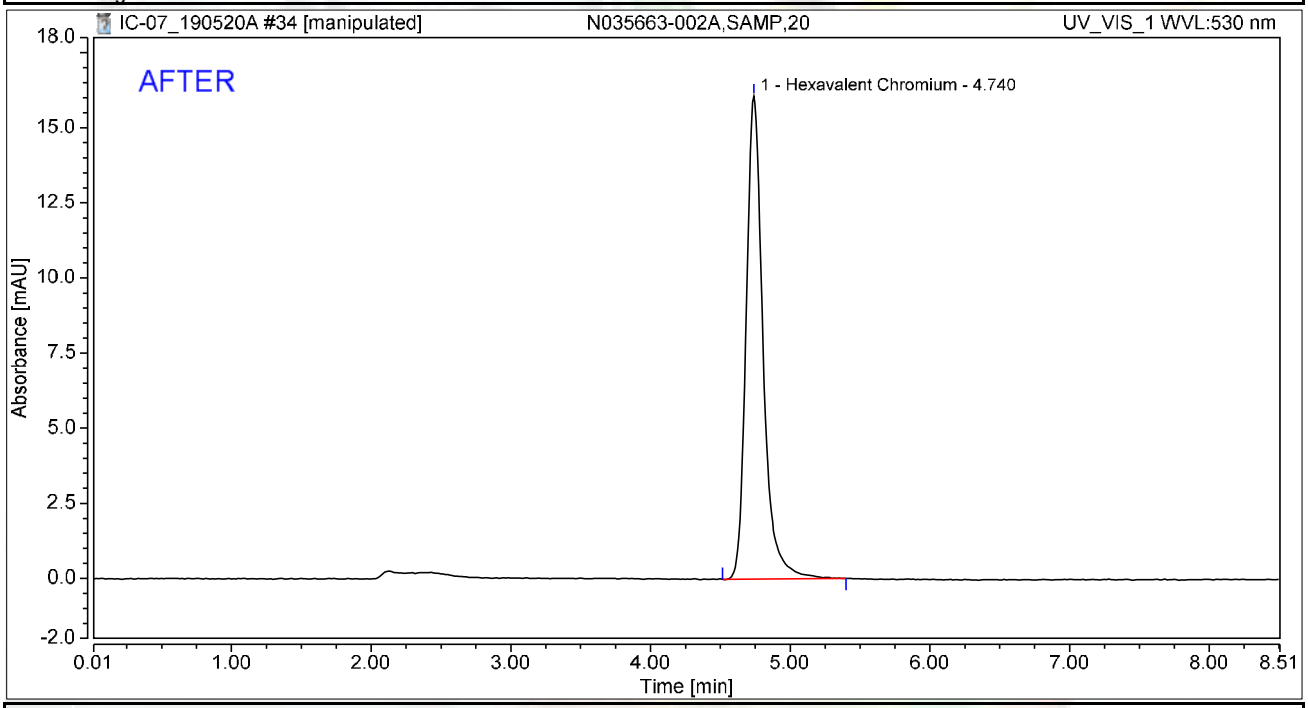
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.873	13.256	100.00	100.00	7.4280
Total:			**1.873**	**13.256**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-002A,SAMP,20**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 14:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.251	16.081	100.00	100.00	8.9284
Total:			**2.251**	**16.081**	**100.00**	**100.00**	

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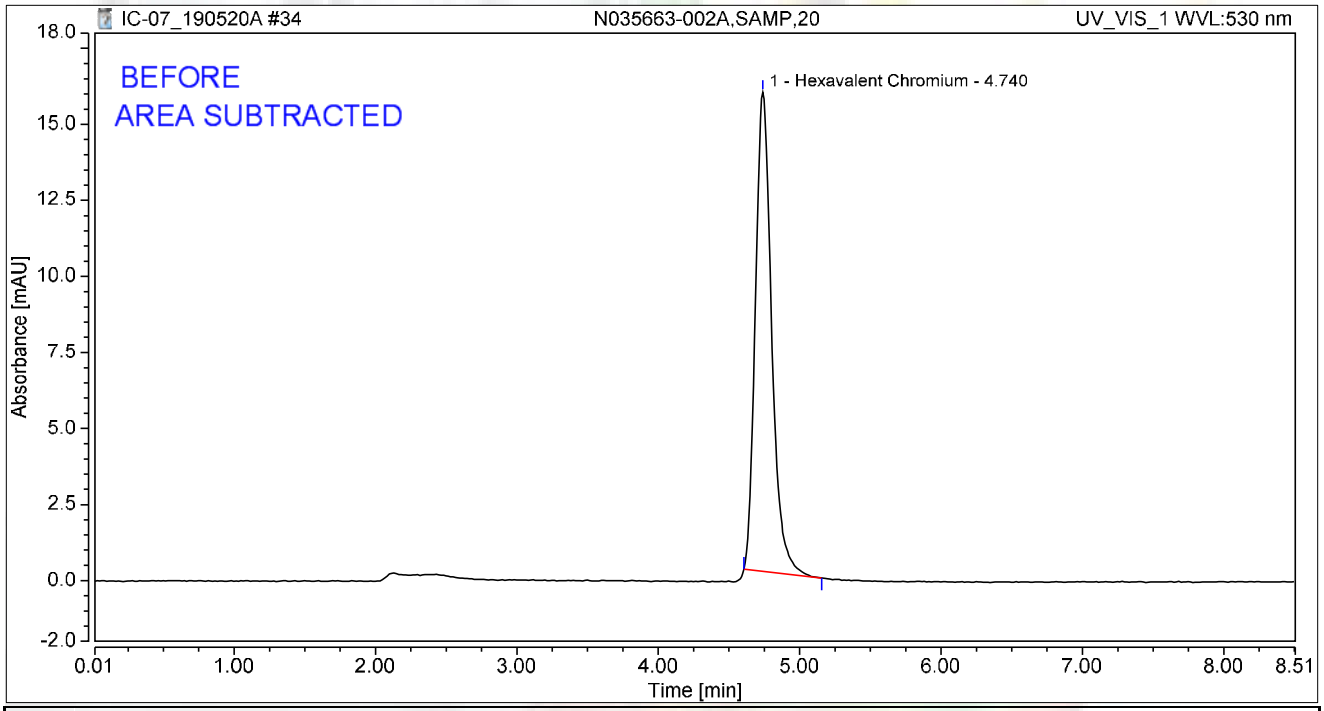
Reviewed by: IC-07 RBA 5/21/2019 4:35:52 PM
Nancy 5/30/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035663-002A,SAMP,20**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 14:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.106	15.757	100.00	100.00	8.3518
Total:			**2.106**	**15.757**	**100.00**	**100.00**	

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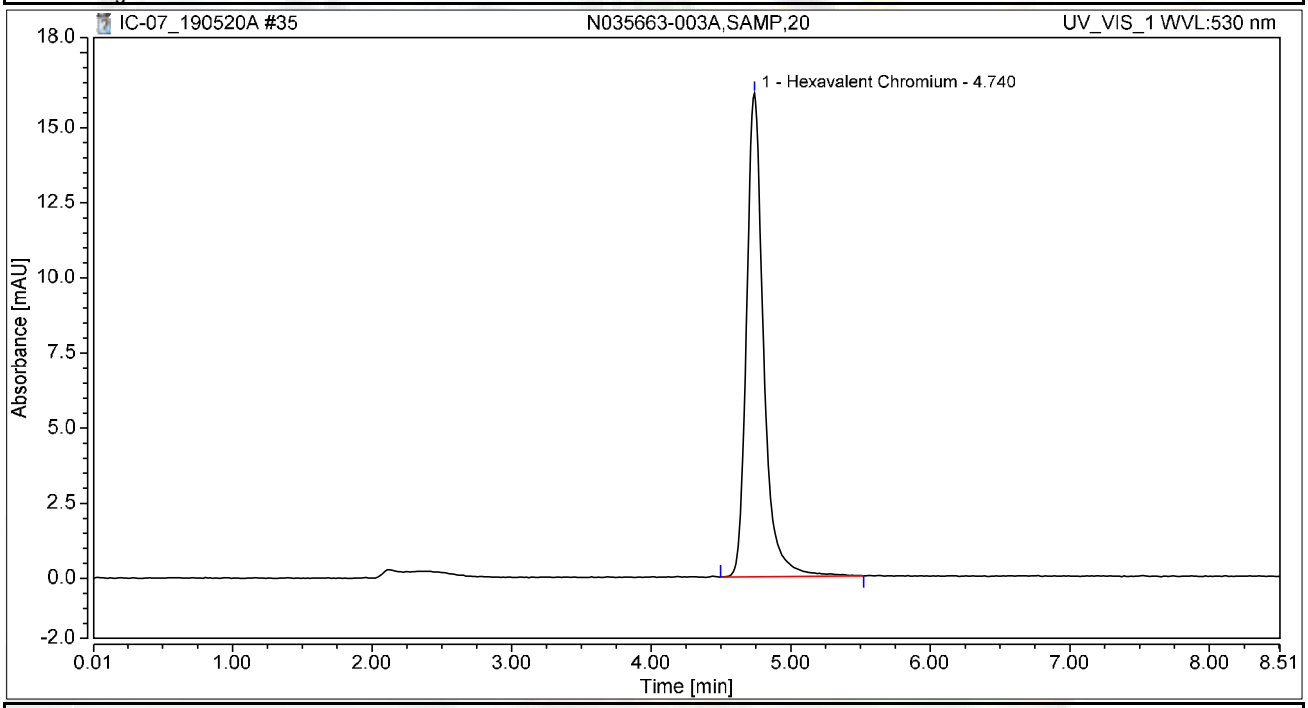
Chromatogram and Results

Injection Details

Injection Name:	**N035663-003A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 14:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

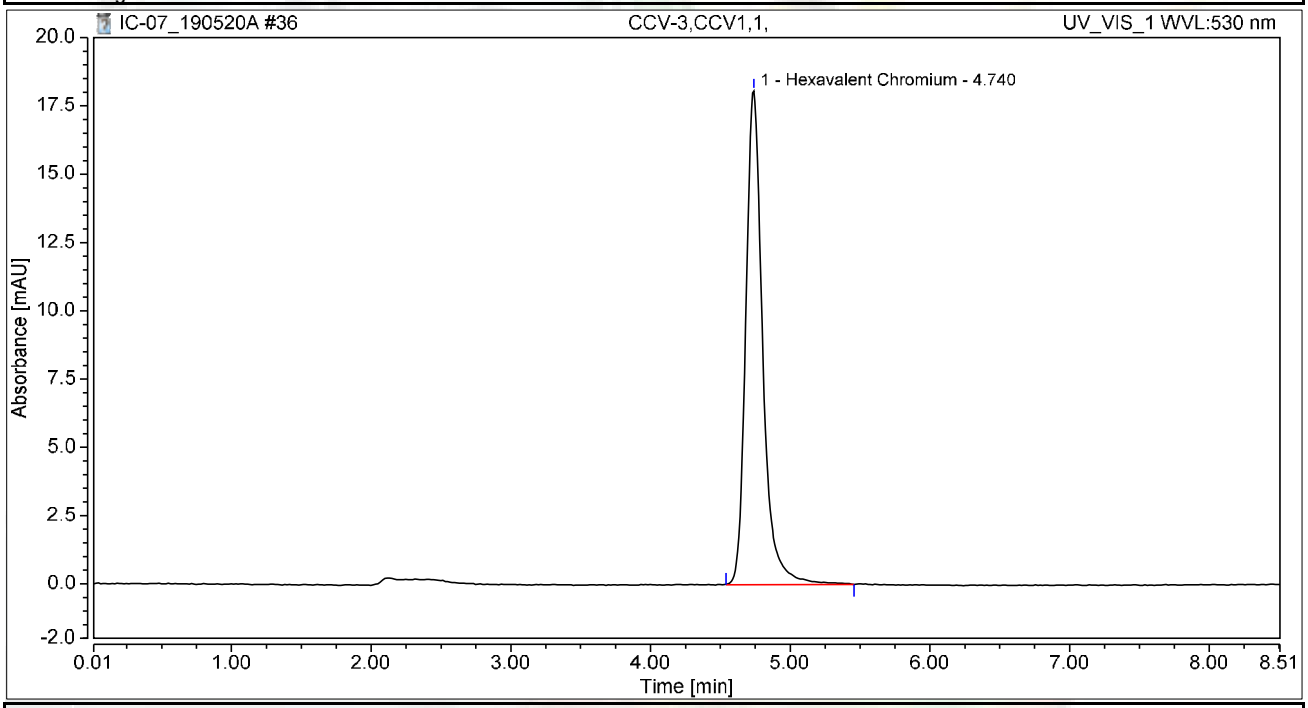
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.282	16.098	100.00	100.00	9.0510
Total:			**2.282**	**16.098**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 14:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

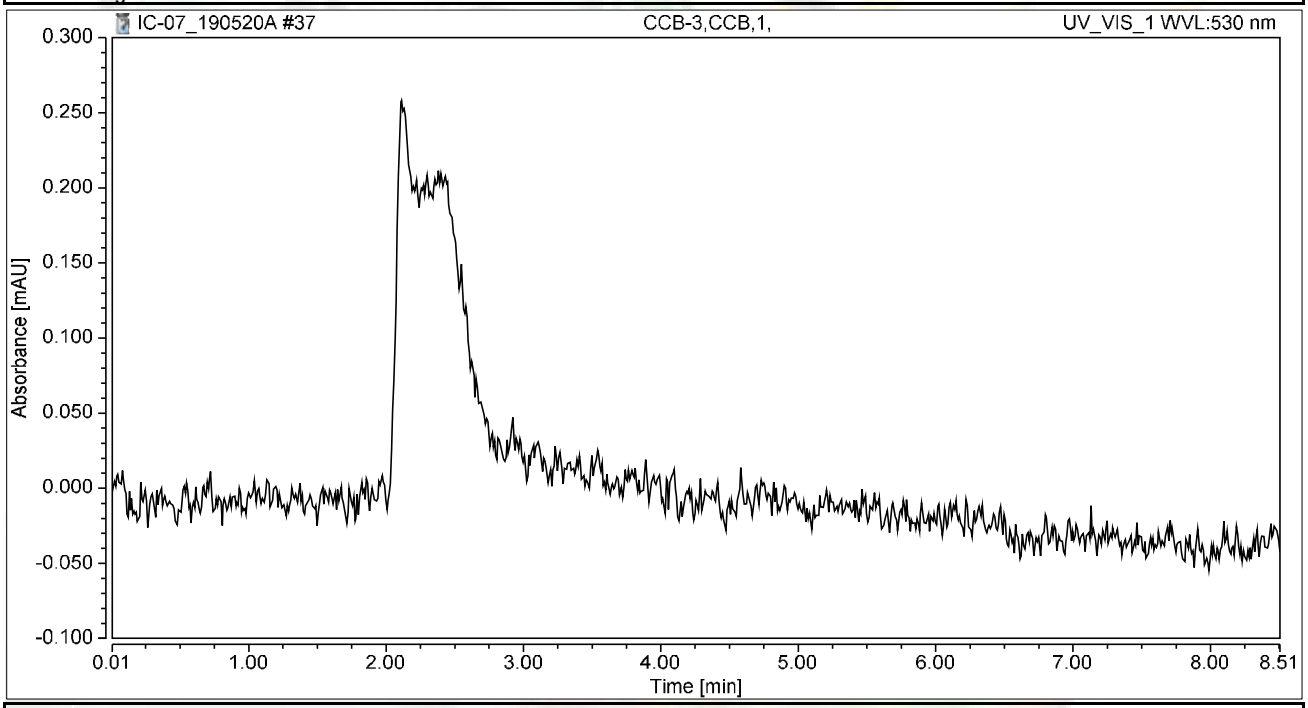
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.542	18.077	100.00	100.00	10.0830
Total:			**2.542**	**18.077**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 14:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

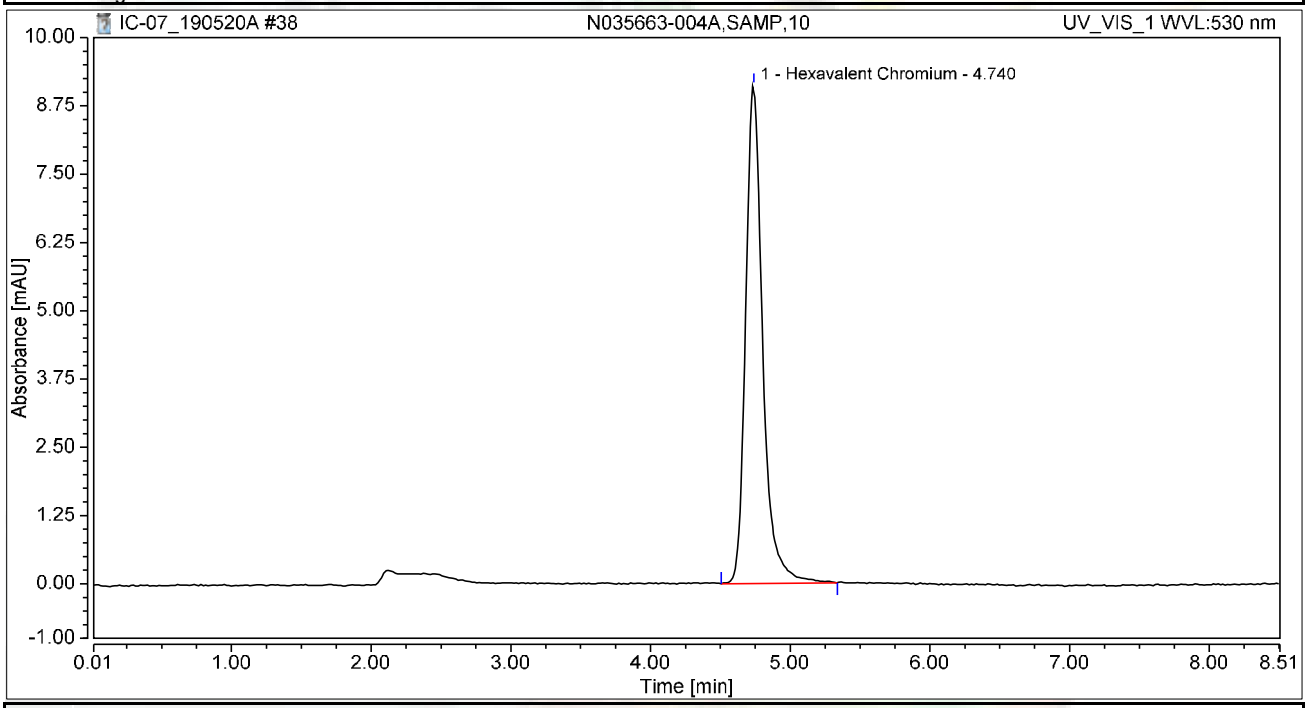
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-004A,SAMP,10**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 14:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

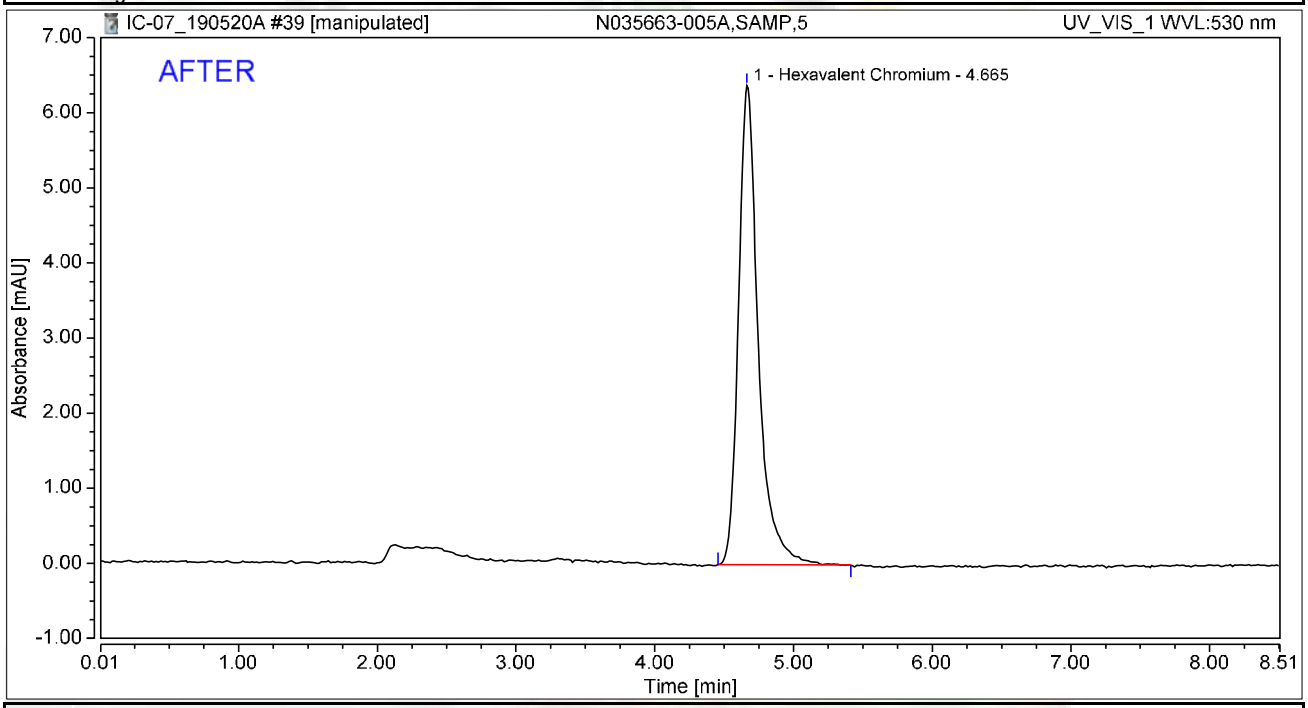
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.292	9.124	100.00	100.00	5.1246
Total:			**1.292**	**9.124**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-005A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 14:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	1.054	6.377	100.00	100.00	4.1791
Total:			**1.054**	**6.377**	**100.00**	**100.00**	

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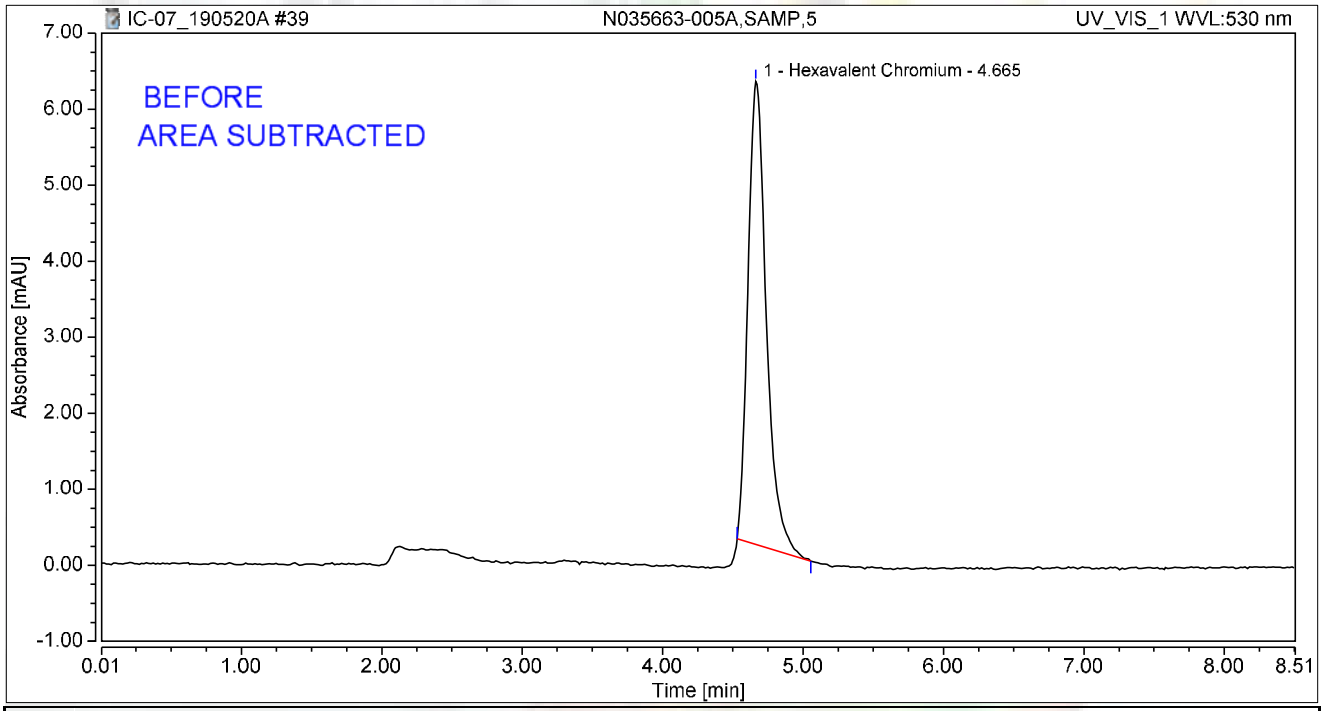
Chromatogram and Results

Injection Details

Injection Name:	**N035663-005A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 14:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	0.924	6.088	100.00	100.00	3.6658
Total:			**0.924**	**6.088**	**100.00**	**100.00**	

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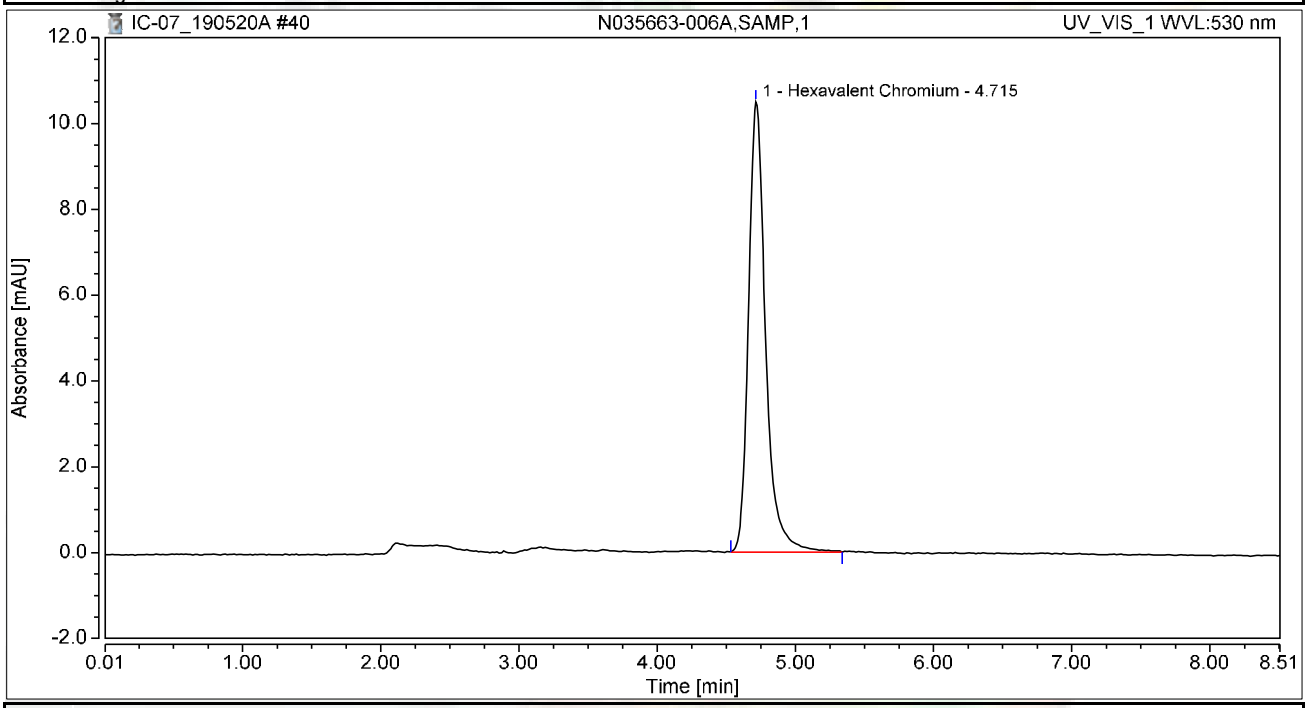
Chromatogram and Results

Injection Details

Injection Name:	**N035663-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 15:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

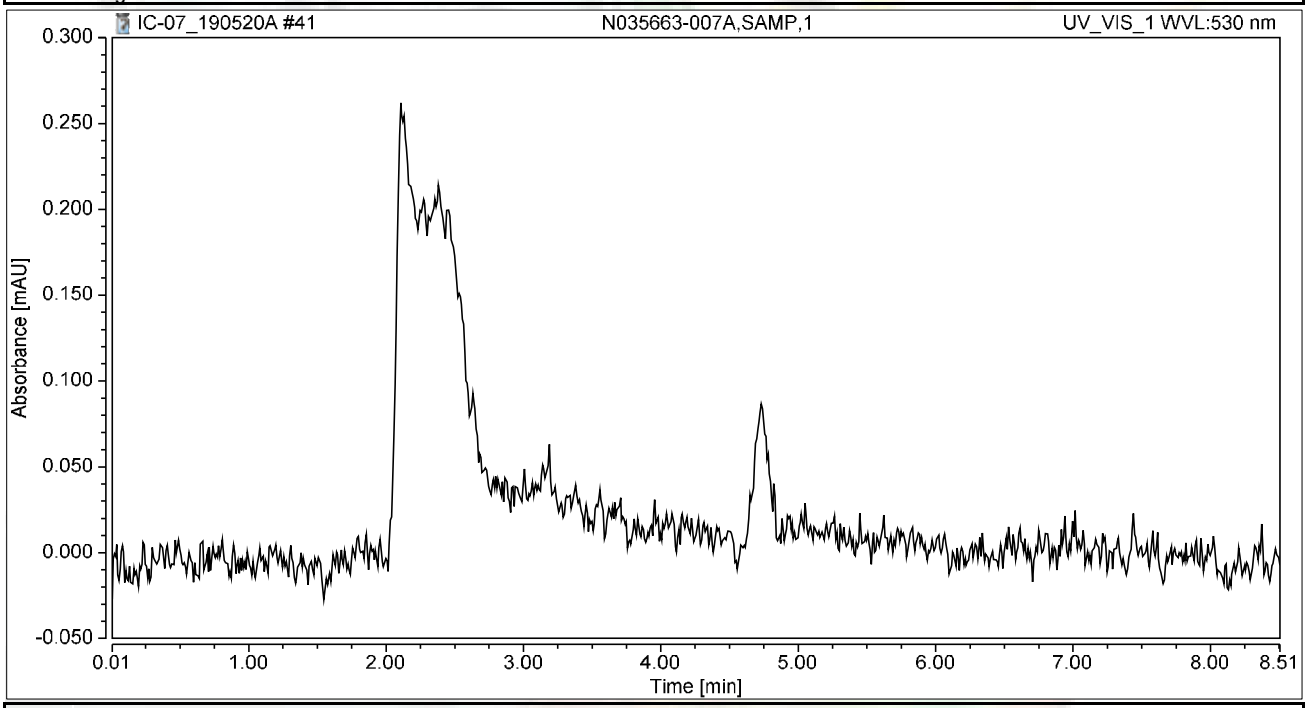
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.503	10.494	100.00	100.00	5.9602
Total:			**1.503**	**10.494**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 15:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

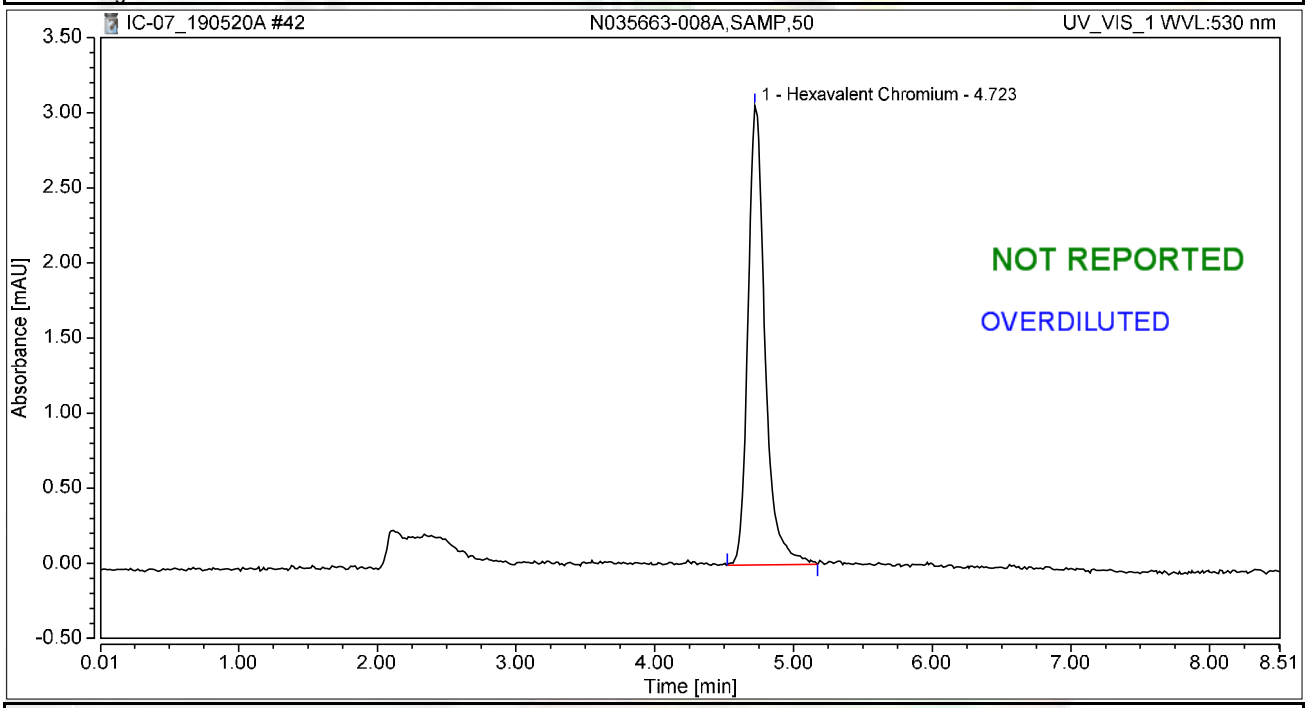
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-008A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 15:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

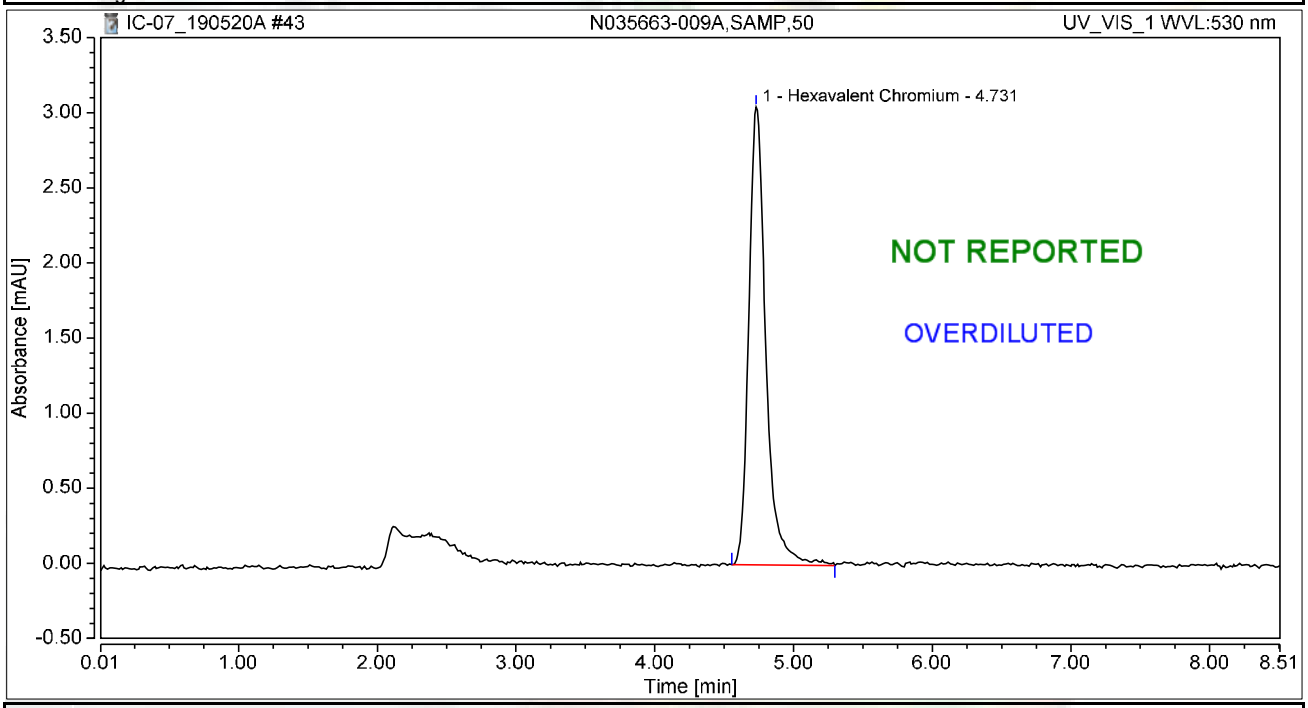
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.435	3.057	100.00	100.00	1.7265
Total:			**0.435**	**3.057**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-009A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 15:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

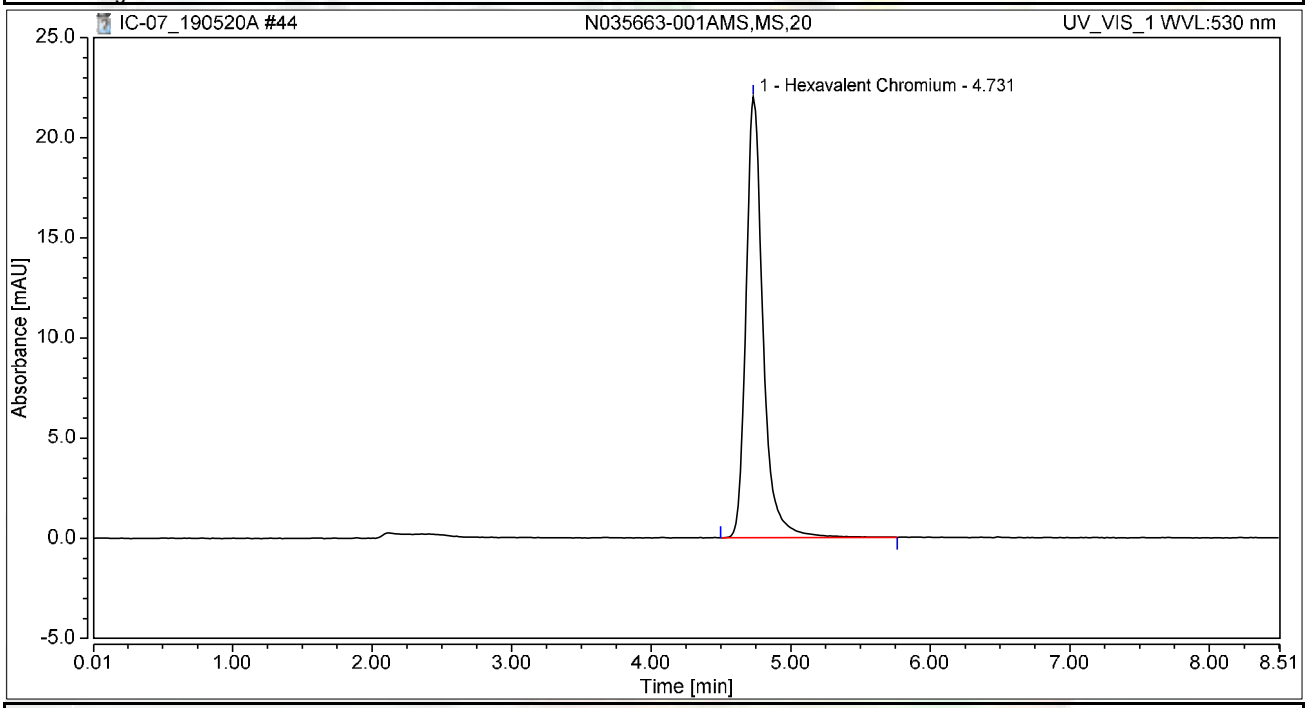
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.436	3.048	100.00	100.00	1.7281
Total:			**0.436**	**3.048**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-001AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 15:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

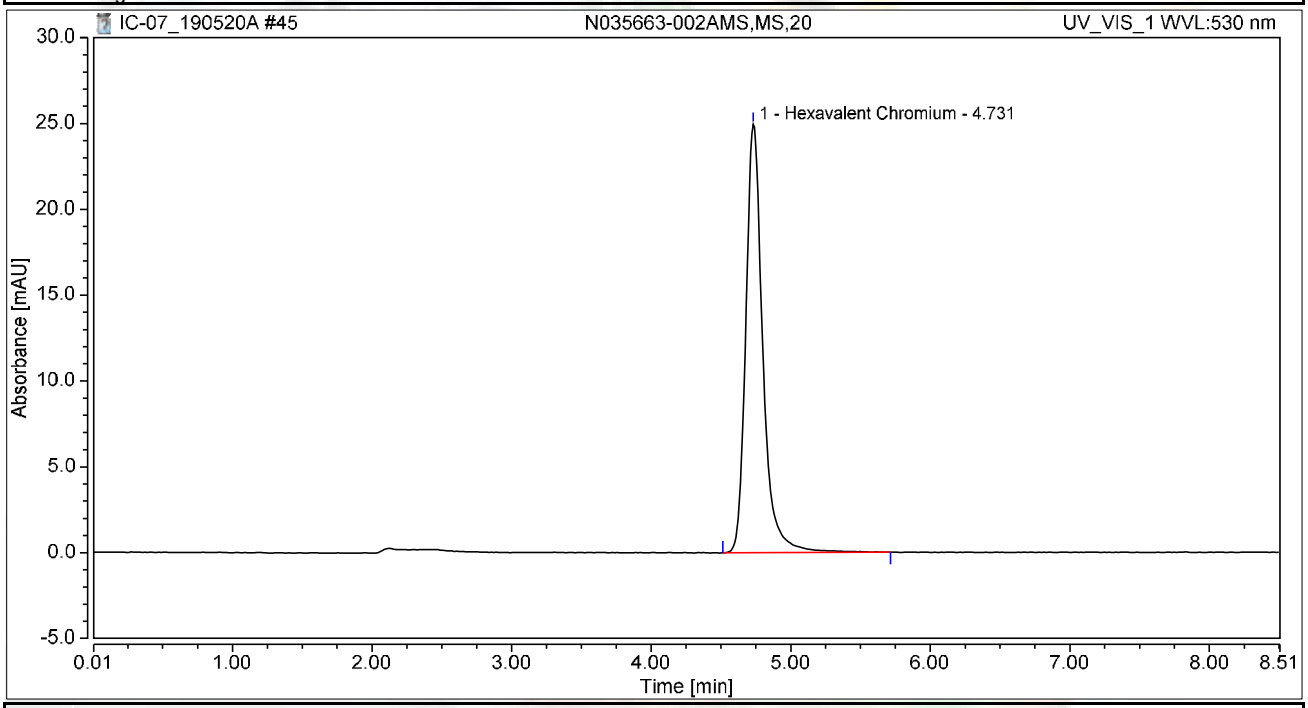
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.130	22.019	100.00	100.00	12.4141
Total:			**3.130**	**22.019**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-002AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 15:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

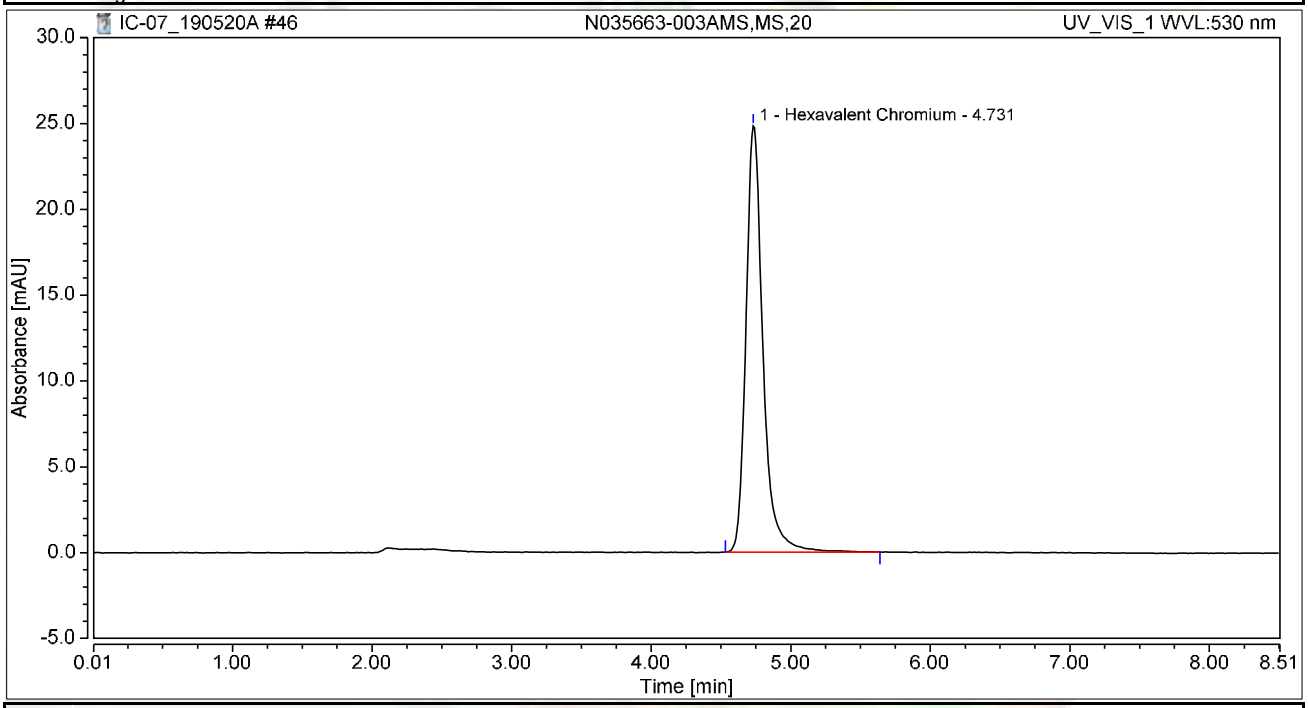
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.531	24.950	100.00	100.00	14.0056
Total:			**3.531**	**24.950**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-003AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 16:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

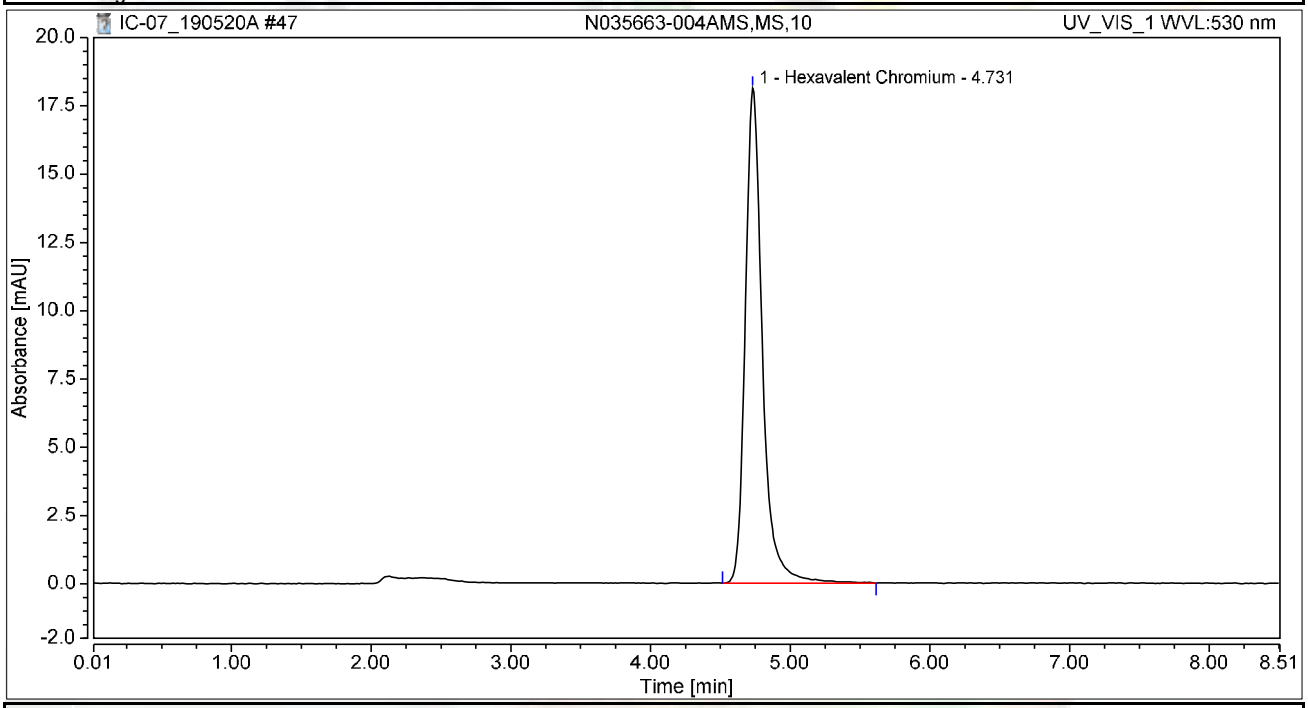
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.508	24.826	100.00	100.00	13.9132
Total:			**3.508**	**24.826**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-004AMS,MS,10**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 16:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

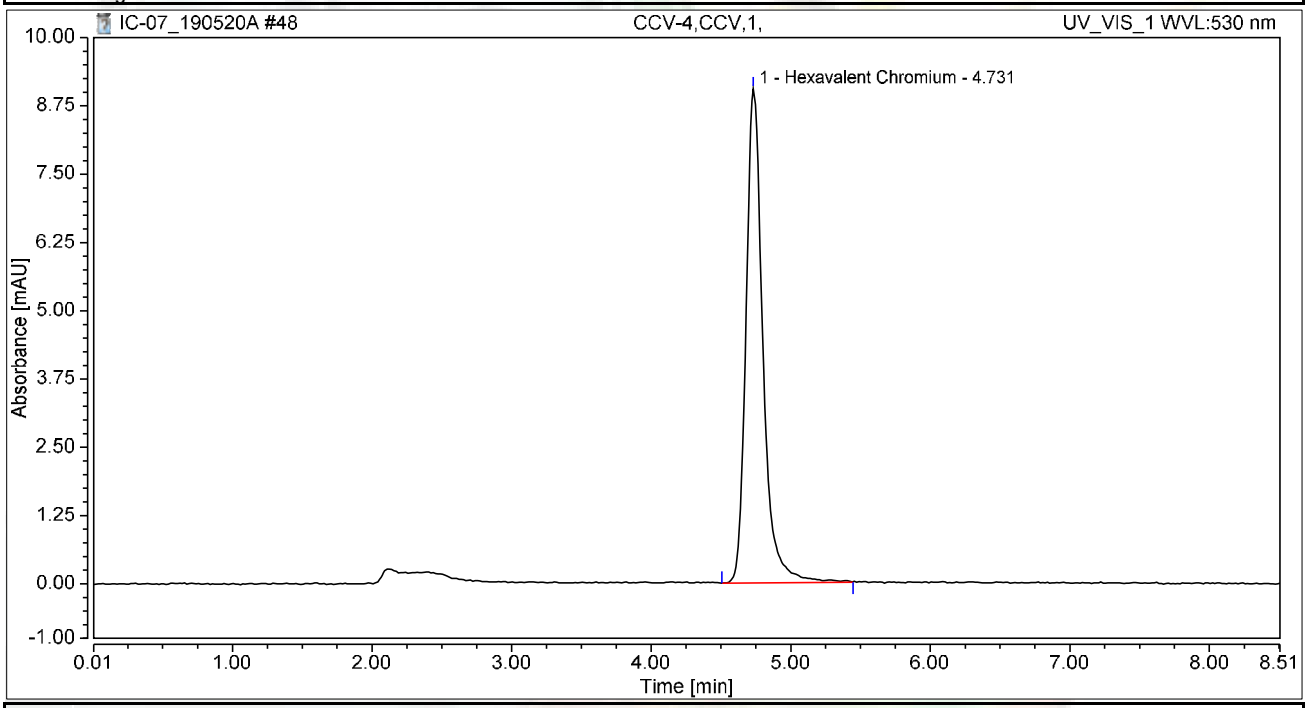
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.580	18.123	100.00	100.00	10.2342
Total:			**2.580**	**18.123**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 16:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

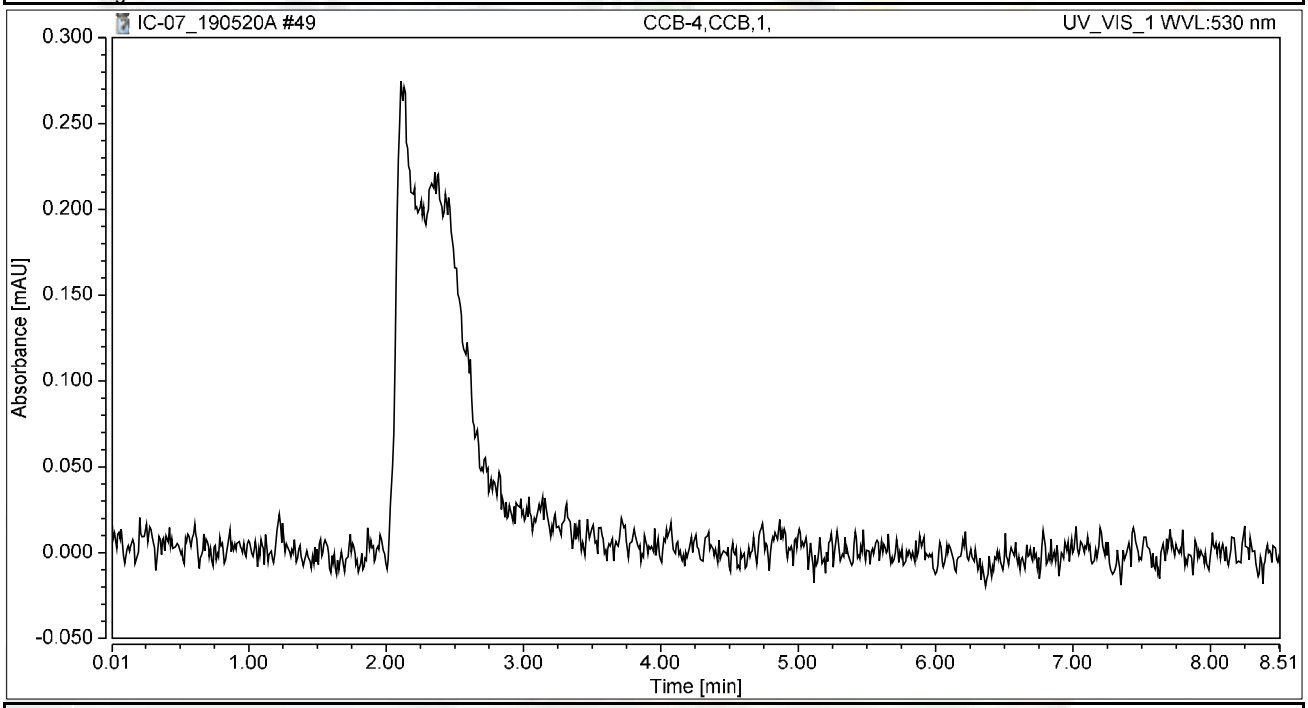
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.276	9.047	100.00	100.00	5.0597
Total:			**1.276**	**9.047**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 16:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

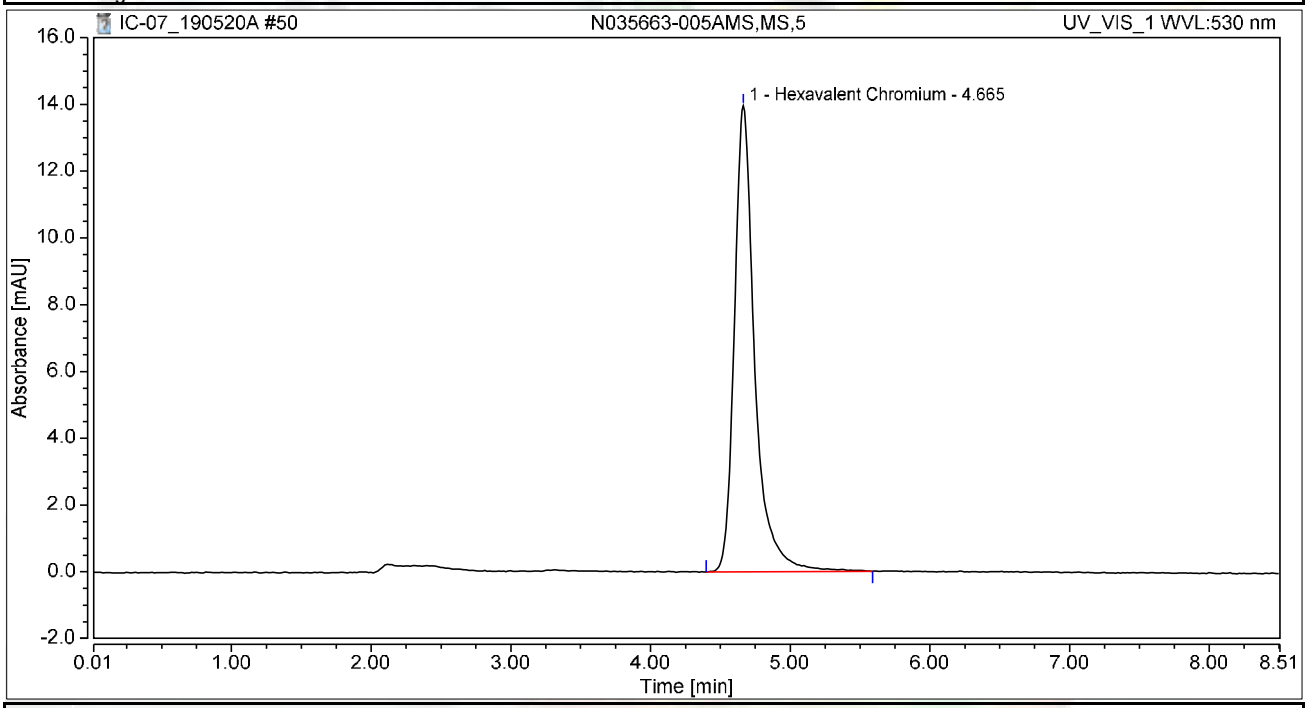
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-005AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 16:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

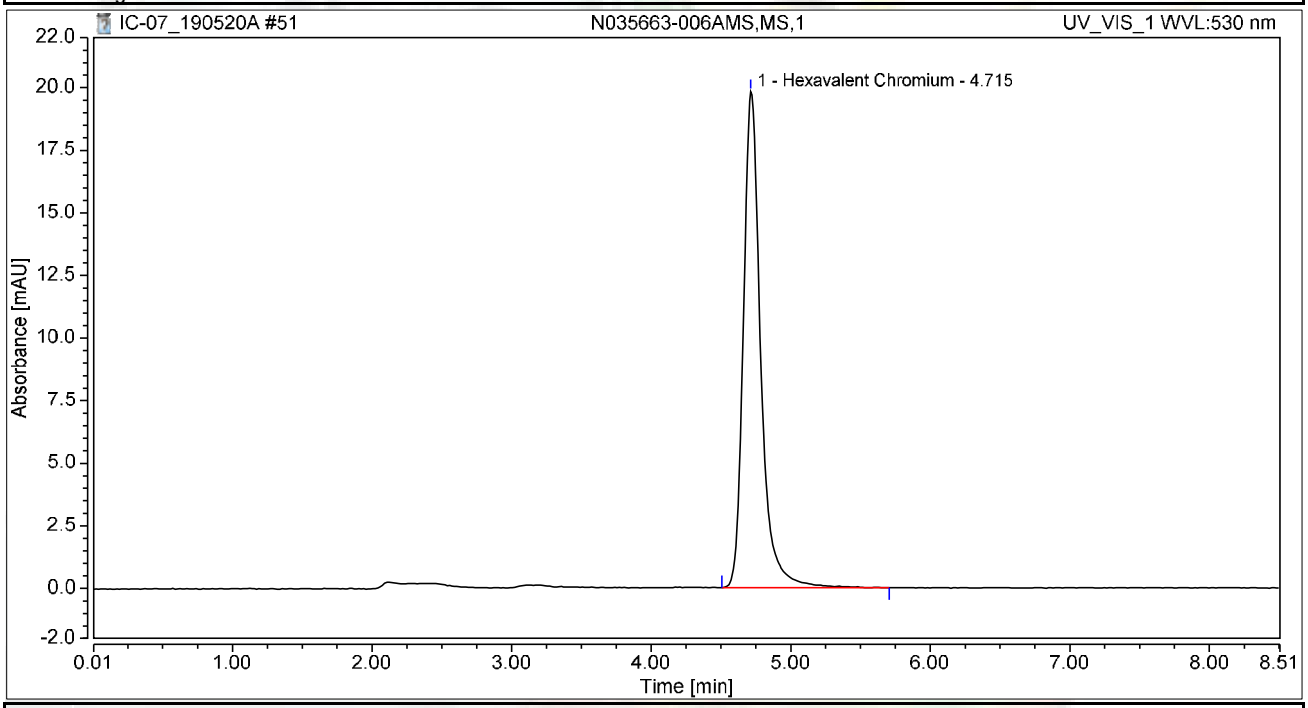
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.665	2.357	13.960	100.00	100.00	9.3485
Total:			**2.357**	**13.960**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 16:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

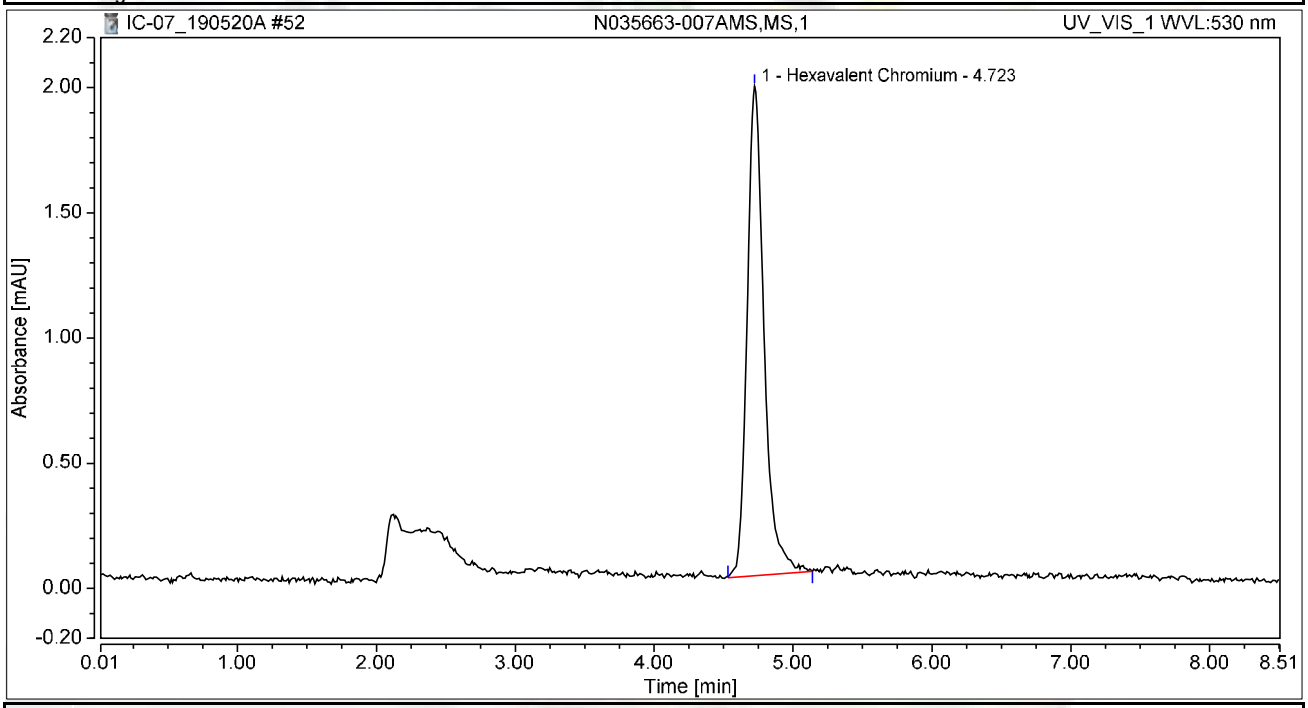
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.854	19.817	100.00	100.00	11.3217
Total:			**2.854**	**19.817**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-007AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 17:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

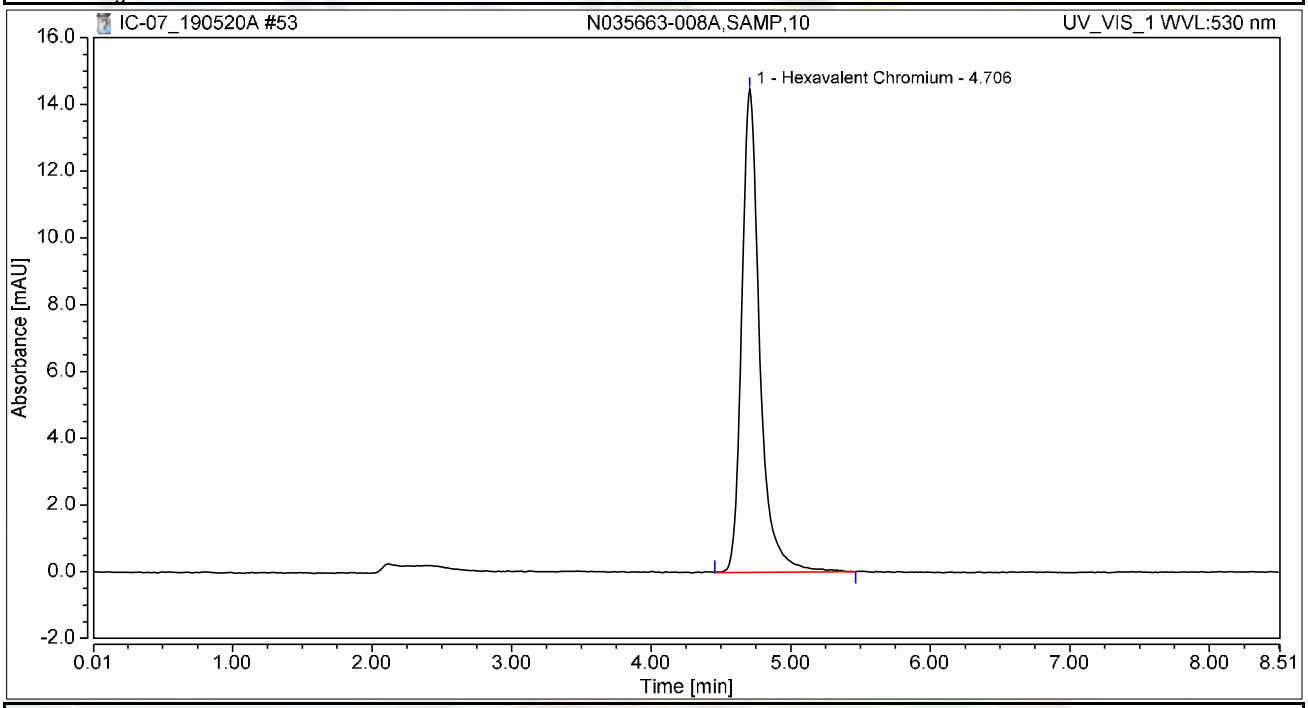
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.277	1.955	100.00	100.00	1.0997
Total:			**0.277**	**1.955**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-008A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 17:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

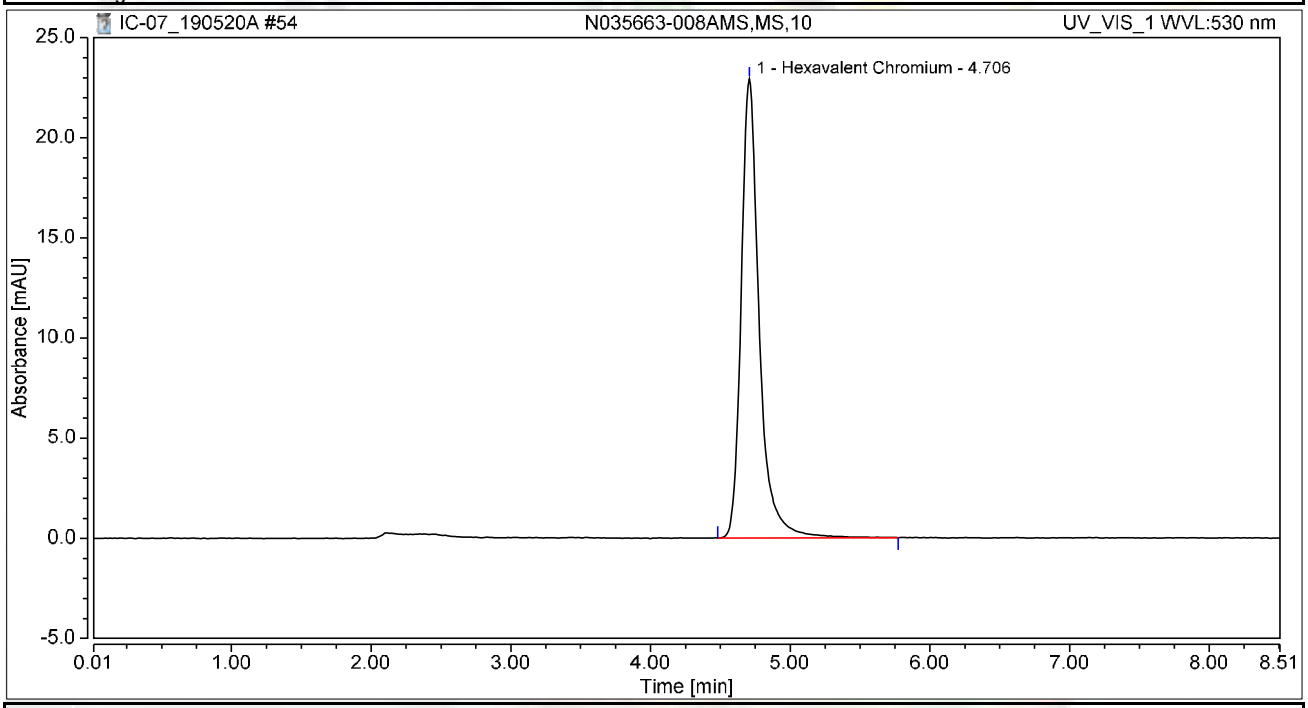
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.162	14.469	100.00	100.00	8.5762
Total:			**2.162**	**14.469**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-008AMS,MS,10**	*Run Time (min):*	**8.49**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 17:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

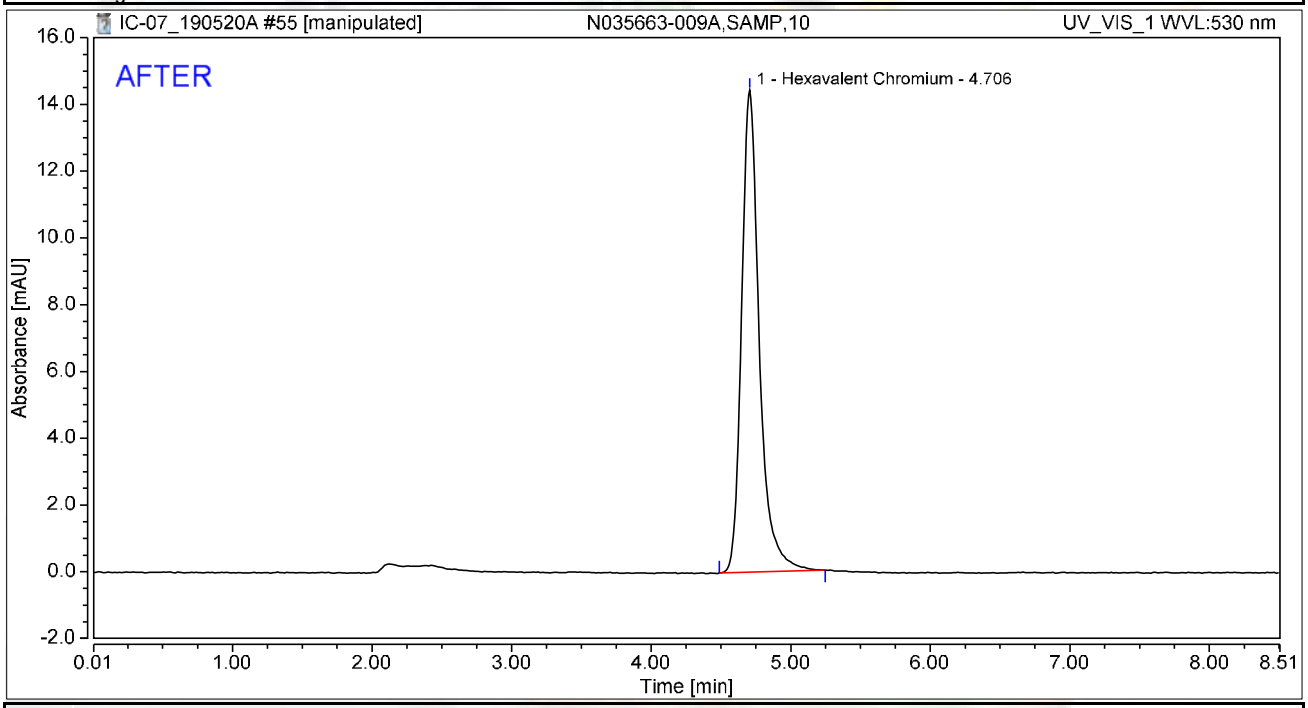
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	3.441	22.924	100.00	100.00	13.6481
Total:			**3.441**	**22.924**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035663-009A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 17:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.124	14.445	100.00	100.00	8.4260
Total:			**2.124**	**14.445**	**100.00**	**100.00**	

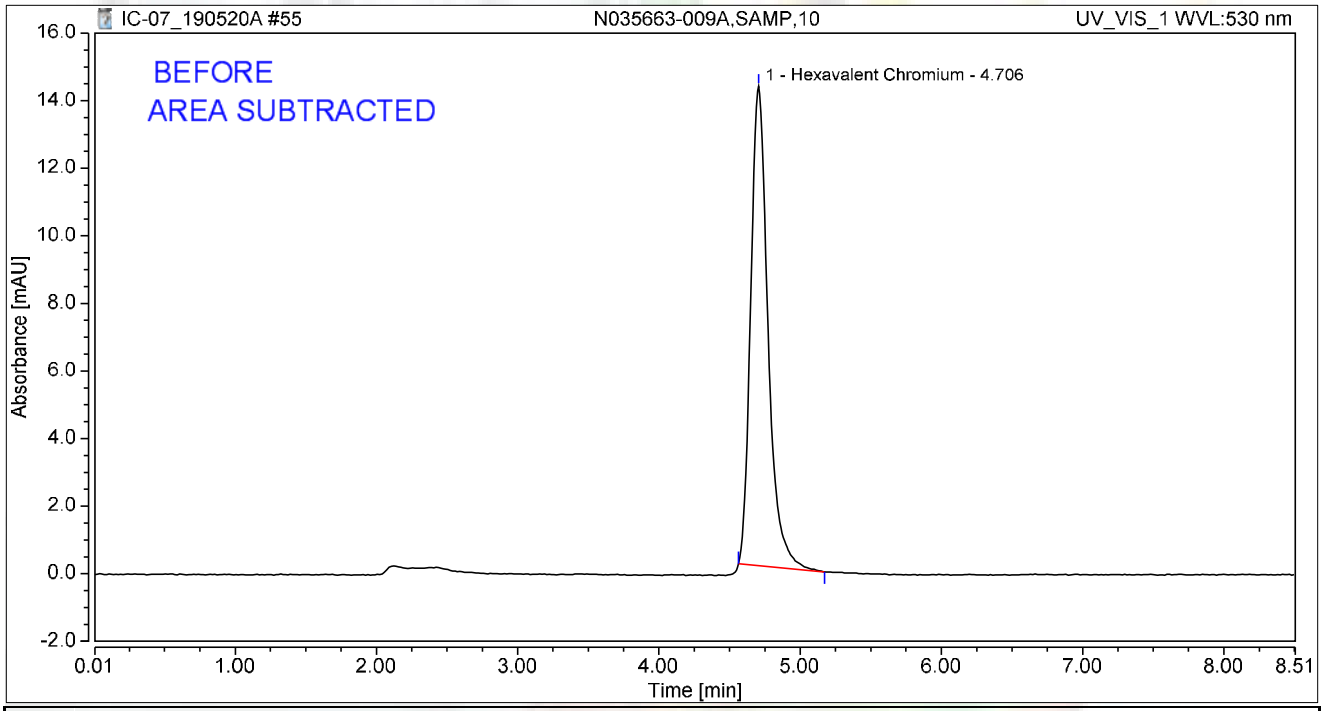
rba 5/27/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035663-009A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 17:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.012	14.190	100.00	100.00	7.9804
Total:			**2.012**	**14.190**	**100.00**	**100.00**	

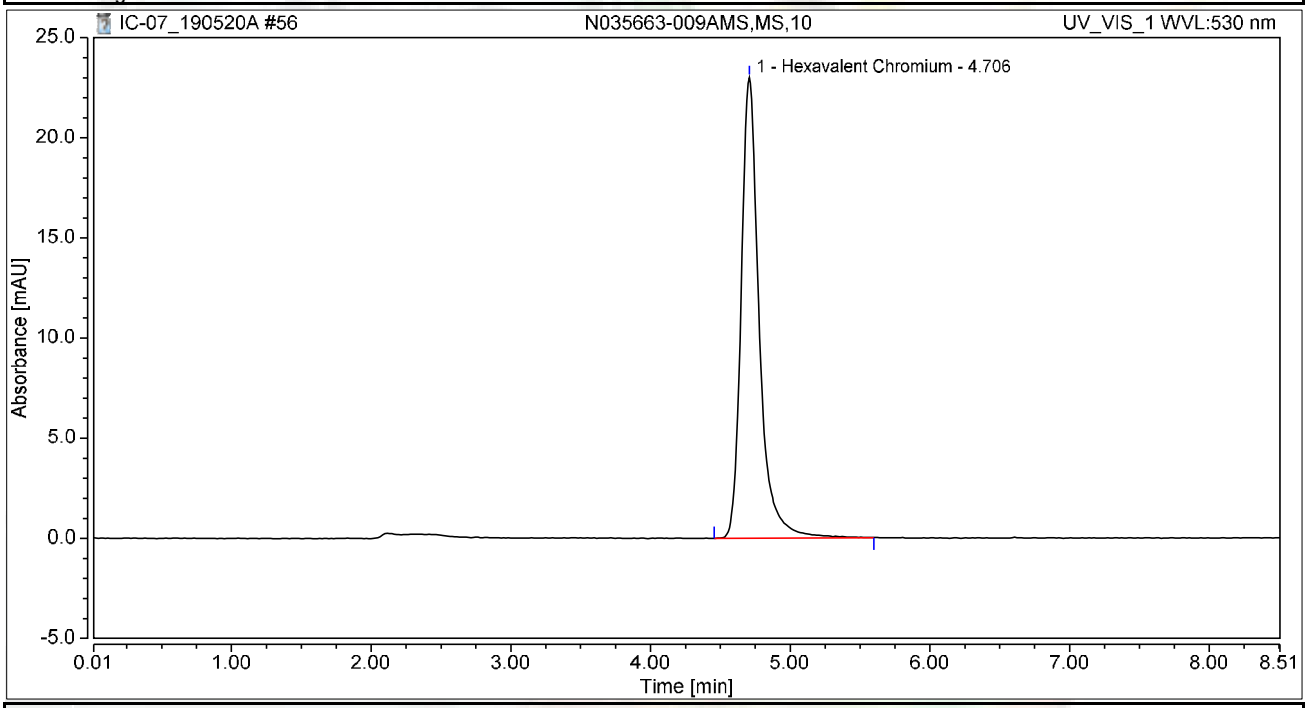
rba 5/27/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035663-009AMS,MS,10**	*Run Time (min):*	**8.49**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 17:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

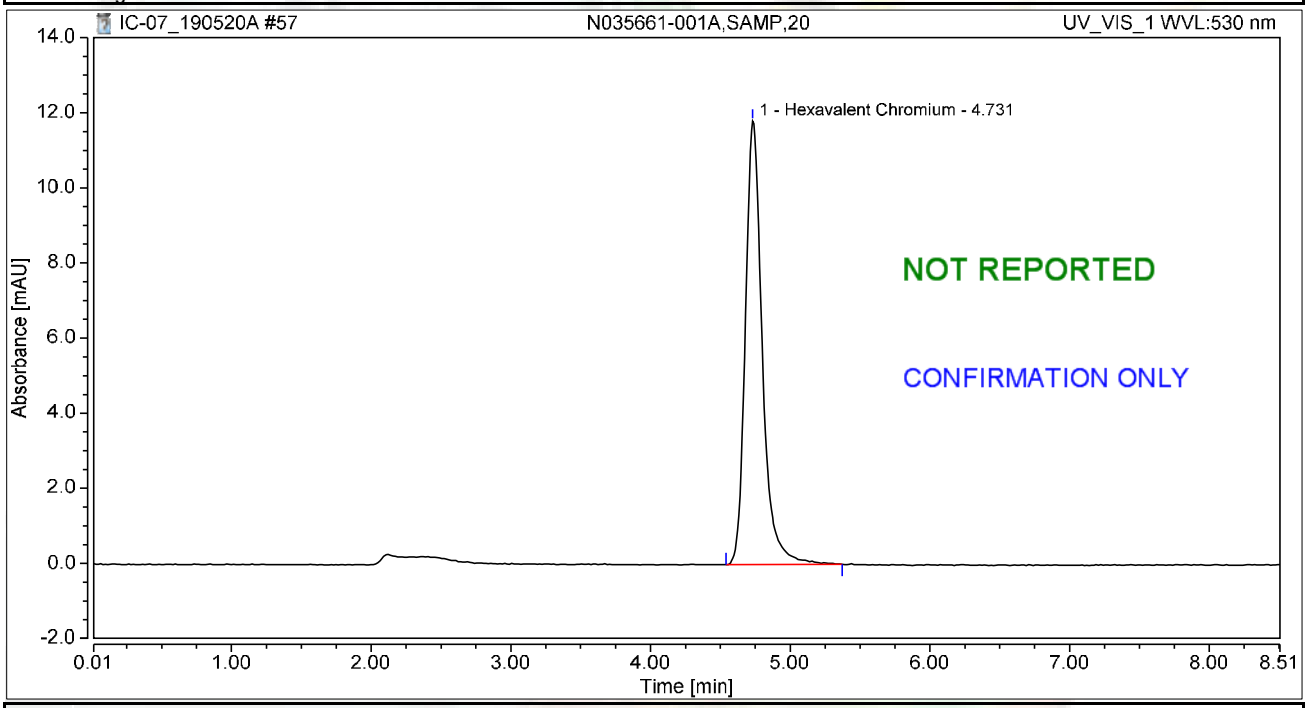
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	3.452	23.004	100.00	100.00	13.6919
Total:			**3.452**	**23.004**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035661-001A,SAMP,20**	*Run Time (min):*	**8.49**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 17:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

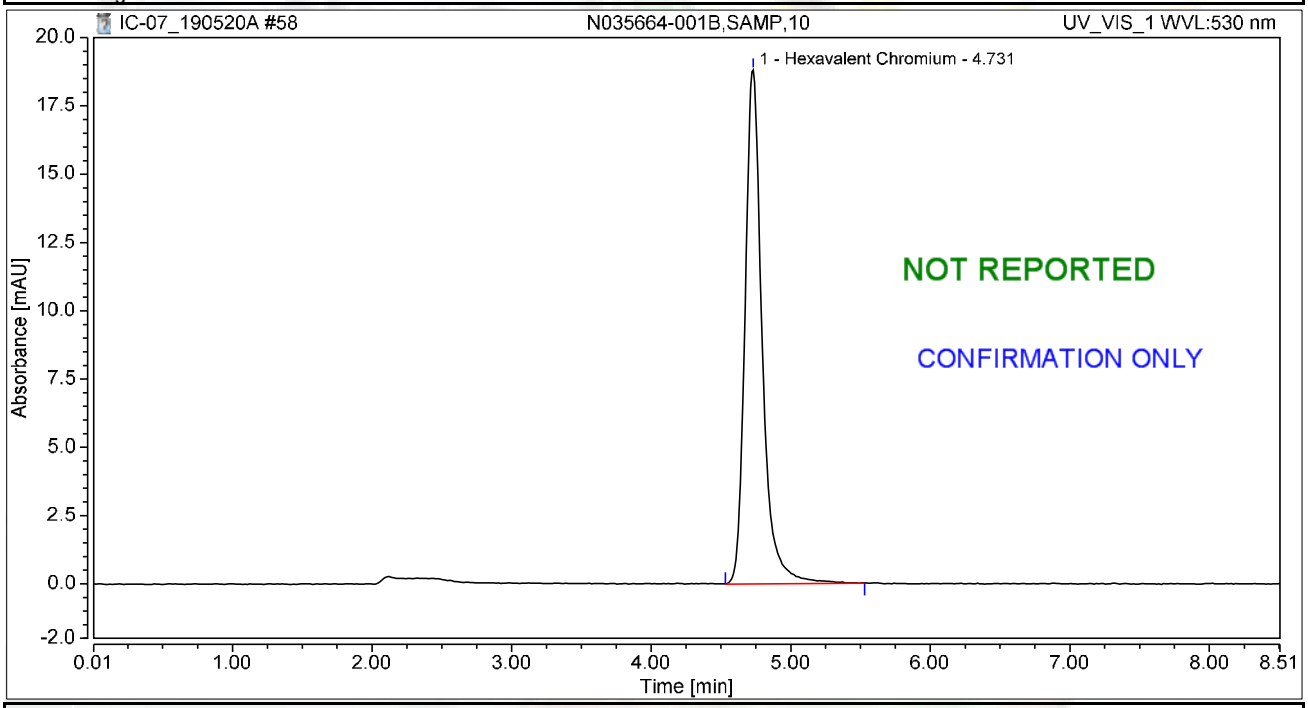
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.660	11.814	100.00	100.00	6.5854
Total:			**1.660**	**11.814**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035664-001B,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 17:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

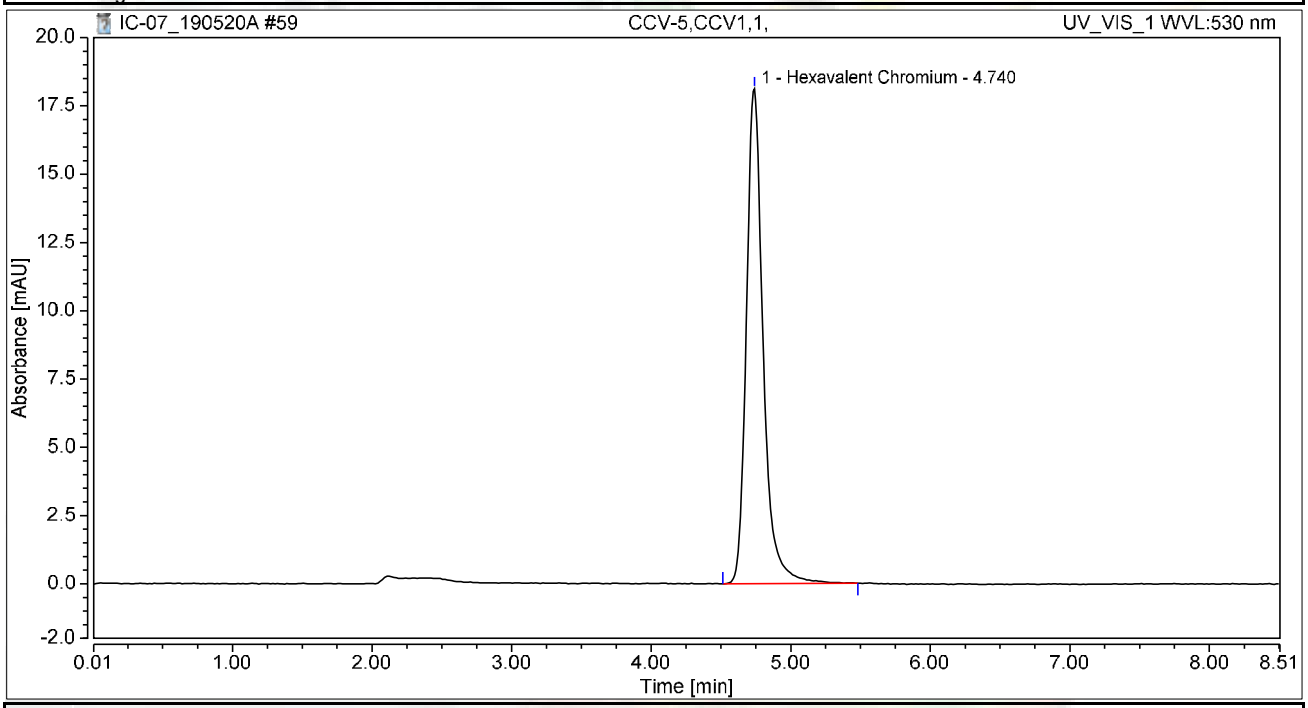
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.680	18.812	100.00	100.00	10.6279
Total:			**2.680**	**18.812**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**41**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 18:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

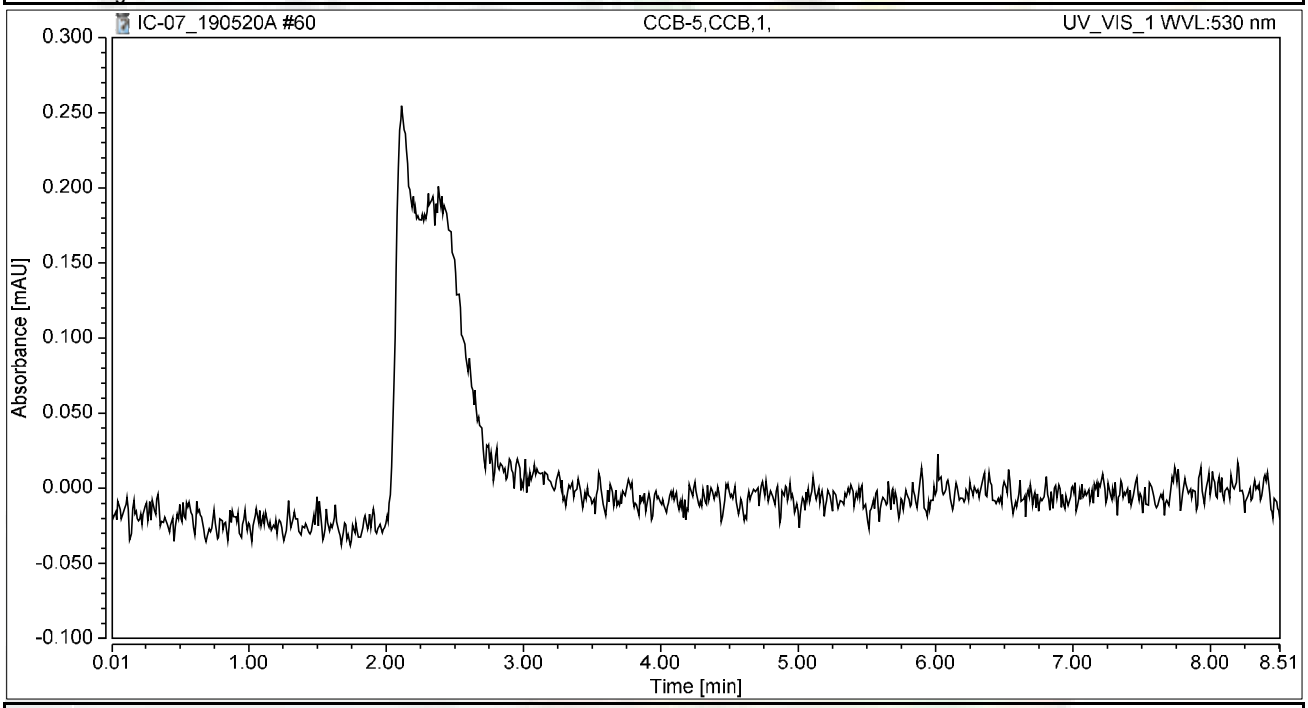
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.534	18.129	100.00	100.00	10.0521
Total:			**2.534**	**18.129**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**42**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 18:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

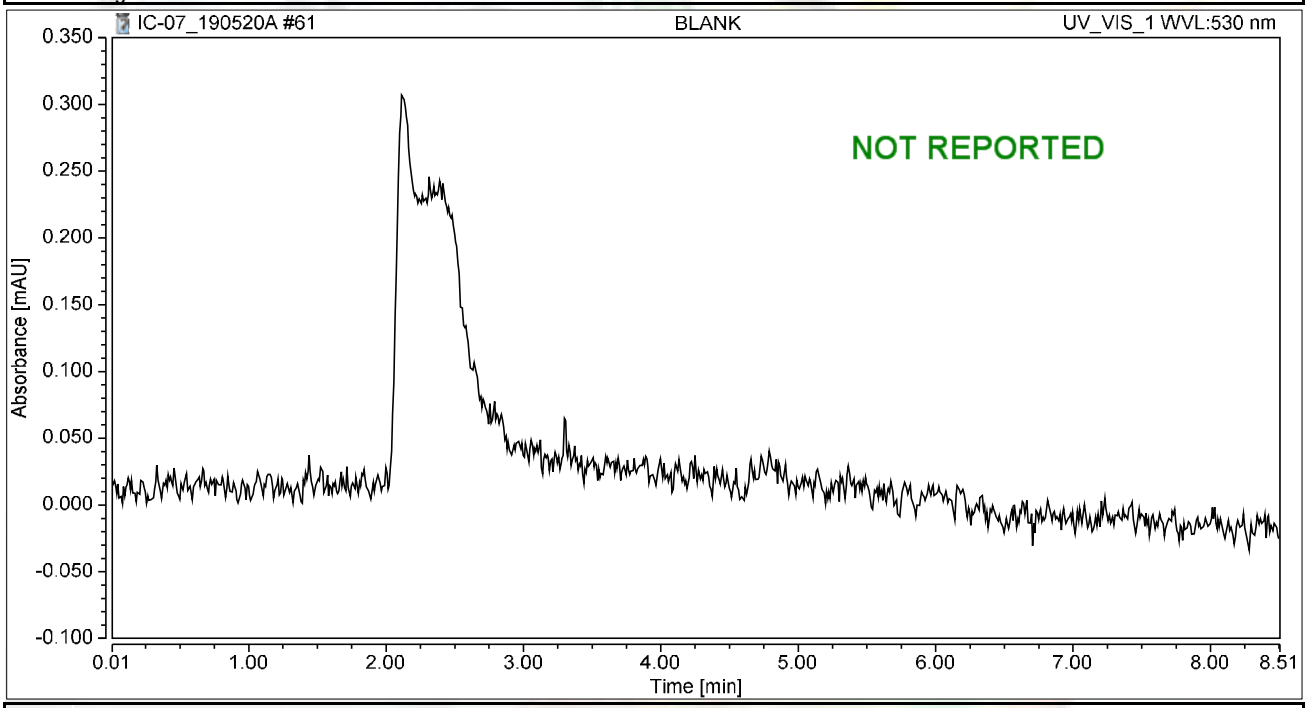
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**43**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/May/19 18:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134192 **Analyst:** QBM

ASSET #: N035663, N035712 **Date Analyzed:** 5/28/2019

Method: 4500_N03

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer QBM Date:

2nd Level Reviewer 06/10/19 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N035663-001C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.6098	*	20
	=	12.196	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 12 mg/L

06/10/19

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

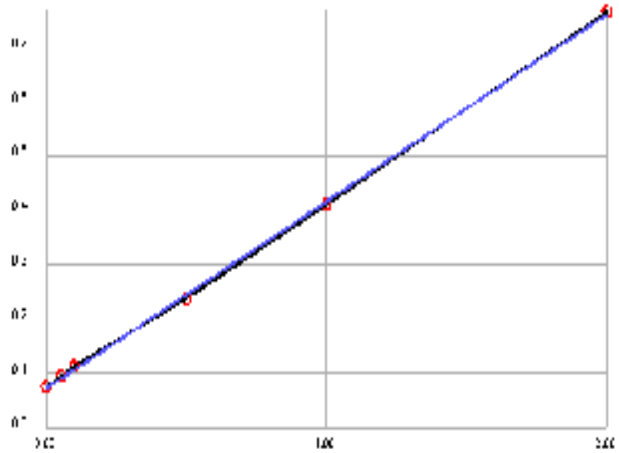
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3429x + 0.0739
Correlation	.999738

Calibrant	Energy	Set	Conc
1	0.0760	0.0000	0.0062
2	0.0934	0.0500	0.0569
3	0.1136	0.1000	0.1158
4	0.2378	0.5000	0.4780
5	0.4090	1.0000	0.9772
6	0.7652	2.0000	2.0159

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **ICV**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.502	0.050	0.5000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **CCV**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.492	0.050	0.5000	0	98.4	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **CCV**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.470	0.050	0.5000	0	94.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **ICB**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **CCB**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **CCB**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398397**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 05-28-2019 16:29
Time end: 05-28-2019 19:20

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	18:40:39	0.0108		0.0776
2	<BLANK>	18:41:38	0.0032		0.0750
3	<CAL1>	18:42:34	0.0062	[0]	0.0760
4	<CAL2>	18:43:29	0.0569	[0.05]	0.0934
5	<CAL3>	18:44:31	0.1158	[0.1]	0.1136
6	<CAL4>	18:45:25	0.4780	[0.5]	0.2378
7	<CAL5>	18:46:20	0.9772	[1]	0.4090
8	<CAL6>	18:47:16	2.0159	[2]	0.7652
9	,BLANK,BLANK,1, NOT REPORTED	18:48:16	0.0269		0.0831
10	,ICV,ICV,1,	18:49:12	0.5022		0.2461
11	,ICB,ICB,1,	18:50:07	0.0065		0.0761
12	,MB-H2O,MBLK,1,	18:51:09	0.0003		0.0740
13	,LCS-H2O,LCS,1,	18:52:03	0.5025		0.2462
14	,N035663-001C,SAMP,20,	18:52:58	0.6098		0.2830
15	,N035663-002C,SAMP,20,	18:53:54	0.5835		0.2740
16	,N035663-003C,SAMP,20,	18:54:54	0.5777		0.2720
17	,N035663-003CDUP,DUP,20,	18:55:50	0.5681		0.2687
18	,N035663-004C,SAMP,10,	18:56:45	0.5115		0.2493
19	,N035663-004CMS,MS,10,	18:57:47	0.9816		0.4105
20	,N035663-004CMSD,MSD,10,	18:58:41	0.9772		0.4090
21	,BLANK, NOT REPORTED	18:59:37	0.0085		0.0768
22	,CCV-1,CCV,1,	19:00:32	0.4920		0.2426
23	,CCB-1,CCB,1,	19:01:32	-0.0005		0.0737
24	,N035663-005C,SAMP,1,	19:02:28	0.0388		0.0872
25	,N035663-007C,SAMP,1,	19:03:29	0.0508		0.0913
26	,N035712-002C,SAMP,1,	19:04:25	0.0333		0.0853

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035712-004C,SAMP,1,	19:05:07	0.0091		0.0770
28	,N035712-006C,SAMP,1,	19:05:56	0.0499		0.0910
29	,N035712-013C,SAMP,1,	19:06:38	0.0067		0.0762
30	,N035663-008C,SAMP,1,	19:07:22	0.7104		0.3175
31	,N035663-009C,SAMP,1,	19:08:10	0.7098		0.3173
32	,N035663-006C,SAMP,5,	19:08:53	1.0355		0.4290
33	,BLANK, NOT REPORTED	19:09:35	0.0003		0.0740
34	,CCV-2,CCV,1,	19:10:25	0.4704		0.2352
35	,CCB-2,CCB,1,	19:11:08	-0.0040		0.0725
36	,N035712-007C,SAMP,1,	19:11:50	0.6702		0.3037
37	,N035712-011C,SAMP,1,	19:12:39	1.0055		0.4187
38	,N035712-020C,SAMP,1,	19:13:22	0.8410		0.3623
39	,N035712-008C,SAMP,5,	19:14:05	0.9775		0.4091
40	,N035712-009C,SAMP,5,	19:14:53	0.7174		0.3199
41	,N035712-018C,SAMP,5,	19:15:36	0.9320		0.3935
42	,N035712-010C,SAMP,~~1~~, 2	19:16:20	0.7413		0.3281
43	,BLANK, NOT REPORTED	19:17:02	-0.0067		0.0716
44	,CCV-3,CCV,1,	19:17:51	0.4348		0.2230
45	,CCB-3,CCB,1,	19:18:33	-0.0081		0.0711

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 5/28/2019
Time Analyzed: 4:29 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035663-001C		7.85							
N035663-002C		8.61							
N035663-003C		8.25							
N035663-004C		8.23							
N035663-005C		7.66							
N035663-006C		8.35							
N035663-007C		8.03							
N035663-008C		7.29							
N035663-009C		7.57							
N035712-002C		7.81							
N035712-004C		8.34							
N035712-006C		7.50							
N035712-007C		7.65							
N035712-008C		8.56							
N035712-009C		8.41							
N035712-010C		7.56							
N035712-011C		8.40							
N035712-013C		7.58							
N035712-018C		8.54							
N035712-020C		8.03							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73996
ASSET #: N035663

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/13/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X	X		X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X	X		X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X	X	
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Dilution test for Mn failed. However, PS passed criteria.
Dilution was necessary for samples N035663-005B, 8B, 9B due to failing IS. Possibly due to matrix interference.
Samples reported where IS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 6/14/2019

2nd Level Reviewer HSG 6/14/2019 Date: –

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035663-001B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 148.118 * 1 *(25 / 25)

Chromium , ug/L = 148.118

Reporting results in two significant figures,

Chromium , ug/L = 150

NS 6/17/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.056	22.29	15	<PQL	0.092	12.62	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.47	5.21	15	PASS	0.55	11.37	15	PASS
Std3-5/50 ppb	ICAL	1	5.08	3.27	15	PASS	5.23	3.51	15	PASS
Std4-10/100 ppb	ICAL	1	10.011	1.78	15	PASS	10.45	1.72	15	PASS
Std5-20/200 ppb	ICAL	1	19.62	1.68	15	PASS	20.33	1.086	15	PASS
Std6-40/400 ppb	ICAL	1	38.76	1.59	15	PASS	40.28	1.65	15	PASS
Std7-100/1000 ppb	ICAL	1	96.86	2.14	15	PASS	100.14	1.6	15	PASS
Std8-200/2000 ppb	ICAL	1	201.85	2.9	15	PASS	199.82	1.9	15	PASS
ICV	ICV	1	10.7	2.9	15	PASS	106.8	2.36	15	PASS
ICB	ICB	1	0.0021	254.37	15	<PQL	0.0036	354.91	15	<PQL
LLICV	CCV1	1	1.0089	4.21	20	PASS	0.52	5.66	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.38	2.38	15	PASS	17.31	2.83	15	PASS
LLICV	CCV1	1	0.97	4.45	20	PASS	0.55	5.68	20	PASS
CCV1	CCV	1	20.065	1.36	15	PASS	21.056	1.87	15	PASS
CCB1	CCB	1	0.0076	24.71	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.31	3.38	15	PASS	21.2	4.1	15	PASS
CCB2	CCB	1	0.0037	213.79	15	<PQL	0.0065	46.94	15	<PQL
CCV3	CCV	1	20.34	2.42	15	PASS	20.87	1.61	15	PASS
CCB3	CCB	1	0.19	12.33	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.027	2.93	15	PASS	20.8	2.18	15	PASS
CCB4	CCB	1	0.07	16.43	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.013	230.04	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.74	2.82	15	PASS	17.26	2.78	15	PASS
MB-73996	MBLK	1	0.015	93.48	15	<PQL	<0.000	N/A	15	<PQL
LCS-73996	LCS	1	10.31	2.17	15	PASS	105.0019	3.23	15	PASS
N035660-001A	SAMP	1	<0.000	N/A	15	<PQL	50.58	2.2	15	PASS
N035660-001A	SAMP	5	<0.000	N/A	15	<PQL	11.27	3.54	15	PASS
N035660-001A-PS	PS	1	8.68	2.62	15	PASS	139.84	2.47	15	PASS
N035660-001A-MS	MS	1	8.57	2.77	15	PASS	137.62	1.8	15	PASS
N035660-001A-MSD	MSD	1	8.6	0.71	15	PASS	138.79	1.56	15	PASS
N035663-001B	SAMP	1	148.12	2.95	15	PASS	<0.000	N/A	15	<PQL
N035663-002B	SAMP	1	175.1	1.92	15	PASS	<0.000	N/A	15	<PQL
N035663-002B	SAMP	5	36.11	3.26	15	PASS	<0.000	N/A	15	<PQL
CCV5	CCV	1	19.55	2.58	15	PASS	18.69	0.3	15	PASS
CCB5	CCB	1	0.0076	76.39	15	<PQL	<0.000	N/A	15	<PQL
N035663-003B	SAMP	1	174.44	1.75	15	PASS	<0.000	N/A	15	<PQL
N035663-003B	SAMP	5	35.55	2.98	15	PASS	<0.000	N/A	15	<PQL
N035663-004B	SAMP	1	48.76	2.93	15	PASS	1.47	10.66	15	PASS
N035663-005B	SAMP	1	17.46	1.91	15	PASS	21.46	2.7	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035663-005B	SAMP	5	3.86	2.41	15	PASS	6.18	1.085	15	PASS
N035663-006B	SAMP	1	5.66	2.016	15	PASS	46.23	1.99	15	PASS
N035663-007B	SAMP	1	0.64	2.79	15	PASS	15.83	2.58	15	PASS
N035663-008B	SAMP	1	72.83	1.43	15	PASS	100.31	1.59	15	PASS
N035663-008B	SAMP	5	16.83	2.67	15	PASS	24.53	1.92	15	PASS
N035663-009B	SAMP	1	73.18	1.49	15	PASS	100.97	1.28	15	PASS
CCV6	CCV	1	20.18	2.52	15	PASS	21.17	2.54	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035663-009B	SAMP	5	16.34	1.91	15	PASS	23.91	2.44	15	PASS
N035663-004B	SAMP	1	48.054	1.61	15	PASS	1.39	5.95	15	PASS
N035705-001B	SAMP	1	377.62	2.57	15	PASS	1.72	55.83	15	NR!
N035705-001B	SAMP	5	79.79	2.76	15	PASS	0.31	8.99	15	PASS
N035705-002B	SAMP	1	5.22	1.59	15	PASS	6.2	1.92	15	PASS
N035705-002B	SAMP	5	1.047	1.14	15	PASS	2.59	3.61	15	PASS
N035705-003B	SAMP	1	5.13	2.21	15	PASS	4.79	1.62	15	PASS
N035705-003B	SAMP	5	1.019	4.31	15	PASS	2.25	3.61	15	PASS
N035705-004B	SAMP	1	9.89	0.87	15	PASS	2.017	88.46	15	NR!
N035705-005B	SAMP	1	9.63	2.57	15	PASS	3.0097	3.38	15	PASS
CCV7	CCV	1	20.32	2.93	15	PASS	21.34	2.32	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035705-006B	SAMP	1	242.93	1.85	15	PASS	0.7	6.88	15	PASS
N035705-006B	SAMP	5	48.73	2.93	15	PASS	0.11	30.8	15	<PQL
N035705-007B	SAMP	1	235.4	1.92	15	PASS	0.49	6.38	15	PASS
N035705-007B	SAMP	5	48.2	2.69	15	PASS	0.094	8.63	15	PASS
N035705-008B	SAMP	1	1884.62	2.23	15	PASS	0.4	7.0036	15	PASS
N035705-008B	SAMP	5	439.84	2.53	15	PASS	0.88	2.86	15	PASS
N035705-008B	SAMP	25	86.26	2.17	15	PASS	0.18	8.39	15	PASS
N035705-009B	SAMP	1	1957.56	1.94	15	PASS	2.9	1.44	15	PASS
N035705-009B	SAMP	5	453.43	3.32	15	PASS	0.68	2.87	15	PASS
N035705-009B	SAMP	25	90.36	2.82	15	PASS	0.15	12.064	15	PASS
CCV8	CCV	1	20.29	2.89	15	PASS	21.23	2.44	15	PASS
CCB8	CCB	1	0.14	8.89	15	PASS	<0.000	N/A	15	<PQL
N035705-010B	SAMP	1	12.03	1.7	15	PASS	2.97	0.91	15	PASS
N035705-001B	SAMP	1	383.1	2.3	15	PASS	1.17	5.38	15	PASS
N035705-004B	SAMP	1	10.06	2.65	15	PASS	3.063	1.62	15	PASS
N035705-005B	SAMP	1	9.82	2.99	15	PASS	3.086	2.14	15	PASS
N035705-004B	SAMP	1	10.021	0.7	15	PASS	2.0067	92.097	15	NR!
CCV9	CCV	1	18.22	1.14	15	PASS	19.045	1.14	15	PASS
CCB9	CCB	1	0.003	190.96	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	18.54	1.14	15	PASS	16.75	1.064	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035705-004B	SAMP	1	9.61	1.64	15	PASS	2.91	2.24	15	PASS
CCV10	CCV	1	20.086	1.84	15	PASS	20.64	1.95	15	PASS
CCB10	CCB	1	0.22	7.79	15	PASS	<0.000	N/A	15	<PQL
N035705-004B	SAMP	1	9.56	2.29	15	PASS	0.91	193.6	15	NR!
CCV11	CCV	1	17.51	0.9	15	PASS	18.19	0.18	15	PASS
CCB11	CCB	1	0.0068	86.43	15	<PQL	<0.000	N/A	15	<PQL
CCV11	CCV	1	17.74	2.62	15	PASS	18.82	1.47	15	PASS
CCB11	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035705-004B	SAMP	1	9.39	0.97	15	PASS	2.91	2.44	15	PASS
CCV12	CCV	1	17.81	2.73	15	PASS	18.96	3.43	15	PASS
CCB12	CCB	1	<0.000	N/A	15	<PQL	0.0019	203.33	15	<PQL
CCV13	CCV	1	17.75	2.95	15	PASS	18.94	2.49	15	PASS
CCB13	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	17.16	2.52	15	PASS	16.29	1.17	15	PASS
CCV14	CCV	1	17.86	2.11	15	PASS	19.21	3.27	15	PASS
CCB14	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV15	CCV	1	18.13	2.93	15	PASS	19.58	2.14	15	PASS
CCB15	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	17.33	2.085	15	PASS	16.89	2.036	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.088	5.36	15	PASS	0.097	26.055	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.5	7.018	15	PASS	0.49	18.76	15	<PQL
Std3-5/50 ppb	ICAL	1	4.81	1.96	15	PASS	5.069	9.24	15	PASS
Std4-10/100 ppb	ICAL	1	9.74	1.84	15	PASS	9.3	1.75	15	PASS
Std5-20/200 ppb	ICAL	1	19.57	0.62	15	PASS	19.43	3.0015	15	PASS
Std6-40/400 ppb	ICAL	1	38.59	0.22	15	PASS	38.99	1.37	15	PASS
Std7-100/1000 ppb	ICAL	1	98.57	1.27	15	PASS	97.26	0.95	15	PASS
Std8-200/2000 ppb	ICAL	1	201.059	0.73	15	PASS	201.66	1.96	15	PASS
ICV	ICV	1	9.87	0.93	15	PASS	9.93	4.51	15	PASS
ICB	ICB	1	0.0092	45.16	15	<PQL	0.017	115.59	15	<PQL
LLICV	CCV1	1	0.11	12.81	20	PASS	0.48	43.92	20	<PQL
ICSA1	ICSA	1	0.039	26.45	15	<PQL	0.024	43.24	15	<PQL
ICSAB1	ICSAB	1	19.86	1.77	15	PASS	18.072	2.29	15	PASS
LLICV	CCV1	1	0.12	3.87	20	PASS	0.53	6.79	20	PASS
CCV1	CCV	1	19.37	1.095	15	PASS	19.15	0.85	15	PASS
CCB1	CCB	1	0.031	26.11	15	<PQL	0.015	155.43	15	<PQL
CCV2	CCV	1	19.53	0.93	15	PASS	18.53	2.28	15	PASS
CCB2	CCB	1	0.021	67.75	15	<PQL	0.047	46.64	15	<PQL
CCV3	CCV	1	19.47	1.48	15	PASS	19.02	2.71	15	PASS
CCB3	CCB	1	0.017	26.87	15	<PQL	0.019	160.49	15	<PQL
CCV4	CCV	1	19.32	0.36	15	PASS	20.41	1.17	15	PASS
CCB4	CCB	1	0.014	36.86	15	<PQL	0.005	363.4	15	<PQL
ICSA2	ICSA	1	0.033	47.66	15	<PQL	0.017	228.55	15	<PQL
ICSAB2	ICSAB	1	19.44	1.49	15	PASS	18.24	1.65	15	PASS
MB-73996	MBLK	1	0.021	61.82	15	<PQL	0.02	221.82	15	<PQL
LCS-73996	LCS	1	9.71	2.039	15	PASS	9.46	4.41	15	PASS
N035660-001A	SAMP	1	1.68	3.3	15	PASS	1.49	8.68	15	PASS
N035660-001A	SAMP	5	0.36	7.038	15	PASS	0.35	27.37	15	<PQL
N035660-001A-PS	PS	1	11.83	0.81	15	PASS	11.29	6.22	15	PASS
N035660-001A-MS	MS	1	12.19	1.41	15	PASS	11.77	4.42	15	PASS
N035660-001A-MSD	MSD	1	11.79	0.34	15	PASS	10.83	2.39	15	PASS
N035663-001B	SAMP	1	1.83	3.42	15	PASS	5.69	5.34	15	PASS
N035663-002B	SAMP	1	2.53	1.39	15	PASS	6.39	4.69	15	PASS
N035663-002B	SAMP	5	0.56	1.25	15	PASS	1.31	17.58	15	NR!
CCV5	CCV	1	19.39	0.64	15	PASS	20.022	4.19	15	PASS
CCB5	CCB	1	0.02	52.37	15	<PQL	0.064	78.057	15	<PQL
N035663-003B	SAMP	1	2.5	1.62	15	PASS	6.74	7.7	15	PASS
N035663-003B	SAMP	5	0.55	3.28	15	PASS	1.23	15.65	15	NR!
N035663-004B	SAMP	1	1.41	5.67	15	PASS	4.74	16.37	15	NR!
N035663-005B	SAMP	1	7.15	1.29	15	PASS	0.16	52.078	15	<PQL

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035663-005B	SAMP	5	1.49	1.9	15	PASS	0.026	109.68	15	<PQL
N035663-006B	SAMP	1	5.82	2.24	15	PASS	3.66	9.58	15	PASS
N035663-007B	SAMP	1	0.092	20.96	15	<PQL	0.012	254.42	15	<PQL
N035663-008B	SAMP	1	3.065	2.67	15	PASS	1.26	19.92	15	NR!
N035663-008B	SAMP	5	0.61	4.099	15	PASS	0.2	41.65	15	<PQL
N035663-009B	SAMP	1	3.023	2.18	15	PASS	1.032	17.35	15	NR!
CCV6	CCV	1	19.36	1	15	PASS	19.068	4.51	15	PASS
CCB6	CCB	1	0.023	32.73	15	<PQL	0.02	42.52	15	<PQL
N035663-009B	SAMP	5	0.61	6.081	15	PASS	0.22	33.24	15	<PQL
N035663-004B	SAMP	1	1.45	1.88	15	PASS	4.7	6.37	15	PASS
N035705-001B	SAMP	1	1.28	5.12	15	PASS	3.16	2.3	15	PASS
N035705-001B	SAMP	5	0.27	12.58	15	PASS	0.8	13.96	15	PASS
N035705-002B	SAMP	1	3.38	5.96	15	PASS	0.33	23.32	15	<PQL
N035705-002B	SAMP	5	0.7	0.67	15	PASS	0.047	97.55	15	<PQL
N035705-003B	SAMP	1	3.39	3.76	15	PASS	0.32	44.06	15	<PQL
N035705-003B	SAMP	5	0.7	6.45	15	PASS	0.1	17.32	15	<PQL
N035705-004B	SAMP	1	3.32	3.61	15	PASS	0.54	39.98	15	NR!
N035705-005B	SAMP	1	3.15	0.98	15	PASS	0.57	37.1	15	NR!
CCV7	CCV	1	18.98	0.54	15	PASS	18.99	2.73	15	PASS
CCB7	CCB	1	0.022	69.56	15	<PQL	0.016	61.46	15	<PQL
N035705-006B	SAMP	1	1.04	1.1	15	PASS	2.25	6.39	15	PASS
N035705-006B	SAMP	5	0.21	8.77	15	PASS	0.52	14.31	15	PASS
N035705-007B	SAMP	1	1.033	2.24	15	PASS	1.75	11.11	15	PASS
N035705-007B	SAMP	5	0.22	1.42	15	PASS	0.52	32.53	15	NR!
N035705-008B	SAMP	1	2.26	2.86	15	PASS	1.77	8.62	15	PASS
N035705-008B	SAMP	5	0.45	5.52	15	PASS	0.47	16.78	15	<PQL
N035705-008B	SAMP	25	0.095	10.99	15	PASS	0.087	42.12	15	<PQL
N035705-009B	SAMP	1	2.24	1.32	15	PASS	1.91	8.36	15	PASS
N035705-009B	SAMP	5	0.44	10.94	15	PASS	0.44	13.11	15	PASS
N035705-009B	SAMP	25	0.084	11.49	15	PASS	0.081	50.26	15	<PQL
CCV8	CCV	1	19.27	0.77	15	PASS	19.82	3.2	15	PASS
CCB8	CCB	1	0.03	3.65	15	PASS	0.022	116.59	15	<PQL
N035705-010B	SAMP	1	1.98	3.085	15	PASS	0.65	10.41	15	PASS
N035705-001B	SAMP	1	1.23	5.78	15	PASS	3.71	3.27	15	PASS
N035705-004B	SAMP	1	3.28	5.25	15	PASS	0.58	39.5	15	NR!
N035705-005B	SAMP	1	3.062	0.42	15	PASS	0.5	44.63	15	NR!
N035705-004B	SAMP	1	3.15	2.021	15	PASS	0.7	31.62	15	NR!
CCV9	CCV	1	19.39	1.16	15	PASS	18.89	0.99	15	PASS
CCB9	CCB	1	0.014	48.65	15	<PQL	0.045	78.16	15	<PQL
ICSA3	ICSA	1	0.031	40.24	15	<PQL	0.00023	4371.42	15	<PQL
ICSAB3	ICSAB	1	19.47	1.096	15	PASS	19.12	2.95	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035705-004B	SAMP	1	3.34	1.38	15	PASS	0.55	23.65	15	NR!
CCV10	CCV	1	19.2	2.11	15	PASS	18.67	2.57	15	PASS
CCB10	CCB	1	0.013	11.78	15	PASS	0.027	4.68	15	PASS
N035705-004B	SAMP	1	3.14	3.55	15	PASS	0.65	33.51	15	NR!
CCV11	CCV	1	19.45	0.67	15	PASS	19.93	0.57	15	PASS
CCB11	CCB	1	0.021	69.67	15	<PQL	0.038	65.5	15	<PQL
CCV11	CCV	1	19.15	1.65	15	PASS	20.4	3.12	15	PASS
CCB11	CCB	1	0.017	40.26	15	<PQL	0.01	155.37	15	<PQL
N035705-004B	SAMP	1	3.28	0.56	15	PASS	0.74	22.45	15	NR!
CCV12	CCV	1	19.27	1.056	15	PASS	19.81	2.27	15	PASS
CCB12	CCB	1	0.0057	81.75	15	<PQL	0.014	243.59	15	<PQL
CCV13	CCV	1	19.14	1.74	15	PASS	19.82	2.95	15	PASS
CCB13	CCB	1	0.016	29.54	15	<PQL	0.013	248.18	15	<PQL
ICSA4	ICSA	1	0.048	23.2	15	<PQL	0.023	123.83	15	<PQL
ICSAB4	ICSAB	1	19.48	0.78	15	PASS	18.72	1.42	15	PASS
CCV14	CCV	1	19.15	1.19	15	PASS	19.64	0.91	15	PASS
CCB14	CCB	1	0.017	70.44	15	<PQL	0.021	1.88	15	PASS
CCV15	CCV	1	19.11	0.47	15	PASS	19.34	1.33	15	PASS
CCB15	CCB	1	0.019	31.75	15	<PQL	0.049	82.45	15	<PQL
ICSA5	ICSA	1	0.055	37.35	15	<PQL	0.0038	422.29	15	<PQL
ICSAB5	ICSAB	1	19.73	1.057	15	PASS	18.54	2.088	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.083	9.77	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.46	5.86	15	PASS
Std3-5/50 ppb	ICAL	1	4.57	1.21	15	PASS
Std4-10/100 ppb	ICAL	1	9.37	1.84	15	PASS
Std5-20/200 ppb	ICAL	1	18.88	1.65	15	PASS
Std6-40/400 ppb	ICAL	1	38.55	1.59	15	PASS
Std7-100/1000 ppb	ICAL	1	98.69	2.57	15	PASS
Std8-200/2000 ppb	ICAL	1	201.1	1.61	15	PASS
ICV	ICV	1	9.5	2.069	15	PASS
ICB	ICB	1	0.095	4.083	15	PASS
LLICV	CCV1	1	0.5	1.86	20	PASS
ICSA1	ICSA	1	0.061	19.25	15	<PQL
ICSAB1	ICSAB	1	20.55	0.5	15	PASS
LLICV	CCV1	1	0.66	2.82	20	PASS
CCV1	CCV	1	19.23	1.2	15	PASS
CCB1	CCB	1	0.16	12.48	15	PASS
CCV2	CCV	1	18.95	2.15	15	PASS
CCB2	CCB	1	0.18	7.2	15	PASS
CCV3	CCV	1	19.062	0.58	15	PASS
CCB3	CCB	1	0.18	12.55	15	PASS
CCV4	CCV	1	19.15	1.53	15	PASS
CCB4	CCB	1	0.21	12.69	15	PASS
ICSA2	ICSA	1	0.12	8.23	15	PASS
ICSAB2	ICSAB	1	20.33	1.87	15	PASS
MB-73996	MBLK	1	0.15	12.16	15	PASS
LCS-73996	LCS	1	9.48	0.88	15	PASS
N035660-001A	SAMP	1	41	0.68	15	PASS
N035660-001A	SAMP	5	8.01	0.44	15	PASS
N035660-001A-PS	PS	1	50.76	0.7	15	PASS
N035660-001A-MS	MS	1	51.61	1.37	15	PASS
N035660-001A-MSD	MSD	1	51.64	1.98	15	PASS
N035663-001B	SAMP	1	4.43	3.21	15	PASS
N035663-002B	SAMP	1	19.77	1.21	15	PASS
N035663-002B	SAMP	5	3.98	0.93	15	PASS
CCV5	CCV	1	18.3	0.65	15	PASS
CCB5	CCB	1	0.18	5.28	15	PASS
N035663-003B	SAMP	1	19.15	0.87	15	PASS
N035663-003B	SAMP	5	3.75	0.55	15	PASS
N035663-004B	SAMP	1	4.81	2.0067	15	PASS
N035663-005B	SAMP	1	83.37	1.3	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035663-005B	SAMP	5	16.059	1.3	15	PASS
N035663-006B	SAMP	1	22.32	1.39	15	PASS
N035663-007B	SAMP	1	114.36	1.58	15	PASS
N035663-008B	SAMP	1	58.48	1.68	15	PASS
N035663-008B	SAMP	5	11.27	0.68	15	PASS
N035663-009B	SAMP	1	57.75	1.78	15	PASS
CCV6	CCV	1	19	1.85	15	PASS
CCB6	CCB	1	0.22	5.52	15	PASS
N035663-009B	SAMP	5	10.93	1.48	15	PASS
N035663-004B	SAMP	1	4.98	1.45	15	PASS
N035705-001B	SAMP	1	3.97	2.16	15	PASS
N035705-001B	SAMP	5	0.8	0.54	15	PASS
N035705-002B	SAMP	1	81.62	0.76	15	PASS
N035705-002B	SAMP	5	16.19	1.12	15	PASS
N035705-003B	SAMP	1	84.76	0.71	15	PASS
N035705-003B	SAMP	5	16.51	0.78	15	PASS
N035705-004B	SAMP	1	30.69	1.36	15	PASS
N035705-005B	SAMP	1	29.58	1.35	15	PASS
CCV7	CCV	1	18.64	2.13	15	PASS
CCB7	CCB	1	0.17	5.52	15	PASS
N035705-006B	SAMP	1	12.8	1.67	15	PASS
N035705-006B	SAMP	5	2.54	2.1	15	PASS
N035705-007B	SAMP	1	12.73	0.51	15	PASS
N035705-007B	SAMP	5	2.54	2.76	15	PASS
N035705-008B	SAMP	1	9.45	1.31	15	PASS
N035705-008B	SAMP	5	1.86	2.43	15	PASS
N035705-008B	SAMP	25	0.37	3.55	15	PASS
N035705-009B	SAMP	1	9.032	2.37	15	PASS
N035705-009B	SAMP	5	1.73	2.57	15	PASS
N035705-009B	SAMP	25	0.37	6.54	15	PASS
CCV8	CCV	1	18.55	0.68	15	PASS
CCB8	CCB	1	0.15	11.39	15	PASS
N035705-010B	SAMP	1	13.57	1.51	15	PASS
N035705-001B	SAMP	1	3.98	2.9	15	PASS
N035705-004B	SAMP	1	30.29	0.48	15	PASS
N035705-005B	SAMP	1	29.5	1.18	15	PASS
N035705-004B	SAMP	1	30.34	0.68	15	PASS
CCV9	CCV	1	18.77	1.35	15	PASS
CCB9	CCB	1	0.14	19.048	15	<PQL
ICSA3	ICSA	1	0.087	7.032	15	PASS
ICSAB3	ICSAB	1	20.11	0.97	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035705-004B	SAMP	1	30.11	1.86	15	PASS
CCV10	CCV	1	18.53	1.61	15	PASS
CCB10	CCB	1	0.16	11.97	15	PASS
N035705-004B	SAMP	1	30.63	1.015	15	PASS
CCV11	CCV	1	18.99	2.22	15	PASS
CCB11	CCB	1	0.16	7.024	15	PASS
CCV11	CCV	1	19.015	1.33	15	PASS
CCB11	CCB	1	0.16	12.5	15	PASS
N035705-004B	SAMP	1	30.5	1.84	15	PASS
CCV12	CCV	1	19.17	1.83	15	PASS
CCB12	CCB	1	0.14	3.9	15	PASS
CCV13	CCV	1	19.51	0.97	15	PASS
CCB13	CCB	1	0.23	3.16	15	PASS
ICSA4	ICSA	1	0.14	7.78	15	PASS
ICSAB4	ICSAB	1	20.73	1.4	15	PASS
CCV14	CCV	1	19.026	1.26	15	PASS
CCB14	CCB	1	0.15	3.47	15	PASS
CCV15	CCV	1	20.43	0.66	15	PASS
CCB15	CCB	1	0.41	8.44	15	PASS
ICSA5	ICSA	1	0.23	10.077	15	PASS
ICSAB5	ICSAB	1	20.77	2.54	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613001.D	RINSE	RINSE	1	06/13/19 4:20 AM
A0613002.D	Cal Blank	IBLK	1	06/13/19 4:25 AM
A0613003.D	Std1-0.1/1 ppb	ICAL	1	06/13/19 4:30 AM
A0613004.D	Std2-0.5/5 ppb	ICAL	1	06/13/19 4:34 AM
A0613005.D	Std3-5/50 ppb	ICAL	1	06/13/19 4:39 AM
A0613006.D	Std4-10/100 ppb	ICAL	1	06/13/19 4:44 AM
A0613007.D	Std5-20/200 ppb	ICAL	1	06/13/19 4:49 AM
A0613008.D	Std6-40/400 ppb	ICAL	1	06/13/19 4:54 AM
A0613009.D	Std7-100/1000 ppb	ICAL	1	06/13/19 4:59 AM
A0613010.D	Std8-200/2000 ppb	ICAL	1	06/13/19 5:04 AM
A0613011.D	ICV	ICV	1	06/13/19 5:09 AM
A0613012.D	ICB	ICB	1	06/13/19 5:14 AM
A0613013.D	LLICV	CCV1	1	06/13/19 5:19 AM
A0613014.D	ICSA1	ICSA	1	06/13/19 5:24 AM
A0613015.D	ICSAB1	ICSAB	1	06/13/19 5:29 AM
A0613016.D	LLICV	CCV1	1	06/13/19 5:34 AM
A0613017.D	MB-73911	MBLK	1	06/13/19 5:39 AM
A0613018.D	LCS-73911	LCS	1	06/13/19 5:44 AM
A0613019.D	N035596-001A	SAMP	1	06/13/19 5:49 AM
A0613020.D	N035599-001B	SAMP	1	06/13/19 5:54 AM
A0613021.D	N035599-001B	SAMP	5	06/13/19 5:59 AM
A0613022.D	N035599-001B-PS	PS	1	06/13/19 6:04 AM
A0613023.D	N035599-001B-MS	MS	1	06/13/19 6:09 AM
A0613024.D	N035599-001B-MSD	MSD	1	06/13/19 6:14 AM
A0613025.D	N035599-001B	SAMP	25	06/13/19 6:18 AM
A0613026.D	N035599-001B-PS	PS	5	06/13/19 6:23 AM
A0613027.D	CCV1	CCV	1	06/13/19 6:29 AM
A0613028.D	CCB1	CCB	1	06/13/19 6:34 AM
A0613029_190613A1.D	N035599-001B-MS	MS	5	06/13/19 6:41 AM
A0613030_190613A1.D	N035599-001B-MSD	MSD	5	06/13/19 6:46 AM
A0613031_190613A1.D	N035599-002B	SAMP	1	06/13/19 6:51 AM
A0613032_190613A1.D	N035599-003B	SAMP	1	06/13/19 6:56 AM
A0613033_190613A1.D	N035599-004B	SAMP	1	06/13/19 7:00 AM
A0613034_190613A1.D	N035599-004B	SAMP	5	06/13/19 7:05 AM
A0613035_190613A1.D	N035639-001A	SAMP	1	06/13/19 7:10 AM
A0613036_190613A1.D	N035640-001B	SAMP	1	06/13/19 7:15 AM
A0613037_190613A1.D	N035640-002B	SAMP	1	06/13/19 7:20 AM
A0613038_190613A1.D	N035640-003B	SAMP	1	06/13/19 7:25 AM
A0613039_190613A1.D	CCV2	CCV	1	06/13/19 7:30 AM
A0613040_190613A1.D	CCB2	CCB	1	06/13/19 7:35 AM
A0613041_190613A1.D	N035640-004B	SAMP	1	06/13/19 7:40 AM
A0613042_190613A1.D	N035640-004B	SAMP	5	06/13/19 7:45 AM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613043_190613A1.D	N035640-005B	SAMP	1	06/13/19 7:50 AM
A0613044_190613A1.D	N035640-006B	SAMP	1	06/13/19 7:55 AM
A0613045_190613A1.D	N035640-007B	SAMP	1	06/13/19 8:00 AM
A0613046_190613A1.D	N035640-007B	SAMP	25	06/13/19 8:05 AM
A0613047_190613A1.D	N035640-008B	SAMP	1	06/13/19 8:10 AM
A0613048_190613A1.D	N035640-008B	SAMP	5	06/13/19 8:15 AM
A0613049_190613A1.D	N035640-008B	SAMP	50	06/13/19 8:20 AM
A0613050_190613A1.D	N035640-009B	SAMP	1	06/13/19 8:25 AM
A0613051_190613A1.D	CCV3	CCV	1	06/13/19 8:30 AM
A0613052_190613A1.D	CCB3	CCB	1	06/13/19 8:35 AM
A0613053_190613A1.D	N035640-009B	SAMP	5	06/13/19 8:40 AM
A0613054_190613A1.D	N035640-010B	SAMP	1	06/13/19 8:45 AM
A0613055_190613A1.D	N035640-010B	SAMP	5	06/13/19 8:49 AM
A0613056_190613A1.D	N035640-011B	SAMP	1	06/13/19 8:54 AM
A0613057_190613A1.D	N035640-011B	SAMP	5	06/13/19 8:59 AM
A0613058_190613A1.D	N035640-011B	SAMP	25	06/13/19 9:04 AM
A0613059_190613A1.D	N035640-012B	SAMP	1	06/13/19 9:09 AM
A0613060_190613A1.D	N035640-012B	SAMP	5	06/13/19 9:14 AM
A0613061_190613A1.D	N035640-015B	SAMP	1	06/13/19 9:19 AM
A0613062_190613A1.D	N035640-015B	SAMP	5	06/13/19 9:24 AM
A0613063_190613A1.D	CCV4	CCV	1	06/13/19 9:29 AM
A0613064_190613A1.D	CCB4	CCB	1	06/13/19 9:34 AM
A0613065_190613A1.D	ICSA2	ICSA	1	06/13/19 9:39 AM
A0613066_190613A1.D	ICSAB2	ICSAB	1	06/13/19 9:44 AM
A0613067_190613A1.D	MB-73996	MBLK	1	06/13/19 9:49 AM
A0613068_190613A1.D	LCS-73996	LCS	1	06/13/19 9:54 AM
A0613069_190613A1.D	N035660-001A	SAMP	1	06/13/19 9:59 AM
A0613070_190613A1.D	N035660-001A	SAMP	5	06/13/19 10:04 AM
A0613071_190613A1.D	N035660-001A-PS	PS	1	06/13/19 10:09 AM
A0613072_190613A1.D	N035660-001A-MS	MS	1	06/13/19 10:14 AM
A0613073_190613A1.D	N035660-001A-MSD	MSD	1	06/13/19 10:19 AM
A0613074_190613A1.D	N035663-001B	SAMP	1	06/13/19 10:23 AM
A0613075_190613A1.D	N035663-002B	SAMP	1	06/13/19 10:28 AM
A0613076_190613A1.D	N035663-002B	SAMP	5	06/13/19 10:33 AM
A0613077.D	CCV5	CCV	1	06/13/19 11:36 AM
A0613078.D	CCB5	CCB	1	06/13/19 11:41 AM
A0613079.D	N035663-003B	SAMP	1	06/13/19 11:47 AM
A0613080.D	N035663-003B	SAMP	5	06/13/19 11:51 AM
A0613081.D	N035663-004B	SAMP	1	06/13/19 11:56 AM
A0613082.D	N035663-005B	SAMP	1	06/13/19 12:01 PM
A0613083.D	N035663-005B	SAMP	5	06/13/19 12:06 PM
A0613084.D	N035663-006B	SAMP	1	06/13/19 12:11 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613085.D	N035663-007B	SAMP	1	06/13/19 12:16 PM
A0613086.D	N035663-008B	SAMP	1	06/13/19 12:21 PM
A0613087.D	N035663-008B	SAMP	5	06/13/19 12:26 PM
A0613088.D	N035663-009B	SAMP	1	06/13/19 12:31 PM
A0613089.D	CCV6	CCV	1	06/13/19 12:36 PM
A0613090.D	CCB6	CCB	1	06/13/19 12:41 PM
A0613091.D	N035663-009B	SAMP	5	06/13/19 12:46 PM
A0613092.D	N035663-004B	SAMP	1	06/13/19 12:51 PM
A0613093.D	N035705-001B	SAMP	1	06/13/19 12:57 PM
A0613094.D	N035705-001B	SAMP	5	06/13/19 1:02 PM
A0613095.D	N035705-002B	SAMP	1	06/13/19 1:07 PM
A0613096.D	N035705-002B	SAMP	5	06/13/19 1:12 PM
A0613097.D	N035705-003B	SAMP	1	06/13/19 1:17 PM
A0613098.D	N035705-003B	SAMP	5	06/13/19 1:22 PM
A0613099.D	N035705-004B	SAMP	1	06/13/19 1:26 PM
A0613100.D	N035705-005B	SAMP	1	06/13/19 1:32 PM
A0613101.D	CCV7	CCV	1	06/13/19 1:41 PM
A0613102.D	CCB7	CCB	1	06/13/19 1:46 PM
A0613103.D	N035705-006B	SAMP	1	06/13/19 1:51 PM
A0613104.D	N035705-006B	SAMP	5	06/13/19 1:56 PM
A0613105.D	N035705-007B	SAMP	1	06/13/19 2:01 PM
A0613106.D	N035705-007B	SAMP	5	06/13/19 2:06 PM
A0613107.D	N035705-008B	SAMP	1	06/13/19 2:11 PM
A0613108.D	N035705-008B	SAMP	5	06/13/19 2:16 PM
A0613109.D	N035705-008B	SAMP	25	06/13/19 2:21 PM
A0613110.D	N035705-009B	SAMP	1	06/13/19 2:26 PM
A0613111.D	N035705-009B	SAMP	5	06/13/19 2:31 PM
A0613112.D	N035705-009B	SAMP	25	06/13/19 2:36 PM
A0613113.D	CCV8	CCV	1	06/13/19 2:40 PM
A0613114.D	CCB8	CCB	1	06/13/19 2:45 PM
A0613115.D	N035705-010B	SAMP	1	06/13/19 2:51 PM
A0613116.D	N035705-001B	SAMP	1	06/13/19 2:55 PM
A0613117.D	N035705-004B	SAMP	1	06/13/19 3:00 PM
A0613118.D	N035705-005B	SAMP	1	06/13/19 3:05 PM
A0613119.D	N035705-004B	SAMP	1	06/13/19 3:10 PM
A0613120.D	MB-74192	MBLK	1	06/13/19 3:15 PM
A0613121.D	LCS-74192	LCS	1	06/13/19 3:20 PM
A0613122.D	N035824-005A	SAMP	1	06/13/19 3:25 PM
A0613123.D	N035824-005A	SAMP	5	06/13/19 3:30 PM
A0613124.D	N035824-005A-PS	PS	1	06/13/19 3:35 PM
A0613125.D	CCV9	CCV	1	06/13/19 3:40 PM
A0613126.D	CCB9	CCB	1	06/13/19 3:45 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613127.D	ICSA3	ICSA	1	06/13/19 3:50 PM
A0613128.D	ICSAB3	ICSAB	1	06/13/19 3:55 PM
A0613129.D	N035824-005A-MS	MS	1	06/13/19 4:00 PM
A0613130.D	N035824-005A-MSD	MSD	1	06/13/19 4:05 PM
A0613131.D	N035956-001A	SAMP	5	06/13/19 4:10 PM
A0613132.D	N035956-001A	SAMP	25	06/13/19 4:15 PM
A0613133.D	N035705-004B	SAMP	1	06/13/19 4:20 PM
A0613134.D	MB-73997	MBLK	1	06/13/19 4:25 PM
A0613135.D	LCS-73997	LCS	1	06/13/19 4:30 PM
A0613136.D	N035705-014B	SAMP	1	06/13/19 4:35 PM
A0613137.D	N035705-014B	SAMP	5	06/13/19 4:40 PM
A0613138.D	N035705-014B	SAMP	50	06/13/19 4:45 PM
A0613139.D	CCV10	CCV	1	06/13/19 4:50 PM
A0613140.D	CCB10	CCB	1	06/13/19 4:55 PM
A0613141.D	N035705-015B	SAMP	1	06/13/19 5:00 PM
A0613142.D	N035705-015B	SAMP	5	06/13/19 5:05 PM
A0613143.D	N035705-015B-PS	PS	1	06/13/19 5:10 PM
A0613144.D	N035705-015B-MS	MS	1	06/13/19 5:15 PM
A0613145.D	N035705-015B-MSD	MSD	1	06/13/19 5:20 PM
A0613146.D	N035705-015B	SAMP	25	06/13/19 5:34 PM
A0613147.D	N035705-015B-PS	PS	5	06/13/19 5:38 PM
A0613148.D	N035705-015B-MS	MS	5	06/13/19 5:43 PM
A0613149.D	N035705-015B-MSD	MSD	5	06/13/19 5:48 PM
A0613150.D	N035705-004B	SAMP	1	06/13/19 5:59 PM
A0613151.D	CCV11	CCV	1	06/13/19 6:12 PM
A0613152.D	CCB11	CCB	1	06/13/19 6:17 PM
A0613153.D	CCV11	CCV	1	06/13/19 6:22 PM
A0613154.D	CCB11	CCB	1	06/13/19 6:27 PM
A0613155.D	N035705-004B	SAMP	1	06/13/19 6:32 PM
A0613156.D	N035705-014B	SAMP	5	06/13/19 6:37 PM
A0613157.D	N035705-015B-MS	MS	5	06/13/19 6:42 PM
A0613158.D	N035712-002B	SAMP	1	06/13/19 6:46 PM
A0613159.D	N035712-004B	SAMP	1	06/13/19 6:51 PM
A0613160.D	N035712-004B	SAMP	5	06/13/19 6:57 PM
A0613161.D	N035705-004B	SAMP	1	06/13/19 7:01 PM
A0613162.D	N035712-006B	SAMP	1	06/13/19 7:06 PM
A0613163.D	N035712-006B	SAMP	5	06/13/19 7:11 PM
A0613164.D	N035712-007B	SAMP	1	06/13/19 7:16 PM
A0613165.D	CCV12	CCV	1	06/13/19 7:21 PM
A0613166.D	CCB12	CCB	1	06/13/19 7:26 PM
A0613167.D	N035712-007B	SAMP	5	06/13/19 7:31 PM
A0613168.D	N035712-008B	SAMP	1	06/13/19 7:36 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613169.D	N035712-008B	SAMP	5	06/13/19 7:41 PM
A0613170.D	N035712-009B	SAMP	1	06/13/19 7:46 PM
A0613171.D	N035712-009B	SAMP	5	06/13/19 7:51 PM
A0613172.D	N035712-009B	SAMP	10	06/13/19 7:56 PM
A0613173.D	N035712-010B	SAMP	1	06/13/19 8:01 PM
A0613174.D	N035712-010B	SAMP	5	06/13/19 8:06 PM
A0613175.D	N035712-011B	SAMP	1	06/13/19 8:11 PM
A0613176.D	N035712-011B	SAMP	5	06/13/19 8:16 PM
A0613177.D	CCV13	CCV	1	06/13/19 8:21 PM
A0613178.D	CCB13	CCB	1	06/13/19 8:26 PM
A0613179.D	ICSA4	ICSA	1	06/13/19 8:31 PM
A0613180.D	ICSAB4	ICSAB	1	06/13/19 8:35 PM
A0613181.D	N035712-012B	SAMP	1	06/13/19 8:40 PM
A0613182.D	N035712-012B	SAMP	5	06/13/19 8:45 PM
A0613183.D	N035712-013B	SAMP	1	06/13/19 8:50 PM
A0613184.D	N035712-013B	SAMP	5	06/13/19 8:55 PM
A0613185.D	N035712-013B	SAMP	10	06/13/19 9:00 PM
A0613186.D	N035712-016B	SAMP	1	06/13/19 9:05 PM
A0613187.D	N035712-017B	SAMP	1	06/13/19 9:11 PM
A0613188.D	N035712-018B	SAMP	1	06/13/19 9:16 PM
A0613189.D	N035712-020B	SAMP	1	06/13/19 9:21 PM
A0613190.D	N035712-016B	SAMP	5	06/13/19 9:26 PM
A0613191.D	CCV14	CCV	1	06/13/19 9:31 PM
A0613192.D	CCB14	CCB	1	06/13/19 9:36 PM
A0613193.D	N035712-017B	SAMP	5	06/13/19 9:41 PM
A0613194.D	N035712-018B	SAMP	5	06/13/19 9:46 PM
A0613195.D	N035712-020B	SAMP	5	06/13/19 9:51 PM
A0613196.D	N035712-010B	SAMP	1	06/13/19 9:55 PM
A0613197.D	N035712-011B	SAMP	1	06/13/19 10:00 PM
A0613198.D	N035712-012B	SAMP	1	06/13/19 10:05 PM
A0613199.D	CCV15	CCV	1	06/13/19 10:10 PM
A0613200.D	CCB15	CCB	1	06/13/19 10:15 PM
A0613201.D	ICSA5	ICSA	1	06/13/19 10:20 PM
A0613202.D	ICSAB5	ICSAB	1	06/13/19 10:25 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/24/2019 7:12:36**
Prep End Date: **5/24/2019 12:00:00**
Reviewed/ Date: NS 6/17/2019
Initials/ Date: for

Prep Batch **73996** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-16**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73996	Aqueous		25	☐	0	0	25	1.000		
MB-73996	Aqueous		25	☐	0	0	25	1.000		
N035660-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035660-001A-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035660-001A-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-009B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/24/2019 7:12:36**
Prep End Date: **5/24/2019 12:00:00**
Prep Batch **73996** Prep Code: **3010_W_MSDI**

Reviewed/ Date: NS 6/17/2019
Initials/ Date: for
Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-16**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035705-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-010B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 13 Jun 2019 03:50:19 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	189117.00	0.00	
24	Mg	466211.00	0.00	
25	Mg	61234.40	0.00	
26	Mg	70391.80	0.00	
59	Co	588709.00	0.00	
115	In	839911.00	0.00	
206	Pb	222452.00	0.00	
207	Pb	196044.00	0.00	
208	Pb	479118.00	0.00	

RSD (%)

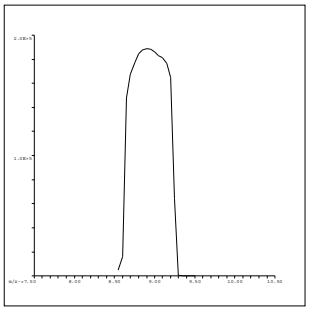
Element		Actual	Required	Flag
9	Be	0.26	5.00	
24	Mg	0.80	5.00	
25	Mg	0.82	5.00	
26	Mg	1.11	5.00	
59	Co	0.66	5.00	
115	In	0.60	5.00	
206	Pb	0.85	5.00	
207	Pb	1.04	5.00	
208	Pb	0.56	5.00	

Ion Ratio

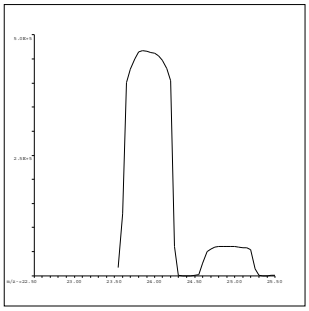
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

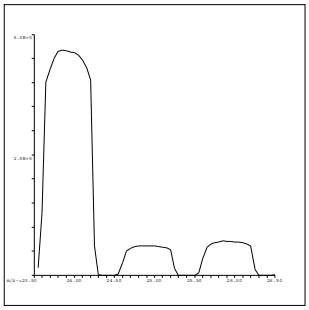
Element	Actual	Required	Flag



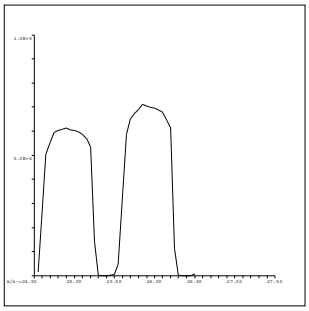
9 Be
Mass Calib.
Actual: 8.90
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



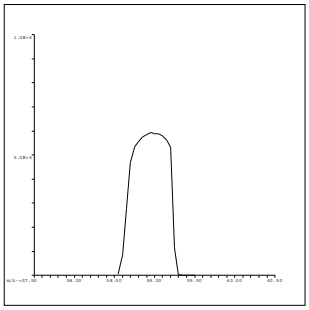
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



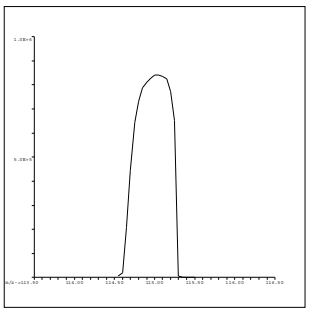
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



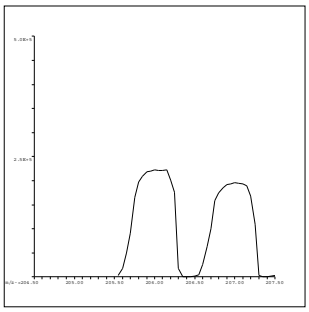
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



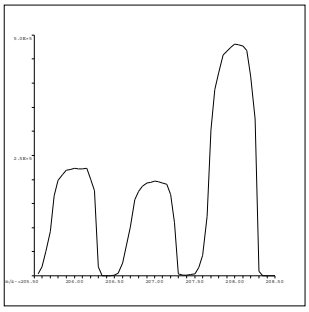
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



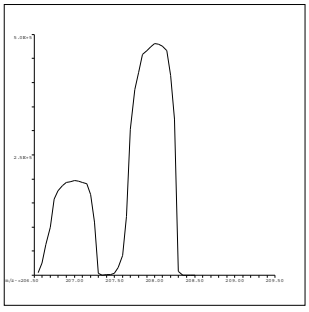
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190613A

Instrument ID: ICPMS-02

Analyte	Data File	A0613002.D	A0613003.D	A0613004.D	A0613005.D	A0613006.D	A0613007.D	A0613008.D	A0613009.D	A0613010.D	
	Acq. Date-Time	06/13/2019 04:25 AM	06/13/2019 04:30 AM	06/13/2019 04:34 AM	06/13/2019 04:39 AM	06/13/2019 04:44 AM	06/13/2019 04:49 AM	06/13/2019 04:54 AM	06/13/2019 04:59 AM	06/13/2019 05:04 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	118299.9		119867.1	119272.4	118909.5	123008	123835.8	123010	120294.7	
55 Mn [2]	CPS	155.5		2913.2	26071.6	51762.2	104092.5	207457.2	511984.7	998890.8	1.0000
52 Cr [2]	CPS	744.3		5335.4	49830.7	97211.2	196338.1	389716.7	966206.2	1968079.5	0.9998
72 Ge (ISTD) [1]	CPS	52885.6		53986.2	54439.8	52967.2	53485.6	53722.5	52414.3	50289.6	
78 Se [1]	CPS	1.1		101.1	1045.6	1865.8	3932.9	7927.8	19292.3	38379.9	0.9999
72 Ge (ISTD) [2]	CPS	84806.3	86959.6	85862.7	85668.5	85550.4	85531.1	86259.6	83976.2	80020	
75 As [2]	CPS	25.8	124.9	575.6	5307.1	10697.8	21470.3	42664.1	106037.5	206119.6	0.9999
103 Rh (ISTD) [2]	CPS	2396812.1		2410984	2394967.6	2359479.3	2385170.2	2326277.7	2269384.6	2185897.5	
95 Mo [2]	CPS	62.2		2590.3	25126.2	50703.3	103222.5	205459.7	512984.2	1006879.5	0.9999

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.869	0.10	10.00	0	98.7	90	110				
Manganese	106.801	0.50	100.0	0	107	90	110				
Molybdenum	9.499	0.50	10.00	0	95.0	90	110				
Selenium	9.930	0.50	10.00	0	99.3	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ZZZZZZ** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.108	0.10	0.1000	0	108	80	120				
Manganese	0.520	0.50	0.5000	0	104	80	120				
Molybdenum	0.497	0.50	0.5000	0	99.4	80	120				
Selenium	0.485	0.50	0.5000	0	97.0	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.375	0.10	20.00	0	96.9	90	110				
Manganese	21.056	0.50	20.00	0	105	90	110				
Molybdenum	19.228	0.50	20.00	0	96.1	90	110				
Selenium	19.147	0.50	20.00	0	95.7	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.530	0.10	20.00	0	97.7	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.199	0.50	20.00	0	106	90	110				
Molybdenum	18.955	0.50	20.00	0	94.8	90	110				
Selenium	18.535	0.50	20.00	0	92.7	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.467	0.10	20.00	0	97.3	90	110				
Manganese	20.869	0.50	20.00	0	104	90	110				
Molybdenum	19.062	0.50	20.00	0	95.3	90	110				
Selenium	19.020	0.50	20.00	0	95.1	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.322	0.10	20.00	0	96.6	90	110				
Manganese	20.803	0.50	20.00	0	104	90	110				
Molybdenum	19.152	0.50	20.00	0	95.8	90	110				
Selenium	20.412	0.50	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.387	0.10	20.00	0	96.9	90	110				
Manganese	18.694	0.50	20.00	0	93.5	90	110				
Molybdenum	18.301	0.50	20.00	0	91.5	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.022	0.50	20.00	0	100	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.357	0.10	20.00	0	96.8	90	110				
Manganese	21.167	0.50	20.00	0	106	90	110				
Molybdenum	18.998	0.50	20.00	0	95.0	90	110				
Selenium	19.068	0.50	20.00	0	95.3	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409931**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.981	0.10	20.00	0	94.9	90	110				
Manganese	21.343	0.50	20.00	0	107	90	110				
Molybdenum	18.641	0.50	20.00	0	93.2	90	110				
Selenium	18.994	0.50	20.00	0	95.0	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409943**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.271	0.10	20.00	0	96.4	90	110				
Manganese	21.230	0.50	20.00	0	106	90	110				
Molybdenum	18.548	0.50	20.00	0	92.7	90	110				
Selenium	19.825	0.50	20.00	0	99.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.387	0.10	20.00	0	96.9	90	110				
Manganese	19.045	0.50	20.00	0	95.2	90	110				
Molybdenum	18.771	0.50	20.00	0	93.9	90	110				
Selenium	18.888	0.50	20.00	0	94.4	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.695	1.0	10.00	0	107	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.009	1.0	1.000	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.065	1.0	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.314	1.0	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.342	1.0	20.00	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.027	1.0	20.00	0	100	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.551	1.0	20.00	0	97.8	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.183	1.0	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.319	1.0	20.00	0	102	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.292	1.0	20.00	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9** SampType: **CCV** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: RunNo: **134492**
Client ID: **CCV** Batch ID: **R134492** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.221	1.0	20.00	0	91.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.216	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB6	**CCB**	**6020_DIS**	**µg/L**		**134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB7	**CCB**	**6020_DIS**	**µg/L**		**134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB8	**CCB**	**6020_DIS**	**µg/L**		**134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409944**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB9	**CCB**	**6020_DIS**	**µg/L**		**134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.190	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409816**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.140	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSA** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSAB** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.856	0.10	20.00	0	99.3	80	120				
Manganese	17.305	0.50	20.00	0	86.5	80	120				
Molybdenum	20.553	0.50	20.00	0	103	80	120				
Selenium	18.072	0.50	20.00	0	90.4	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSA** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSAB** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.436	0.10	20.00	0	97.2	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSAB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.264	0.50	20.00	0	86.3	80	120				
Molybdenum	20.328	0.50	20.00	0	102	80	120				
Selenium	18.241	0.50	20.00	0	91.2	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSA**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSAB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.471	0.10	20.00	0	97.4	80	120				
Manganese	16.754	0.50	20.00	0	83.8	80	120				
Molybdenum	20.106	0.50	20.00	0	101	80	120				
Selenium	19.121	0.50	20.00	0	95.6	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.378	1.0	20.00	0	96.9	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.742	1.0	20.00	0	98.7	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.542	1.0	20.00	0	92.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	118299.9	118299.9	100	PASS	70-125	84806.3	84806.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	121078	118299.9	102.35	PASS	70-125	86959.6	84806.3	102.54	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	119867.1	118299.9	101.32	PASS	70-125	85862.7	84806.3	101.25	PASS	70-125
Std3-5/50 ppb	ICAL	1	119272.4	118299.9	100.82	PASS	70-125	85668.5	84806.3	101.02	PASS	70-125
Std4-10/100 ppb	ICAL	1	118909.5	118299.9	100.52	PASS	70-125	85550.4	84806.3	100.88	PASS	70-125
Std5-20/200 ppb	ICAL	1	123008	118299.9	103.98	PASS	70-125	85531.1	84806.3	100.85	PASS	70-125
Std6-40/400 ppb	ICAL	1	123835.8	118299.9	104.68	PASS	70-125	86259.6	84806.3	101.71	PASS	70-125
Std7-100/1000 ppb	ICAL	1	123010	118299.9	103.98	PASS	70-125	83976.2	84806.3	99.021	PASS	70-125
Std8-200/2000 ppb	ICAL	1	120294.7	118299.9	101.69	PASS	70-125	80020	84806.3	94.36	PASS	70-125
ICV	ICV	1	107067.5	118299.9	90.51	PASS	70-125	79175	84806.3	93.36	PASS	70-125
ICB	ICB	1	113385.9	118299.9	95.85	PASS	70-125	83289.3	84806.3	98.21	PASS	70-125
LLICV	CCV1	1	114048.8	118299.9	96.41	PASS	70-125	84285.8	84806.3	99.39	PASS	70-125
ICSA1	ICSA	1	116558.7	118299.9	98.53	PASS	70-125	82217.4	84806.3	96.95	PASS	70-125
ICSAB1	ICSAB	1	121151.6	118299.9	102.41	PASS	70-125	83592	84806.3	98.57	PASS	70-125
LLICV	CCV1	1	130218.2	118299.9	110.08	PASS	70-125	93292	84806.3	110.01	PASS	70-125
CCV1	CCV	1	131653.7	118299.9	111.29	PASS	70-125	93444.8	84806.3	110.19	PASS	70-125
CCB1	CCB	1	124611.9	118299.9	105.34	PASS	70-125	91023.7	84806.3	107.33	PASS	70-125
CCV2	CCV	1	137138.8	118299.9	115.92	PASS	70-125	98271.7	84806.3	115.88	PASS	70-125
CCB2	CCB	1	133901.7	118299.9	113.19	PASS	70-125	97139.8	84806.3	114.54	PASS	70-125
CCV3	CCV	1	137592.8	118299.9	116.31	PASS	70-125	98647.8	84806.3	116.32	PASS	70-125
CCB3	CCB	1	130525.4	118299.9	110.33	PASS	70-125	96350.6	84806.3	113.61	PASS	70-125
CCV4	CCV	1	138359.3	118299.9	116.96	PASS	70-125	99023.2	84806.3	116.76	PASS	70-125
CCB4	CCB	1	129876.9	118299.9	109.79	PASS	70-125	96572.2	84806.3	113.87	PASS	70-125
ICSA2	ICSA	1	127416.6	118299.9	107.71	PASS	70-125	90619.8	84806.3	106.86	PASS	70-125
ICSAB2	ICSAB	1	129109.7	118299.9	109.14	PASS	70-125	91644.4	84806.3	108.06	PASS	70-125
MB-73996	MBLK	1	138058.5	118299.9	116.7	PASS	70-125	101467.3	84806.3	119.65	PASS	70-125
LCS-73996	LCS	1	129027.5	118299.9	109.07	PASS	70-125	96480.7	84806.3	113.77	PASS	70-125
N035660-001A	SAMP	1	120411.1	118299.9	101.78	PASS	70-125	76851.6	84806.3	90.62	PASS	70-125
N035660-001A	SAMP	5	129776.2	118299.9	109.7	PASS	70-125	90689.7	84806.3	106.94	PASS	70-125
N035660-001A-PS	PS	1	126006.4	118299.9	106.51	PASS	70-125	80354.9	84806.3	94.75	PASS	70-125
N035660-001A-MS	MS	1	129742.1	118299.9	109.67	PASS	70-125	80308	84806.3	94.7	PASS	70-125
N035660-001A-MSD	MSD	1	129283.5	118299.9	109.28	PASS	70-125	81433.4	84806.3	96.023	PASS	70-125
N035663-001B	SAMP	1	128328.6	118299.9	108.48	PASS	70-125	84594.9	84806.3	99.75	PASS	70-125
N035663-002B	SAMP	1	130021.7	118299.9	109.91	PASS	70-125	85912	84806.3	101.3	PASS	70-125
N035663-002B	SAMP	5	129545.2	118299.9	109.51	PASS	70-125	92235.1	84806.3	108.76	PASS	70-125
CCV5	CCV	1	120169.2	118299.9	101.58	PASS	70-125	79871.9	84806.3	94.18	PASS	70-125
CCB5	CCB	1	112973.5	118299.9	95.5	PASS	70-125	81724.4	84806.3	96.37	PASS	70-125
N035663-003B	SAMP	1	112076.6	118299.9	94.74	PASS	70-125	75842.8	84806.3	89.43	PASS	70-125
N035663-003B	SAMP	5	114743.3	118299.9	96.99	PASS	70-125	84435.4	84806.3	99.56	PASS	70-125
N035663-004B	SAMP	1	115838.1	118299.9	97.92	PASS	70-125	77762.4	84806.3	91.69	PASS	70-125
N035663-005B	SAMP	1	108254	118299.9	91.51	PASS	70-125	64951.1	84806.3	76.59	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035663-005B	SAMP	5	124715.8	118299.9	105.42	PASS	70-125	85625	84806.3	100.97	PASS	70-125
N035663-006B	SAMP	1	132550.9	118299.9	112.05	PASS	70-125	87877.7	84806.3	103.62	PASS	70-125
N035663-007B	SAMP	1	131879	118299.9	111.48	PASS	70-125	86456.3	84806.3	101.95	PASS	70-125
N035663-008B	SAMP	1	114635.3	118299.9	96.9	PASS	70-125	68503.9	84806.3	80.78	PASS	70-125
N035663-008B	SAMP	5	125018.2	118299.9	105.68	PASS	70-125	85950.9	84806.3	101.35	PASS	70-125
N035663-009B	SAMP	1	115064	118299.9	97.26	PASS	70-125	68655.2	84806.3	80.96	PASS	70-125
CCV6	CCV	1	130365.4	118299.9	110.2	PASS	70-125	95358.3	84806.3	112.44	PASS	70-125
CCB6	CCB	1	128516.5	118299.9	108.64	PASS	70-125	93763.2	84806.3	110.56	PASS	70-125
N035663-009B	SAMP	5	125598.4	118299.9	106.17	PASS	70-125	85723	84806.3	101.08	PASS	70-125
N035663-004B	SAMP	1	129277.1	118299.9	109.28	PASS	70-125	85933.1	84806.3	101.33	PASS	70-125
N035705-001B	SAMP	1	129946.8	118299.9	109.85	PASS	70-125	86245	84806.3	101.7	PASS	70-125
N035705-001B	SAMP	5	122587.5	118299.9	103.62	PASS	70-125	89964.2	84806.3	106.08	PASS	70-125
N035705-002B	SAMP	1	113731.4	118299.9	96.14	PASS	70-125	69388.2	84806.3	81.82	PASS	70-125
N035705-002B	SAMP	5	124239.2	118299.9	105.02	PASS	70-125	86253.8	84806.3	101.71	PASS	70-125
N035705-003B	SAMP	1	117051	118299.9	98.94	PASS	70-125	70053.3	84806.3	82.6	PASS	70-125
N035705-003B	SAMP	5	124549.7	118299.9	105.28	PASS	70-125	86428	84806.3	101.91	PASS	70-125
N035705-004B	SAMP	1	123718.8	118299.9	104.58	PASS	70-125	75893.6	84806.3	89.49	PASS	70-125
N035705-005B	SAMP	1	124211.5	118299.9	105	PASS	70-125	76495.4	84806.3	90.2	PASS	70-125
CCV7	CCV	1	129951.8	118299.9	109.85	PASS	70-125	97687	84806.3	115.19	PASS	70-125
CCB7	CCB	1	121923.9	118299.9	103.06	PASS	70-125	92957.1	84806.3	109.61	PASS	70-125
N035705-006B	SAMP	1	124091.1	118299.9	104.9	PASS	70-125	82334.8	84806.3	97.086	PASS	70-125
N035705-006B	SAMP	5	128396.1	118299.9	108.53	PASS	70-125	91464.2	84806.3	107.85	PASS	70-125
N035705-007B	SAMP	1	124925.4	118299.9	105.6	PASS	70-125	82034.4	84806.3	96.73	PASS	70-125
N035705-007B	SAMP	5	126139.1	118299.9	106.63	PASS	70-125	90491.2	84806.3	106.7	PASS	70-125
N035705-008B	SAMP	1	117492.6	118299.9	99.32	PASS	70-125	71971.4	84806.3	84.87	PASS	70-125
N035705-008B	SAMP	5	125064.3	118299.9	105.72	PASS	70-125	86535.5	84806.3	102.04	PASS	70-125
N035705-008B	SAMP	25	124962.5	118299.9	105.63	PASS	70-125	92363.7	84806.3	108.91	PASS	70-125
N035705-009B	SAMP	1	117292	118299.9	99.15	PASS	70-125	71871.6	84806.3	84.75	PASS	70-125
N035705-009B	SAMP	5	123549.8	118299.9	104.44	PASS	70-125	86730.7	84806.3	102.27	PASS	70-125
N035705-009B	SAMP	25	124015.5	118299.9	104.83	PASS	70-125	92478.4	84806.3	109.05	PASS	70-125
CCV8	CCV	1	123209.4	118299.9	104.15	PASS	70-125	91092.5	84806.3	107.41	PASS	70-125
CCB8	CCB	1	115201.6	118299.9	97.38	PASS	70-125	86809.3	84806.3	102.36	PASS	70-125
N035705-010B	SAMP	1	115995.5	118299.9	98.052	PASS	70-125	76317.2	84806.3	89.99	PASS	70-125
N035705-001B	SAMP	1	120762.8	118299.9	102.08	PASS	70-125	81591.4	84806.3	96.21	PASS	70-125
N035705-004B	SAMP	1	114243	118299.9	96.57	PASS	70-125	72016.3	84806.3	84.92	PASS	70-125
N035705-005B	SAMP	1	116696	118299.9	98.64	PASS	70-125	72951.3	84806.3	86.021	PASS	70-125
N035705-004B	SAMP	1	119015.7	118299.9	100.61	PASS	70-125	73749.3	84806.3	86.96	PASS	70-125
CCV9	CCV	1	132929.8	118299.9	112.37	PASS	70-125	89958	84806.3	106.08	PASS	70-125
CCB9	CCB	1	122515.4	118299.9	103.56	PASS	70-125	86943.7	84806.3	102.52	PASS	70-125
ICSA3	ICSA	1	120646.9	118299.9	101.98	PASS	70-125	82979.6	84806.3	97.85	PASS	70-125
ICSAB3	ICSAB	1	122250.3	118299.9	103.34	PASS	70-125	84116.8	84806.3	99.19	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035705-004B	SAMP	1	108838.4	118299.9	92.002	PASS	70-125	66618.1	84806.3	78.55	PASS	70-125
CCV10	CCV	1	126311.1	118299.9	106.77	PASS	70-125	91611	84806.3	108.02	PASS	70-125
CCB10	CCB	1	122094.1	118299.9	103.21	PASS	70-125	89692.6	84806.3	105.76	PASS	70-125
N035705-004B	SAMP	1	131515.2	118299.9	111.17	PASS	70-125	75915.5	84806.3	89.52	PASS	70-125
CCV11	CCV	1	147709.8	118299.9	124.86	PASS	70-125	94478.5	84806.3	111.41	PASS	70-125
CCB11	CCB	1	143820.2	118299.9	121.57	PASS	70-125	96776.4	84806.3	114.11	PASS	70-125
CCV11	CCV	1	146814.8	118299.9	124.1	PASS	70-125	97466.2	84806.3	114.93	PASS	70-125
CCB11	CCB	1	137425.9	118299.9	116.17	PASS	70-125	94192.4	84806.3	111.07	PASS	70-125
N035705-004B	SAMP	1	126644.5	118299.9	107.05	PASS	70-125	75067.3	84806.3	88.52	PASS	70-125
CCV12	CCV	1	149318.2	118299.9	126.22	NR!	70-125	98987.9	84806.3	116.72	PASS	70-125
CCB12	CCB	1	139329	118299.9	117.78	PASS	70-125	94352	84806.3	111.26	PASS	70-125
CCV13	CCV	1	155808.6	118299.9	131.71	NR!	70-125	104956.3	84806.3	123.76	PASS	70-125
CCB13	CCB	1	146712.9	118299.9	124.02	PASS	70-125	100434	84806.3	118.43	PASS	70-125
ICSA4	ICSA	1	147712.9	118299.9	124.86	PASS	70-125	98365.8	84806.3	115.99	PASS	70-125
ICSAB4	ICSAB	1	150301.7	118299.9	127.05	NR!	70-125	98183.3	84806.3	115.77	PASS	70-125
CCV14	CCV	1	140471.2	118299.9	118.74	PASS	70-125	96391.8	84806.3	113.66	PASS	70-125
CCB14	CCB	1	141379.3	118299.9	119.51	PASS	70-125	98448	84806.3	116.09	PASS	70-125
CCV15	CCV	1	144515.8	118299.9	122.16	PASS	70-125	100360.5	84806.3	118.34	PASS	70-125
CCB15	CCB	1	144951.9	118299.9	122.53	PASS	70-125	102142.4	84806.3	120.44	PASS	70-125
ICSA5	ICSA	1	140709.1	118299.9	118.94	PASS	70-125	95807.8	84806.3	112.97	PASS	70-125
ICSAB5	ICSAB	1	141283.8	118299.9	119.43	PASS	70-125	93986.6	84806.3	110.83	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	52885.6	52885.6	100	PASS	70-125	2396812.1	2396812.1	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	54733.9	52885.6	103.49	PASS	70-125	2447111.2	2396812.1	102.1	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	53986.2	52885.6	102.08	PASS	70-125	2410984	2396812.1	100.59	PASS	70-125
Std3-5/50 ppb	ICAL	1	54439.8	52885.6	102.94	PASS	70-125	2394967.6	2396812.1	99.92	PASS	70-125
Std4-10/100 ppb	ICAL	1	52967.2	52885.6	100.15	PASS	70-125	2359479.3	2396812.1	98.44	PASS	70-125
Std5-20/200 ppb	ICAL	1	53485.6	52885.6	101.13	PASS	70-125	2385170.2	2396812.1	99.51	PASS	70-125
Std6-40/400 ppb	ICAL	1	53722.5	52885.6	101.58	PASS	70-125	2326277.7	2396812.1	97.057	PASS	70-125
Std7-100/1000 ppb	ICAL	1	52414.3	52885.6	99.11	PASS	70-125	2269384.6	2396812.1	94.68	PASS	70-125
Std8-200/2000 ppb	ICAL	1	50289.6	52885.6	95.091	PASS	70-125	2185897.5	2396812.1	91.2	PASS	70-125
ICV	ICV	1	47132.7	52885.6	89.12	PASS	70-125	2267150	2396812.1	94.59	PASS	70-125
ICB	ICB	1	53234.5	52885.6	100.66	PASS	70-125	2304559.4	2396812.1	96.15	PASS	70-125
LLICV	CCV1	1	52815.6	52885.6	99.87	PASS	70-125	2346500.7	2396812.1	97.9	PASS	70-125
ICSA1	ICSA	1	50145.9	52885.6	94.82	PASS	70-125	2124323.6	2396812.1	88.63	PASS	70-125
ICSAB1	ICSAB	1	51617.3	52885.6	97.6	PASS	70-125	2120252	2396812.1	88.46	PASS	70-125
LLICV	CCV1	1	60802.1	52885.6	114.97	PASS	70-125	2538827	2396812.1	105.93	PASS	70-125
CCV1	CCV	1	56614.7	52885.6	107.05	PASS	70-125	2501641.2	2396812.1	104.37	PASS	70-125
CCB1	CCB	1	56838.9	52885.6	107.48	PASS	70-125	2491903.6	2396812.1	103.97	PASS	70-125
CCV2	CCV	1	61854	52885.6	116.96	PASS	70-125	2637526.6	2396812.1	110.04	PASS	70-125
CCB2	CCB	1	61945.2	52885.6	117.13	PASS	70-125	2575075.8	2396812.1	107.44	PASS	70-125
CCV3	CCV	1	60233.1	52885.6	113.89	PASS	70-125	2626607.6	2396812.1	109.59	PASS	70-125
CCB3	CCB	1	58767	52885.6	111.12	PASS	70-125	2580943.9	2396812.1	107.68	PASS	70-125
CCV4	CCV	1	57448.9	52885.6	108.63	PASS	70-125	2624575.8	2396812.1	109.5	PASS	70-125
CCB4	CCB	1	55462	52885.6	104.87	PASS	70-125	2559089.3	2396812.1	106.77	PASS	70-125
ICSA2	ICSA	1	51264.8	52885.6	96.94	PASS	70-125	2289759.1	2396812.1	95.53	PASS	70-125
ICSAB2	ICSAB	1	51946.1	52885.6	98.22	PASS	70-125	2277901	2396812.1	95.039	PASS	70-125
MB-73996	MBLK	1	58540.2	52885.6	110.69	PASS	70-125	2691254.3	2396812.1	112.28	PASS	70-125
LCS-73996	LCS	1	55574.5	52885.6	105.08	PASS	70-125	2609018.1	2396812.1	108.85	PASS	70-125
N035660-001A	SAMP	1	40148.4	52885.6	75.92	PASS	70-125	1858587.1	2396812.1	77.54	PASS	70-125
N035660-001A	SAMP	5	50714.3	52885.6	95.89	PASS	70-125	2270806.1	2396812.1	94.74	PASS	70-125
N035660-001A-PS	PS	1	42385	52885.6	80.14	PASS	70-125	1908143	2396812.1	79.61	PASS	70-125
N035660-001A-MS	MS	1	42906.3	52885.6	81.13	PASS	70-125	1917401.9	2396812.1	80	PASS	70-125
N035660-001A-MSD	MSD	1	42846.3	52885.6	81.017	PASS	70-125	1907385.4	2396812.1	79.58	PASS	70-125
N035663-001B	SAMP	1	49168.5	52885.6	92.97	PASS	70-125	2098821.6	2396812.1	87.57	PASS	70-125
N035663-002B	SAMP	1	50701	52885.6	95.87	PASS	70-125	2119565	2396812.1	88.43	PASS	70-125
N035663-002B	SAMP	5	54625	52885.6	103.29	PASS	70-125	2338638.2	2396812.1	97.57	PASS	70-125
CCV5	CCV	1	42360.7	52885.6	80.099	PASS	70-125	2248826.9	2396812.1	93.83	PASS	70-125
CCB5	CCB	1	47151.4	52885.6	89.16	PASS	70-125	2266355	2396812.1	94.56	PASS	70-125
N035663-003B	SAMP	1	41842.4	52885.6	79.12	PASS	70-125	1950986.7	2396812.1	81.4	PASS	70-125
N035663-003B	SAMP	5	48848.9	52885.6	92.37	PASS	70-125	2185558.5	2396812.1	91.19	PASS	70-125
N035663-004B	SAMP	1	44143.1	52885.6	83.47	PASS	70-125	2001834.2	2396812.1	83.52	PASS	70-125
N035663-005B	SAMP	1	31446.8	52885.6	59.46	NR!	70-125	1478875.3	2396812.1	61.7	NR!	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035663-005B	SAMP	5	46880.6	52885.6	88.65	PASS	70-125	2090442.7	2396812.1	87.22	PASS	70-125
N035663-006B	SAMP	1	51514.5	52885.6	97.41	PASS	70-125	2195936	2396812.1	91.62	PASS	70-125
N035663-007B	SAMP	1	51998.4	52885.6	98.32	PASS	70-125	2130334.3	2396812.1	88.88	PASS	70-125
N035663-008B	SAMP	1	35710.3	52885.6	67.52	NR!	70-125	1567631.2	2396812.1	65.4	NR!	70-125
N035663-008B	SAMP	5	48952.4	52885.6	92.56	PASS	70-125	2127026.2	2396812.1	88.74	PASS	70-125
N035663-009B	SAMP	1	35103.2	52885.6	66.38	NR!	70-125	1588480.3	2396812.1	66.27	NR!	70-125
CCV6	CCV	1	58321.1	52885.6	110.28	PASS	70-125	2543894.4	2396812.1	106.14	PASS	70-125
CCB6	CCB	1	57574.2	52885.6	108.87	PASS	70-125	2511700.8	2396812.1	104.79	PASS	70-125
N035663-009B	SAMP	5	47877.9	52885.6	90.53	PASS	70-125	2108518.4	2396812.1	87.97	PASS	70-125
N035663-004B	SAMP	1	50595	52885.6	95.67	PASS	70-125	2147721.7	2396812.1	89.61	PASS	70-125
N035705-001B	SAMP	1	51671.8	52885.6	97.7	PASS	70-125	2143335	2396812.1	89.42	PASS	70-125
N035705-001B	SAMP	5	53252.2	52885.6	100.69	PASS	70-125	2310552.1	2396812.1	96.4	PASS	70-125
N035705-002B	SAMP	1	34656.6	52885.6	65.53	NR!	70-125	1612249.4	2396812.1	67.27	NR!	70-125
N035705-002B	SAMP	5	49756.9	52885.6	94.084	PASS	70-125	2113153.8	2396812.1	88.17	PASS	70-125
N035705-003B	SAMP	1	35236.8	52885.6	66.63	NR!	70-125	1599613.7	2396812.1	66.74	NR!	70-125
N035705-003B	SAMP	5	49943.1	52885.6	94.44	PASS	70-125	2118192.8	2396812.1	88.38	PASS	70-125
N035705-004B	SAMP	1	40461.3	52885.6	76.51	PASS	70-125	1782917.9	2396812.1	74.39	PASS	70-125
N035705-005B	SAMP	1	41792.3	52885.6	79.024	PASS	70-125	1807583.4	2396812.1	75.42	PASS	70-125
CCV7	CCV	1	59262.3	52885.6	112.06	PASS	70-125	2562067.6	2396812.1	106.89	PASS	70-125
CCB7	CCB	1	56050.8	52885.6	105.98	PASS	70-125	2447922.6	2396812.1	102.13	PASS	70-125
N035705-006B	SAMP	1	48387.3	52885.6	91.49	PASS	70-125	2051812.6	2396812.1	85.61	PASS	70-125
N035705-006B	SAMP	5	54341.6	52885.6	102.75	PASS	70-125	2298958	2396812.1	95.92	PASS	70-125
N035705-007B	SAMP	1	47309.6	52885.6	89.46	PASS	70-125	2018008.4	2396812.1	84.2	PASS	70-125
N035705-007B	SAMP	5	53934.5	52885.6	101.98	PASS	70-125	2277883.1	2396812.1	95.038	PASS	70-125
N035705-008B	SAMP	1	37506.3	52885.6	70.92	PASS	70-125	1687952	2396812.1	70.42	PASS	70-125
N035705-008B	SAMP	5	49758.1	52885.6	94.086	PASS	70-125	2168142.6	2396812.1	90.46	PASS	70-125
N035705-008B	SAMP	25	54350.6	52885.6	102.77	PASS	70-125	2370371.3	2396812.1	98.9	PASS	70-125
N035705-009B	SAMP	1	37309.2	52885.6	70.55	PASS	70-125	1691877.3	2396812.1	70.59	PASS	70-125
N035705-009B	SAMP	5	49488.6	52885.6	93.58	PASS	70-125	2166311.5	2396812.1	90.38	PASS	70-125
N035705-009B	SAMP	25	54676.1	52885.6	103.39	PASS	70-125	2358667.9	2396812.1	98.41	PASS	70-125
CCV8	CCV	1	54644.7	52885.6	103.33	PASS	70-125	2449837.7	2396812.1	102.21	PASS	70-125
CCB8	CCB	1	52684.1	52885.6	99.62	PASS	70-125	2339360.9	2396812.1	97.6	PASS	70-125
N035705-010B	SAMP	1	43633.8	52885.6	82.51	PASS	70-125	1905225.2	2396812.1	79.49	PASS	70-125
N035705-001B	SAMP	1	49589.8	52885.6	93.77	PASS	70-125	2049630.5	2396812.1	85.51	PASS	70-125
N035705-004B	SAMP	1	38053.1	52885.6	71.95	PASS	70-125	1715886.9	2396812.1	71.59	PASS	70-125
N035705-005B	SAMP	1	39404.2	52885.6	74.51	PASS	70-125	1736558.4	2396812.1	72.45	PASS	70-125
N035705-004B	SAMP	1	40234.1	52885.6	76.078	PASS	70-125	1757929.1	2396812.1	73.34	PASS	70-125
CCV9	CCV	1	55313.8	52885.6	104.59	PASS	70-125	2436501.1	2396812.1	101.66	PASS	70-125
CCB9	CCB	1	52765.6	52885.6	99.77	PASS	70-125	2351258.9	2396812.1	98.099	PASS	70-125
ICSA3	ICSA	1	50052.5	52885.6	94.64	PASS	70-125	2146100.3	2396812.1	89.54	PASS	70-125
ICSAB3	ICSAB	1	49589.7	52885.6	93.77	PASS	70-125	2140563.6	2396812.1	89.31	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035705-004B	SAMP	1	37112.1	52885.6	70.17	PASS	70-125	1645087.9	2396812.1	68.64	NR!	70-125
CCV10	CCV	1	54610.9	52885.6	103.26	PASS	70-125	2449064	2396812.1	102.18	PASS	70-125
CCB10	CCB	1	53794.4	52885.6	101.72	PASS	70-125	2382349.3	2396812.1	99.4	PASS	70-125
N035705-004B	SAMP	1	40198.3	52885.6	76.01	PASS	70-125	1855306.9	2396812.1	77.41	PASS	70-125
CCV11	CCV	1	56431.9	52885.6	106.71	PASS	70-125	2622300.7	2396812.1	109.41	PASS	70-125
CCB11	CCB	1	61021.5	52885.6	115.38	PASS	70-125	2637261.4	2396812.1	110.03	PASS	70-125
CCV11	CCV	1	60712.3	52885.6	114.8	PASS	70-125	2651908.5	2396812.1	110.64	PASS	70-125
CCB11	CCB	1	56182.2	52885.6	106.23	PASS	70-125	2573807.2	2396812.1	107.38	PASS	70-125
N035705-004B	SAMP	1	41142.7	52885.6	77.8	PASS	70-125	1830058.4	2396812.1	76.35	PASS	70-125
CCV12	CCV	1	62220.4	52885.6	117.65	PASS	70-125	2667290.8	2396812.1	111.28	PASS	70-125
CCB12	CCB	1	59512.9	52885.6	112.53	PASS	70-125	2577460.6	2396812.1	107.54	PASS	70-125
CCV13	CCV	1	67499	52885.6	127.63	NR!	70-125	2774619.7	2396812.1	115.76	PASS	70-125
CCB13	CCB	1	65250.1	52885.6	123.38	PASS	70-125	2676741.9	2396812.1	111.68	PASS	70-125
ICSA4	ICSA	1	60682.7	52885.6	114.74	PASS	70-125	2461665.8	2396812.1	102.71	PASS	70-125
ICSAB4	ICSAB	1	61276.8	52885.6	115.87	PASS	70-125	2433637.9	2396812.1	101.54	PASS	70-125
CCV14	CCV	1	64170	52885.6	121.34	PASS	70-125	2588998.9	2396812.1	108.02	PASS	70-125
CCB14	CCB	1	67120.6	52885.6	126.92	NR!	70-125	2663601.6	2396812.1	111.13	PASS	70-125
CCV15	CCV	1	67642	52885.6	127.9	NR!	70-125	2656766.3	2396812.1	110.85	PASS	70-125
CCB15	CCB	1	69949.6	52885.6	132.27	NR!	70-125	2705951	2396812.1	112.9	PASS	70-125
ICSA5	ICSA	1	63117.1	52885.6	119.35	PASS	70-125	2395525.5	2396812.1	99.95	PASS	70-125
ICSAB5	ICSAB	1	62251.7	52885.6	117.71	PASS	70-125	2357064.5	2396812.1	98.34	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035663
Test Method: EPA 6020
Analysis Date: 6/13/2019

Matrix: Groundwater
Batch No.: 73996

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Mn failed. However, PS passed criteria.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035660-001A DT 5x	Chromium	Cr	µg/L	0	NA	0		10
N035660-001A DT 5x	Arsenic	As	µg/L	1.77949	NA	1.675398	6.21%	10
N035660-001A DT 5x	Manganese	Mn	µg/L	56.36091	FAIL	50.58463	11.42%	10
N035660-001A DT 5x	Molybdenum	Mo	µg/L	40.05061	PASS	40.99871	2.31%	10
N035660-001A DT 5x	Selenium	Se	µg/L	0	NA	1.494358	100.00%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035660-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ZZZZZZ** Batch ID: **73996** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/13/2019** SeqNo: **3409901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.831	0.10	10.00	1.675	102	80	120				
Manganese	139.840	0.50	100.0	50.58	89.3	80	120				
Molybdenum	50.763	0.50	10.00	41.00	97.6	80	120				
Selenium	11.291	0.50	10.00	1.494	98.0	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035663
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N035660-001A-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID:	**ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.682	1.0	10.00	0	86.8	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

June 25, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035705

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 20, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Silveira for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for samples N035705-002 and -003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035705
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035705-001A	MW-57-070-Q219	Groundwater	5/20/2019 2:34:00 PM	5/20/2019	6/25/2019
N035705-001B	MW-57-070-Q219	Groundwater	5/20/2019 2:34:00 PM	5/20/2019	6/25/2019
N035705-001C	MW-57-070-Q219	Groundwater	5/20/2019 2:34:00 PM	5/20/2019	6/25/2019
N035705-001D	MW-57-070-Q219	Groundwater	5/20/2019 2:34:00 PM	5/20/2019	6/25/2019
N035705-002A	MW-57-185-LF_S-Q219	Groundwater	5/20/2019 1:44:00 PM	5/20/2019	6/25/2019
N035705-002B	MW-57-185-LF_S-Q219	Groundwater	5/20/2019 1:44:00 PM	5/20/2019	6/25/2019
N035705-002C	MW-57-185-LF_S-Q219	Groundwater	5/20/2019 1:44:00 PM	5/20/2019	6/25/2019
N035705-002D	MW-57-185-LF_S-Q219	Groundwater	5/20/2019 1:44:00 PM	5/20/2019	6/25/2019
N035705-003A	MW-909-Q219	Groundwater	5/20/2019 1:54:00 PM	5/20/2019	6/25/2019
N035705-003B	MW-909-Q219	Groundwater	5/20/2019 1:54:00 PM	5/20/2019	6/25/2019
N035705-003C	MW-909-Q219	Groundwater	5/20/2019 1:54:00 PM	5/20/2019	6/25/2019
N035705-003D	MW-909-Q219	Groundwater	5/20/2019 1:54:00 PM	5/20/2019	6/25/2019
N035705-004A	TW-05-LF-Q219	Groundwater	5/20/2019 3:30:00 PM	5/20/2019	6/25/2019
N035705-004B	TW-05-LF-Q219	Groundwater	5/20/2019 3:30:00 PM	5/20/2019	6/25/2019
N035705-004C	TW-05-LF-Q219	Groundwater	5/20/2019 3:30:00 PM	5/20/2019	6/25/2019
N035705-005A	MW-913-Q219	Groundwater	5/20/2019 3:40:00 PM	5/20/2019	6/25/2019
N035705-005B	MW-913-Q219	Groundwater	5/20/2019 3:40:00 PM	5/20/2019	6/25/2019
N035705-005C	MW-913-Q219	Groundwater	5/20/2019 3:40:00 PM	5/20/2019	6/25/2019
N035705-006A	MW-31-060-Q219	Groundwater	5/20/2019 2:42:00 PM	5/20/2019	6/25/2019
N035705-006B	MW-31-060-Q219	Groundwater	5/20/2019 2:42:00 PM	5/20/2019	6/25/2019
N035705-006C	MW-31-060-Q219	Groundwater	5/20/2019 2:42:00 PM	5/20/2019	6/25/2019
N035705-007A	MW-904-Q219	Groundwater	5/20/2019 2:52:00 PM	5/20/2019	6/25/2019
N035705-007B	MW-904-Q219	Groundwater	5/20/2019 2:52:00 PM	5/20/2019	6/25/2019
N035705-007C	MW-904-Q219	Groundwater	5/20/2019 2:52:00 PM	5/20/2019	6/25/2019
N035705-008A	MW-59-100-Q219	Groundwater	5/20/2019 1:08:00 PM	5/20/2019	6/25/2019
N035705-008B	MW-59-100-Q219	Groundwater	5/20/2019 1:08:00 PM	5/20/2019	6/25/2019
N035705-008C	MW-59-100-Q219	Groundwater	5/20/2019 1:08:00 PM	5/20/2019	6/25/2019
N035705-008D	MW-59-100-Q219	Groundwater	5/20/2019 1:08:00 PM	5/20/2019	6/25/2019
N035705-009A	MW-910-Q219	Groundwater	5/20/2019 1:18:00 PM	5/20/2019	6/25/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035705
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035705-009B	MW-910-Q219	Groundwater	5/20/2019 1:18:00 PM	5/20/2019	6/25/2019
N035705-009C	MW-910-Q219	Groundwater	5/20/2019 1:18:00 PM	5/20/2019	6/25/2019
N035705-009D	MW-910-Q219	Groundwater	5/20/2019 1:18:00 PM	5/20/2019	6/25/2019
N035705-010A	MW-50-095-Q219	Groundwater	5/20/2019 1:39:00 PM	5/20/2019	6/25/2019
N035705-010B	MW-50-095-Q219	Groundwater	5/20/2019 1:39:00 PM	5/20/2019	6/25/2019
N035705-010C	MW-50-095-Q219	Groundwater	5/20/2019 1:39:00 PM	5/20/2019	6/25/2019
N035705-011A	MW-714-Q219	Groundwater	5/20/2019 4:00:00 PM	5/20/2019	6/25/2019
N035705-012A	MW-715-Q219	Groundwater	5/20/2019 4:00:00 PM	5/20/2019	6/25/2019
N035705-013A	MW-716-Q219	Groundwater	5/20/2019 4:30:00 PM	5/20/2019	6/25/2019
N035705-014A	MW-50-200-Q219	Groundwater	5/20/2019 12:41:00 PM	5/20/2019	6/25/2019
N035705-014B	MW-50-200-Q219	Groundwater	5/20/2019 12:41:00 PM	5/20/2019	6/25/2019
N035705-014C	MW-50-200-Q219	Groundwater	5/20/2019 12:41:00 PM	5/20/2019	6/25/2019
N035705-015A	MW-37D-Q219	Groundwater	5/20/2019 3:53:00 PM	5/20/2019	6/25/2019
N035705-015B	MW-37D-Q219	Groundwater	5/20/2019 3:53:00 PM	5/20/2019	6/25/2019
N035705-015C	MW-37D-Q219	Groundwater	5/20/2019 3:53:00 PM	5/20/2019	6/25/2019
N035705-015D	MW-37D-Q219	Groundwater	5/20/2019 3:53:00 PM	5/20/2019	6/25/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-070-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-185-LF_S-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-909-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-05-LF-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-31-060-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:42:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	3800	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:52:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	3900	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-59-100-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:08:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-50-095-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:39:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	5600	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-50-200-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 12:41:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	21000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-37D-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:53:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N035705-005CDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**134059**
Client ID:	**ZZZZZZ**	Batch ID:	**R134059**	TestNo:	**EPA 120.1**			Analysis Date:	**5/21/2019**	SeqNo:	**3391985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	12010.000	0.10						12050	0.333	2	

Sample ID	**N035705-015DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**134059**
Client ID:	**ZZZZZZ**	Batch ID:	**R134059**	TestNo:	**EPA 120.1**			Analysis Date:	**5/21/2019**	SeqNo:	**3391994**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	13610.000	0.10						13640	0.220	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-070-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	380	3.3	20		µg/L	100	5/21/2019 10:20 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	400	0.65	5.0		µg/L	5	6/13/2019 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-185-LF_S-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	4.6	0.17	1.0		µg/L	5	5/21/2019 10:40 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	5.2	0.13	1.0		µg/L	1	6/13/2019 01:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-909-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	4.7	0.17	1.0		µg/L	5	5/21/2019 10:59 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	5.1	0.13	1.0		µg/L	1	6/13/2019 01:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-05-LF-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A** QC Batch: **R134085**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	11	0.17	1.0		µg/L	5	5/21/2019 11:18 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	9.9	0.13	1.0		µg/L	1	6/13/2019 01:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	11	0.17	1.0		µg/L	5	5/21/2019 11:56 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	9.6	0.13	1.0		µg/L	1	6/13/2019 01:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-31-060-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:42:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	250	1.7	10		µg/L	50	5/21/2019 12:15 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	240	0.65	5.0		µg/L	5	6/13/2019 01:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:52:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	250	1.7	10		µg/L	50	5/21/2019 12:34 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	240	0.65	5.0		µg/L	5	6/13/2019 02:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-59-100-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:08:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	2000	17	100		µg/L	500	5/21/2019 12:53 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	2200	3.2	25		µg/L	25	6/13/2019 02:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	2200	17	100		µg/L	500	5/21/2019 01:12 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	2300	3.2	25		µg/L	25	6/13/2019 02:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-50-095-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:39:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A** QC Batch: **R134085**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	13	0.17	1.0		µg/L	5	5/21/2019 01:49 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	12	0.13	1.0		µg/L	1	6/13/2019 02:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-714-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/21/2019 04:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-715-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/21/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-716-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 4:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/21/2019 04:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-50-200-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 12:41:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	5800	33	200		µg/L	1000	5/21/2019 02:56 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	6200	6.5	50		µg/L	50	6/14/2019 10:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-37D-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:53:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	6.2	0.17	1.0		µg/L	5	5/21/2019 02:27 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	6.0	0.13	1.0		µg/L	1	6/14/2019 10:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R134085	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134085
Client ID:	PBW	Batch ID:	R134085	TestNo:	EPA 218.6			Analysis Date:	5/21/2019	SeqNo:	3393588

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R134085	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134085
Client ID:	LCSW	Batch ID:	R134085	TestNo:	EPA 218.6			Analysis Date:	5/21/2019	SeqNo:	3393589

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.062	0.20	5.000	0	101	90	110				

Sample ID	N035705-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134085
Client ID:	ZZZZZZ	Batch ID:	R134085	TestNo:	EPA 218.6			Analysis Date:	5/21/2019	SeqNo:	3393591

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	898.180	20	500.0	379.9	104	90	110				

Sample ID	N035705-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134085
Client ID:	ZZZZZZ	Batch ID:	R134085	TestNo:	EPA 218.6			Analysis Date:	5/21/2019	SeqNo:	3393593

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.618	1.0	5.000	4.650	99.4	90	110				

Sample ID	N035705-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134085
Client ID:	ZZZZZZ	Batch ID:	R134085	TestNo:	EPA 218.6			Analysis Date:	5/21/2019	SeqNo:	3393595

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.628	1.0	5.000	4.684	98.9	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035705-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	16.359	1.0	5.000	11.12	105	90	110				

Sample ID **N035705-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	16.268	1.0	5.000	11.28	99.8	90	110				

Sample ID **N035705-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	500.905	10	250.0	247.6	101	90	110				

Sample ID **N035705-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393605**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	503.685	10	250.0	252.1	101	90	110				

Sample ID **N035705-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4554.900	100	2500	1980	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035705-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4745.700	100	2500	2201	102	90	110				

Sample ID **N035705-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	18.288	1.0	5.000	13.37	98.5	90	110				

Sample ID **N035705-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393615**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.123	1.0	5.000	6.164	99.2	90	110				

Sample ID **N035705-001AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393616**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	883.850	20	500.0	379.9	101	90	110	898.2	1.61	20	

Sample ID **N035705-014ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5740.200	200						5755	0.261	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N035705-014AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134085
Client ID:	ZZZZZZ	Batch ID:	R134085	TestNo:	EPA 218.6			Analysis Date:	5/21/2019	SeqNo:	3393619

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10898.100	200	5000	5755	103	90	110				

Sample ID	N035705-012AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134085
Client ID:	ZZZZZZ	Batch ID:	R134085	TestNo:	EPA 218.6			Analysis Date:	5/21/2019	SeqNo:	3393623

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.019	0.20	1.000	0	102	90	110				

Sample ID	N035705-013AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134085
Client ID:	ZZZZZZ	Batch ID:	R134085	TestNo:	EPA 218.6			Analysis Date:	5/21/2019	SeqNo:	3393625

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.005	0.20	1.000	0	100	90	110				

Sample ID	N035705-011AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134085
Client ID:	ZZZZZZ	Batch ID:	R134085	TestNo:	EPA 218.6			Analysis Date:	5/21/2019	SeqNo:	3393627

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.977	0.20	1.000	0	97.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-73996	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134492
Client ID:	PBW	Batch ID:	73996	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409769

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-73996	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134492
Client ID:	LCSW	Batch ID:	73996	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409770

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.313	1.0	10.00	0	103	85	115				

Sample ID	N035660-001A-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73996	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409774

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.569	1.0	10.00	0	85.7	75	125				

Sample ID	N035660-001A-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73996	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409775

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.604	1.0	10.00	0	86.0	75	125	8.569	0.399	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-73997	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	PBW	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3412899

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-73997	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	LCSW	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3412900

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.867	1.0	10.00	0	98.7	85	115				

Sample ID	N035705-015B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	ZZZZZZ	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3412909

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.533	1.0	10.00	5.981	85.5	75	125				

Sample ID	N035705-015B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	ZZZZZZ	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3412910

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.534	1.0	10.00	5.981	85.5	75	125	14.53	0.00912	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-070-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	9.6	0.63	1.0		mg/L	20	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-185-LF_S-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.11	0.032	0.050		mg/L	1	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-909-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**			PrepDate			Analyst: **QBM**
Nitrate/Nitrite as N	0.10	0.032	0.050		mg/L	1	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-59-100-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:08:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.7	0.16	0.25		mg/L	5	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.7	0.16	0.25		mg/L	5	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-37D-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:53:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate			Analyst: **QBM**	
Nitrate/Nitrite as N	0.55	0.032	0.050		mg/L	1	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **MB-R134092**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **PBW**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **LCS-R134092**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **LCSW**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393905**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.478	0.050	0.5000	0	95.6	85	115				

Sample ID **N035599-002CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **ZZZZZZ**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	3.158	0.25						3.060	3.15	20	

Sample ID **N035599-003CMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **ZZZZZZ**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	21.010	1.0	10.00	11.71	93.0	75	125				

Sample ID **N035599-003CMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **ZZZZZZ**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393911**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	20.988	1.0	10.00	11.71	92.8	75	125	21.01	0.105	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-070-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	6/13/2019 12:57 PM
Manganese	1.2	0.26	0.50		µg/L	1	6/13/2019 02:55 PM
Molybdenum	4.0	0.21	0.50		µg/L	1	6/13/2019 12:57 PM
Selenium	3.2	0.36	0.50		µg/L	1	6/13/2019 12:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-185-LF_S-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	3.4	0.081	0.10		µg/L	1	6/13/2019 01:07 PM
Manganese	6.2	0.26	0.50		µg/L	1	6/13/2019 01:07 PM
Molybdenum	81	1.1	2.5		µg/L	5	6/13/2019 01:12 PM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 01:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-909-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	3.4	0.081	0.10		µg/L	1	6/13/2019 01:17 PM
Manganese	4.8	0.26	0.50		µg/L	1	6/13/2019 01:17 PM
Molybdenum	83	1.1	2.5		µg/L	5	6/13/2019 01:22 PM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 01:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035705
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035705-004

Client Sample ID: TW-05-LF-Q219
Collection Date: 5/20/2019 3:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Manganese	3.1	0.26	0.50		µg/L	1	6/13/2019 03:00 PM
Molybdenum	31	0.21	0.50		µg/L	1	6/13/2019 01:26 PM
Selenium	0.59	0.36	0.50		µg/L	1	6/17/2019 07:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035705
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035705-005

Client Sample ID: MW-913-Q219
Collection Date: 5/20/2019 3:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Manganese	3.0	0.26	0.50		µg/L	1	6/13/2019 01:32 PM
Molybdenum	30	0.21	0.50		µg/L	1	6/13/2019 01:32 PM
Selenium	0.52	0.36	0.50		µg/L	1	6/24/2019 04:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-31-060-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:42:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	1.0	0.081	0.10		µg/L	1	6/13/2019 01:51 PM
Manganese	0.70	0.26	0.50		µg/L	1	6/13/2019 01:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:52:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C** QC Batch: **73996**				PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	1.0	0.081	0.10		µg/L	1	6/13/2019 02:01 PM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 02:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-59-100-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:08:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	6/13/2019 02:11 PM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 02:11 PM
Molybdenum	9.4	0.21	0.50		µg/L	1	6/13/2019 02:11 PM
Selenium	1.8	0.36	0.50		µg/L	1	6/13/2019 02:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	6/13/2019 02:26 PM
Manganese	2.9	0.26	0.50		µg/L	1	6/13/2019 02:26 PM
Molybdenum	9.0	0.21	0.50		µg/L	1	6/13/2019 02:26 PM
Selenium	1.9	0.36	0.50		µg/L	1	6/13/2019 02:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-37D-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:53:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**				PrepDate	**5/24/2019**	Analyst: **CEI**
Molybdenum	60	0.21	0.50		µg/L	1	6/14/2019 10:28 PM
Selenium	ND	0.36	0.50		µg/L	1	6/14/2019 10:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-73996**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **PBW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-73996**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **LCSW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.713	0.10	10.00	0	97.1	85	115				
Manganese	105.002	0.50	100.0	0	105	85	115				
Molybdenum	9.480	0.50	10.00	0	94.8	85	115				
Selenium	9.458	0.50	10.00	0	94.6	85	115				

Sample ID **N035660-001A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.191	0.10	10.00	1.675	105	75	125				
Manganese	137.622	0.50	100.0	50.58	87.0	75	125				
Molybdenum	51.611	0.50	10.00	41.00	106	75	125				
Selenium	11.767	0.50	10.00	1.494	103	75	125				

Sample ID **N035660-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.791	0.10	10.00	1.675	101	75	125	12.19	3.34	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035660-001A-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134493
Client ID:	ZZZZZZ	Batch ID:	73996	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409903

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	138.789	0.50	100.0	50.58	88.2	75	125	137.6	0.845	20	
Molybdenum	51.640	0.50	10.00	41.00	106	75	125	51.61	0.0575	20	
Selenium	10.831	0.50	10.00	1.494	93.4	75	125	11.77	8.29	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-73997**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134540**
Client ID: **PBW**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3413048**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-73997**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134540**
Client ID: **LCSW**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3413049**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.211	0.10	10.00	0	102	85	115				
Manganese	103.890	0.50	100.0	0	104	85	115				
Molybdenum	10.120	0.50	10.00	0	101	85	115				
Selenium	9.698	0.50	10.00	0	97.0	85	115				

Sample ID **N035705-015B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134540**
Client ID: **ZZZZZZ**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3413058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.504	0.10	10.00	3.789	107	75	125				
Manganese	91.722	0.50	100.0	0	91.7	75	125				
Molybdenum	70.092	0.50	10.00	59.86	102	75	125				
Selenium	11.425	0.50	10.00	0.3922	110	75	125				

Sample ID **N035705-015B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134540**
Client ID: **ZZZZZZ**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3413059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.486	0.10	10.00	3.789	107	75	125	14.50	0.124	20	
Manganese	92.540	0.50	100.0	0	92.5	75	125	91.72	0.888	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035705-015B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	ZZZZZZ	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3413059

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	70.665	0.50	10.00	59.86	108	75	125	70.09	0.814	20	
Selenium	11.326	0.50	10.00	0.3922	109	75	125	11.42	0.867	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-74311	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	PBW	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419555

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	LCS-74311	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	LCSW	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	8.916	0.50	10.00	0	89.2	85	115				

Sample ID	N035705-005B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	ZZZZZZ	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419560

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.544	0.50	10.00	0.5232	100	75	125				

Sample ID	N035705-005B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	ZZZZZZ	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419561

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.442	0.50	10.00	0.5232	109	75	125	10.54	8.17	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition (Y / N): 1. Chilled; 2. Headspace; 3. Container Intact; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#: SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Sclentist 1	Phone: 916-786-3302 Fax:		Sample Temp: 2.4/2.3
Signature: Date: 5/20/19	Sampled By: Steven Mahn	Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface	Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: Date: 5/20/2019		
Project Number: RC000753.801D			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (6020AFF) Arsenic; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved Metals (SW6020A) FF Manganese; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Molybdenum; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Selenium; HNO3 (125 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035705-01	MW-57-070-Q219	5/20/2019	14:34		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-02	MW-57-185-LF_S-Q219	5/20/2019	13:44		X		X	X	X	X	X	X		X						E	4	P	BNS	
3	-03	MW-909-Q219	5/20/2019	13:54		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	-04	TW-05-LF-Q219	5/20/2019	15:30			X		X	X	X	X			X						E	4	P	BN	
5	-05	MW-913-Q219	5/20/2019	15:40			X		X	X	X	X			X						E	4	P	BN	
6	-06	MW-31-060-Q219	5/20/2019	14:42		X		X	X	X					X						E	3	P	BN	
7	-07	MW-904-Q219	5/20/2019	14:52		X		X	X	X					X						E	3	P	BN	
8	-08	MW-59-100-Q219	5/20/2019	13:08		X		X	X	X	X	X	X		X						E	4	P	BN	
9	-09	MW-910-Q219	5/20/2019	13:18		X		X	X	X	X	X	X		X						E	4	P	BN	
10	-10	MW-50-095-Q219	5/20/2019	13:39		X			X						X						E	3	P	BN	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Steven Mahn	5/20/19 1630	JOE GATEL IGC	5-20-19 1630
JOE GATEL IGC	5/20/19 1834		5/20/19 1830 1834

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
CHAIN OF CUSTODY RECORD
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Nevada: 3151 W. Post Road, Las Vegas, NV 89118
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ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: Y N; 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051	Sample Temp: 2.4/2.3
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200 Fax:	Global ID:
Title: Scientist 1	Phone: 916-786-3302 Fax:		
Signature: Date: 5/16/19	Sampled By: Jason Merkin		Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: Date: 5/16/2019		
Project Number: RC000753.801D			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035705-11	MW-714-Q219	5/20/2019	16:00		X															E	1	P	B	
2	-12	MW-715-Q219	5/20/2019	16:00		X															E	1	P	B	
3	-13	MW-716-Q219	5/20/2019	16:30		X															E	1	P	B	
4	-14	MW-50-200-Q219	5/20/2019	12:41		X			X						X						E	3	P	BN	
5	-15	MW-37D-Q219	5/20/2019	15:53		X			X		X	X	X		X						E	4	P	BNS	
6																									
7																									
8																									
9																									
10																									

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Jason Merkin	5/21/19 1630	JORDAN LEG	5-20-19 1630
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
JORDAN LEG	5/20/19 1834	LM	5/20/19 1830 LM
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/20/2019	Workorder:	N035705
Rep sample Temp (Deg C):	2.4/2.3	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For:

Checklist Completed By: RM YRJ 5/21/2019

Reviewed By: LG 060419

ASSET Laboratories

WORK ORDER Summary

21-May-19

WorkOrder: N035705

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/20/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035705-001A	MW-57-070-Q219	5/20/2019 2:34:00 PM	6/4/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-001B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-001C			6/4/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035705-001D			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-002A	MW-57-185-LF_S-Q219	5/20/2019 1:44:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-002B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-002C			6/4/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035705-002D			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-003A	MW-909-Q219	5/20/2019 1:54:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-003B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-003C			6/4/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035705-003D			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-004A	TW-05-LF-Q219	5/20/2019 3:30:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-004B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

21-May-19

WorkOrder: N035705

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/20/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035705-004B	TW-05-LF-Q219	5/20/2019 3:30:00 PM	6/4/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-004C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-005A	MW-913-Q219	5/20/2019 3:40:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-005B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-005C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-006A	MW-31-060-Q219	5/20/2019 2:42:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-006B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-006C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-007A	MW-904-Q219	5/20/2019 2:52:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-007B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-007C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-008A	MW-59-100-Q219	5/20/2019 1:08:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-008B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-008C			6/4/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

21-May-19

WorkOrder: N035705

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/20/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035705-008D	MW-59-100-Q219	5/20/2019 1:08:00 PM	6/4/2019	Groundwater	EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-009A	MW-910-Q219	5/20/2019 1:18:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-009B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-009C			6/4/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035705-009D			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-010A	MW-50-095-Q219	5/20/2019 1:39:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-010B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-010C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-011A	MW-714-Q219	5/20/2019 4:00:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-012A	MW-715-Q219		6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-013A	MW-716-Q219	5/20/2019 4:30:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-014A	MW-50-200-Q219	5/20/2019 12:41:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-014B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-014C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-015A	MW-37D-Q219	5/20/2019 3:53:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-015B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

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Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/20/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035705-015C	MW-37D-Q219	5/20/2019 3:53:00 PM	6/4/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035705-015D			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-016A	FOLDER	6/4/2019	6/4/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/4/2019		Folder	Folder	☐	☐	☐	LAB
			6/4/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035705

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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June 25, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035705

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 20, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Silveira for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035705

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for samples N035705-002 and -003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Samples were analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

ASSET Laboratories

Date: *25-Jun-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035705
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035705-001A	MW-57-070-Q219	Groundwater	5/20/2019 2:34:00 PM	5/20/2019	6/25/2019
N035705-001B	MW-57-070-Q219	Groundwater	5/20/2019 2:34:00 PM	5/20/2019	6/25/2019
N035705-001C	MW-57-070-Q219	Groundwater	5/20/2019 2:34:00 PM	5/20/2019	6/25/2019
N035705-001D	MW-57-070-Q219	Groundwater	5/20/2019 2:34:00 PM	5/20/2019	6/25/2019
N035705-002A	MW-57-185-LF_S-Q219	Groundwater	5/20/2019 1:44:00 PM	5/20/2019	6/25/2019
N035705-002B	MW-57-185-LF_S-Q219	Groundwater	5/20/2019 1:44:00 PM	5/20/2019	6/25/2019
N035705-002C	MW-57-185-LF_S-Q219	Groundwater	5/20/2019 1:44:00 PM	5/20/2019	6/25/2019
N035705-002D	MW-57-185-LF_S-Q219	Groundwater	5/20/2019 1:44:00 PM	5/20/2019	6/25/2019
N035705-003A	MW-909-Q219	Groundwater	5/20/2019 1:54:00 PM	5/20/2019	6/25/2019
N035705-003B	MW-909-Q219	Groundwater	5/20/2019 1:54:00 PM	5/20/2019	6/25/2019
N035705-003C	MW-909-Q219	Groundwater	5/20/2019 1:54:00 PM	5/20/2019	6/25/2019
N035705-003D	MW-909-Q219	Groundwater	5/20/2019 1:54:00 PM	5/20/2019	6/25/2019
N035705-004A	TW-05-LF-Q219	Groundwater	5/20/2019 3:30:00 PM	5/20/2019	6/25/2019
N035705-004B	TW-05-LF-Q219	Groundwater	5/20/2019 3:30:00 PM	5/20/2019	6/25/2019
N035705-004C	TW-05-LF-Q219	Groundwater	5/20/2019 3:30:00 PM	5/20/2019	6/25/2019
N035705-005A	MW-913-Q219	Groundwater	5/20/2019 3:40:00 PM	5/20/2019	6/25/2019
N035705-005B	MW-913-Q219	Groundwater	5/20/2019 3:40:00 PM	5/20/2019	6/25/2019
N035705-005C	MW-913-Q219	Groundwater	5/20/2019 3:40:00 PM	5/20/2019	6/25/2019
N035705-006A	MW-31-060-Q219	Groundwater	5/20/2019 2:42:00 PM	5/20/2019	6/25/2019
N035705-006B	MW-31-060-Q219	Groundwater	5/20/2019 2:42:00 PM	5/20/2019	6/25/2019
N035705-006C	MW-31-060-Q219	Groundwater	5/20/2019 2:42:00 PM	5/20/2019	6/25/2019
N035705-007A	MW-904-Q219	Groundwater	5/20/2019 2:52:00 PM	5/20/2019	6/25/2019
N035705-007B	MW-904-Q219	Groundwater	5/20/2019 2:52:00 PM	5/20/2019	6/25/2019
N035705-007C	MW-904-Q219	Groundwater	5/20/2019 2:52:00 PM	5/20/2019	6/25/2019
N035705-008A	MW-59-100-Q219	Groundwater	5/20/2019 1:08:00 PM	5/20/2019	6/25/2019
N035705-008B	MW-59-100-Q219	Groundwater	5/20/2019 1:08:00 PM	5/20/2019	6/25/2019
N035705-008C	MW-59-100-Q219	Groundwater	5/20/2019 1:08:00 PM	5/20/2019	6/25/2019
N035705-008D	MW-59-100-Q219	Groundwater	5/20/2019 1:08:00 PM	5/20/2019	6/25/2019
N035705-009A	MW-910-Q219	Groundwater	5/20/2019 1:18:00 PM	5/20/2019	6/25/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035705
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035705-009B	MW-910-Q219	Groundwater	5/20/2019 1:18:00 PM	5/20/2019	6/25/2019
N035705-009C	MW-910-Q219	Groundwater	5/20/2019 1:18:00 PM	5/20/2019	6/25/2019
N035705-009D	MW-910-Q219	Groundwater	5/20/2019 1:18:00 PM	5/20/2019	6/25/2019
N035705-010A	MW-50-095-Q219	Groundwater	5/20/2019 1:39:00 PM	5/20/2019	6/25/2019
N035705-010B	MW-50-095-Q219	Groundwater	5/20/2019 1:39:00 PM	5/20/2019	6/25/2019
N035705-010C	MW-50-095-Q219	Groundwater	5/20/2019 1:39:00 PM	5/20/2019	6/25/2019
N035705-011A	MW-714-Q219	Groundwater	5/20/2019 4:00:00 PM	5/20/2019	6/25/2019
N035705-012A	MW-715-Q219	Groundwater	5/20/2019 4:00:00 PM	5/20/2019	6/25/2019
N035705-013A	MW-716-Q219	Groundwater	5/20/2019 4:30:00 PM	5/20/2019	6/25/2019
N035705-014A	MW-50-200-Q219	Groundwater	5/20/2019 12:41:00 PM	5/20/2019	6/25/2019
N035705-014B	MW-50-200-Q219	Groundwater	5/20/2019 12:41:00 PM	5/20/2019	6/25/2019
N035705-014C	MW-50-200-Q219	Groundwater	5/20/2019 12:41:00 PM	5/20/2019	6/25/2019
N035705-015A	MW-37D-Q219	Groundwater	5/20/2019 3:53:00 PM	5/20/2019	6/25/2019
N035705-015B	MW-37D-Q219	Groundwater	5/20/2019 3:53:00 PM	5/20/2019	6/25/2019
N035705-015C	MW-37D-Q219	Groundwater	5/20/2019 3:53:00 PM	5/20/2019	6/25/2019
N035705-015D	MW-37D-Q219	Groundwater	5/20/2019 3:53:00 PM	5/20/2019	6/25/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-070-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**		PrepDate				Analyst: **LR**
Specific Conductance	2600	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-185-LF_S-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035705
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035705-003

Client Sample ID: MW-909-Q219
Collection Date: 5/20/2019 1:54:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-05-LF-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**		PrepDate				Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**		PrepDate				Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-31-060-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:42:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	3800	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:52:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	3900	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-59-100-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:08:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**			PrepDate			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**		PrepDate				Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-50-095-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:39:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**		PrepDate				Analyst: **LR**
Specific Conductance	5600	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-50-200-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 12:41:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**		PrepDate				Analyst: **LR**
Specific Conductance	21000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-37D-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:53:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190521A**	QC Batch: **R134059**		PrepDate				Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	5/21/2019 09:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N035705-005CDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**134059**
Client ID:	**ZZZZZZ**	Batch ID:	**R134059**	TestNo:	**EPA 120.1**			Analysis Date:	**5/21/2019**	SeqNo:	**3391985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	12010.000	0.10						12050	0.333	2	

Sample ID	**N035705-015DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**134059**
Client ID:	**ZZZZZZ**	Batch ID:	**R134059**	TestNo:	**EPA 120.1**			Analysis Date:	**5/21/2019**	SeqNo:	**3391994**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	13610.000	0.10						13640	0.220	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-070-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	380	3.3	20		µg/L	100	5/21/2019 10:20 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	400	0.65	5.0		µg/L	5	6/13/2019 01:02 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-185-LF_S-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	4.6	0.17	1.0		µg/L	5	5/21/2019 10:40 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	5.2	0.13	1.0		µg/L	1	6/13/2019 01:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-909-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	4.7	0.17	1.0		µg/L	5	5/21/2019 10:59 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	5.1	0.13	1.0		µg/L	1	6/13/2019 01:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-05-LF-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A** QC Batch: **R134085**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	11	0.17	1.0		µg/L	5	5/21/2019 11:18 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	9.9	0.13	1.0		µg/L	1	6/13/2019 01:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A** QC Batch: **R134085**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	11	0.17	1.0		µg/L	5	5/21/2019 11:56 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	9.6	0.13	1.0		µg/L	1	6/13/2019 01:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-31-060-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:42:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	250	1.7	10		µg/L	50	5/21/2019 12:15 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	240	0.65	5.0		µg/L	5	6/13/2019 01:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:52:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	250	1.7	10		µg/L	50	5/21/2019 12:34 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	240	0.65	5.0		µg/L	5	6/13/2019 02:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-59-100-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:08:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	2000	17	100		µg/L	500	5/21/2019 12:53 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	2200	3.2	25		µg/L	25	6/13/2019 02:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035705
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035705-009

Client Sample ID: MW-910-Q219
Collection Date: 5/20/2019 1:18:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	2200	17	100		µg/L	500	5/21/2019 01:12 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190613B**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	2300	3.2	25		µg/L	25	6/13/2019 02:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-50-095-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:39:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A** QC Batch: **R134085**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	13	0.17	1.0		µg/L	5	5/21/2019 01:49 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190613B** QC Batch: **73996**				PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	12	0.13	1.0		µg/L	1	6/13/2019 02:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-714-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/21/2019 04:29 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-715-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/21/2019 03:50 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-716-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 4:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/21/2019 04:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-50-200-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 12:41:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	5800	33	200		µg/L	1000	5/21/2019 02:56 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	6200	6.5	50		µg/L	50	6/14/2019 10:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-37D-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:53:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190521A**	QC Batch: **R134085**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	6.2	0.17	1.0		µg/L	5	5/21/2019 02:27 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	6.0	0.13	1.0		µg/L	1	6/14/2019 10:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R134085**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **PBW**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393588**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R134085**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **LCSW**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393589**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.062	0.20	5.000	0	101	90	110				

Sample ID **N035705-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393591**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	898.180	20	500.0	379.9	104	90	110				

Sample ID **N035705-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393593**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.618	1.0	5.000	4.650	99.4	90	110				

Sample ID **N035705-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.628	1.0	5.000	4.684	98.9	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035705-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	16.359	1.0	5.000	11.12	105	90	110				

Sample ID **N035705-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	16.268	1.0	5.000	11.28	99.8	90	110				

Sample ID **N035705-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	500.905	10	250.0	247.6	101	90	110				

Sample ID **N035705-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393605**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	503.685	10	250.0	252.1	101	90	110				

Sample ID **N035705-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4554.900	100	2500	1980	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035705-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4745.700	100	2500	2201	102	90	110				

Sample ID **N035705-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	18.288	1.0	5.000	13.37	98.5	90	110				

Sample ID **N035705-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393615**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.123	1.0	5.000	6.164	99.2	90	110				

Sample ID **N035705-001AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393616**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	883.850	20	500.0	379.9	101	90	110	898.2	1.61	20	

Sample ID **N035705-014ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134085**
Client ID: **ZZZZZZ** Batch ID: **R134085** TestNo: **EPA 218.6** Analysis Date: **5/21/2019** SeqNo: **3393618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5740.200	200						5755	0.261	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035705-014AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393619**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10898.100	200	5000	5755	103	90	110				

Sample ID **N035705-012AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.019	0.20	1.000	0	102	90	110				

Sample ID **N035705-013AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393625**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.005	0.20	1.000	0	100	90	110				

Sample ID **N035705-011AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393627**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.977	0.20	1.000	0	97.7	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-73996	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134492
Client ID:	PBW	Batch ID:	73996	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409769

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-73996	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134492
Client ID:	LCSW	Batch ID:	73996	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409770

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.313	1.0	10.00	0	103	85	115				

Sample ID	N035660-001A-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73996	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409774

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.569	1.0	10.00	0	85.7	75	125				

Sample ID	N035660-001A-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134492
Client ID:	ZZZZZZ	Batch ID:	73996	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409775

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.604	1.0	10.00	0	86.0	75	125	8.569	0.399	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-73997	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	PBW	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3412899

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-73997	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	LCSW	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3412900

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.867	1.0	10.00	0	98.7	85	115				

Sample ID	N035705-015B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	ZZZZZZ	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3412909

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.533	1.0	10.00	5.981	85.5	75	125				

Sample ID	N035705-015B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	ZZZZZZ	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3412910

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.534	1.0	10.00	5.981	85.5	75	125	14.53	0.00912	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-070-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	9.6	0.63	1.0		mg/L	20	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-185-LF_S-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.11	0.032	0.050		mg/L	1	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-909-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.10	0.032	0.050		mg/L	1	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-59-100-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:08:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.7	0.16	0.25		mg/L	5	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-910-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.7	0.16	0.25		mg/L	5	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-37D-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:53:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190522D**	QC Batch: **R134092**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.55	0.032	0.050		mg/L	1	5/22/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134092	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	PBW	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393904

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R134092	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	LCSW	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393905

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.478	0.050	0.5000	0	95.6	85	115				

Sample ID	N035599-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	ZZZZZZ	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393908

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	3.158	0.25						3.060	3.15	20	

Sample ID	N035599-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	ZZZZZZ	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393910

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	21.010	1.0	10.00	11.71	93.0	75	125				

Sample ID	N035599-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134092
Client ID:	ZZZZZZ	Batch ID:	R134092	TestNo:	SM4500-NO3			Analysis Date:	5/22/2019	SeqNo:	3393911

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	20.988	1.0	10.00	11.71	92.8	75	125	21.01	0.105	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-070-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C** QC Batch: **73996**				PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	6/13/2019 12:57 PM
Manganese	1.2	0.26	0.50		µg/L	1	6/13/2019 02:55 PM
Molybdenum	4.0	0.21	0.50		µg/L	1	6/13/2019 12:57 PM
Selenium	3.2	0.36	0.50		µg/L	1	6/13/2019 12:57 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-57-185-LF_S-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:44:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	3.4	0.081	0.10		µg/L	1	6/13/2019 01:07 PM
Manganese	6.2	0.26	0.50		µg/L	1	6/13/2019 01:07 PM
Molybdenum	81	1.1	2.5		µg/L	5	6/13/2019 01:12 PM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 01:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-909-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:54:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	3.4	0.081	0.10		µg/L	1	6/13/2019 01:17 PM
Manganese	4.8	0.26	0.50		µg/L	1	6/13/2019 01:17 PM
Molybdenum	83	1.1	2.5		µg/L	5	6/13/2019 01:22 PM
Selenium	ND	1.8	2.5		µg/L	5	6/13/2019 01:22 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035705
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035705-004

Client Sample ID: TW-05-LF-Q219
Collection Date: 5/20/2019 3:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Manganese	3.1	0.26	0.50		µg/L	1	6/13/2019 03:00 PM
Molybdenum	31	0.21	0.50		µg/L	1	6/13/2019 01:26 PM
Selenium	0.59	0.36	0.50		µg/L	1	6/17/2019 07:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-913-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**		Analyst: **CEI**
Manganese	3.0	0.26	0.50		µg/L	1	6/13/2019 01:32 PM
Molybdenum	30	0.21	0.50		µg/L	1	6/13/2019 01:32 PM
Selenium	0.52	0.36	0.50		µg/L	1	6/24/2019 04:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-31-060-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:42:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	1.0	0.081	0.10		µg/L	1	6/13/2019 01:51 PM
Manganese	0.70	0.26	0.50		µg/L	1	6/13/2019 01:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-904-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 2:52:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	1.0	0.081	0.10		µg/L	1	6/13/2019 02:01 PM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 02:01 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-59-100-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 1:08:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	6/13/2019 02:11 PM
Manganese	ND	0.26	0.50		µg/L	1	6/13/2019 02:11 PM
Molybdenum	9.4	0.21	0.50		µg/L	1	6/13/2019 02:11 PM
Selenium	1.8	0.36	0.50		µg/L	1	6/13/2019 02:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035705
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035705-009

Client Sample ID: MW-910-Q219
Collection Date: 5/20/2019 1:18:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190613C**	QC Batch: **73996**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	2.2	0.081	0.10		µg/L	1	6/13/2019 02:26 PM
Manganese	2.9	0.26	0.50		µg/L	1	6/13/2019 02:26 PM
Molybdenum	9.0	0.21	0.50		µg/L	1	6/13/2019 02:26 PM
Selenium	1.9	0.36	0.50		µg/L	1	6/13/2019 02:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-37D-Q219
Lab Order:	N035705	**Collection Date:**	5/20/2019 3:53:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035705-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate	**5/24/2019**		Analyst: **CEI**
Molybdenum	60	0.21	0.50		µg/L	1	6/14/2019 10:28 PM
Selenium	ND	0.36	0.50		µg/L	1	6/14/2019 10:28 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range	
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit	
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified	
	DO	Surrogate Diluted Out			

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-73996**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **PBW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409897**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-73996**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **LCSW**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409898**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.713	0.10	10.00	0	97.1	85	115				
Manganese	105.002	0.50	100.0	0	105	85	115				
Molybdenum	9.480	0.50	10.00	0	94.8	85	115				
Selenium	9.458	0.50	10.00	0	94.6	85	115				

Sample ID **N035660-001A-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.191	0.10	10.00	1.675	105	75	125				
Manganese	137.622	0.50	100.0	50.58	87.0	75	125				
Molybdenum	51.611	0.50	10.00	41.00	106	75	125				
Selenium	11.767	0.50	10.00	1.494	103	75	125				

Sample ID **N035660-001A-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134493**
Client ID: **ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.791	0.10	10.00	1.675	101	75	125	12.19	3.34	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035660-001A-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134493
Client ID:	ZZZZZZ	Batch ID:	73996	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/13/2019	SeqNo:	3409903

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	138.789	0.50	100.0	50.58	88.2	75	125	137.6	0.845	20	
Molybdenum	51.640	0.50	10.00	41.00	106	75	125	51.61	0.0575	20	
Selenium	10.831	0.50	10.00	1.494	93.4	75	125	11.77	8.29	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-73997	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	PBW	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3413048

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	LCS-73997	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	LCSW	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3413049

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.211	0.10	10.00	0	102	85	115				
Manganese	103.890	0.50	100.0	0	104	85	115				
Molybdenum	10.120	0.50	10.00	0	101	85	115				
Selenium	9.698	0.50	10.00	0	97.0	85	115				

Sample ID	N035705-015B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	ZZZZZZ	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3413058

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.504	0.10	10.00	3.789	107	75	125				
Manganese	91.722	0.50	100.0	0	91.7	75	125				
Molybdenum	70.092	0.50	10.00	59.86	102	75	125				
Selenium	11.425	0.50	10.00	0.3922	110	75	125				

Sample ID	N035705-015B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	ZZZZZZ	Batch ID:	73997	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/14/2019	SeqNo:	3413059

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.486	0.10	10.00	3.789	107	75	125	14.50	0.124	20	
Manganese	92.540	0.50	100.0	0	92.5	75	125	91.72	0.888	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035705-015B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/24/2019** RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **73997** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/14/2019** SeqNo: **3413059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	70.665	0.50	10.00	59.86	108	75	125	70.09	0.814	20	
Selenium	11.326	0.50	10.00	0.3922	109	75	125	11.42	0.867	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-74311	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	PBW	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419555

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	LCS-74311	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	LCSW	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	8.916	0.50	10.00	0	89.2	85	115				

Sample ID	N035705-005B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	ZZZZZZ	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419560

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.544	0.50	10.00	0.5232	100	75	125				

Sample ID	N035705-005B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	ZZZZZZ	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419561

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.442	0.50	10.00	0.5232	109	75	125	10.54	8.17	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled; 2. Headspace; 3. Container Intact; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#: SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Sclentist 1	Phone: 916-786-3302 Fax:		Sample Temp: 2.4/2.3
Signature: Date: 5/20/19	Sampled By: Jason Mahn	Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid	Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: Date: 5/20/2019		
Project Number: RC000753.801D			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035705-01	MW-57-070-Q219	5/20/2019	14:34		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-02	MW-57-185-LF_S-Q219	5/20/2019	13:44		X		X	X	X	X	X	X		X						E	4	P	BNS	
3	-03	MW-909-Q219	5/20/2019	13:54		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	-04	TW-05-LF-Q219	5/20/2019	15:30			X		X	X	X	X			X						E	4	P	BN	
5	-05	MW-913-Q219	5/20/2019	15:40			X		X	X	X	X			X						E	4	P	BN	
6	-06	MW-31-060-Q219	5/20/2019	14:42		X		X	X	X					X						E	3	P	BN	
7	-07	MW-904-Q219	5/20/2019	14:52		X		X	X	X					X						E	3	P	BN	
8	-08	MW-59-100-Q219	5/20/2019	13:08		X		X	X	X	X	X	X		X						E	4	P	BN	
9	-09	MW-910-Q219	5/20/2019	13:18		X		X	X	X	X	X	X		X						E	4	P	BN	
10	-10	MW-50-095-Q219	5/20/2019	13:39		X			X						X						E	3	P	BN	

Relinquished by (Signature and Printed Name): Jason Mahn Date/Time: 5/20/19 1630
Relinquished by (Signature and Printed Name): JORDAN IGC Date/Time: 5-20-19 1630
Relinquished by (Signature and Printed Name): JORDAN IGC Date/Time: 5/20/19 1834
Relinquished by (Signature and Printed Name): Date/Time: 5/20/19 1830 1834

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
CHAIN OF CUSTODY RECORD
Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: Y N; 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:	Global ID:	Sample Temp: 2.4/2.3
Signature: Date: 5/16/19	Sampled By: Jason Merlin		Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: Date: 5/16/2019		
Project Number: RC000753.801D			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035705-11	MW-714-Q219	5/20/2019	16:00		X															E	1	P	B	
2	-12	MW-715-Q219	5/20/2019	16:00		X															E	1	P	B	
3	-13	MW-716-Q219	5/20/2019	16:30		X															E	1	P	B	
4	-14	MW-50-200-Q219	5/20/2019	12:41		X			X						X						E	3	P	BN	
5	-15	MW-37D-Q219	5/20/2019	15:53		X			X		X	X	X		X						E	4	P	BNS	
6																									
7																									
8																									
9																									
10																									

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Jason Merlin	5/21/19 1630	JORDAN LEG	5-20-19 1630
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
JORDAN LEG	5/20/19 1834	LM	5/20/19 1830 LM
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
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9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/20/2019	Workorder:	N035705
Rep sample Temp (Deg C):	2.4/2.3	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For:

Checklist Completed By: RM YRJ 5/21/2019

Reviewed By: LG 060419

ASSET Laboratories

WORK ORDER Summary

21-May-19

WorkOrder: N035705

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/20/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035705-001A	MW-57-070-Q219	5/20/2019 2:34:00 PM	6/4/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-001B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-001C			6/4/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035705-001D			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-002A	MW-57-185-LF_S-Q219	5/20/2019 1:44:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-002B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-002C			6/4/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035705-002D			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-003A	MW-909-Q219	5/20/2019 1:54:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-003B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-003C			6/4/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035705-003D			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-004A	TW-05-LF-Q219	5/20/2019 3:30:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-004B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

21-May-19

WorkOrder: N035705

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/20/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035705-004B	TW-05-LF-Q219	5/20/2019 3:30:00 PM	6/4/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-004C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-005A	MW-913-Q219	5/20/2019 3:40:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-005B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-005C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-006A	MW-31-060-Q219	5/20/2019 2:42:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-006B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-006C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-007A	MW-904-Q219	5/20/2019 2:52:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-007B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-007C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-008A	MW-59-100-Q219	5/20/2019 1:08:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-008B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-008C			6/4/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW

WORK ORDER Summary

21-May-19

WorkOrder: N035705

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/20/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035705-008D	MW-59-100-Q219	5/20/2019 1:08:00 PM	6/4/2019	Groundwater	EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-009A	MW-910-Q219	5/20/2019 1:18:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-009B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-009C			6/4/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035705-009D			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-010A	MW-50-095-Q219	5/20/2019 1:39:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-010B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-010C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-011A	MW-714-Q219	5/20/2019 4:00:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-012A	MW-715-Q219		6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-013A	MW-716-Q219	5/20/2019 4:30:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-014A	MW-50-200-Q219	5/20/2019 12:41:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-014B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035705-014C			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-015A	MW-37D-Q219	5/20/2019 3:53:00 PM	6/4/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035705-015B			6/4/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/4/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

21-May-19

WorkOrder: N035705

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/20/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035705-015C	MW-37D-Q219	5/20/2019 3:53:00 PM	6/4/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035705-015D			6/4/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035705-016A	FOLDER	6/4/2019	6/4/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/4/2019		Folder	Folder	☐	☐	☐	LAB
			6/4/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035705

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134059 **Analyst:** LSR

ASSET #: N035705 **Date Analyzed:** 21-May

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: Julia Ramit Date: 5/30/2019

2nd Level Reviewer: 6/13/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 5/20/19 1645
Analyst: LSR CONTD

Standard	Std ID	Reading	Comments
9.52 µS/cm	CNW-181121A	9.74 @20.8C	% Rec: (90-110%)
1411	190425C	1421 @21.0C	
9965	190218B	10050 @21.1°C	
100390	190218C	101700 @21.0°C	

	Sample ID	Matrix	Reading	Comments
1	ND35693-1A	H2O	108500 @19.5C	
2	ND35694-1A		107600 @19.0C	use
3	ND35695-1A		97300 @19.1C	
4	ND35696-1A		109500 @19.1C	
5	1ADUP		109600 @19.2C	
6	ND35697-1A		91,100 @18.4C	
7	ND35698-1A		71700 @19.0C	
8				
9				
10	1413 µS/cm	CNW-190313A	1458 @22.4°C	
Dup	10000	1 B	10130 @22.4°C	RPD Criteria: 2%
	Std Chk: 99922	CNW-190111H	100300 @22.5°C	% Rec: (90-110%)

Date: 5/21/19 950
Analyst: LSR

Julia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
9.56 µS/cm	CNW-181121A	9.65 @18.9°C	% Rec: (90-110%)
1411	190425C	1408 @19.1°C	
9965	190218B	9950 @19.2°C	
100390	190218C	100200 @19.2°C	

	Sample ID	Matrix	Reading	Comments
1	ND35705-1D	H2O	2580 @17.8C	
2	2D		17540 @17.6C	STD UNCAL
3	3D		17890 @18.0C	1413 CNW 190313A
4	4DC	use	11980 @18.0C	= 1447 @18.1°C
5	5C		12050 @18.1°C	10000 CNW 190313B
6	5CDUP		12010 @17.8C	= 10130 @18.6°C
7	6C		3850 @17.8C	99922 CNW 190111H
8	7C		38600 @17.7C	= 102900 @18.6°C
9	8D		14490 @18.1°C	
10	9D		14310 @17.8°C	
Dup	10C		5560 @17.5C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

Conductivity Logbook

Date: 5/22/19 950
Analyst: IRR CONT"D

Standard	Std ID	Reading	Comments
9.56 uS/cm	CIW-181121A	9.65 @ 18.9C	% Rec: (90-110%)
1411	190425C	1408 @ 19.1C	
9965	190218B	9950 @ 19.2C	
100390	190218C	100200 @ 19.2C	

	Sample ID	Matrix	Reading	Comments
1	NO35705-14C	H2O	21300 @ 17.9C	
2	15D		13640 @ 17.8C	
3	15DUP		13610 @ 17.8C	
4				
5				
6				
7				
8				
9	1413 uS/cm	CIW-190313A	1437 @ 18.8C	
10	10000	B	10000 @ 18.7C	
Dup	99922	CIW-190111H	99900 @ 18.7C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 5/22/19 1140
Analyst: IRR

Julia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
9.52 uS/cm	CIW-181121A	9.36 @ 19.1C	% Rec: (90-110%)
1411	190425C	1444 @ 19.2C	
9965	190218B	10030 @ 19.2C	
100390	190218C	101400 @ 19.5C	

	Sample ID	Matrix	Reading	Comments
1	NO35712-2D	H2O	1006 @ 17.5C	
2	4D		4590 @ 17.2C	STD CHECK
3	4DDUP		46440 @ 17.5C	1413 CIW 190313A
4	6D		2540 @ 17.4C	= 1458 @ 18.5C
5	7D		8160 @ 17.7C	10000 CIW 190313B
6	8D		3520 @ 17.9C	= 9920 @ 18.9C
7	9D		12820 @ 17.8C	99922 CIW 190111H
8	10D		14280 @ 17.7C	= 96500 @ 19.0C
9	11D		17460 @ 17.6C	
10	12C		20600 @ 17.6C	
Dup	13D		13370 @ 17.9C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
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11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R134085
ASSET #: N035705

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 5/21/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments: Dilution was ncessary in N035705-002A/003A/015A due to matrix inteference. Respective MS at @1X failed Rt criteria.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 6/10/2019

2nd Level Reviewer:  Date: 6/10/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035705-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 3.7990 * 100$$

$$Cr^{+6}, \mu g/L = 379.9000$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 380}$$

6/10/2019

ANALYSIS RUN LOG

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

jrba 5/11/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 5/11/2019

INJECTION LOG: 190521A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/21/19 8:44 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	05/21/19 8:55 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	05/21/19 9:04 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/21/19 9:14 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	05/21/19 9:23 AM	Reported
15	MB-R134085	MBLK	1	Hexavalent Chromium	05/21/19 9:33 AM	Reported
16	LCS-R134085	LCS	1	Hexavalent Chromium	05/21/19 9:42 AM	Reported
17	N035705-001A	SAMP	100	Hexavalent Chromium	05/21/19 10:20 AM	Reported
18	N035705-001AMS	MS	100	Hexavalent Chromium	05/21/19 10:31 AM	Reported
19	N035705-002A	SAMP	5	Hexavalent Chromium	05/21/19 10:40 AM	Reported
20	N035705-002AMS	MS	5	Hexavalent Chromium	05/21/19 10:50 AM	Reported
21	N035705-003A	SAMP	5	Hexavalent Chromium	05/21/19 10:59 AM	Reported
22	N035705-003AMS	MS	5	Hexavalent Chromium	05/21/19 11:09 AM	Reported
23	N035705-004A	SAMP	5	Hexavalent Chromium	05/21/19 11:18 AM	Reported
24	N035705-004AMS	MS	5	Hexavalent Chromium	05/21/19 11:27 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	05/21/19 11:37 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	05/21/19 11:46 AM	Reported
27	N035705-005A	SAMP	5	Hexavalent Chromium	05/21/19 11:56 AM	Reported
28	N035705-005AMS	MS	5	Hexavalent Chromium	05/21/19 12:05 PM	Reported
29	N035705-006A	SAMP	50	Hexavalent Chromium	05/21/19 12:15 PM	Reported
30	N035705-006AMS	MS	50	Hexavalent Chromium	05/21/19 12:24 PM	Reported
31	N035705-007A	SAMP	50	Hexavalent Chromium	05/21/19 12:34 PM	Reported
32	N035705-007AMS	MS	50	Hexavalent Chromium	05/21/19 12:43 PM	Reported
33	N035705-008A	SAMP	500	Hexavalent Chromium	05/21/19 12:53 PM	Reported
34	N035705-008AMS	MS	500	Hexavalent Chromium	05/21/19 1:02 PM	Reported
35	N035705-009A	SAMP	500	Hexavalent Chromium	05/21/19 1:12 PM	Reported
36	N035705-009AMS	MS	500	Hexavalent Chromium	05/21/19 1:21 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	05/21/19 1:30 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	05/21/19 1:40 PM	Reported
39	N035705-010A	SAMP	5	Hexavalent Chromium	05/21/19 1:49 PM	Reported
40	N035705-010AMS	MS	5	Hexavalent Chromium	05/21/19 1:59 PM	Reported
41	N035705-014A	SAMP	500	Hexavalent Chromium	05/21/19 2:08 PM	Not Reported
42	N035705-014AMS	MS	500	Hexavalent Chromium	05/21/19 2:18 PM	Not Reported

INJECTION LOG: 190521A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035705-015A	SAMP	5	Hexavalent Chromium	05/21/19 2:27 PM	Reported
44	N035705-015AMS	MS	5	Hexavalent Chromium	05/21/19 2:37 PM	Reported
45	N035705-001AMSD	MSD	100	Hexavalent Chromium	05/21/19 2:46 PM	Reported
46	N035705-014A	SAMP	1000	Hexavalent Chromium	05/21/19 2:56 PM	Reported
47	N035705-014ADUP	DUP	1000	Hexavalent Chromium	05/21/19 3:05 PM	Reported
48	N035705-014AMS	MS	1000	Hexavalent Chromium	05/21/19 3:15 PM	Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	05/21/19 3:24 PM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	05/21/19 3:33 PM	Reported
51	N035705-012A	SAMP	1	Hexavalent Chromium	05/21/19 3:50 PM	Reported
52	N035705-012AMS	MS	1	Hexavalent Chromium	05/21/19 4:01 PM	Reported
53	N035705-013A	SAMP	1	Hexavalent Chromium	05/21/19 4:10 PM	Reported
54	N035705-013AMS	MS	1	Hexavalent Chromium	05/21/19 4:20 PM	Reported
55	N035705-011A	SAMP	1	Hexavalent Chromium	05/21/19 4:29 PM	Reported
56	N035705-011AMS	MS	1	Hexavalent Chromium	05/21/19 4:39 PM	Reported
57	N035705-002A	SAMP	1	Hexavalent Chromium	05/21/19 4:48 PM	Not Reported
58	N035705-002AMS	MS	1	Hexavalent Chromium	05/21/19 4:58 PM	Not Reported
59	N035705-003A	SAMP	1	Hexavalent Chromium	05/21/19 5:07 PM	Not Reported
60	N035705-003AMS	MS	1	Hexavalent Chromium	05/21/19 5:17 PM	Not Reported
61	CCV-5	CCV	1	Hexavalent Chromium	05/21/19 5:26 PM	Reported
62	CCB-5	CCB	1	Hexavalent Chromium	05/21/19 5:36 PM	Reported
63	N035705-015A	SAMP	1	Hexavalent Chromium	05/21/19 5:45 PM	Not Reported
64	N035705-015AMS	MS	1	Hexavalent Chromium	05/21/19 5:54 PM	Not Reported
65	CCV-6	CCV1	1	Hexavalent Chromium	05/21/19 6:04 PM	Reported
66	CCB-6	CCB	1	Hexavalent Chromium	05/21/19 6:13 PM	Reported
67	BLANK	BLANK	1	Hexavalent Chromium	05/21/19 6:23 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190521A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**22/May/19 16:23:56**
No. of Injections:	**70**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/21/2019 08:44	Finished	BLANK
11	BLANK	2	1000	Unknown		05/21/2019 08:55	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		05/21/2019 09:04	Finished	CCV @5ppb, IWST-190423A
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		05/21/2019 09:14	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		05/21/2019 09:23	Finished	CCB R190508A
15	MB-H2O,MBLK,1,	6	1000	Unknown		05/21/2019 09:33	Finished	MB R190508A
16	LCS-H2O,LCS,1,	7	1000	Unknown		05/21/2019 09:42	Finished	LCS @5ppb, IWST-190423B
17	N035705-001A,SAMP	1	1000	Unknown		05/21/2019 10:20	Finished	SAMP,0.1> 10mL
18	N035705-001AMS,MS	2	1000	Unknown		05/21/2019 10:31	Finished	MS (5ppb), IWST-190423B,0.1
19	N035705-002A,SAMP	3	1000	Unknown		05/21/2019 10:40	Finished	SAMP,2> 10mL
20	N035705-002AMS,MS	4	1000	Unknown		05/21/2019 10:50	Finished	MS (1ppb), IWST-190423B,2>1
21	N035705-003A,SAMP	5	1000	Unknown		05/21/2019 10:59	Finished	SAMP,2> 10mL
22	N035705-003AMS,MS	6	1000	Unknown		05/21/2019 11:09	Finished	MS (1ppb), IWST-190423B,2>1
23	N035705-004A,SAMP	7	1000	Unknown		05/21/2019 11:18	Finished	SAMP,2> 10mL
24	N035705-004AMS,MS	8	1000	Unknown		05/21/2019 11:27	Finished	MS (1ppb), IWST-190423B,2>1
25	CCV-2,CCV1,1,	9	1000	Unknown		05/21/2019 11:37	Finished	CCV @10ppb, IWST-190423A
26	CCB-2,CCB,1,	10	1000	Unknown		05/21/2019 11:46	Finished	CCB R190508A
27	N035705-005A,SAMP	11	1000	Unknown		05/21/2019 11:56	Finished	SAMP,2> 10mL
28	N035705-005AMS,MS	12	1000	Unknown		05/21/2019 12:05	Finished	MS (1ppb), IWST-190423B,2>1
29	N035705-006A,SAMP	13	1000	Unknown		05/21/2019 12:15	Finished	SAMP,0.2> 10mL
30	N035705-006AMS,MS	14	1000	Unknown		05/21/2019 12:24	Finished	MS (5ppb), IWST-190423B,0.2
31	N035705-007A,SAMP	15	1000	Unknown		05/21/2019 12:34	Finished	SAMP,0.2> 10mL
32	N035705-007AMS,MS	16	1000	Unknown		05/21/2019 12:43	Finished	MS (5ppb), IWST-190423B,0.2
33	N035705-008A,SAMP	17	1000	Unknown		05/21/2019 12:53	Finished	SAMP,0.02> 10mL
34	N035705-008AMS,MS	18	1000	Unknown		05/21/2019 13:02	Finished	MS (5ppb), IWST-190423B,0.0
35	N035705-009A,SAMP	19	1000	Unknown		05/21/2019 13:12	Finished	SAMP,0.02> 10mL
36	N035705-009AMS,MS	20	1000	Unknown		05/21/2019 13:21	Finished	MS (5ppb), IWST-190423B,0.0
37	CCV-3,CCV,1,	21	1000	Unknown		05/21/2019 13:30	Finished	CCV @5ppb, IWST-190423A
38	CCB-3,CCB,1,	22	1000	Unknown		05/21/2019 13:40	Finished	CCB R190411C
39	N035705-010A,SAMP	23	1000	Unknown		05/21/2019 13:49	Finished	SAMP,2> 10mL
40	N035705-010AMS,MS	24	1000	Unknown		05/21/2019 13:59	Finished	MS (1ppb), IWST-190423B,2>1
41	N035705-014A,SAMP	25	1000	Unknown		05/21/2019 14:08	Finished	SAMP,0.02> 10mL
42	N035705-014AMS,MS	26	1000	Unknown		05/21/2019 14:18	Finished	MS (5ppb), IWST-190423B,0.0
43	N035705-015A,SAMP	27	1000	Unknown		05/21/2019 14:27	Finished	SAMP,2> 10mL
44	N035705-015AMS,MS	28	1000	Unknown		05/21/2019 14:37	Finished	MS (1ppb), IWST-190423B,2>1
45	N035705-001AMSD,M	29	1000	Unknown		05/21/2019 14:46	Finished	MSD (5ppb), IWST-190423B,0.
46	N035705-014A,SAMP	30	1000	Unknown		05/21/2019 14:56	Finished	SAMP,0.01> 10mL
47	N035705-014ADUP,D	31	1000	Unknown		05/21/2019 15:05	Finished	DUP,0.01> 10mL
48	N035705-014AMS,MS	32	1000	Unknown		05/21/2019 15:15	Finished	MS (5ppb), IWST-190423B,0.0
49	CCV-4,CCV1,1,	33	1000	Unknown		05/21/2019 15:24	Finished	CCV @10ppb, IWST-190423A
50	CCB-4,CCB,1,	34	1000	Unknown		05/21/2019 15:33	Finished	CCB R190411C
51	N035705-012A,SAMP	1	1000	Unknown		05/21/2019 15:50	Finished	SAMP, 10mL
52	N035705-012AMS,MS	2	1000	Unknown		05/21/2019 16:01	Finished	MS (1ppb), IWST-190423B,10
53	N035705-013A,SAMP	3	1000	Unknown		05/21/2019 16:10	Finished	SAMP, 10mL
54	N035705-013AMS,MS	4	1000	Unknown		05/21/2019 16:20	Finished	MS (1ppb), IWST-190423B,10
55	N035705-011A,SAMP	5	1000	Unknown		05/21/2019 16:29	Finished	SAMP, 10mL
56	N035705-011AMS,MS	6	1000	Unknown		05/21/2019 16:39	Finished	MS (1ppb), IWST-190423B,10
57	N035705-002A,SAMP	7	1000	Unknown		05/21/2019 16:48	Finished	SAMP, 10mL
58	N035705-002AMS,MS	8	1000	Unknown		05/21/2019 16:58	Finished	MS (5ppb), IWST-190423B,10
59	N035705-003A,SAMP	9	1000	Unknown		05/21/2019 17:07	Finished	SAMP, 10mL
60	N035705-003AMS,MS	10	1000	Unknown		05/21/2019 17:17	Finished	MS (5ppb), IWST-190423B,10

61	CCV-5,CCV,1,	11	1000	Unknown		05/21/2019 17:26	Finished	CCV @5ppb, IWST-190423A
62	CCB-5,CCB,1,	12	1000	Unknown		05/21/2019 17:36	Finished	CCB R190508A
63	N035705-015A,SAMP	13	1000	Unknown		05/21/2019 17:45	Finished	SAMP, 10mL
64	N035705-015AMS,MS	14	1000	Unknown		05/21/2019 17:54	Finished	MS (5ppb), IWST-190423B,10
65	CCV-6,CCV1,1,	15	1000	Unknown		05/21/2019 18:04	Finished	CCV @10ppb, IWST-190423A
66	CCB-6,CCB,1,	16	1000	Unknown		05/21/2019 18:13	Finished	CCB R190508A
67	BLANK	17	1000	Unknown		05/21/2019 18:23	Finished	BLANK
68	SHUTDOWN	18	1000	Unknown		05/21/2019 18:32	Finished	
69	Eluent: R190520A	19	1000	Unknown		n.a.	Finished	Eluent
70	PCR: R190520B	20	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 5/21/19
Time Prepared: 0807A
Prepared By: MSA

Slope: 97.5 %
pH 4: 4.01
7: 7.03
10: 10.00

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: M90520A
NH4OH + NH4SO4 buffer: M90508A / M90416

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M075705-1A	9.44	-	~250ml	~250ml		
2)	2A	9.68	-				
3)	3A	9.69	-				
4)	4A	9.64	-				1/2
5)	5A	9.63	-				1/2
6)	6A	9.62					
7)	7A	9.58	-				
8)	8A	9.49	-				
9)	9A	9.57	-				
10)	10A	9.52	-				
11)	11A	9.71	-				
12)	12A	9.72	-				
13)	13A	9.66	-				
14)	14A	9.61	-				
15)	15A	9.64	-				
	4A	9.64	-				2/2
	5A	9.65	-				2/2

Sample Preparation

Date Prepared: 5/22/19
Time Prepared: 0904A
Prepared By: MSA

Slope: 97.2%
pH 4: 4.01
7: 7.03
10: 10.00

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: M90522A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M075712-1A	9.67	-	~250ml	~250ml		
2)	2A	9.62	-				1/2
3)	2A	9.60	-				2/2
4)	3A	9.70	-				
5)	4A	9.49	-				1/2
6)	4A	9.50	-				2/2
7)	5A	9.68	-				
8)	6A	9.39	-				1/2
9)	6A	9.78	-				2/2
10)	7A	9.54	-				
11)	8A	9.59	-				
12)	9A	9.58	-				
13)	10A	9.64	-				
14)	11A	9.68	-				
15)	12A	9.66	-				
	13A	9.62	-				

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 5/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2514	1.2615	2.5188	3.7985	5.0310	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ICV**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3393582**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.175	0.20	5.000	0	104	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3393583**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **CCV**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393585**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.965	0.20	5.000	0	99.3	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393586**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.199	0.20	0.2000	0	99.4	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.104	0.20	10.00	0	101	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **CCV**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.025	0.20	5.000	0	101	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393620**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.969	0.20	10.00	0	99.7	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **CCV**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.965	0.20	5.000	0	99.3	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ZZZZZZ**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.910	0.20	10.00	0	99.1	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **ICB**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3393584**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **CCB**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393587**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **CCB**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393599**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **CCB**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **CCB**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **CCB**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393629**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134085**
Client ID: **CCB**	Batch ID: **R134085**	TestNo: **EPA 218.6**		Analysis Date: **5/21/2019**	SeqNo: **3393631**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/21/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.723	
CCV-6	4.731	

Average	4.730
Actual RT Window	4.650 - 4.810
Applied RT Window	4.530 - 4.930

MB-R134085	N.A.	N.A.
LCS-R134085	4.723	PASS
N035705-001A	4.723	PASS
N035705-001AMS	4.731	PASS
N035705-002A	4.673	PASS
N035705-002AMS	4.673	PASS
N035705-003A	4.673	PASS
N035705-003AMS	4.673	PASS
N035705-004A	4.698	PASS
N035705-004AMS	4.698	PASS
N035705-005A	4.690	PASS
N035705-005AMS	4.690	PASS
N035705-006A	4.723	PASS
N035705-006AMS	4.731	PASS
N035705-007A	4.731	PASS
N035705-007AMS	4.723	PASS
N035705-008A	4.731	PASS
N035705-008AMS	4.731	PASS
N035705-009A	4.715	PASS
N035705-009AMS	4.731	PASS
N035705-010A	4.715	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/21/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.731	
CCV-2	4.731	
CCV-3	4.731	
CCV-4	4.731	
CCV-5	4.723	
CCV-6	4.731	
Average	4.730	
Actual RT Window	4.650 - 4.810	
Applied RT Window	4.530 - 4.930	
N035705-010AMS	4.706	PASS
N035705-014A	4.723	PASS
N035705-014AMS	4.723	PASS
N035705-015A	4.681	PASS
N035705-015AMS	4.681	PASS
N035705-001AMSD	4.723	PASS
N035705-014A	4.731	PASS
N035705-014ADUP	4.731	PASS
N035705-014AMS	4.731	PASS
N035705-012A	N.A.	N.A.
N035705-012AMS	4.723	PASS
N035705-013A	N.A.	N.A.
N035705-013AMS	4.723	PASS
N035705-011A	N.A.	N.A.
N035705-011AMS	4.723	PASS
N035705-002A	4.273	FAIL
N035705-002AMS	4.290	FAIL
N035705-003A	4.290	FAIL
N035705-003AMS	4.273	FAIL
N035705-015A	4.440	FAIL
N035705-015AMS	4.440	FAIL

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

rba 5/11/2019

6/06/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

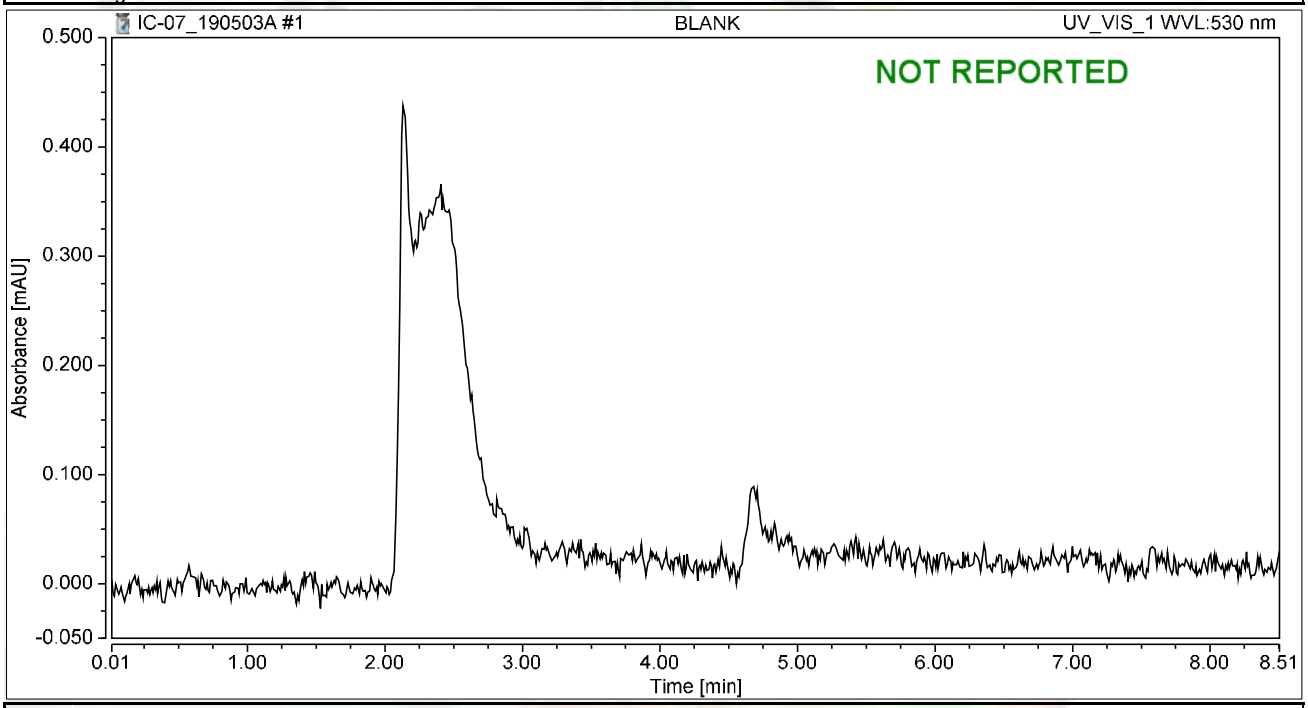
rba 5/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 09:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

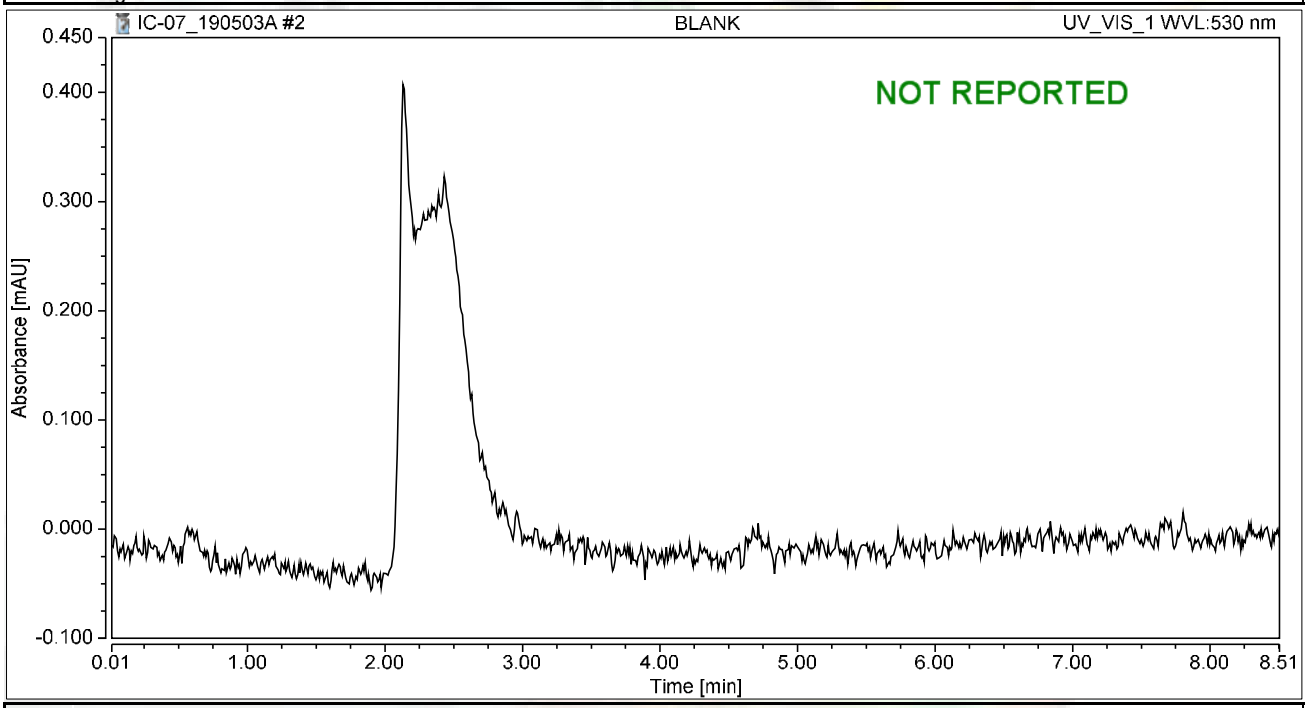
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

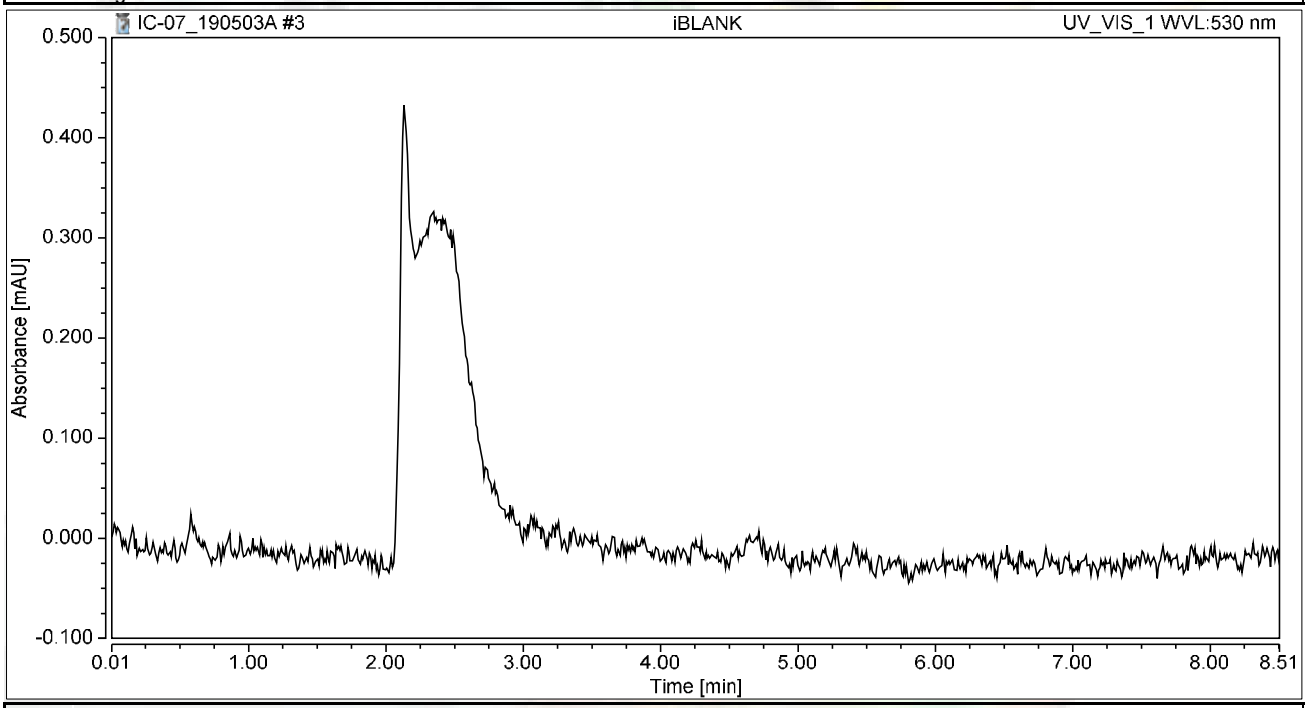
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

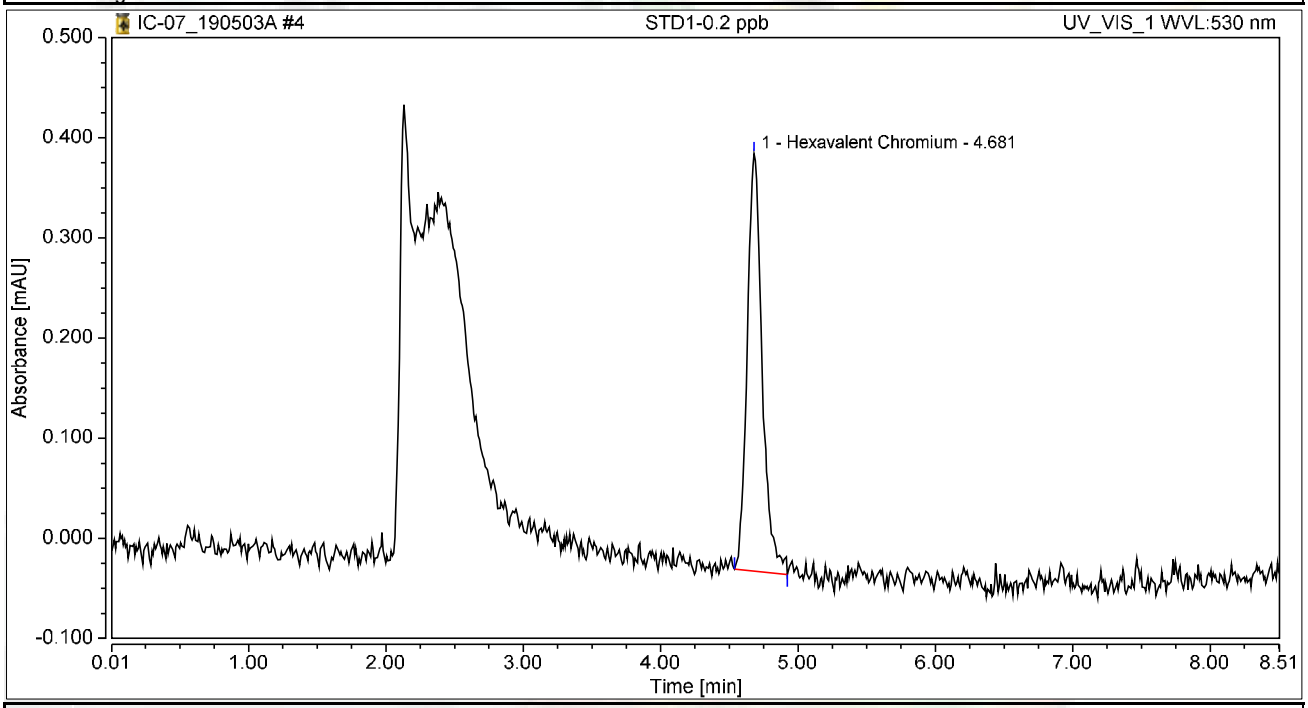
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

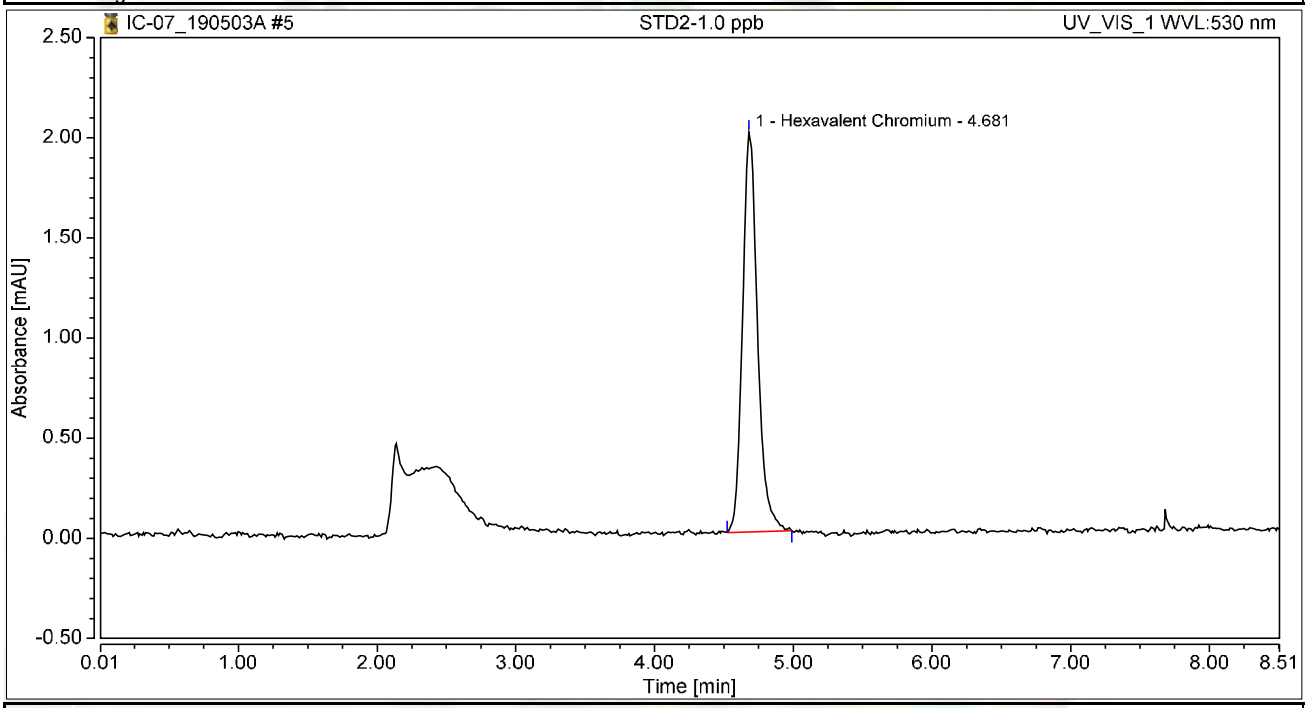
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.053	0.417	100.00	100.00	0.2092
Total:			**0.053**	**0.417**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

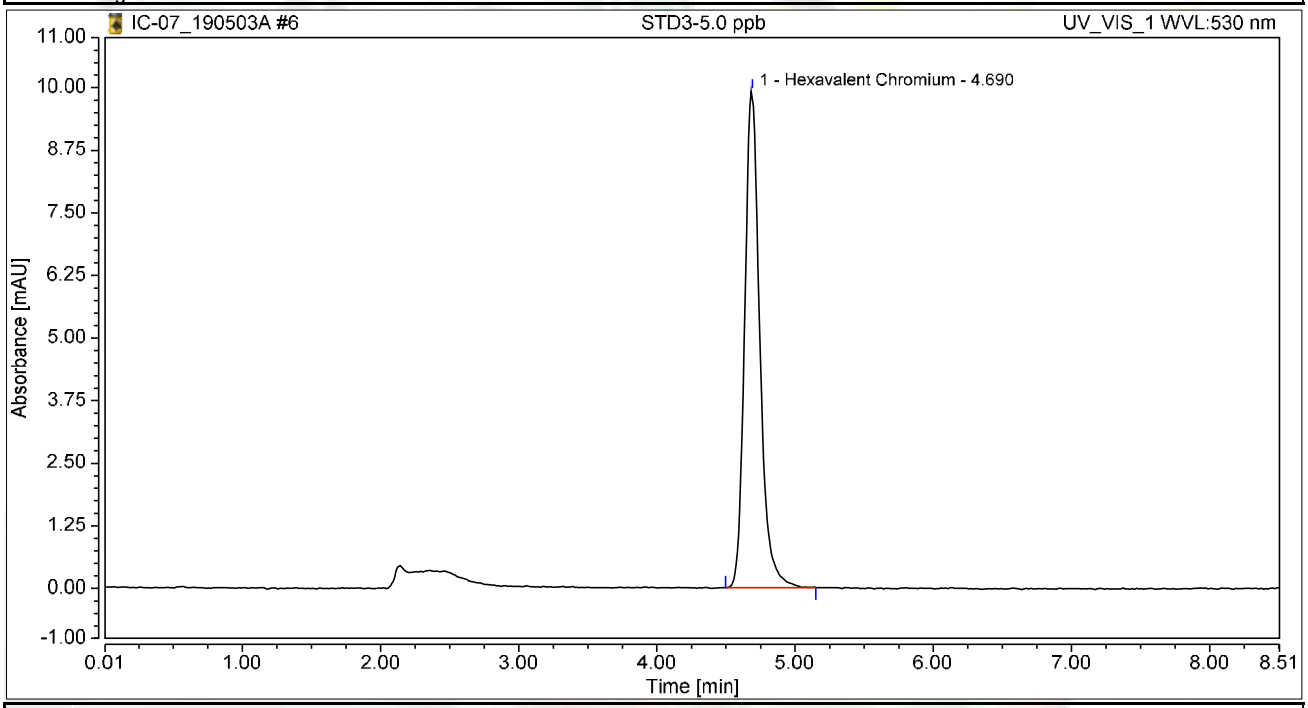
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.251	1.997	100.00	100.00	0.9971
Total:			**0.251**	**1.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

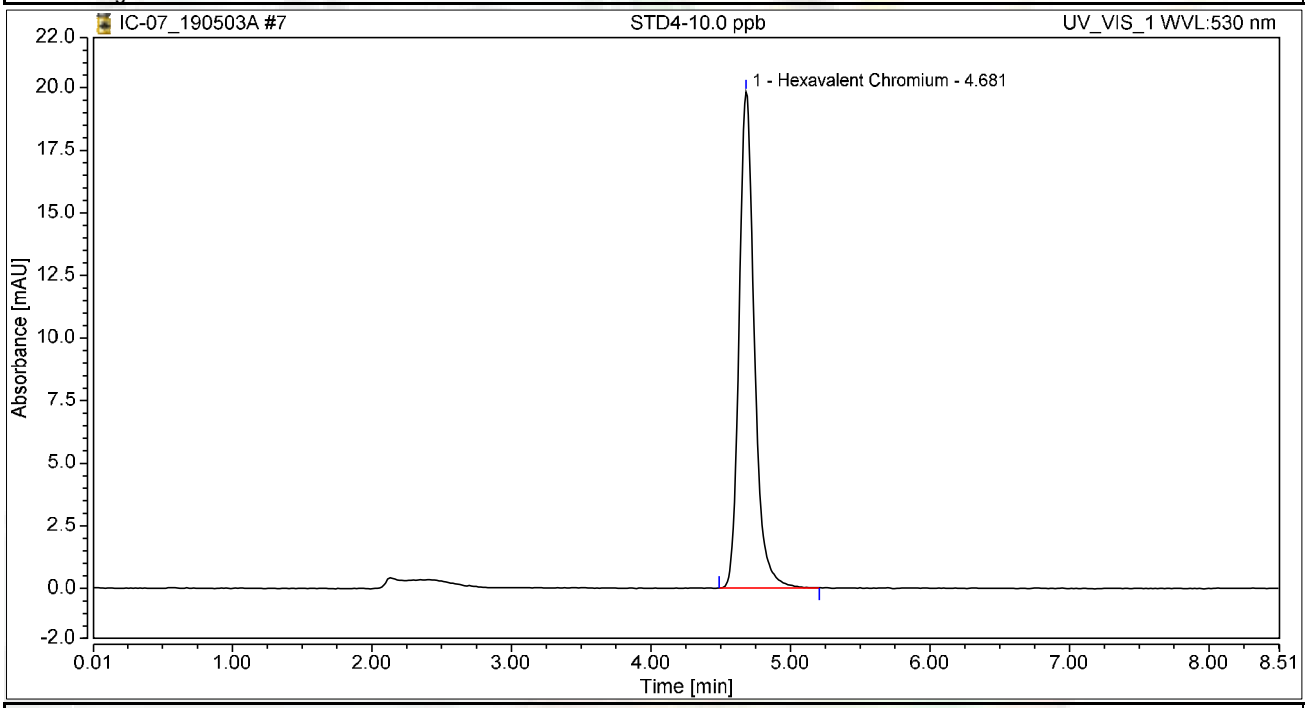
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.261	9.919	100.00	100.00	5.0034
Total:			**1.261**	**9.919**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

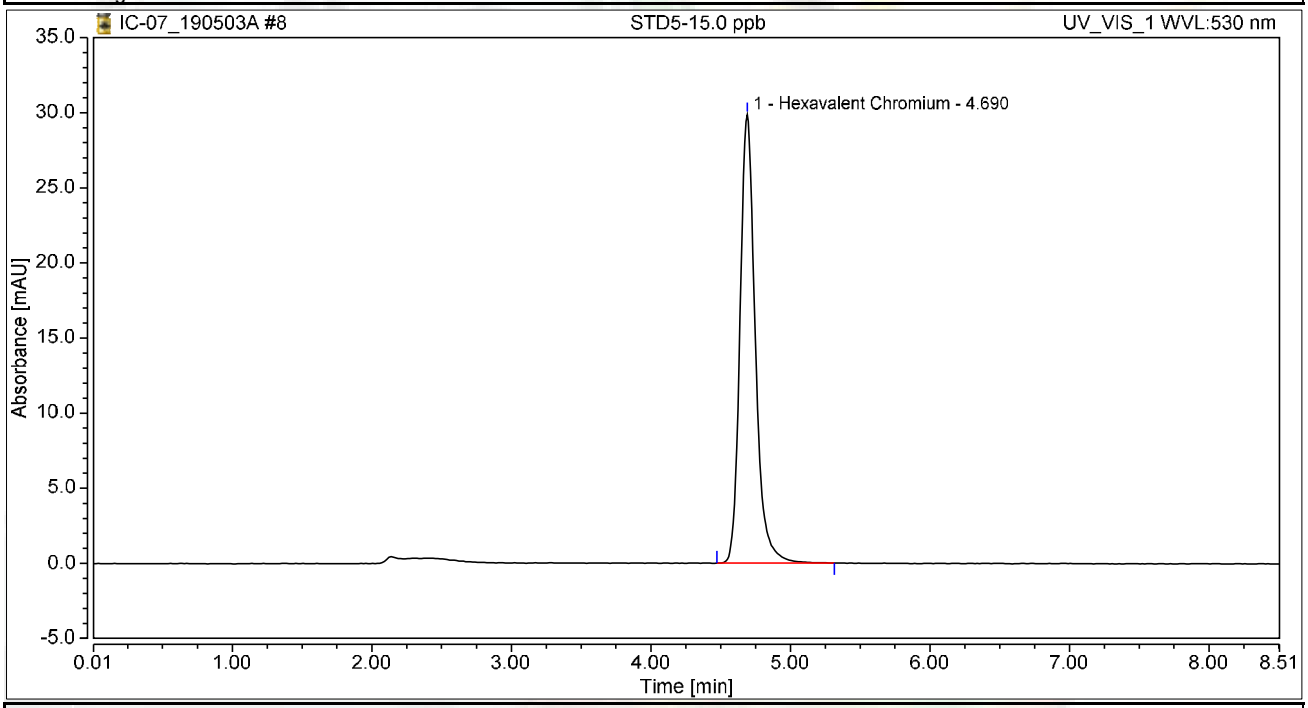
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	2.519	19.825	100.00	100.00	9.9901
Total:			**2.519**	**19.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

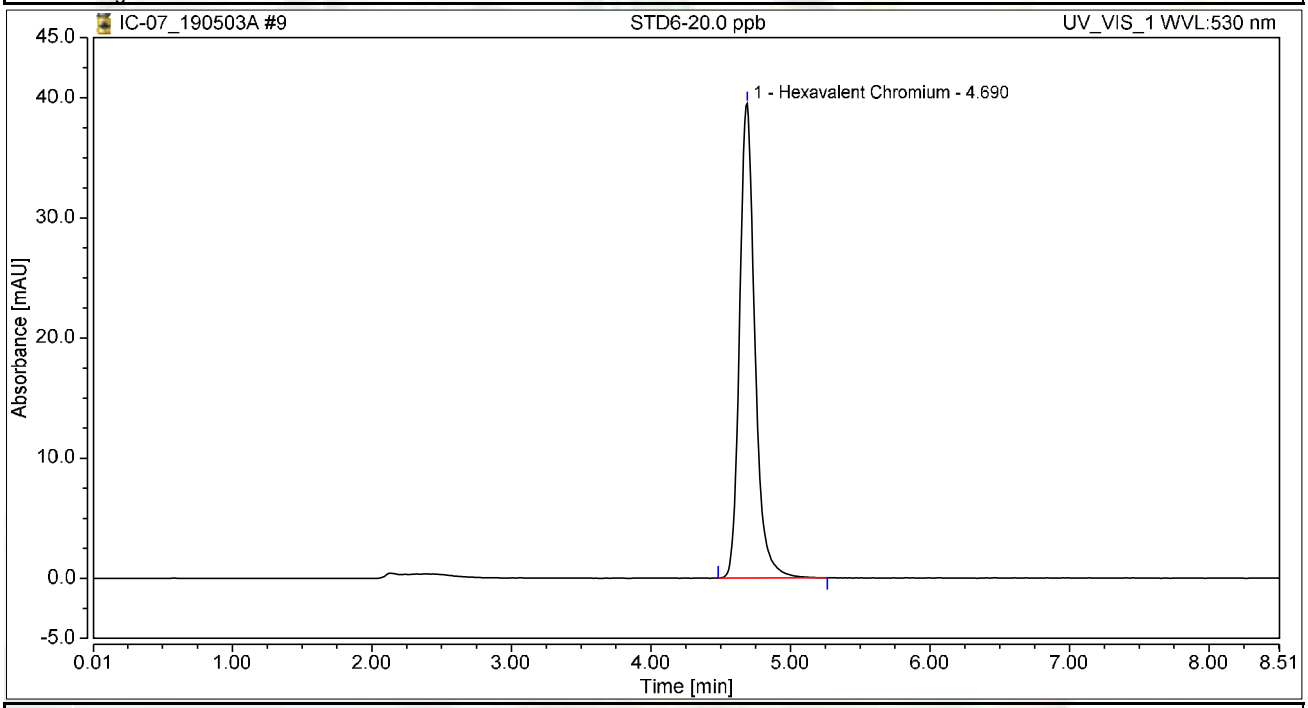
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.799	29.868	100.00	100.00	15.0660
Total:			**3.799**	**29.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



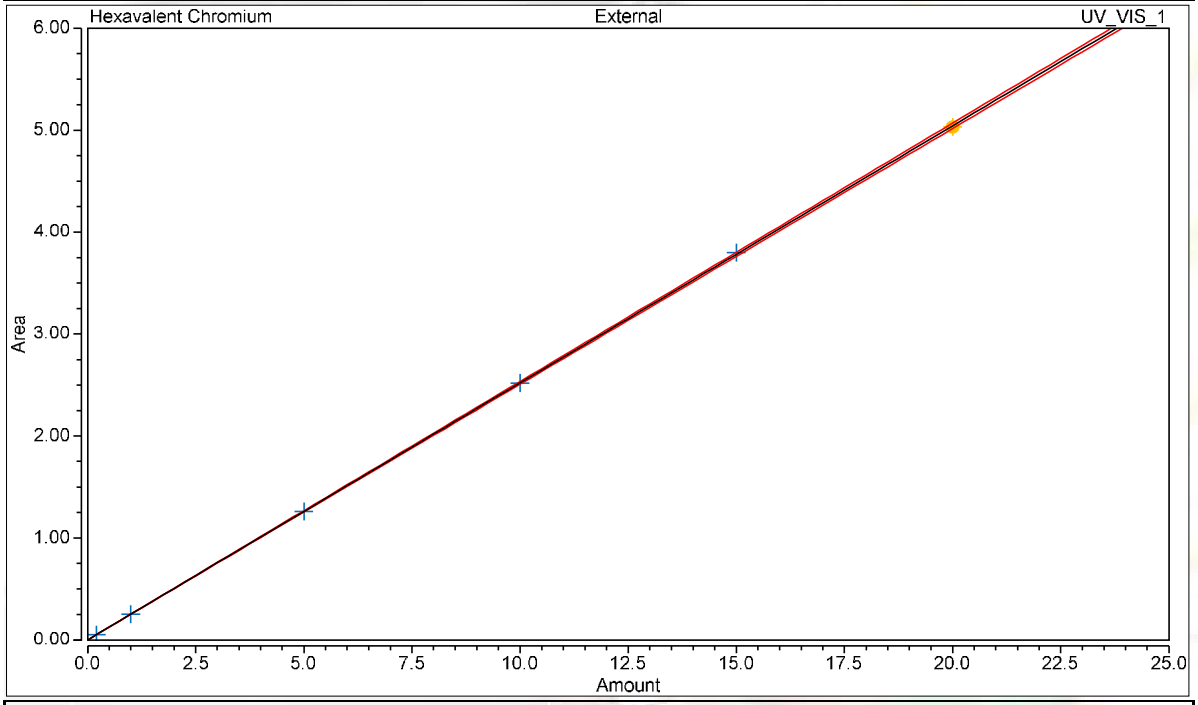
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	5.031	39.475	100.00	100.00	19.9546
Total:			**5.031**	**39.475**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2521
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

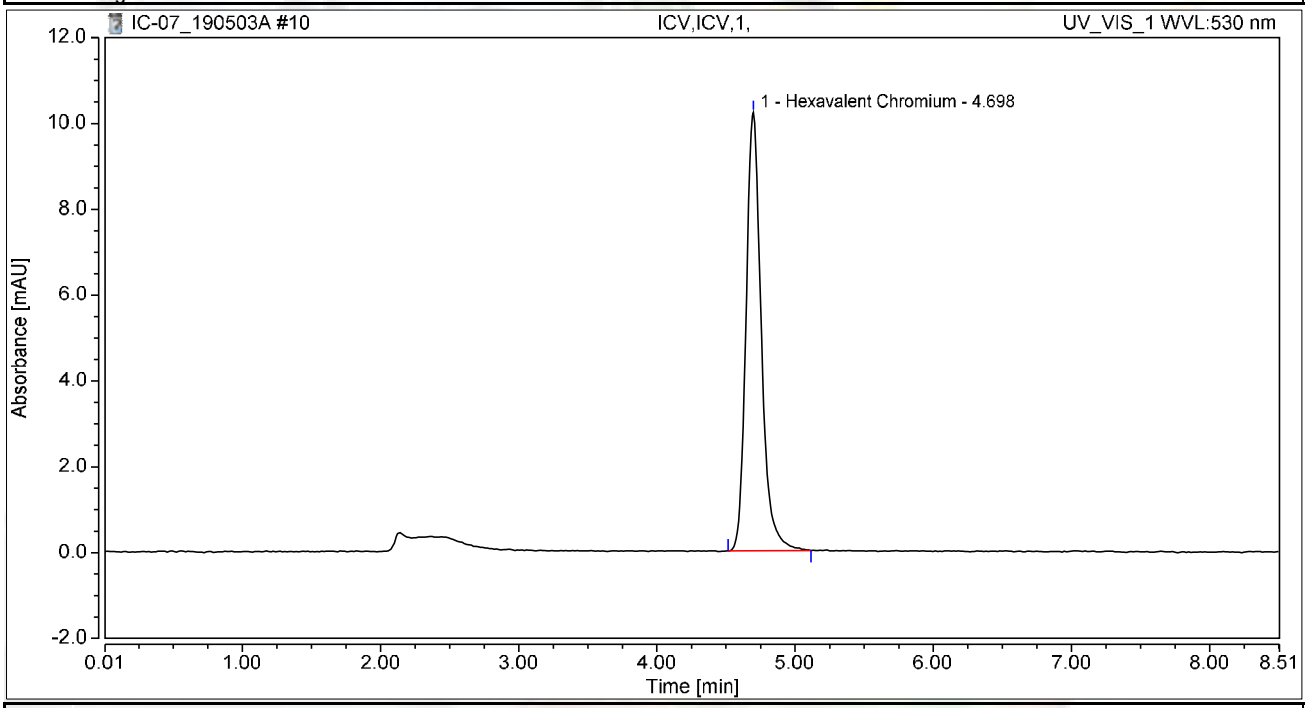
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.417
5	STD2-1.0 ppb	02	1.0000	0.2514	0.251	1.997
6	STD3-5.0 ppb	03	5.0000	1.2615	1.261	9.919
7	STD4-10.0 ppb	04	10.0000	2.5188	2.519	19.825
8	STD5-15.0 ppb	05	15.0000	3.7985	3.799	29.868
9	STD6-20.0 ppb	06	20.0000	5.0310	5.031	39.475

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

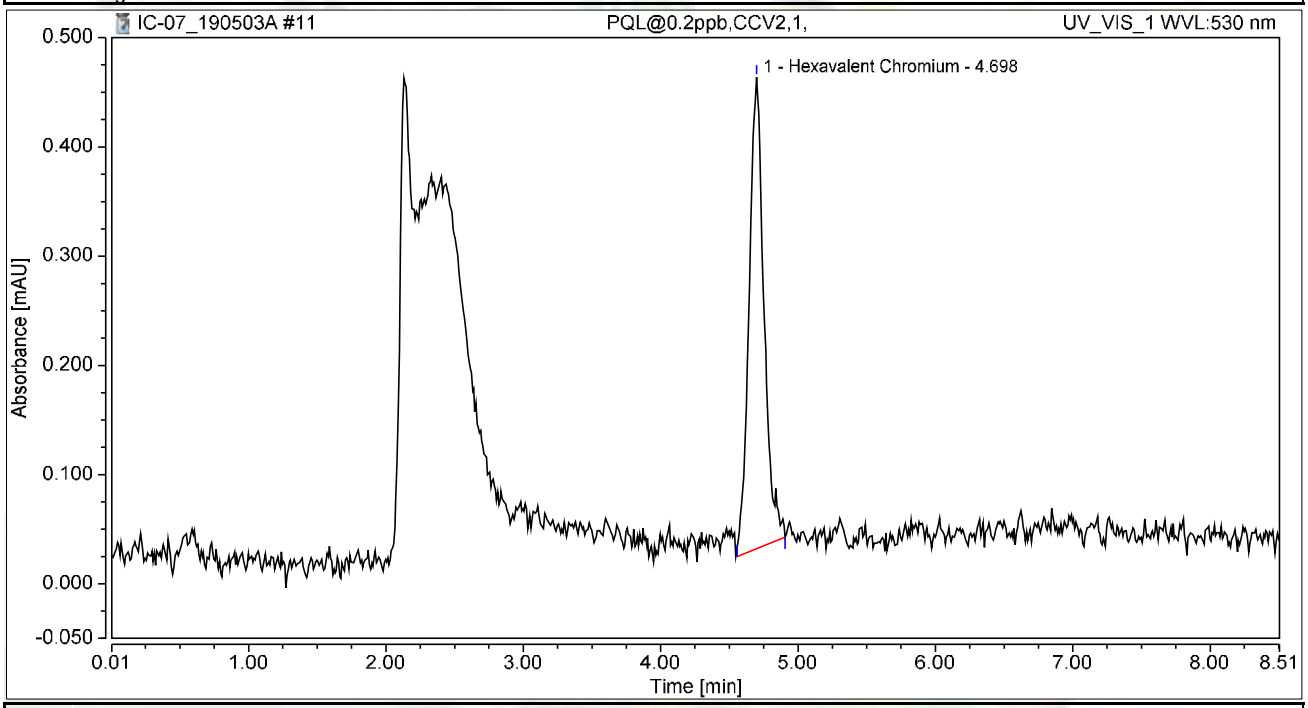
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.305	10.217	100.00	100.00	5.1753
Total:			**1.305**	**10.217**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

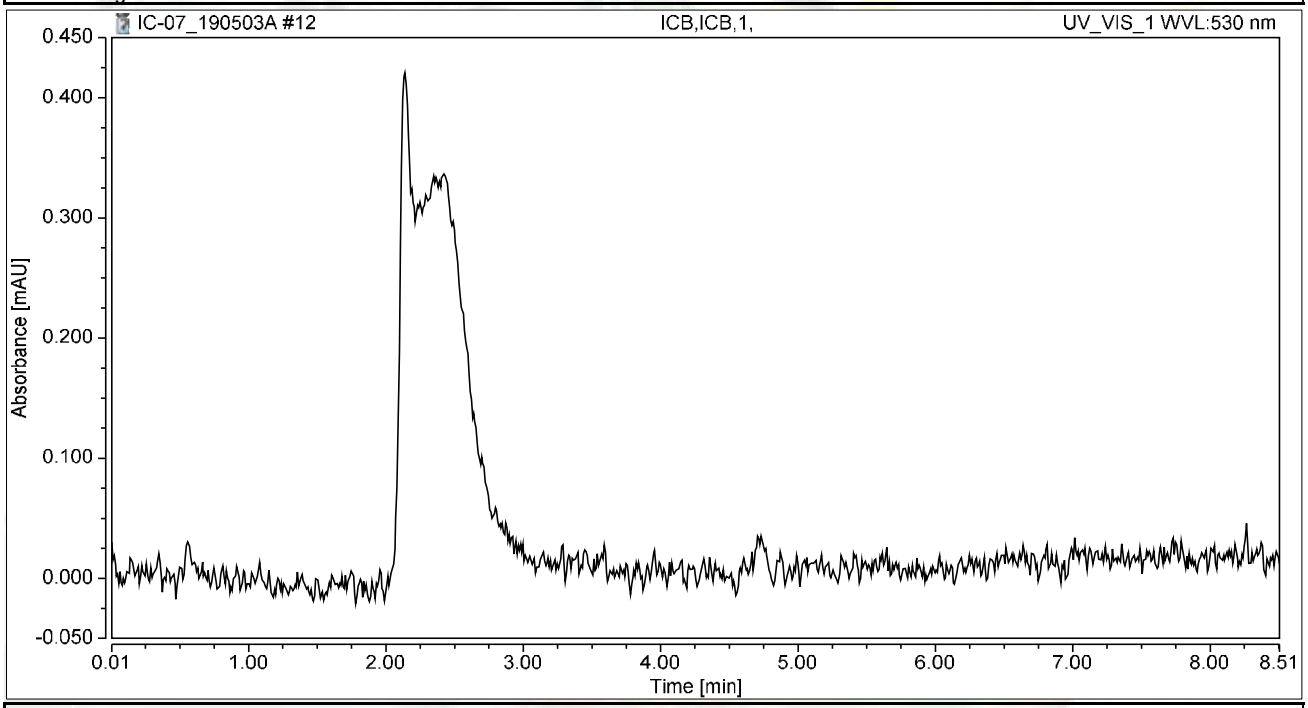
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.431	100.00	100.00	0.2143
Total:			**0.054**	**0.431**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190521A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/21/19 8:44 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	05/21/19 8:55 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	05/21/19 9:04 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/21/19 9:14 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	05/21/19 9:23 AM	Reported
15	MB-R134085	MBLK	1	Hexavalent Chromium	05/21/19 9:33 AM	Reported
16	LCS-R134085	LCS	1	Hexavalent Chromium	05/21/19 9:42 AM	Reported
17	N035705-001A	SAMP	100	Hexavalent Chromium	05/21/19 10:20 AM	Reported
18	N035705-001AMS	MS	100	Hexavalent Chromium	05/21/19 10:31 AM	Reported
19	N035705-002A	SAMP	5	Hexavalent Chromium	05/21/19 10:40 AM	Reported
20	N035705-002AMS	MS	5	Hexavalent Chromium	05/21/19 10:50 AM	Reported
21	N035705-003A	SAMP	5	Hexavalent Chromium	05/21/19 10:59 AM	Reported
22	N035705-003AMS	MS	5	Hexavalent Chromium	05/21/19 11:09 AM	Reported
23	N035705-004A	SAMP	5	Hexavalent Chromium	05/21/19 11:18 AM	Reported
24	N035705-004AMS	MS	5	Hexavalent Chromium	05/21/19 11:27 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	05/21/19 11:37 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	05/21/19 11:46 AM	Reported
27	N035705-005A	SAMP	5	Hexavalent Chromium	05/21/19 11:56 AM	Reported
28	N035705-005AMS	MS	5	Hexavalent Chromium	05/21/19 12:05 PM	Reported
29	N035705-006A	SAMP	50	Hexavalent Chromium	05/21/19 12:15 PM	Reported
30	N035705-006AMS	MS	50	Hexavalent Chromium	05/21/19 12:24 PM	Reported
31	N035705-007A	SAMP	50	Hexavalent Chromium	05/21/19 12:34 PM	Reported
32	N035705-007AMS	MS	50	Hexavalent Chromium	05/21/19 12:43 PM	Reported
33	N035705-008A	SAMP	500	Hexavalent Chromium	05/21/19 12:53 PM	Reported
34	N035705-008AMS	MS	500	Hexavalent Chromium	05/21/19 1:02 PM	Reported
35	N035705-009A	SAMP	500	Hexavalent Chromium	05/21/19 1:12 PM	Reported
36	N035705-009AMS	MS	500	Hexavalent Chromium	05/21/19 1:21 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	05/21/19 1:30 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	05/21/19 1:40 PM	Reported
39	N035705-010A	SAMP	5	Hexavalent Chromium	05/21/19 1:49 PM	Reported
40	N035705-010AMS	MS	5	Hexavalent Chromium	05/21/19 1:59 PM	Reported
41	N035705-014A	SAMP	500	Hexavalent Chromium	05/21/19 2:08 PM	Not Reported
42	N035705-014AMS	MS	500	Hexavalent Chromium	05/21/19 2:18 PM	Not Reported

6/06/2019

IC7 RBA 5/23/2019 10:03 AM

rba 5/27/2019

INJECTION LOG: 190521A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035705-015A	SAMP	5	Hexavalent Chromium	05/21/19 2:27 PM	Reported
44	N035705-015AMS	MS	5	Hexavalent Chromium	05/21/19 2:37 PM	Reported
45	N035705-001AMSD	MSD	100	Hexavalent Chromium	05/21/19 2:46 PM	Reported
46	N035705-014A	SAMP	1000	Hexavalent Chromium	05/21/19 2:56 PM	Reported
47	N035705-014ADUP	DUP	1000	Hexavalent Chromium	05/21/19 3:05 PM	Reported
48	N035705-014AMS	MS	1000	Hexavalent Chromium	05/21/19 3:15 PM	Reported
49	CCV-4	CCV1	1	Hexavalent Chromium	05/21/19 3:24 PM	Reported
50	CCB-4	CCB	1	Hexavalent Chromium	05/21/19 3:33 PM	Reported
51	N035705-012A	SAMP	1	Hexavalent Chromium	05/21/19 3:50 PM	Reported
52	N035705-012AMS	MS	1	Hexavalent Chromium	05/21/19 4:01 PM	Reported
53	N035705-013A	SAMP	1	Hexavalent Chromium	05/21/19 4:10 PM	Reported
54	N035705-013AMS	MS	1	Hexavalent Chromium	05/21/19 4:20 PM	Reported
55	N035705-011A	SAMP	1	Hexavalent Chromium	05/21/19 4:29 PM	Reported
56	N035705-011AMS	MS	1	Hexavalent Chromium	05/21/19 4:39 PM	Reported
57	N035705-002A	SAMP	1	Hexavalent Chromium	05/21/19 4:48 PM	Not Reported
58	N035705-002AMS	MS	1	Hexavalent Chromium	05/21/19 4:58 PM	Not Reported
59	N035705-003A	SAMP	1	Hexavalent Chromium	05/21/19 5:07 PM	Not Reported
60	N035705-003AMS	MS	1	Hexavalent Chromium	05/21/19 5:17 PM	Not Reported
61	CCV-5	CCV	1	Hexavalent Chromium	05/21/19 5:26 PM	Reported
62	CCB-5	CCB	1	Hexavalent Chromium	05/21/19 5:36 PM	Reported
63	N035705-015A	SAMP	1	Hexavalent Chromium	05/21/19 5:45 PM	Not Reported
64	N035705-015AMS	MS	1	Hexavalent Chromium	05/21/19 5:54 PM	Not Reported
65	CCV-6	CCV1	1	Hexavalent Chromium	05/21/19 6:04 PM	Reported
66	CCB-6	CCB	1	Hexavalent Chromium	05/21/19 6:13 PM	Reported
67	BLANK	BLANK	1	Hexavalent Chromium	05/21/19 6:23 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190521A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**22/May/19 16:23:56**
No. of Injections:	**70**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/21/2019 08:44	Finished	BLANK
11	BLANK	2	1000	Unknown		05/21/2019 08:55	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		05/21/2019 09:04	Finished	CCV @5ppb, IWST-190423A
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		05/21/2019 09:14	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		05/21/2019 09:23	Finished	CCB R190508A
15	MB-H2O,MBLK,1,	6	1000	Unknown		05/21/2019 09:33	Finished	MB R190508A
16	LCS-H2O,LCS,1,	7	1000	Unknown		05/21/2019 09:42	Finished	LCS @5ppb, IWST-190423B
17	N035705-001A,SAMF	1	1000	Unknown		05/21/2019 10:20	Finished	SAMP,0.1> 10mL
18	N035705-001AMS,MS	2	1000	Unknown		05/21/2019 10:31	Finished	MS (5ppb), IWST-190423B,0.1
19	N035705-002A,SAMF	3	1000	Unknown		05/21/2019 10:40	Finished	SAMP,2> 10mL
20	N035705-002AMS,MS	4	1000	Unknown		05/21/2019 10:50	Finished	MS (1ppb), IWST-190423B,2>1
21	N035705-003A,SAMF	5	1000	Unknown		05/21/2019 10:59	Finished	SAMP,2> 10mL
22	N035705-003AMS,MS	6	1000	Unknown		05/21/2019 11:09	Finished	MS (1ppb), IWST-190423B,2>1
23	N035705-004A,SAMF	7	1000	Unknown		05/21/2019 11:18	Finished	SAMP,2> 10mL
24	N035705-004AMS,MS	8	1000	Unknown		05/21/2019 11:27	Finished	MS (1ppb), IWST-190423B,2>1
25	CCV-2,CCV1,1,	9	1000	Unknown		05/21/2019 11:37	Finished	CCV @10ppb, IWST-190423A
26	CCB-2,CCB,1,	10	1000	Unknown		05/21/2019 11:46	Finished	CCB R190508A
27	N035705-005A,SAMF	11	1000	Unknown		05/21/2019 11:56	Finished	SAMP,2> 10mL
28	N035705-005AMS,MS	12	1000	Unknown		05/21/2019 12:05	Finished	MS (1ppb), IWST-190423B,2>1
29	N035705-006A,SAMF	13	1000	Unknown		05/21/2019 12:15	Finished	SAMP,0.2> 10mL
30	N035705-006AMS,MS	14	1000	Unknown		05/21/2019 12:24	Finished	MS (5ppb), IWST-190423B,0.2
31	N035705-007A,SAMF	15	1000	Unknown		05/21/2019 12:34	Finished	SAMP,0.2> 10mL
32	N035705-007AMS,MS	16	1000	Unknown		05/21/2019 12:43	Finished	MS (5ppb), IWST-190423B,0.2
33	N035705-008A,SAMF	17	1000	Unknown		05/21/2019 12:53	Finished	SAMP,0.02> 10mL
34	N035705-008AMS,MS	18	1000	Unknown		05/21/2019 13:02	Finished	MS (5ppb), IWST-190423B,0.0
35	N035705-009A,SAMF	19	1000	Unknown		05/21/2019 13:12	Finished	SAMP,0.02> 10mL
36	N035705-009AMS,MS	20	1000	Unknown		05/21/2019 13:21	Finished	MS (5ppb), IWST-190423B,0.0
37	CCV-3,CCV,1,	21	1000	Unknown		05/21/2019 13:30	Finished	CCV @5ppb, IWST-190423A
38	CCB-3,CCB,1,	22	1000	Unknown		05/21/2019 13:40	Finished	CCB R190411C
39	N035705-010A,SAMF	23	1000	Unknown		05/21/2019 13:49	Finished	SAMP,2> 10mL
40	N035705-010AMS,MS	24	1000	Unknown		05/21/2019 13:59	Finished	MS (1ppb), IWST-190423B,2>1
41	N035705-014A,SAMF	25	1000	Unknown		05/21/2019 14:08	Finished	SAMP,0.02> 10mL
42	N035705-014AMS,MS	26	1000	Unknown		05/21/2019 14:18	Finished	MS (5ppb), IWST-190423B,0.0
43	N035705-015A,SAMF	27	1000	Unknown		05/21/2019 14:27	Finished	SAMP,2> 10mL
44	N035705-015AMS,MS	28	1000	Unknown		05/21/2019 14:37	Finished	MS (1ppb), IWST-190423B,2>1
45	N035705-001AMSD,M	29	1000	Unknown		05/21/2019 14:46	Finished	MSD (5ppb), IWST-190423B,0.
46	N035705-014A,SAMF	30	1000	Unknown		05/21/2019 14:56	Finished	SAMP,0.01> 10mL
47	N035705-014ADUP,D	31	1000	Unknown		05/21/2019 15:05	Finished	DUP,0.01> 10mL
48	N035705-014AMS,MS	32	1000	Unknown		05/21/2019 15:15	Finished	MS (5ppb), IWST-190423B,0.0
49	CCV-4,CCV1,1,	33	1000	Unknown		05/21/2019 15:24	Finished	CCV @10ppb, IWST-190423A
50	CCB-4,CCB,1,	34	1000	Unknown		05/21/2019 15:33	Finished	CCB R190411C
51	N035705-012A,SAMF	1	1000	Unknown		05/21/2019 15:50	Finished	SAMP, 10mL
52	N035705-012AMS,MS	2	1000	Unknown		05/21/2019 16:01	Finished	MS (1ppb), IWST-190423B,10
53	N035705-013A,SAMF	3	1000	Unknown		05/21/2019 16:10	Finished	SAMP, 10mL
54	N035705-013AMS,MS	4	1000	Unknown		05/21/2019 16:20	Finished	MS (1ppb), IWST-190423B,10
55	N035705-011A,SAMF	5	1000	Unknown		05/21/2019 16:29	Finished	SAMP, 10mL
56	N035705-011AMS,MS	6	1000	Unknown		05/21/2019 16:39	Finished	MS (1ppb), IWST-190423B,10
57	N035705-002A,SAMF	7	1000	Unknown		05/21/2019 16:48	Finished	SAMP, 10mL
58	N035705-002AMS,MS	8	1000	Unknown		05/21/2019 16:58	Finished	MS (5ppb), IWST-190423B,10
59	N035705-003A,SAMF	9	1000	Unknown		05/21/2019 17:07	Finished	SAMP, 10mL
60	N035705-003AMS,MS	10	1000	Unknown		05/21/2019 17:17	Finished	MS (5ppb), IWST-190423B,10

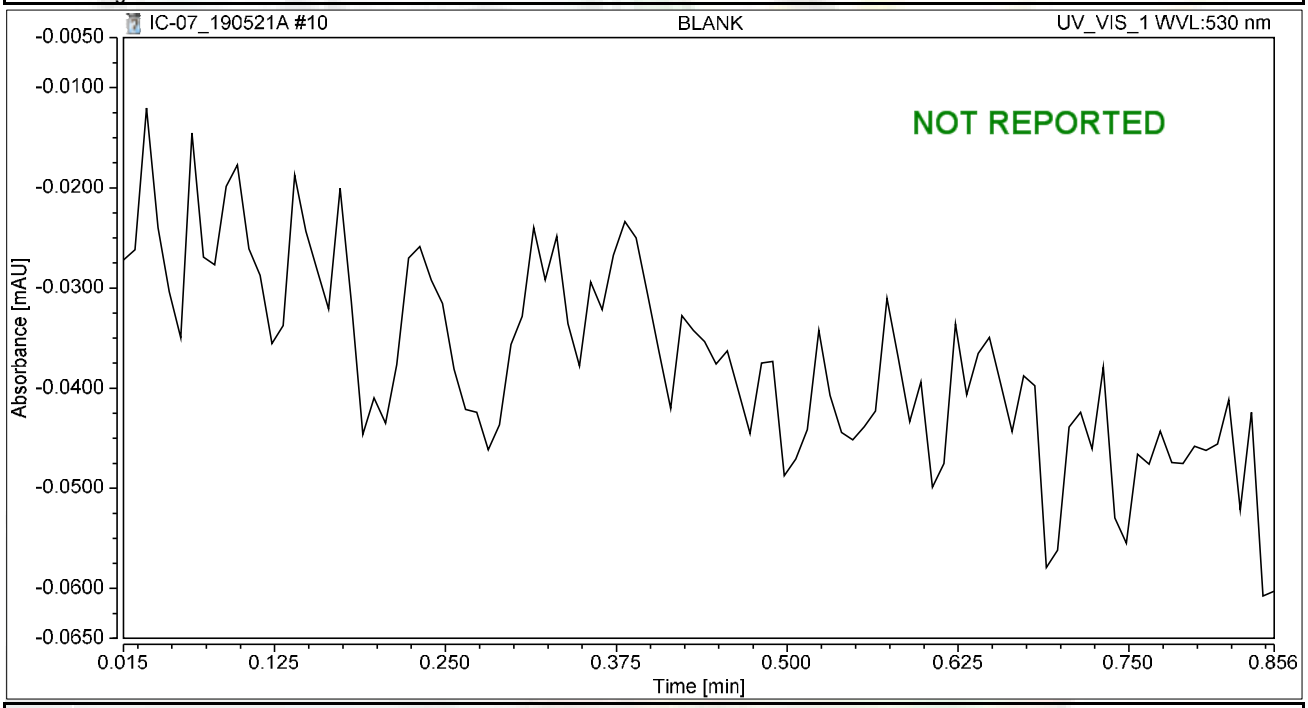
61	CCV-5,CCV,1,	11	1000	Unknown		05/21/2019 17:26	Finished	CCV @5ppb, IWST-190423A
62	CCB-5,CCB,1,	12	1000	Unknown		05/21/2019 17:36	Finished	CCB R190508A
63	N035705-015A,SAMP	13	1000	Unknown		05/21/2019 17:45	Finished	SAMP, 10mL
64	N035705-015AMS,MS	14	1000	Unknown		05/21/2019 17:54	Finished	MS (5ppb), IWST-190423B,10
65	CCV-6,CCV1,1,	15	1000	Unknown		05/21/2019 18:04	Finished	CCV @10ppb, IWST-190423A
66	CCB-6,CCB,1,	16	1000	Unknown		05/21/2019 18:13	Finished	CCB R190508A
67	BLANK	17	1000	Unknown		05/21/2019 18:23	Finished	BLANK
68	SHUTDOWN	18	1000	Unknown		05/21/2019 18:32	Finished	
69	Eluent: R190520A	19	1000	Unknown		n.a.	Finished	Eluent
70	PCR: R190520B	20	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**0.84**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 08:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

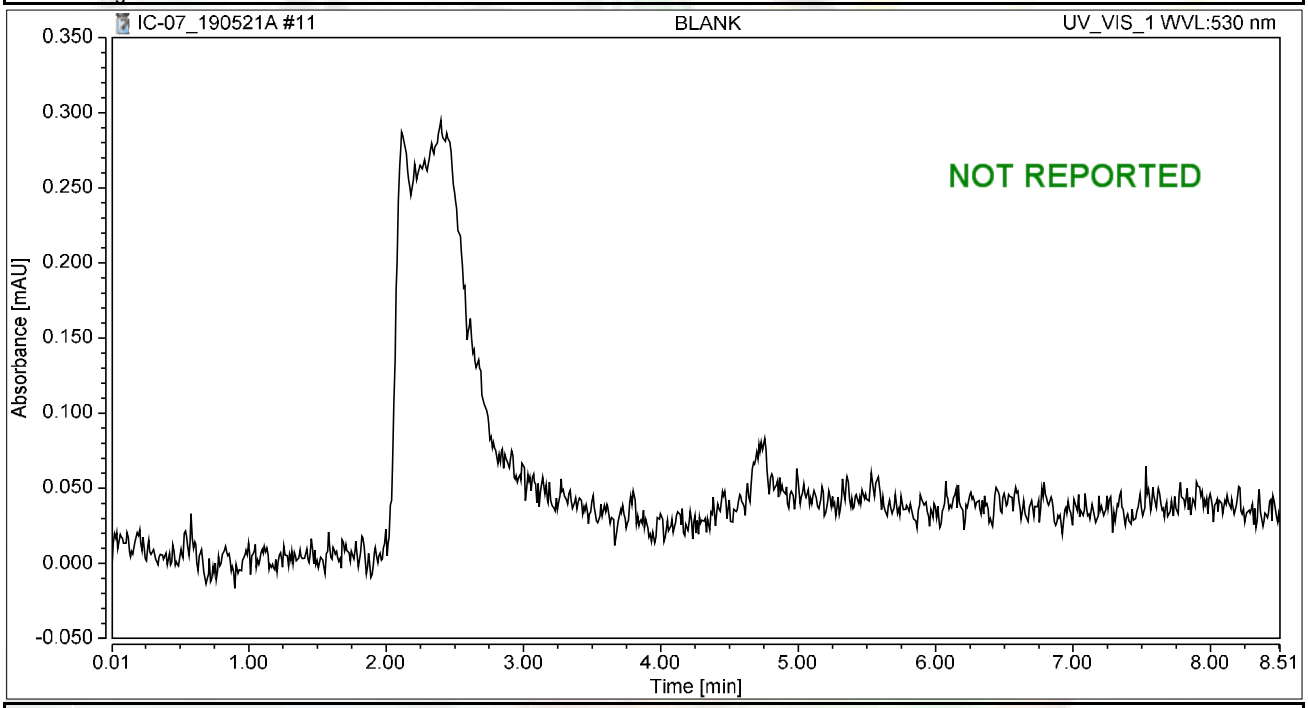
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 08:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

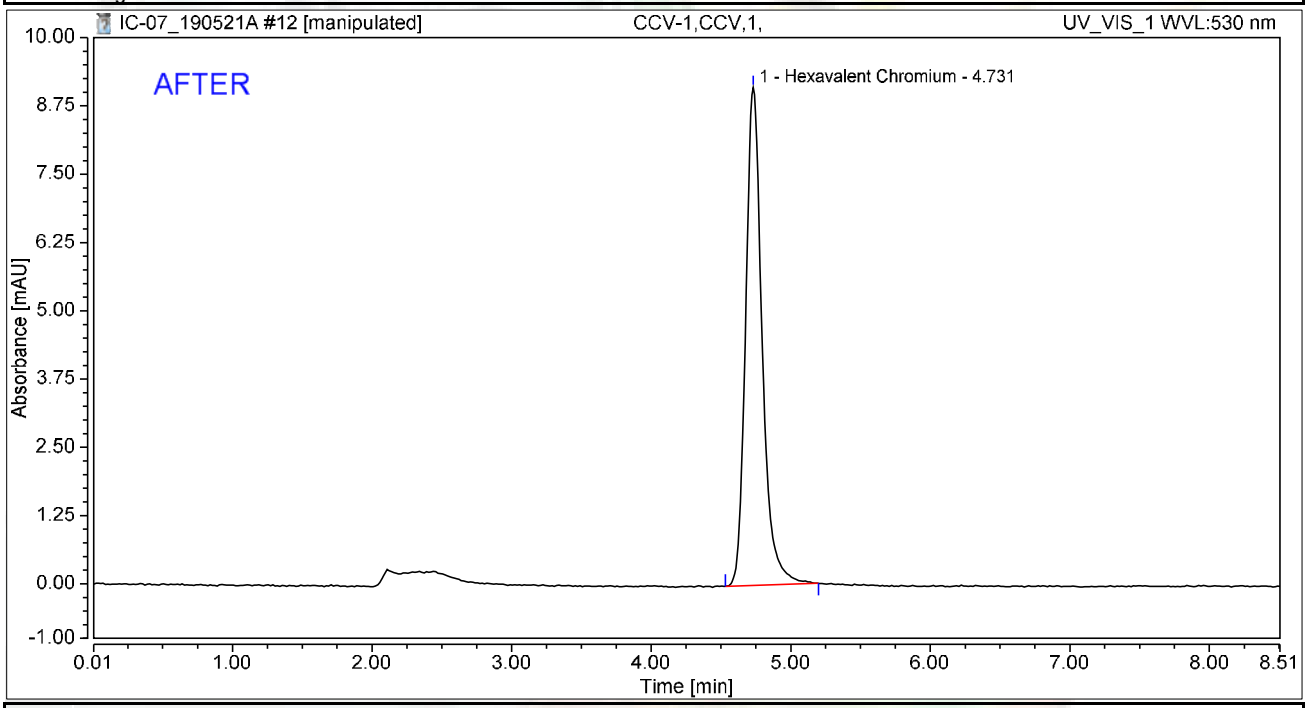
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 09:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.252	9.115	100.00	100.00	4.9646
Total:			**1.252**	**9.115**	**100.00**	**100.00**	

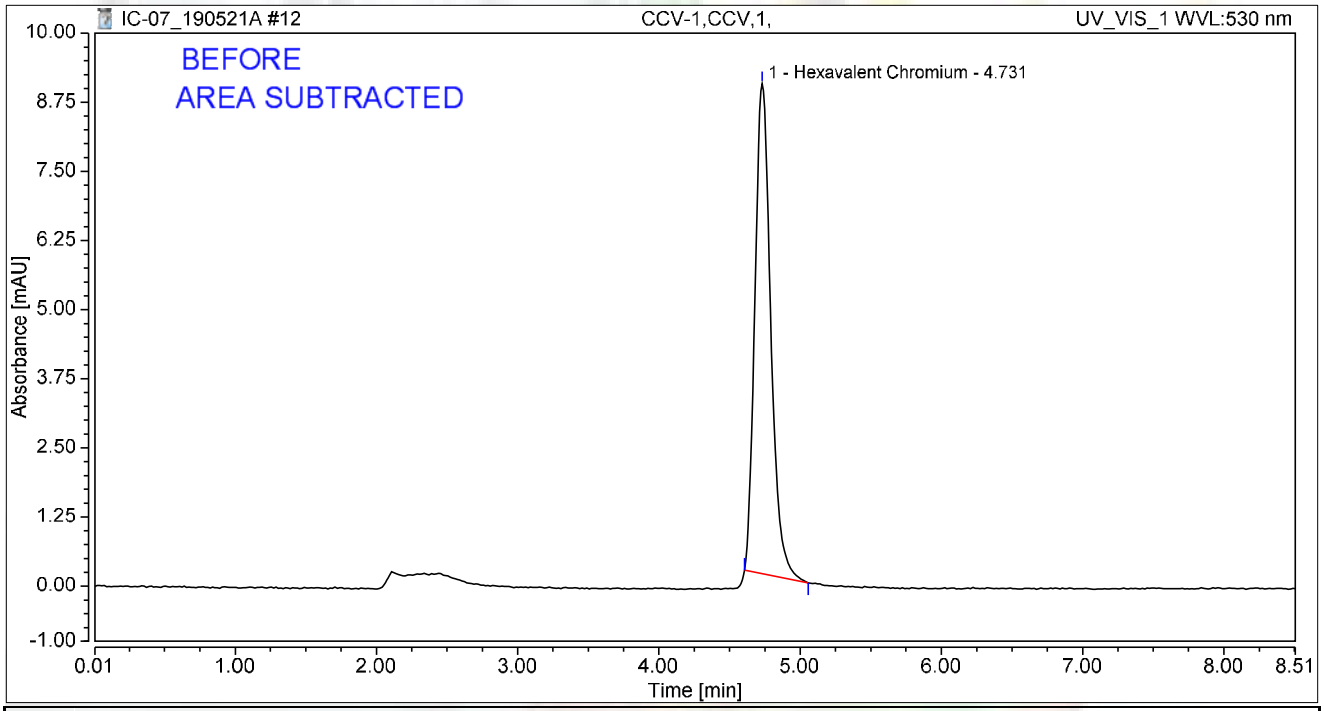
rba 5/27/2019

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 09:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.153	8.860	100.00	100.00	4.5747
Total:			**1.153**	**8.860**	**100.00**	**100.00**	

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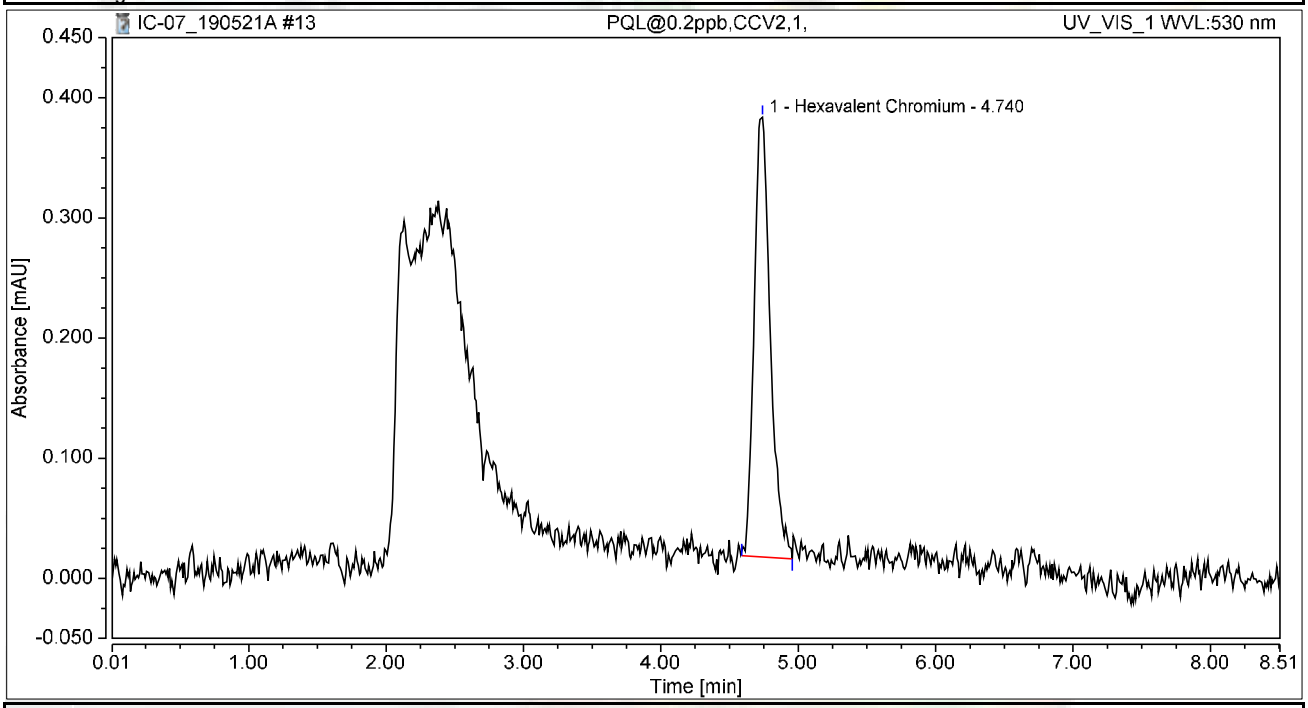
Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 09:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

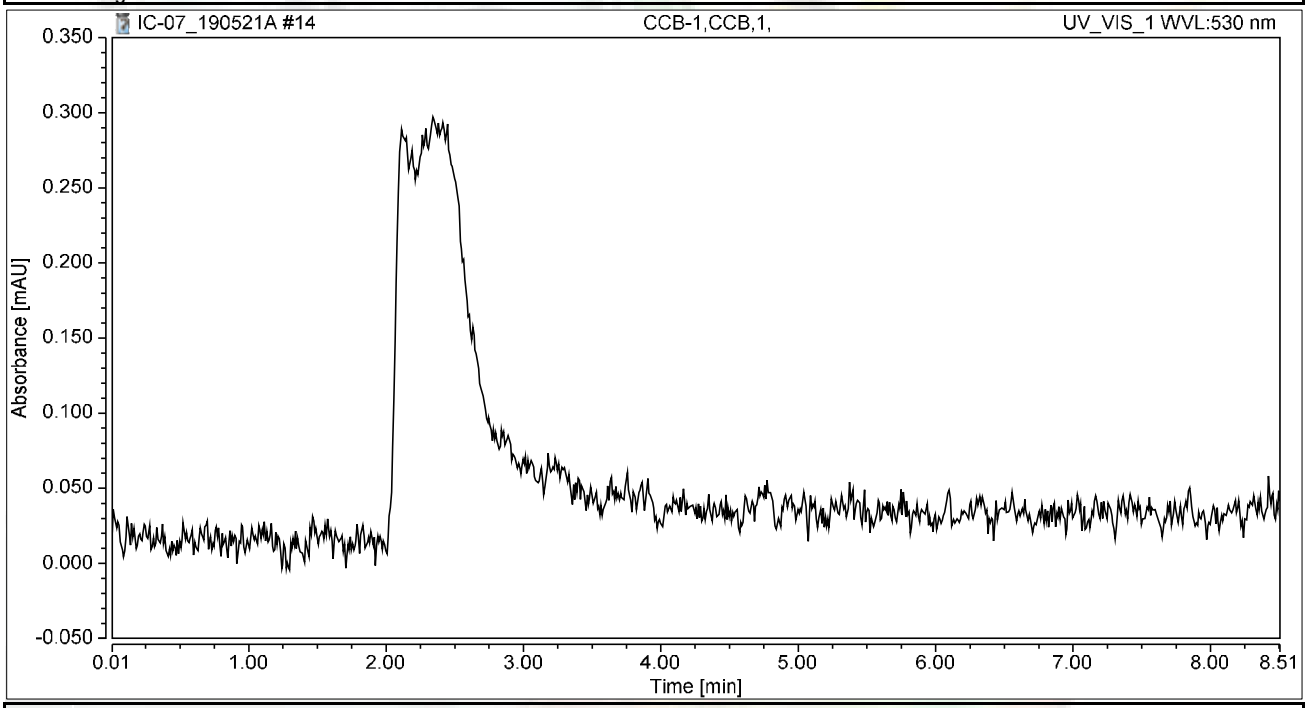
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.050	0.366	100.00	100.00	0.1987
Total:			**0.050**	**0.366**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 09:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

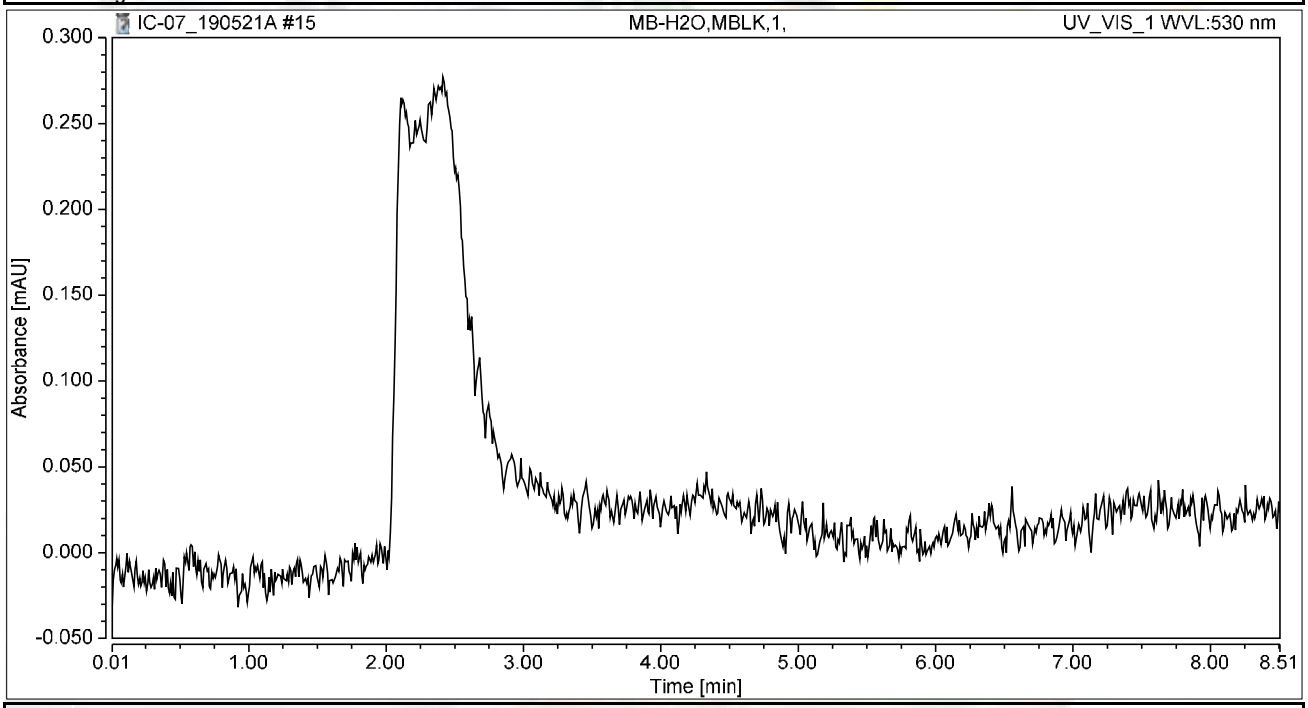
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 09:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

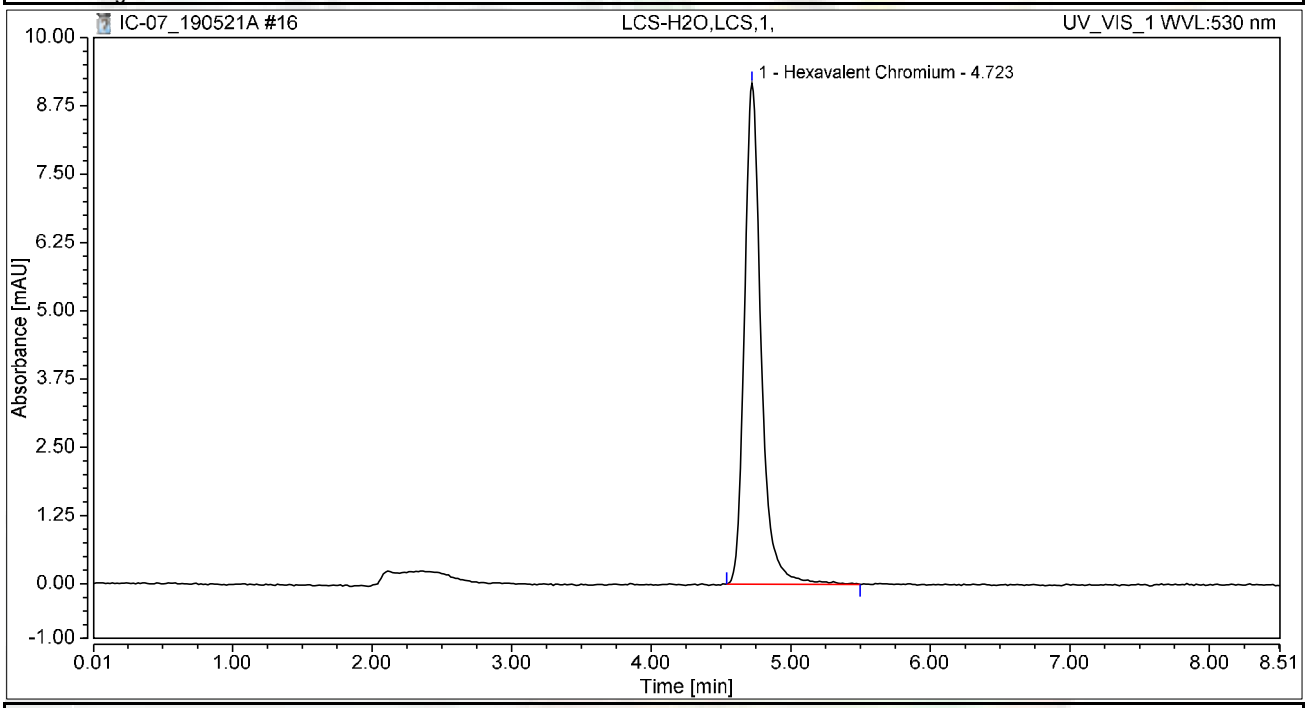
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 09:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

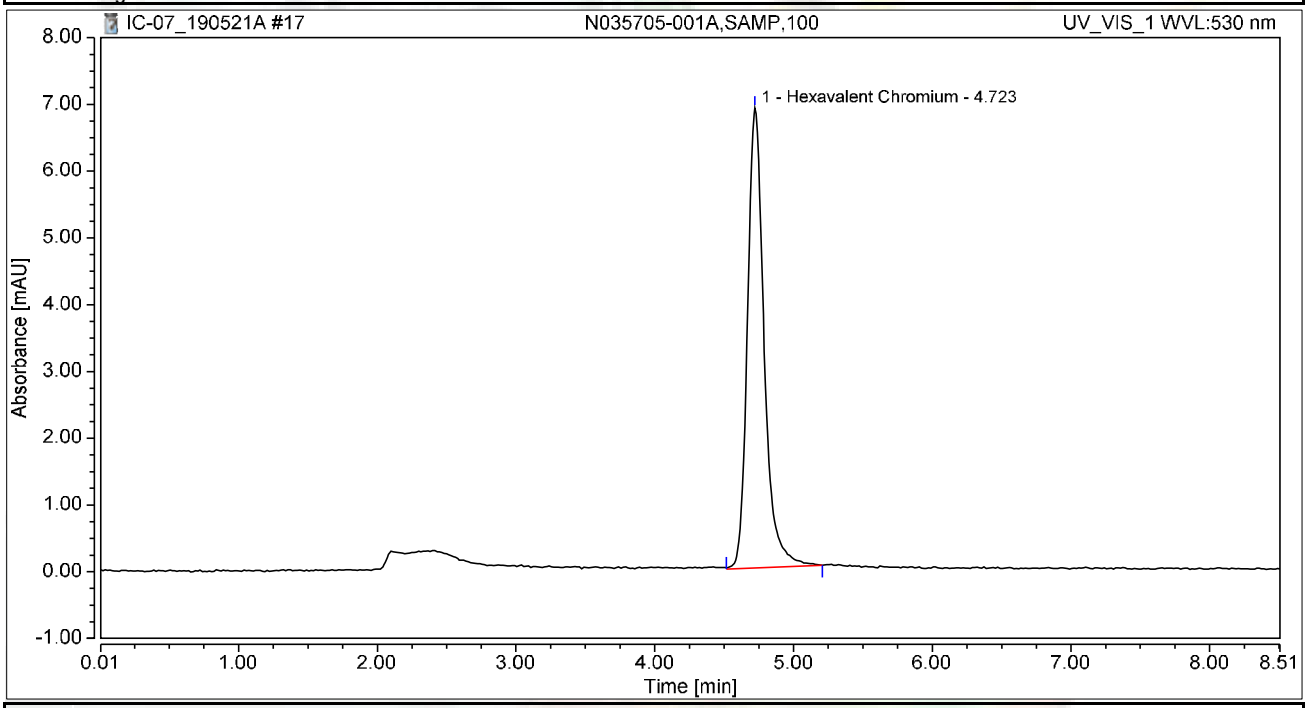
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.276	9.168	100.00	100.00	5.0616
Total:			**1.276**	**9.168**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-001A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 10:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

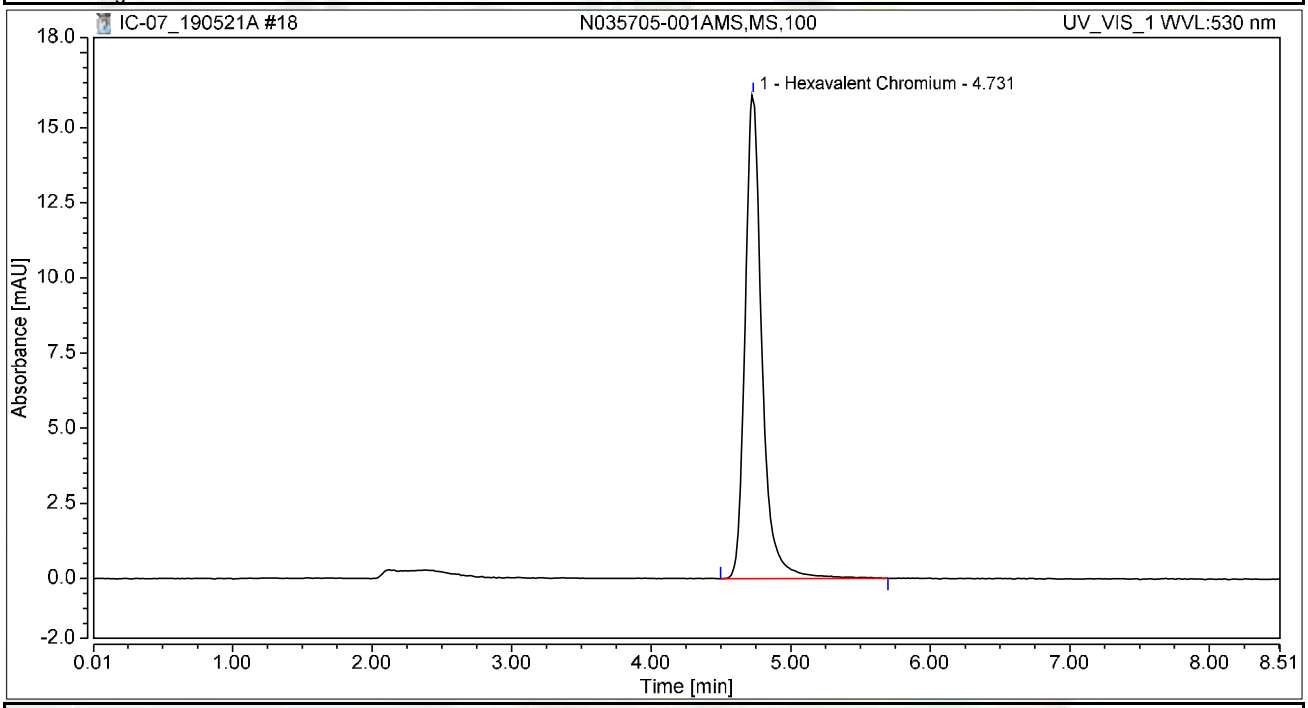
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.958	6.886	100.00	100.00	3.7990
Total:			**0.958**	**6.886**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-001AMS,MS,100**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 10:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

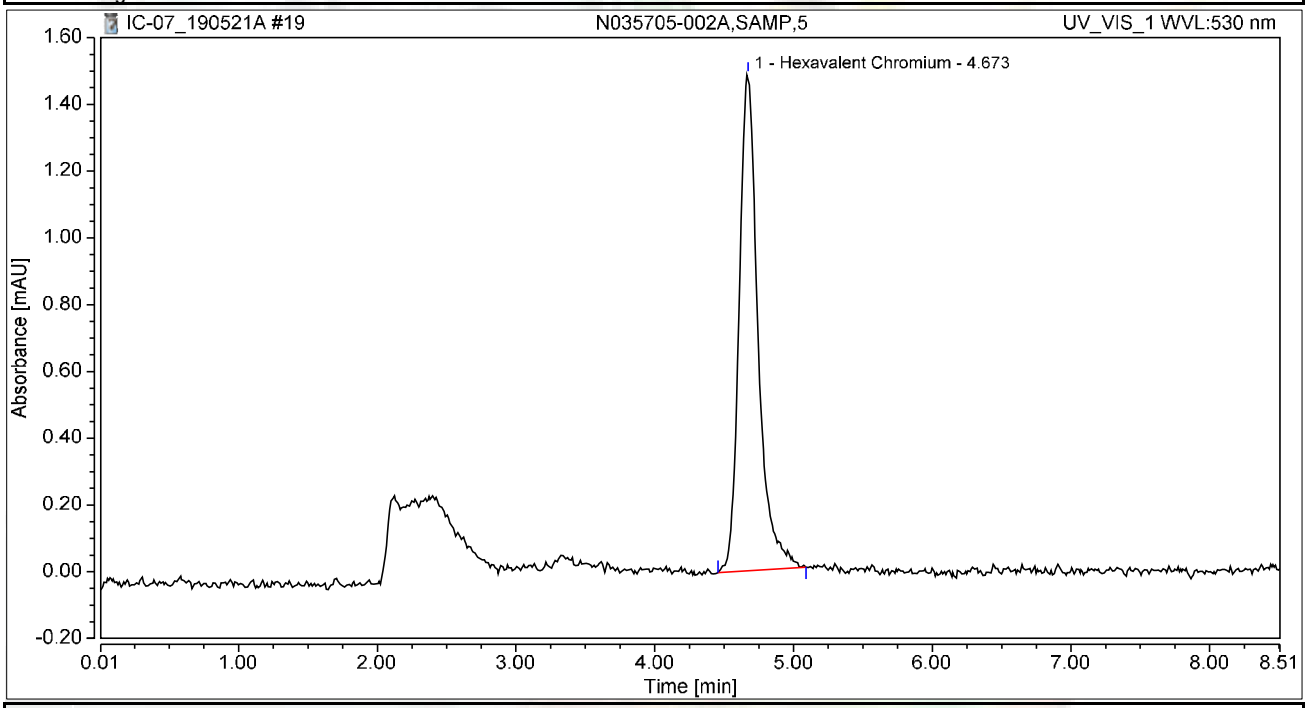
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.265	16.113	100.00	100.00	8.9818
Total:			**2.265**	**16.113**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 10:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

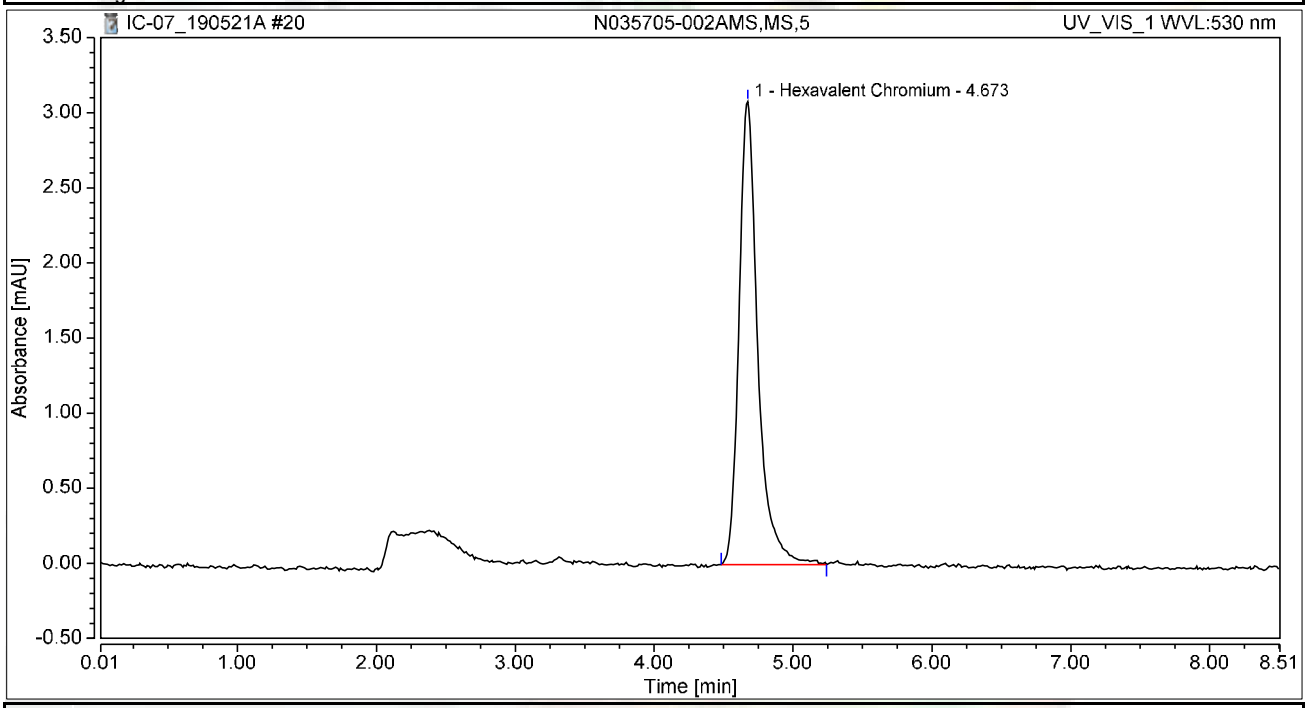
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.234	1.487	100.00	100.00	0.9299
Total:			**0.234**	**1.487**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-002AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

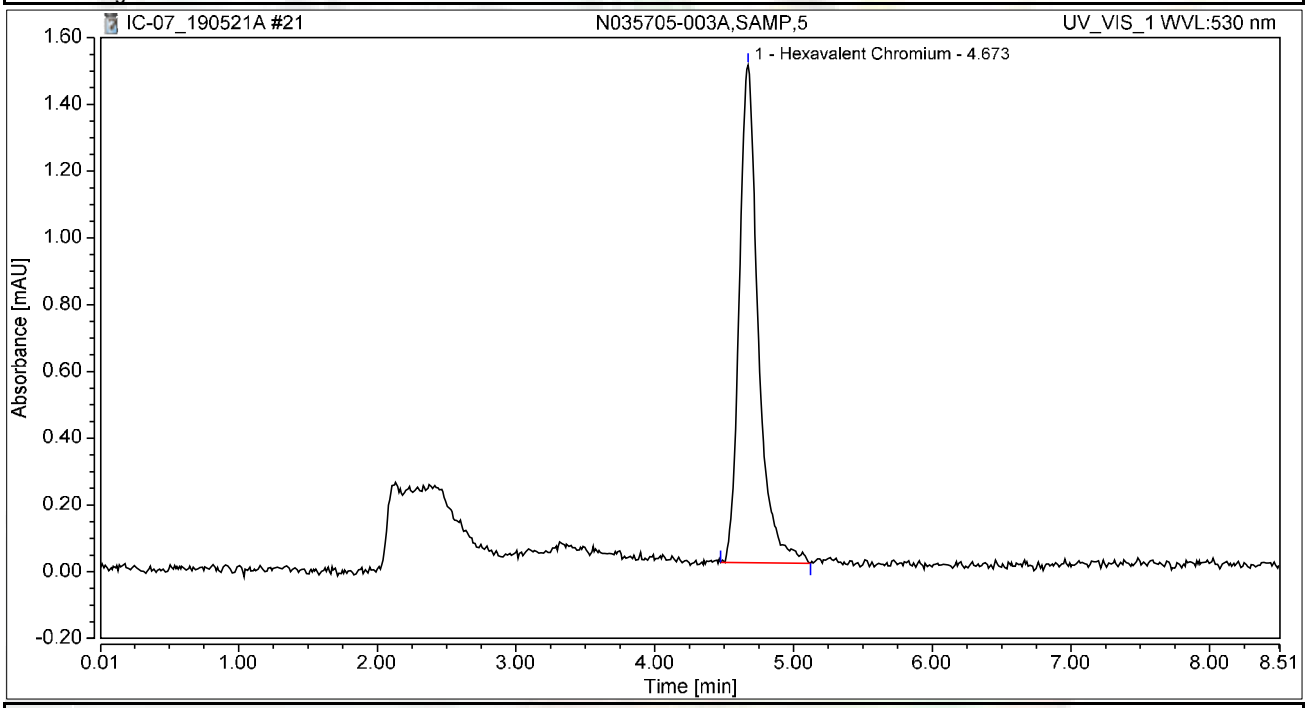
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.485	3.081	100.00	100.00	1.9236
Total:			**0.485**	**3.081**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 10:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

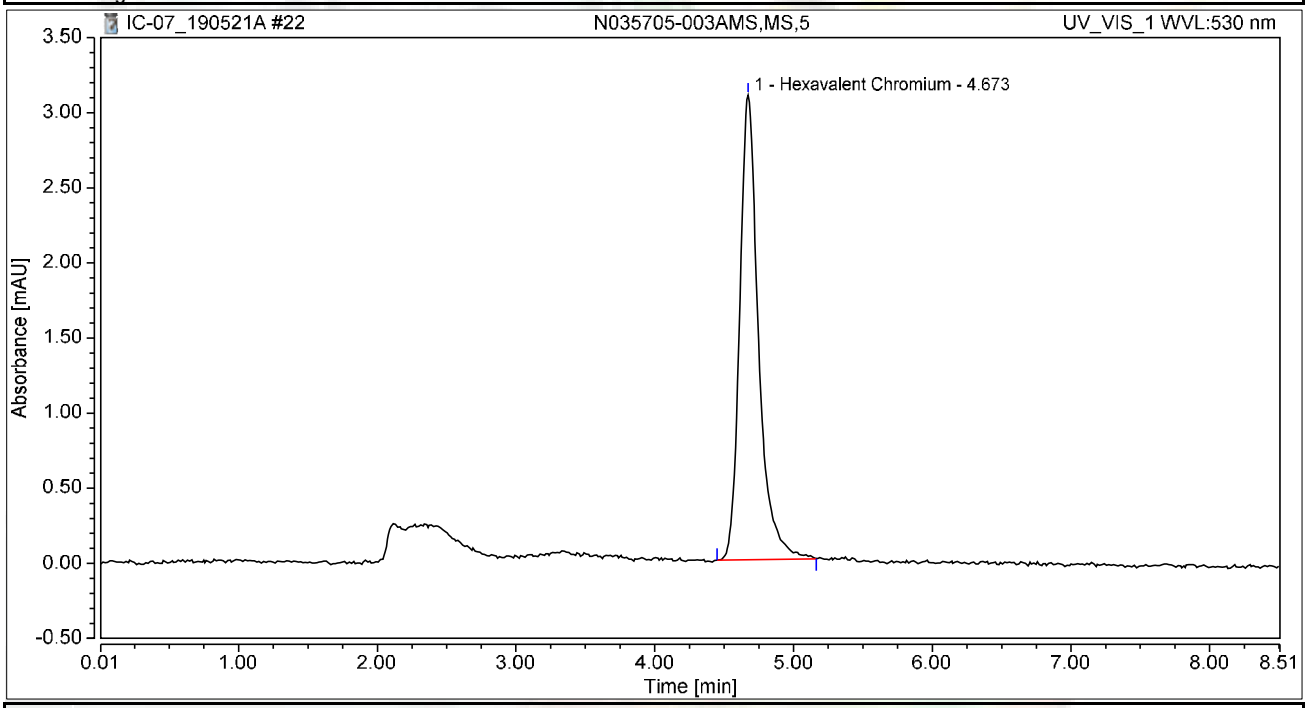
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.236	1.491	100.00	100.00	0.9367
Total:			**0.236**	**1.491**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-003AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

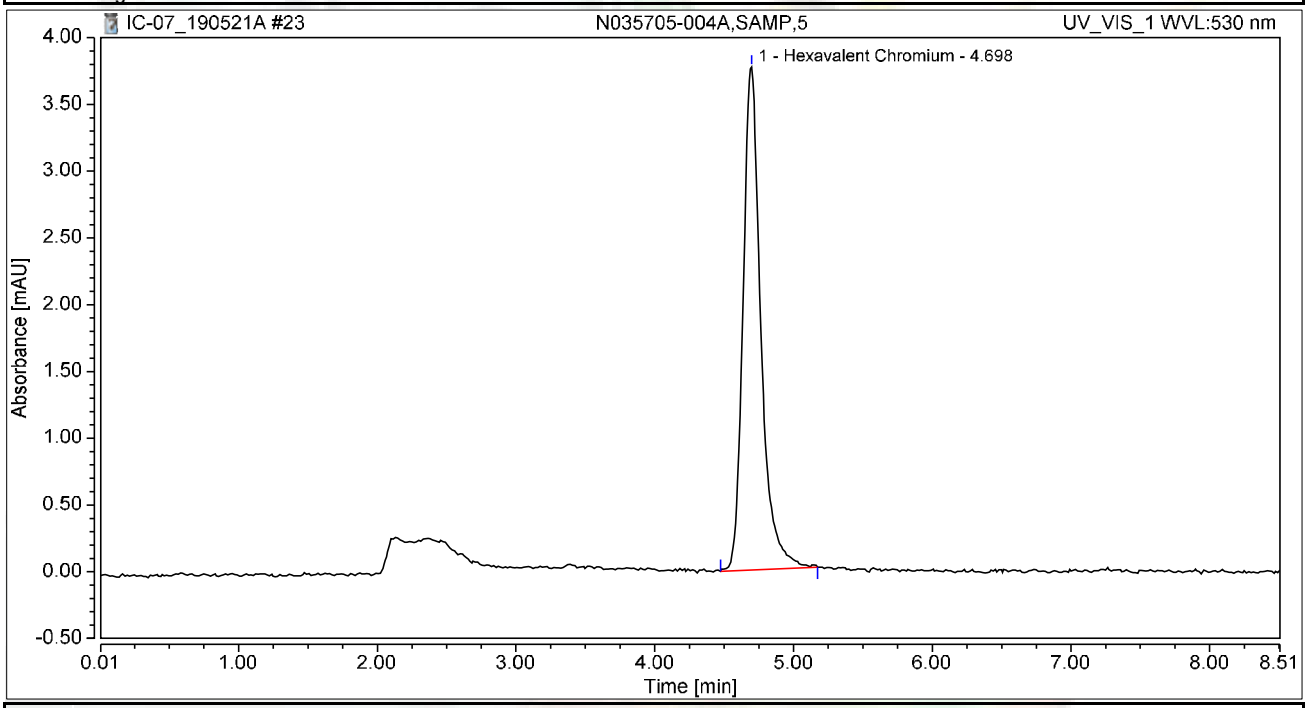
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.485	3.092	100.00	100.00	1.9255
Total:			**0.485**	**3.092**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-004A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 11:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

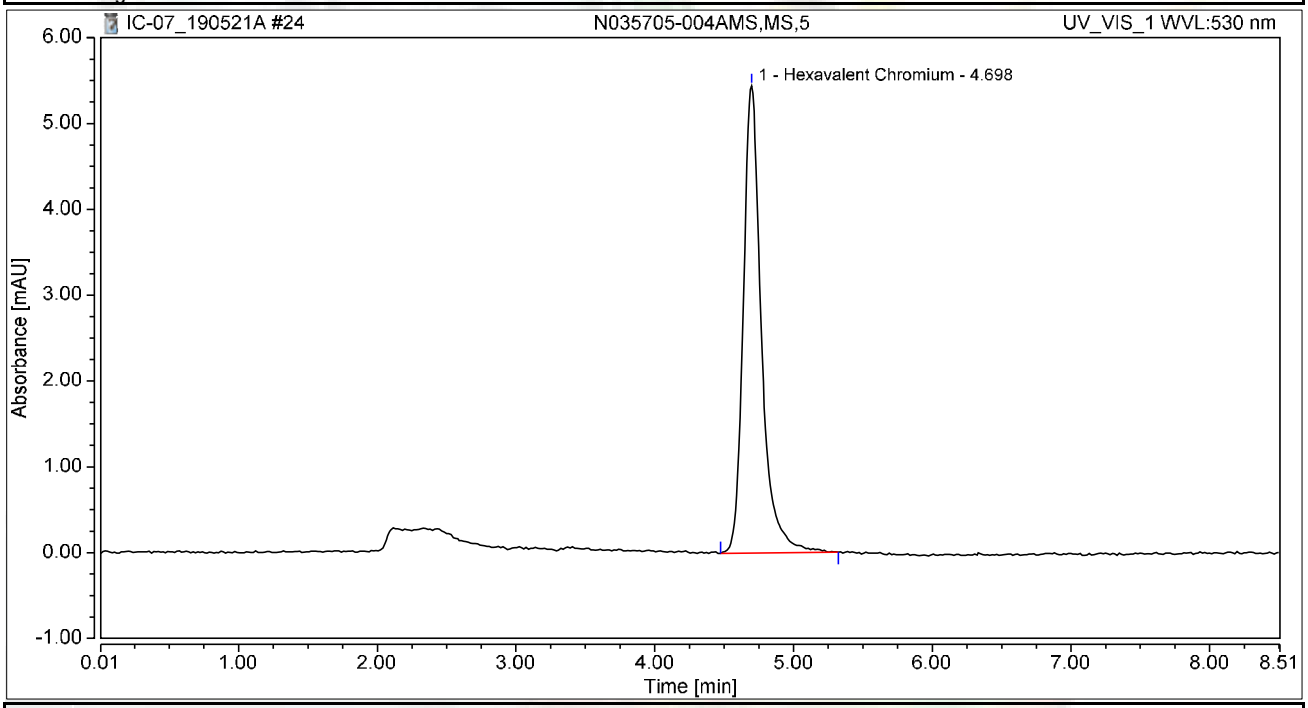
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.561	3.766	100.00	100.00	2.2241
Total:			**0.561**	**3.766**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-004AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 11:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

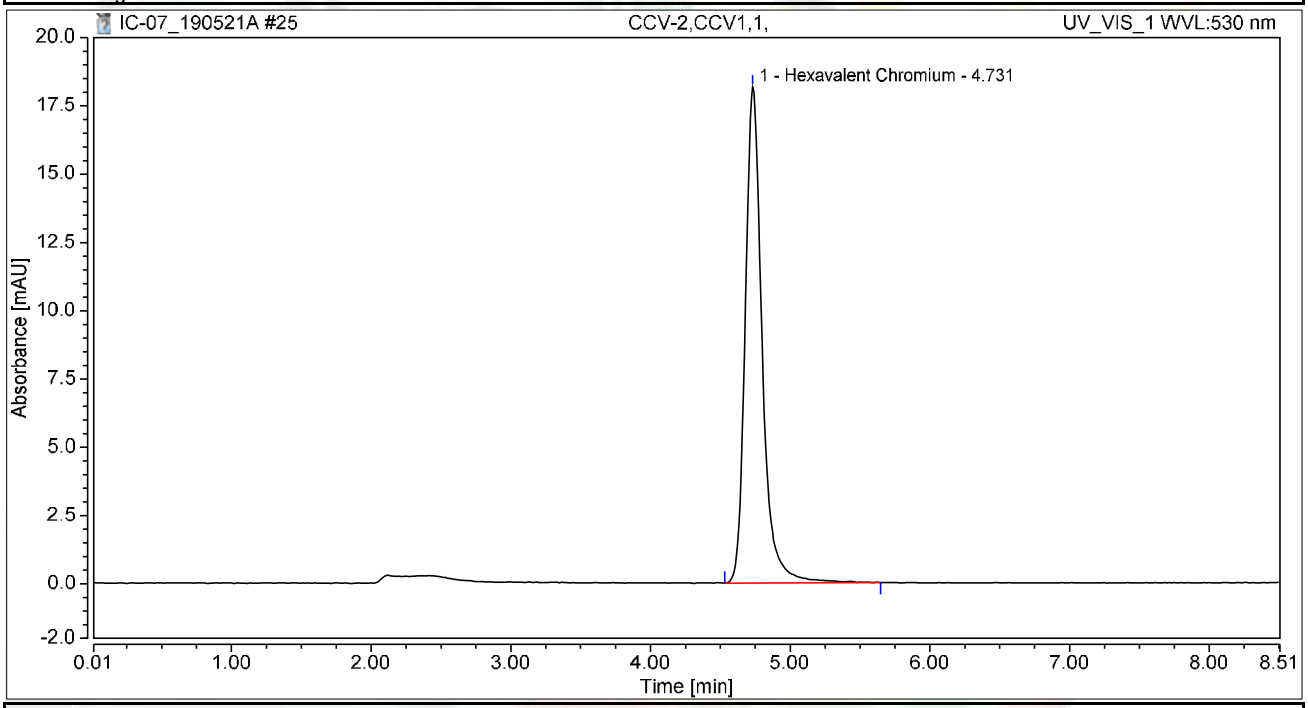
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.825	5.445	100.00	100.00	3.2717
Total:			**0.825**	**5.445**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 11:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

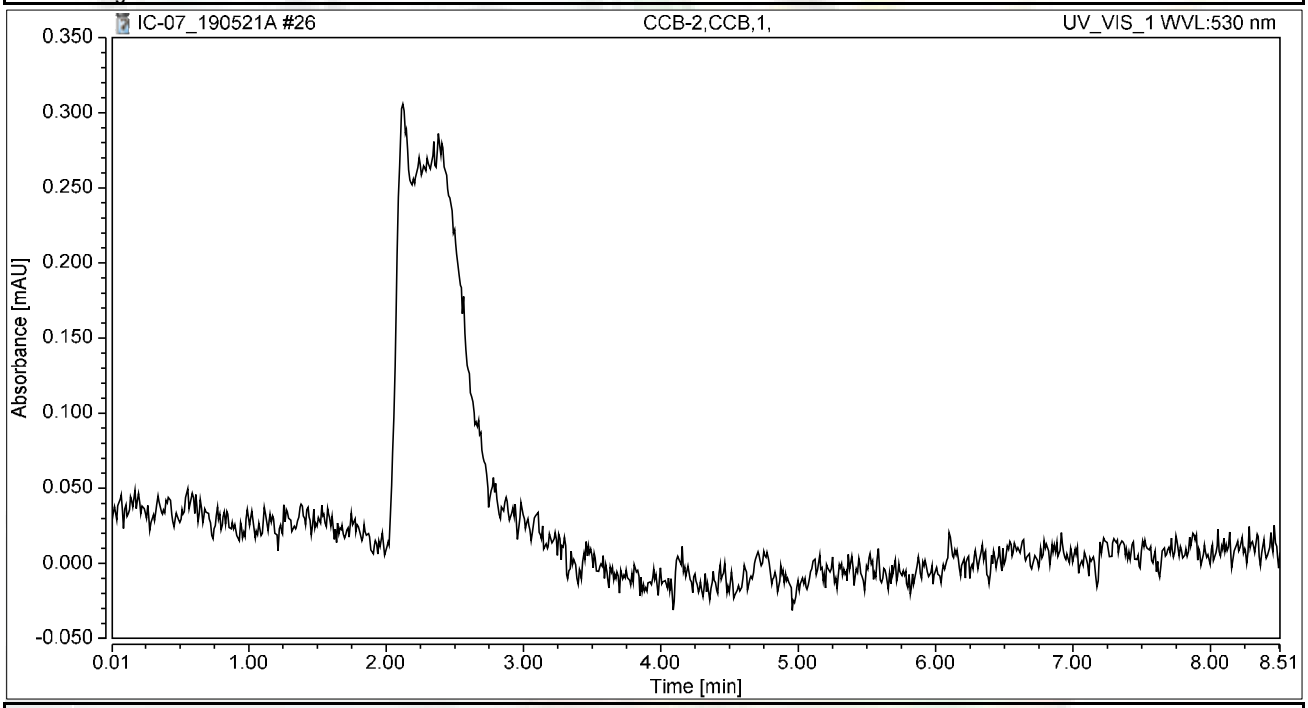
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.547	18.165	100.00	100.00	10.1039
Total:			**2.547**	**18.165**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 11:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

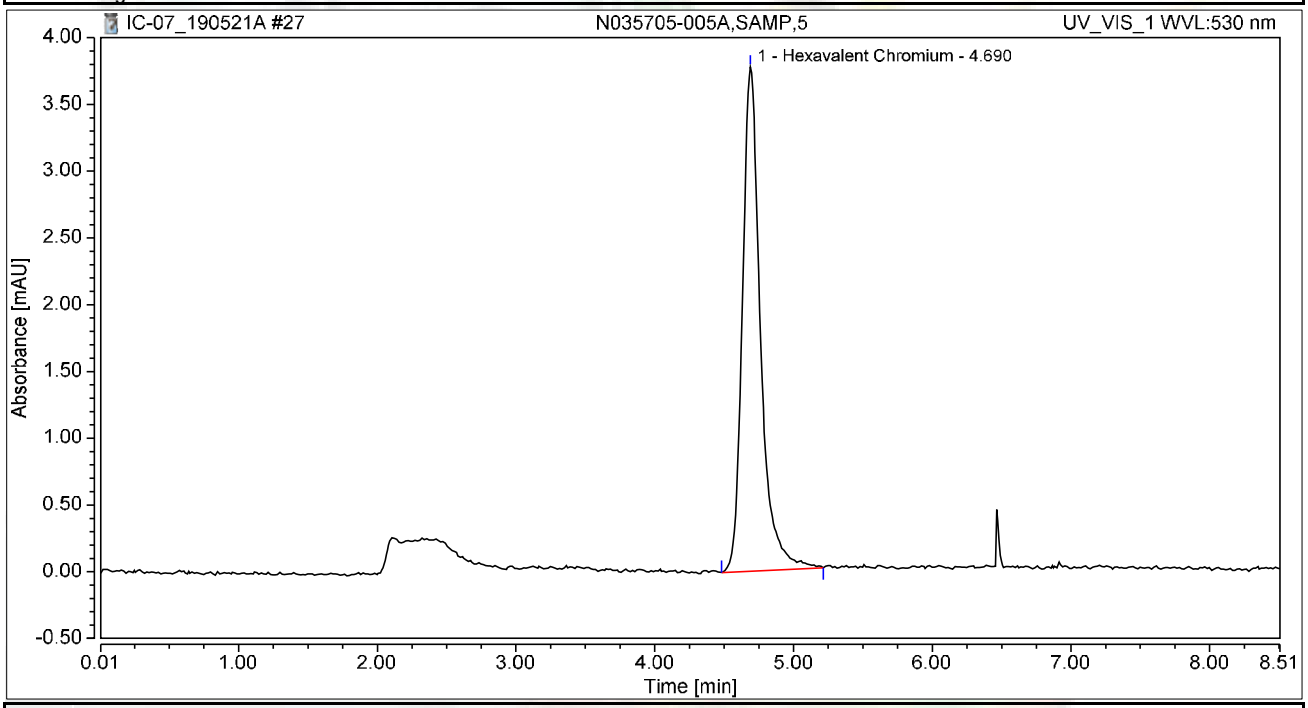
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-005A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 11:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

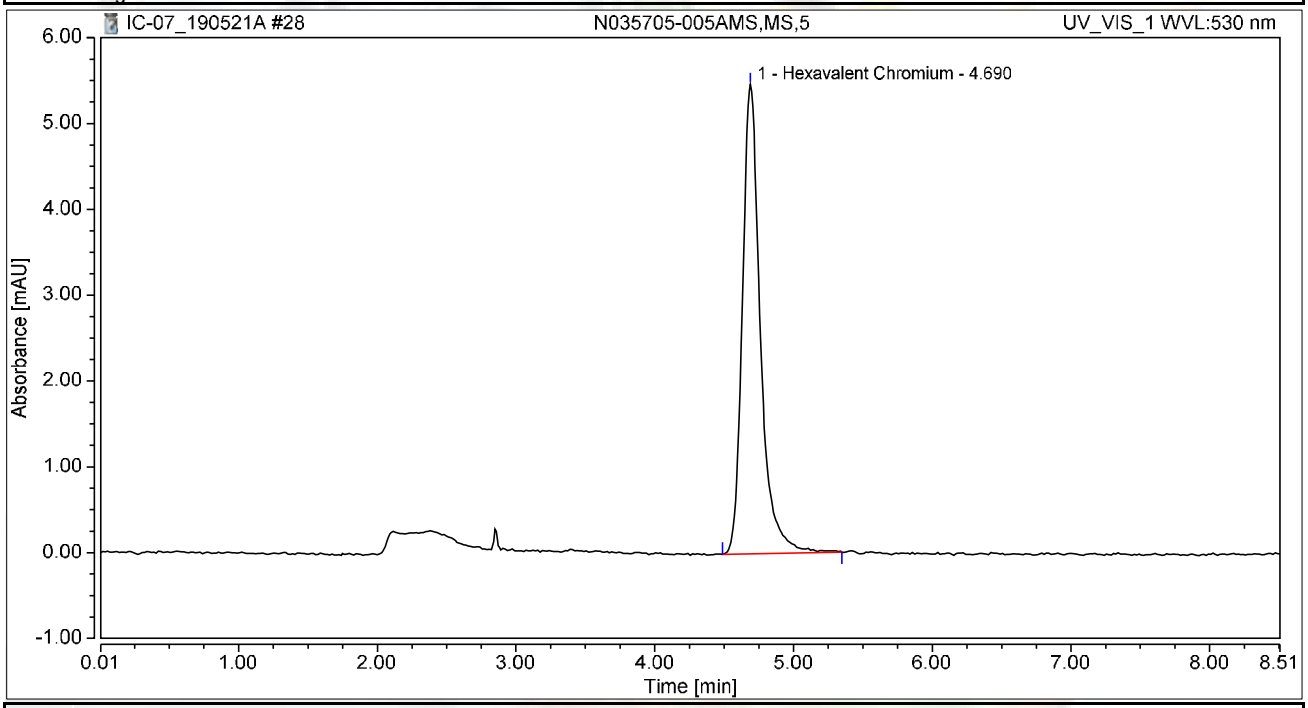
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.569	3.775	100.00	100.00	2.2551
Total:			**0.569**	**3.775**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-005AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 12:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

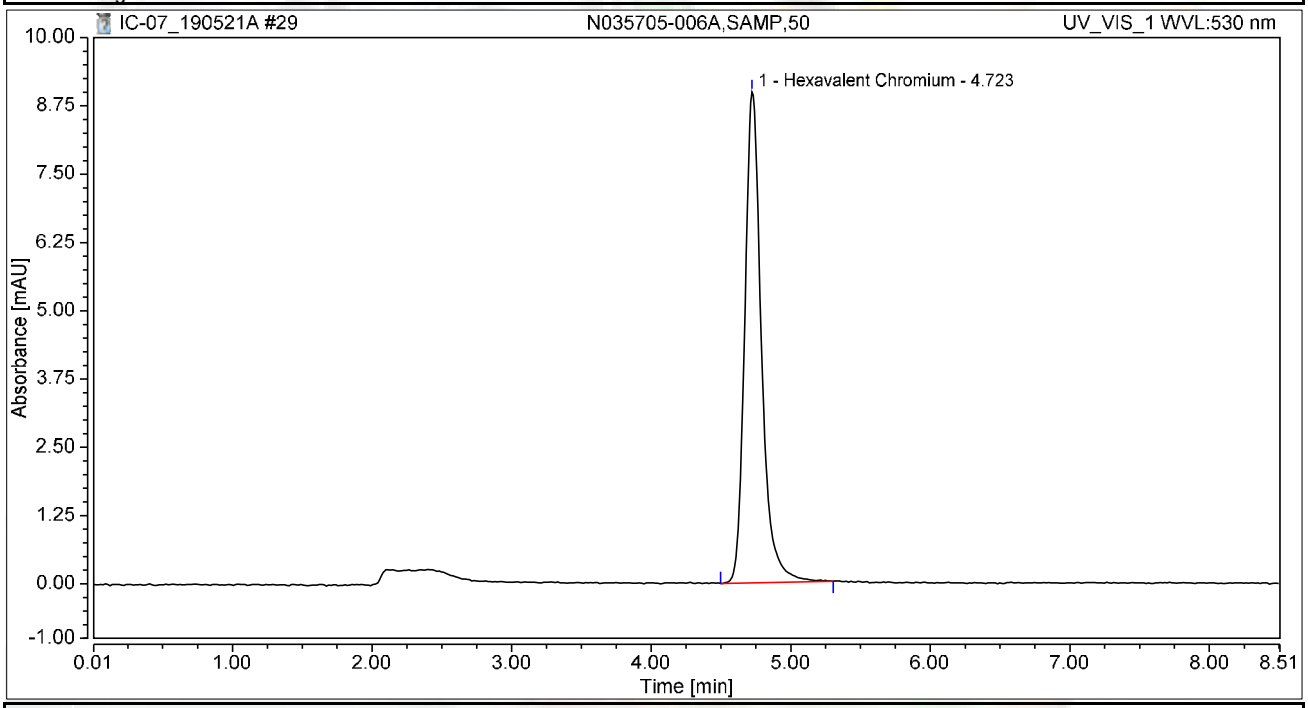
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.820	5.466	100.00	100.00	3.2536
Total:			**0.820**	**5.466**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-006A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 12:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

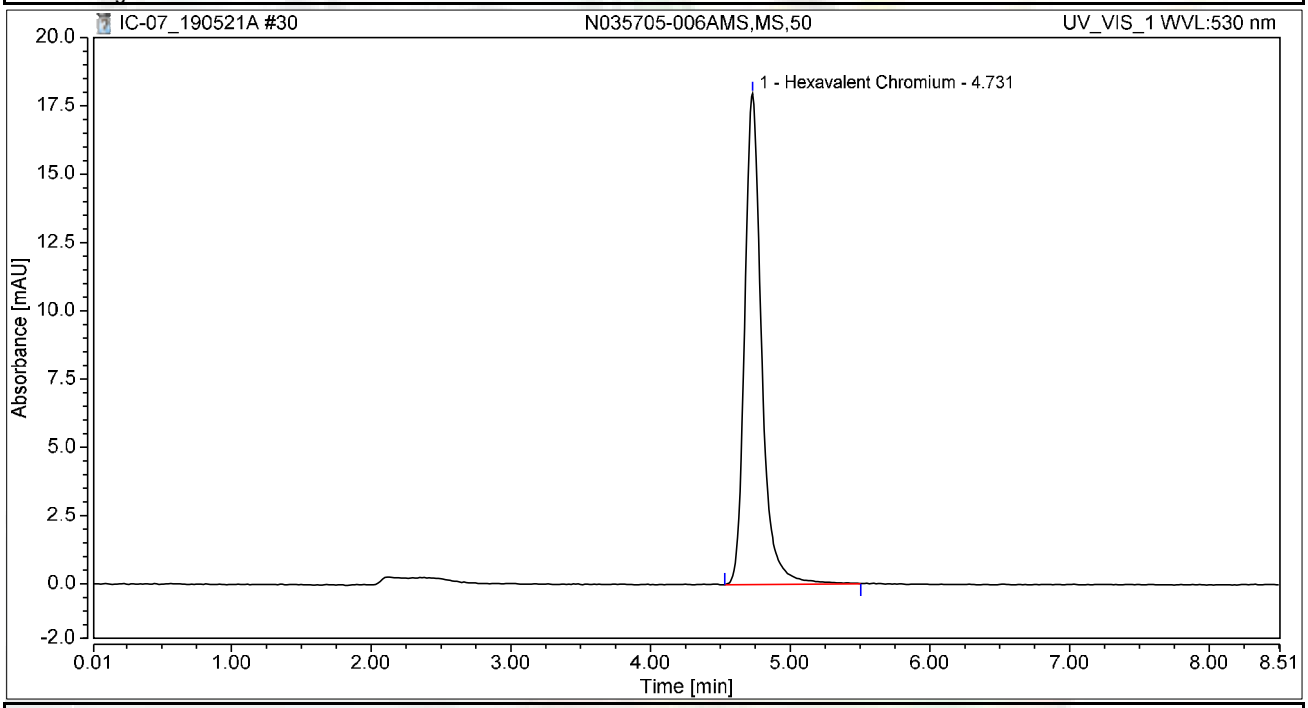
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.249	8.995	100.00	100.00	4.9527
Total:			**1.249**	**8.995**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-006AMS,MS,50**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 12:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

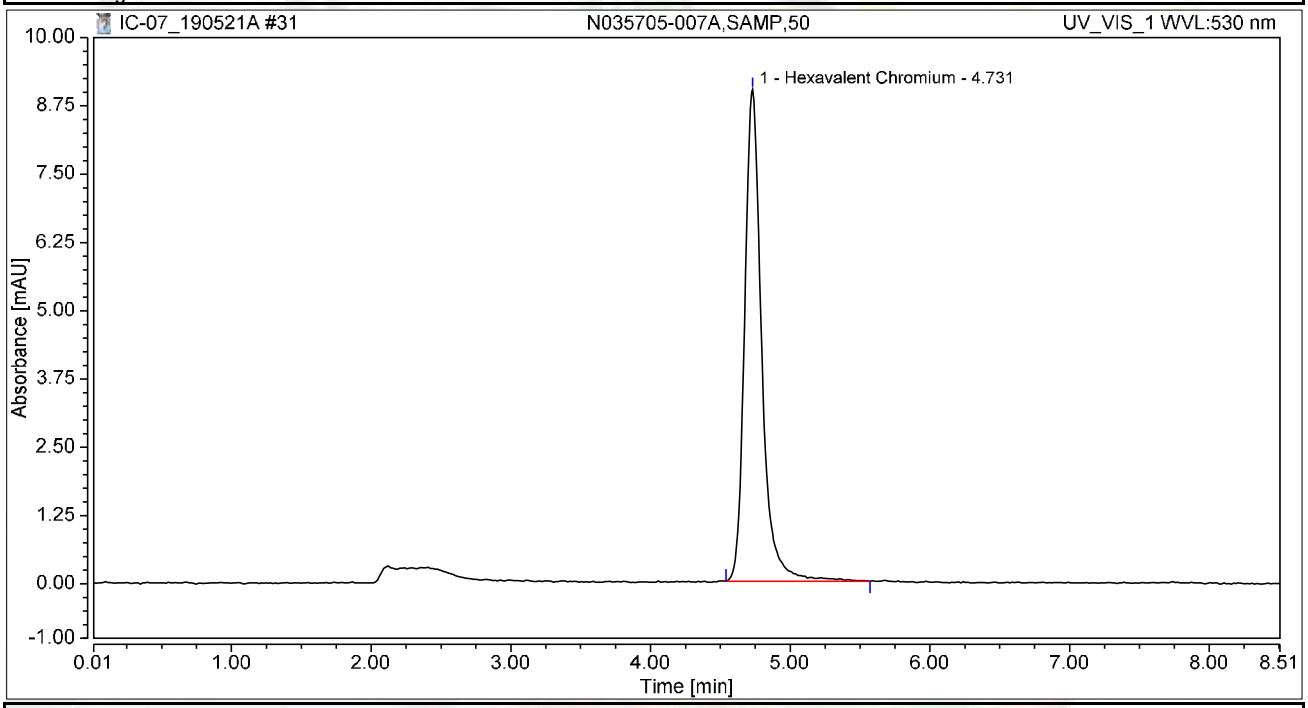
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.526	17.976	100.00	100.00	10.0181
Total:			**2.526**	**17.976**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-007A,SAMP,50**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 12:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

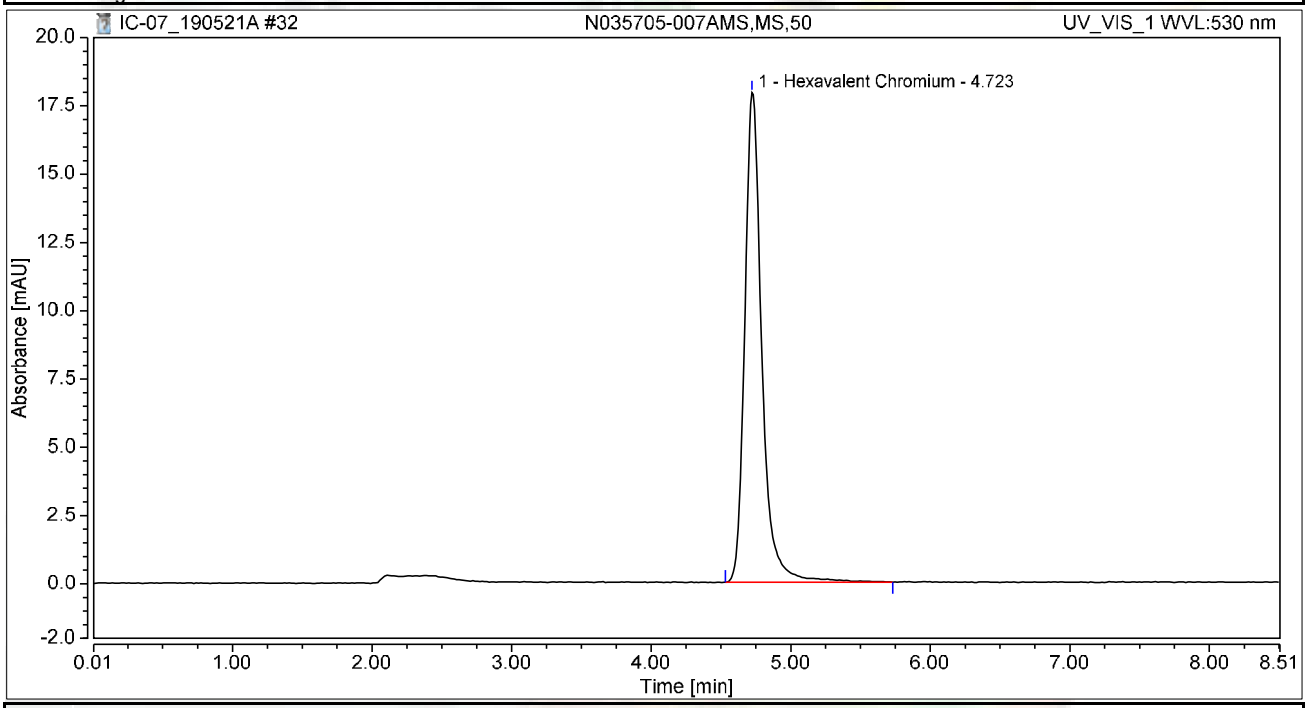
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.271	9.005	100.00	100.00	5.0416
Total:			**1.271**	**9.005**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-007AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 12:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

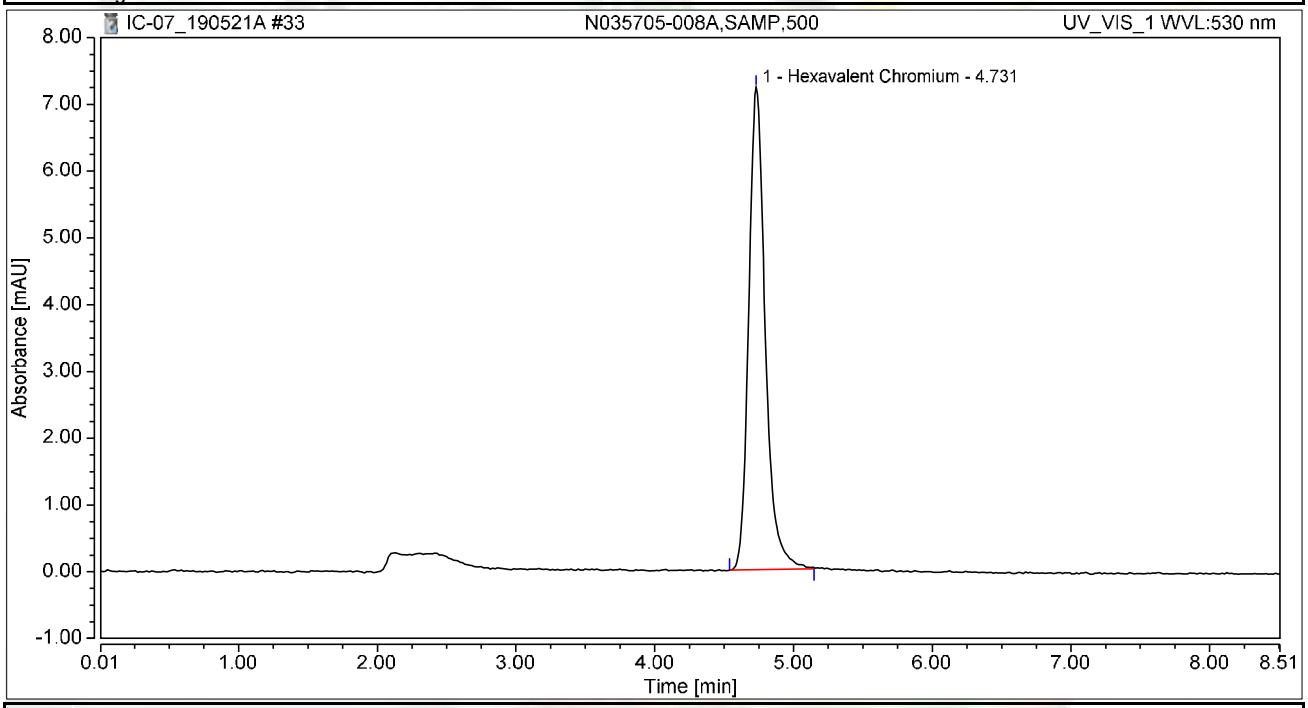
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.540	17.925	100.00	100.00	10.0737
Total:			**2.540**	**17.925**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-008A,SAMP,500**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 12:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

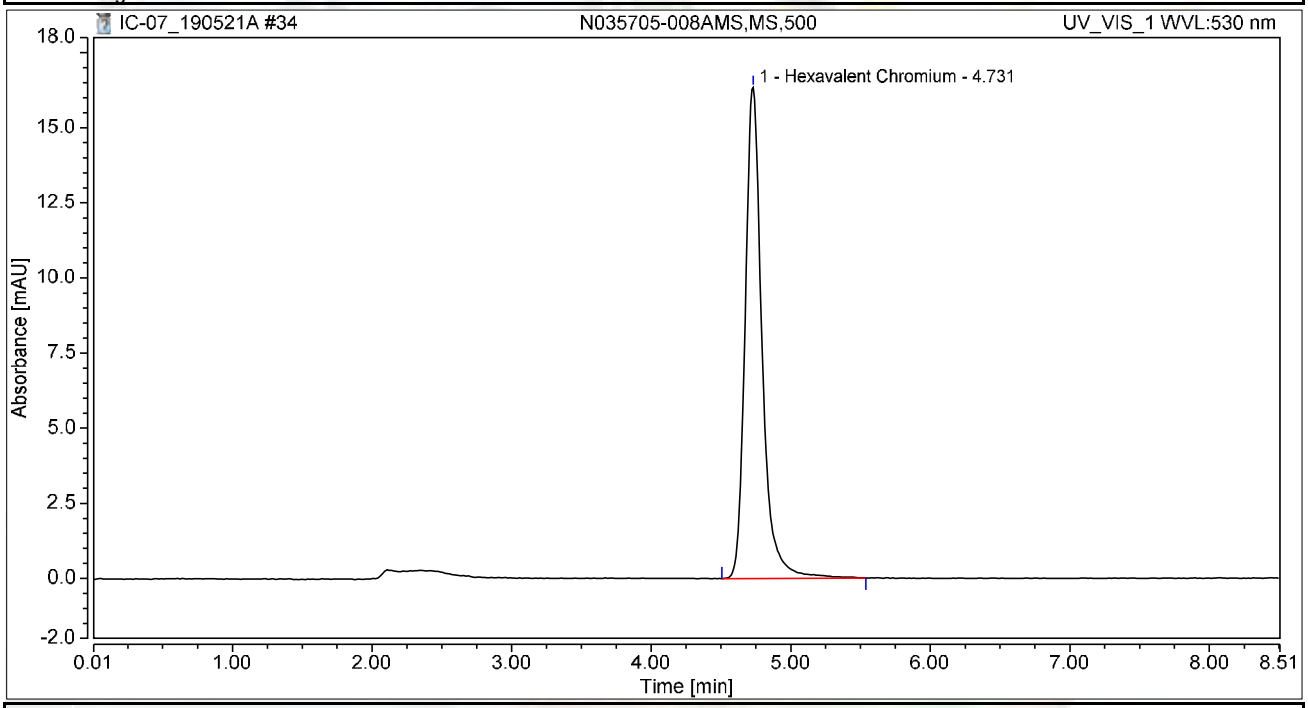
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.999	7.226	100.00	100.00	3.9606
Total:			**0.999**	**7.226**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-008AMS,MS,500**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 13:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

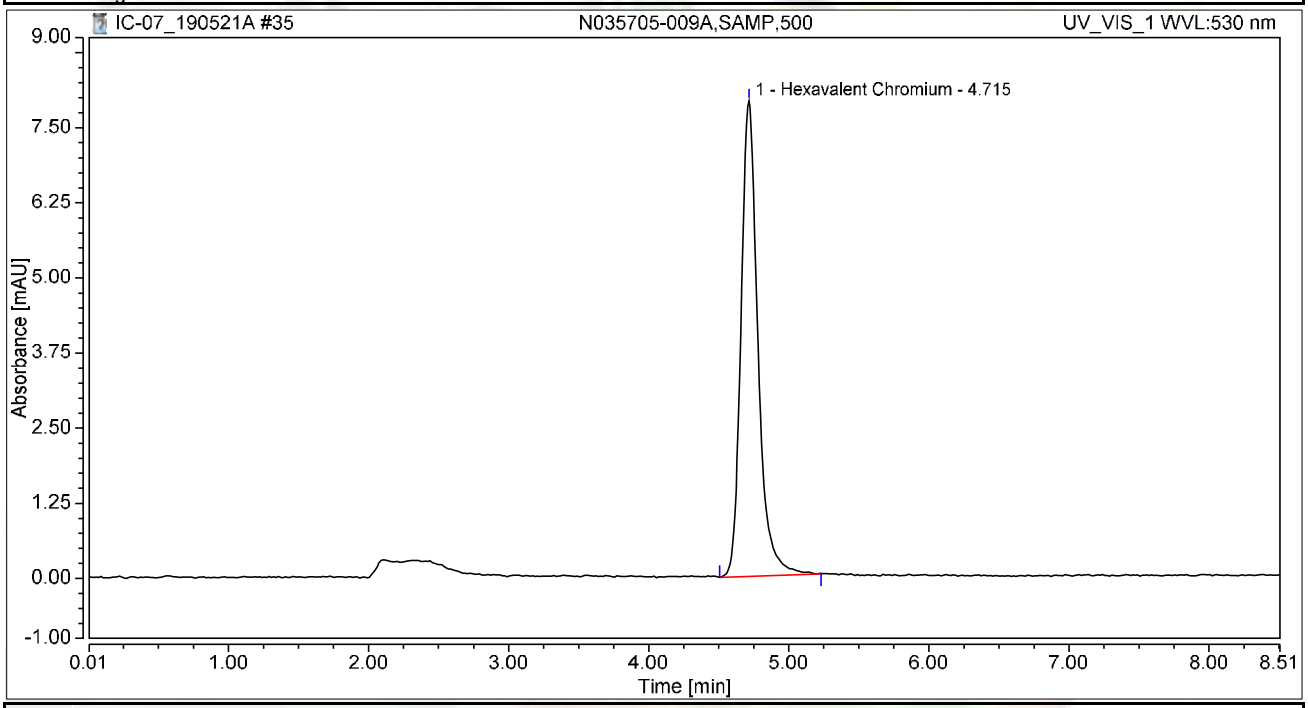
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.297	16.337	100.00	100.00	9.1098
Total:			**2.297**	**16.337**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-009A,SAMP,500**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 13:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

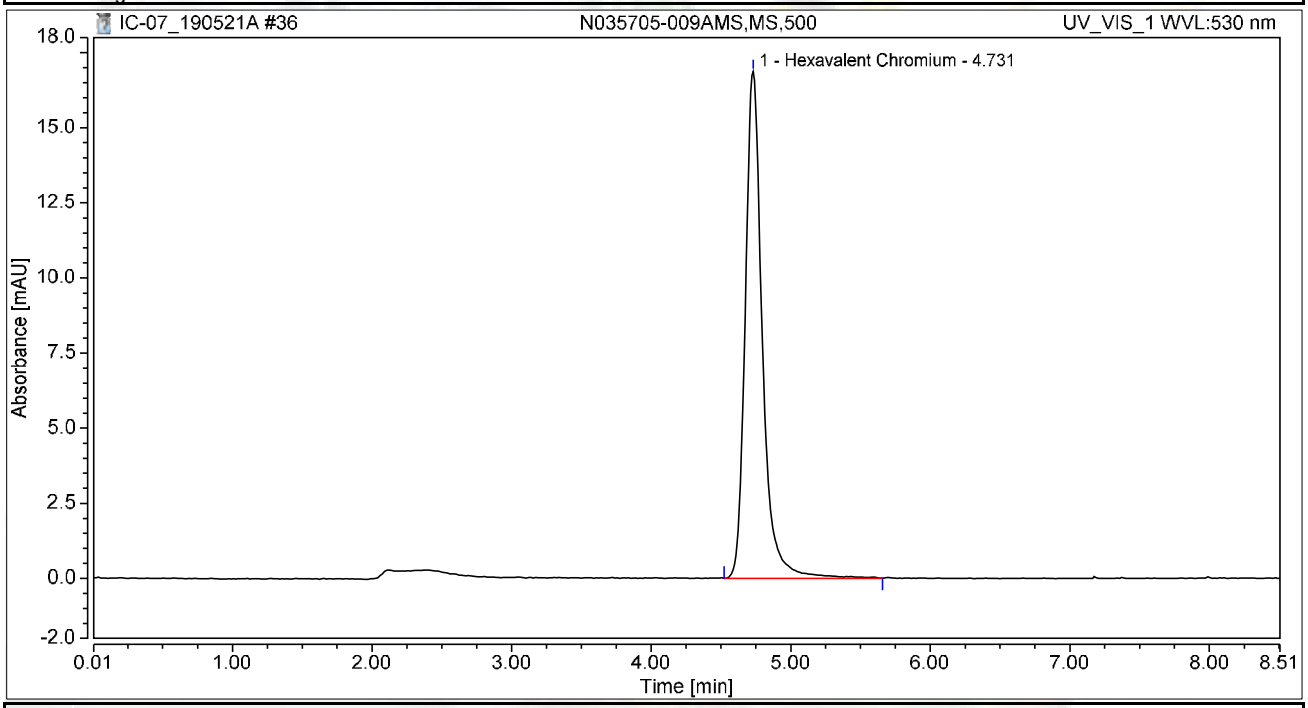
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.110	7.917	100.00	100.00	4.4022
Total:			**1.110**	**7.917**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-009AMS,MS,500**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 13:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

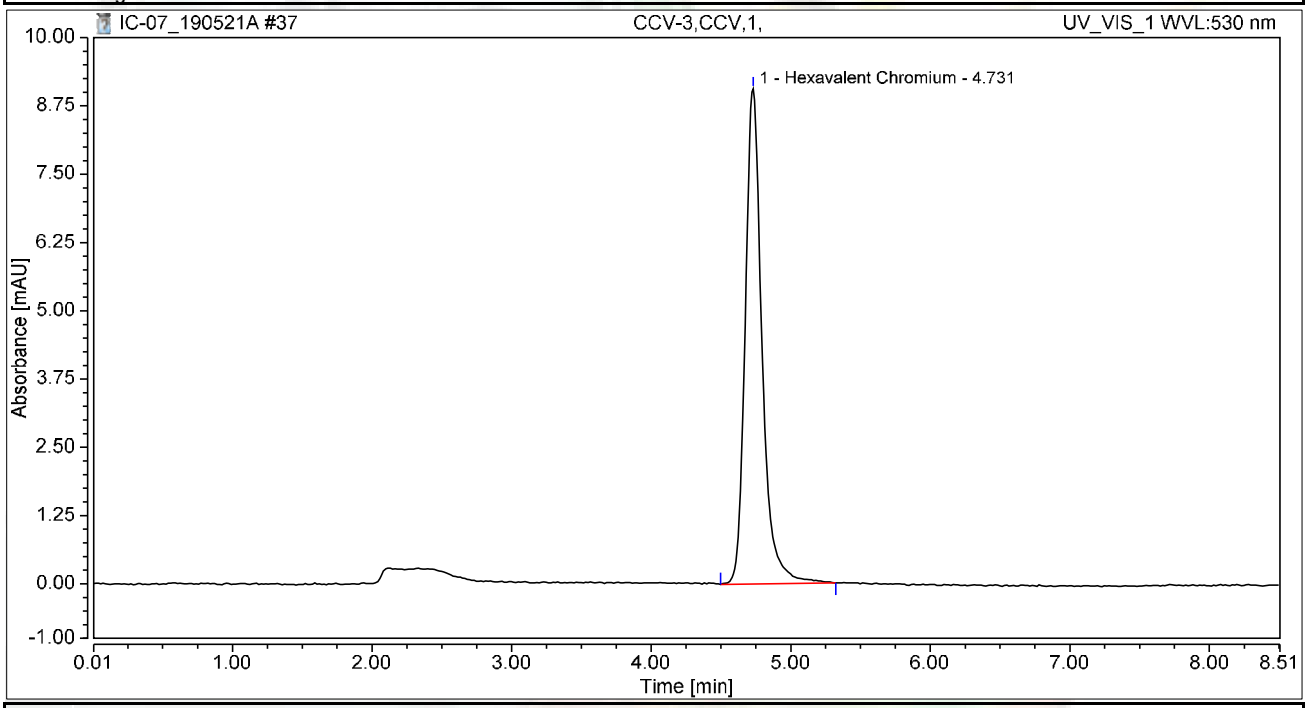
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.393	16.867	100.00	100.00	9.4914
Total:			**2.393**	**16.867**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 13:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

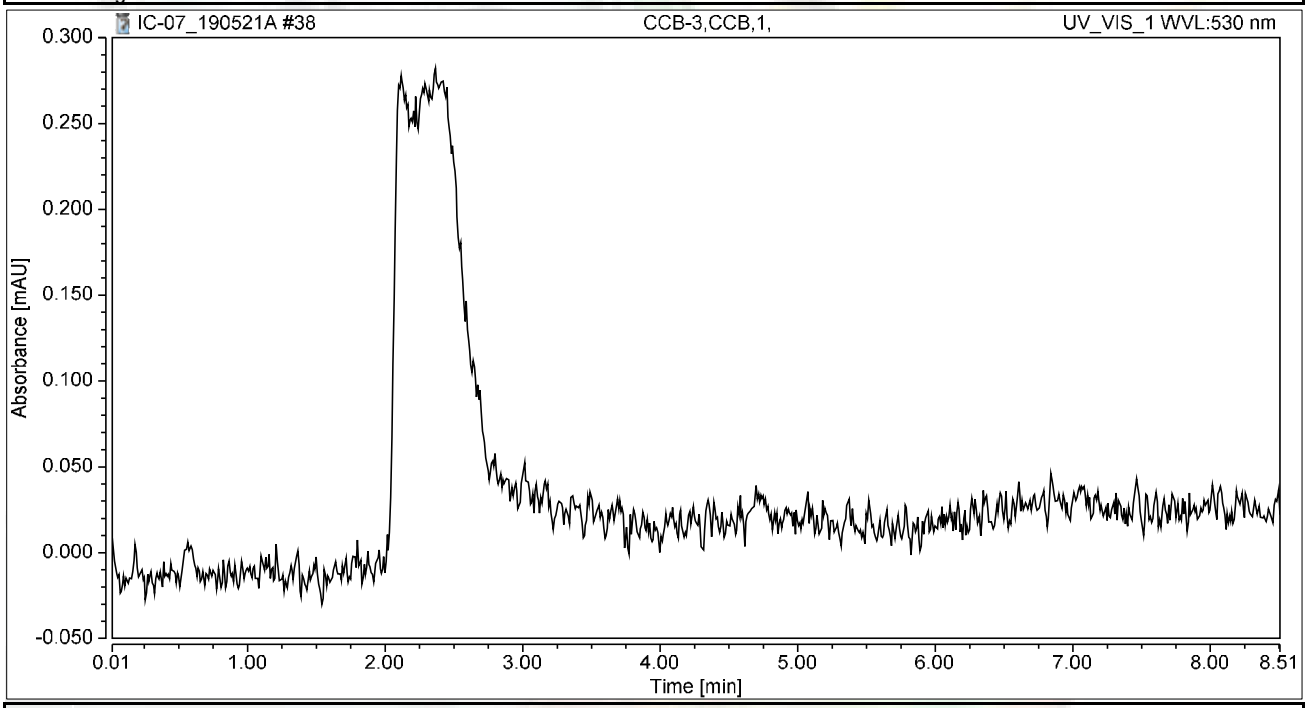
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.267	9.063	100.00	100.00	5.0252
Total:			**1.267**	**9.063**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 13:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

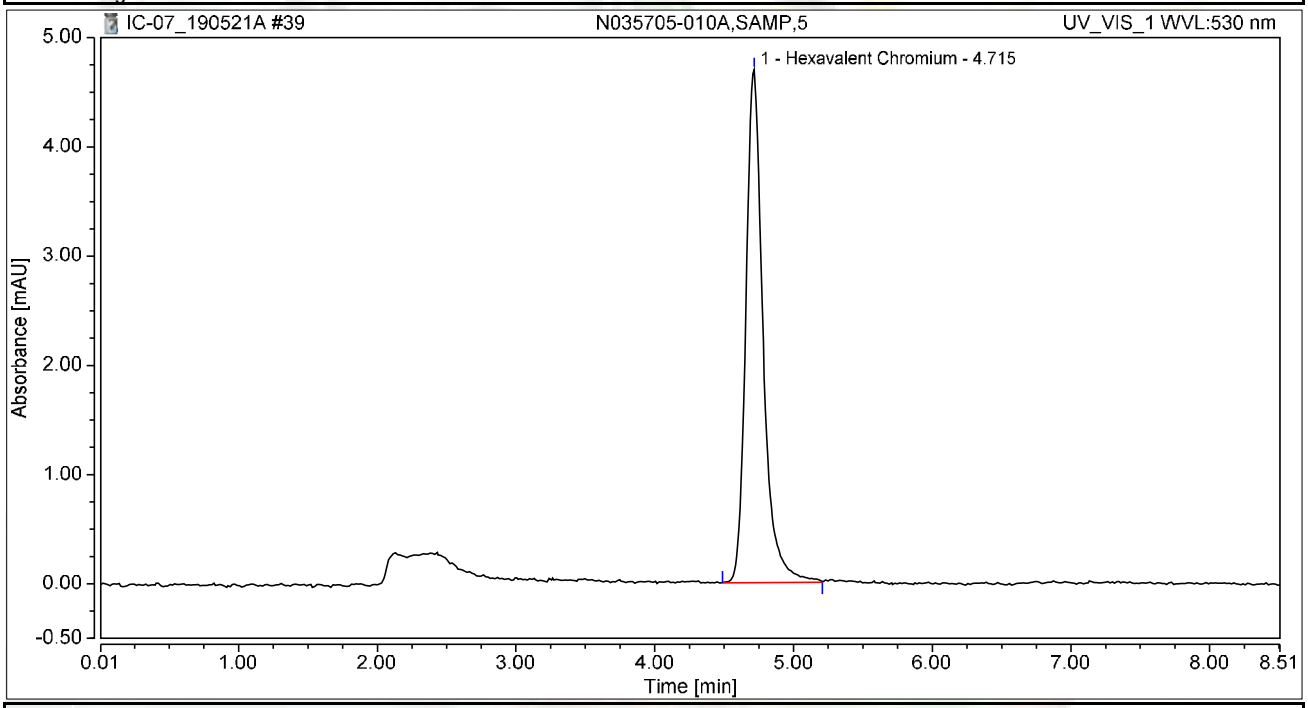
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-010A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 13:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

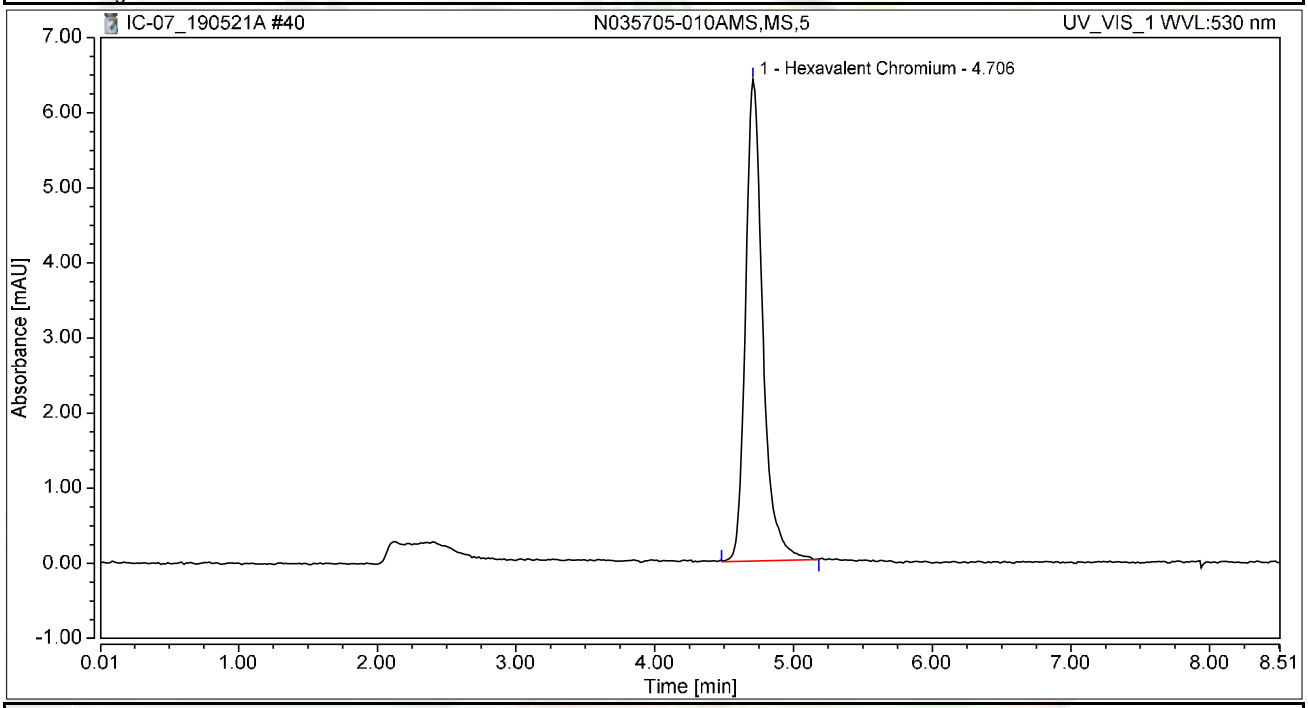
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.674	4.697	100.00	100.00	2.6731
Total:			**0.674**	**4.697**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-010AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 13:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

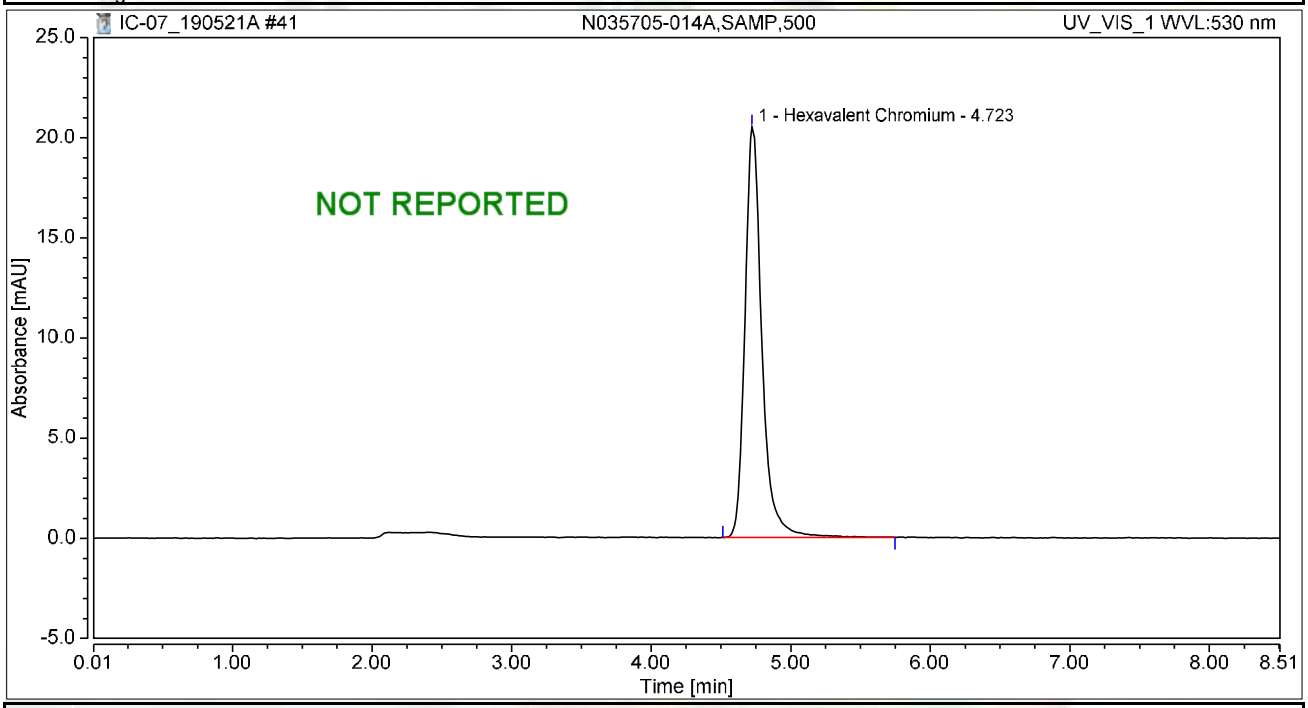
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.922	6.411	100.00	100.00	3.6576
Total:			**0.922**	**6.411**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-014A,SAMP,500**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 14:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

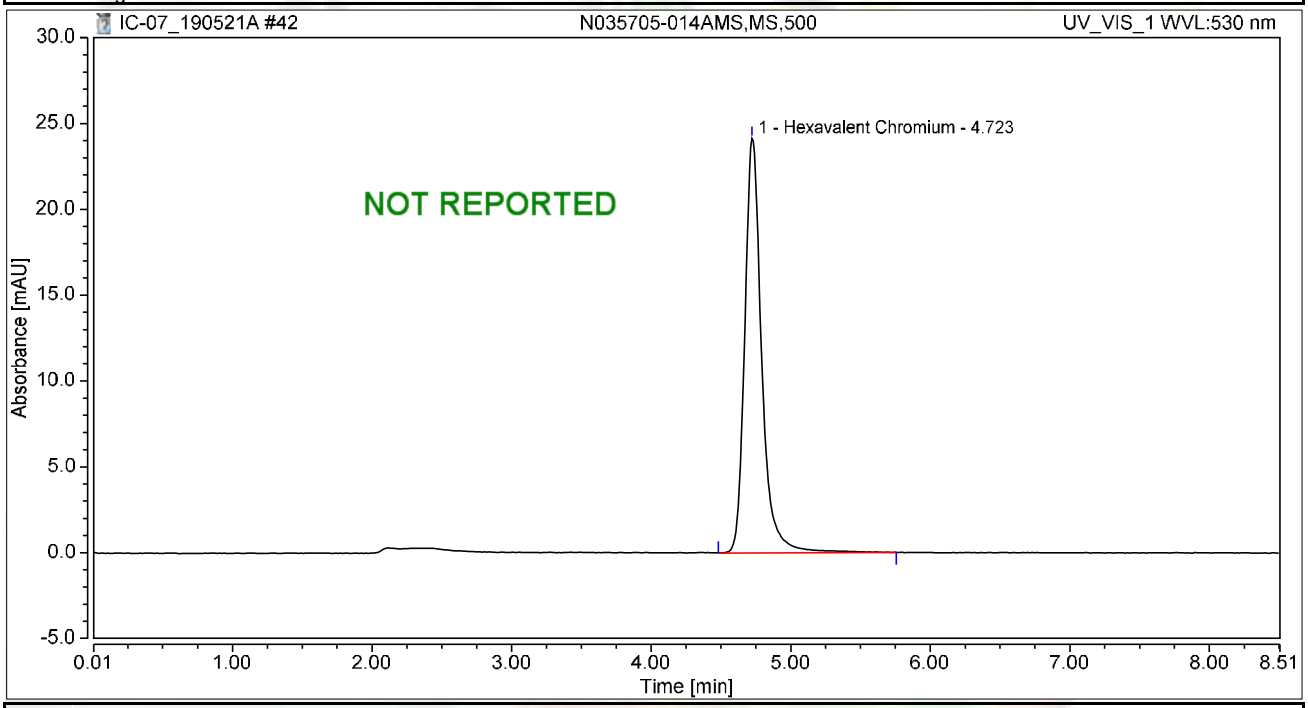
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.903	20.516	100.00	100.00	11.5142
Total:			**2.903**	**20.516**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-014AMS,MS,500**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 14:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

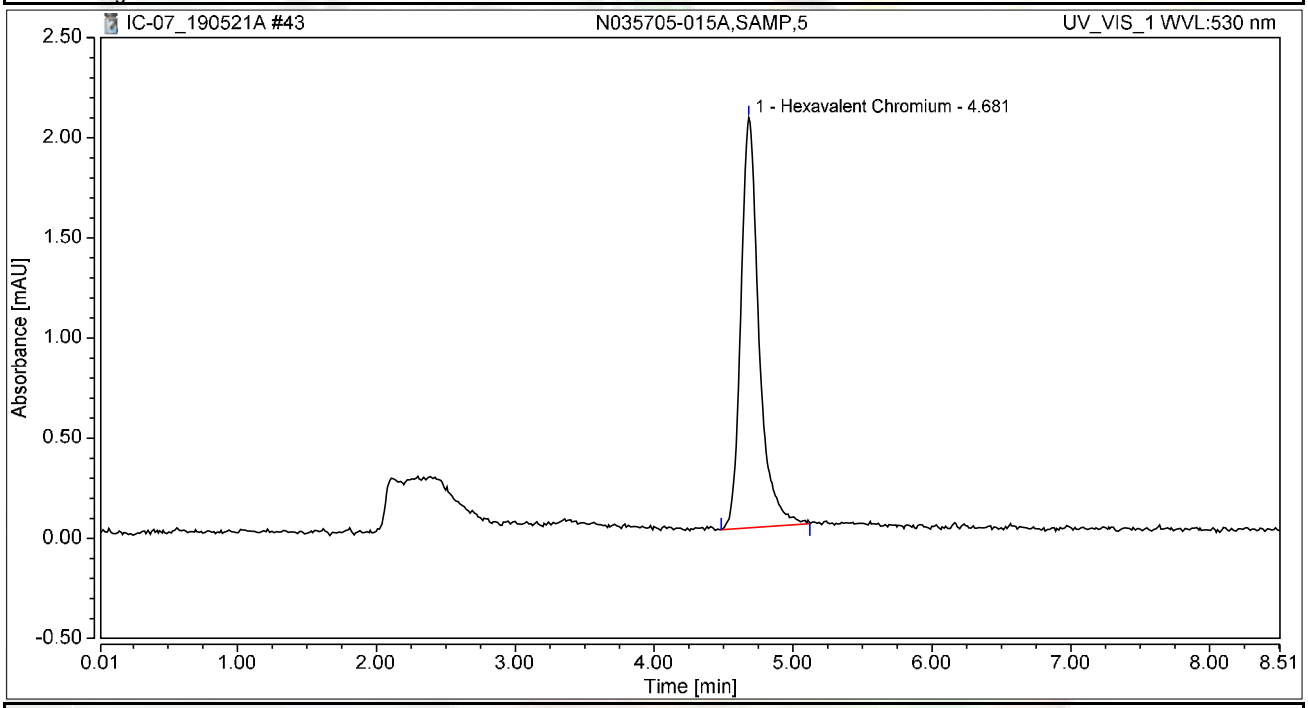
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	3.410	24.133	100.00	100.00	13.5241
Total:			**3.410**	**24.133**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-015A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 14:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

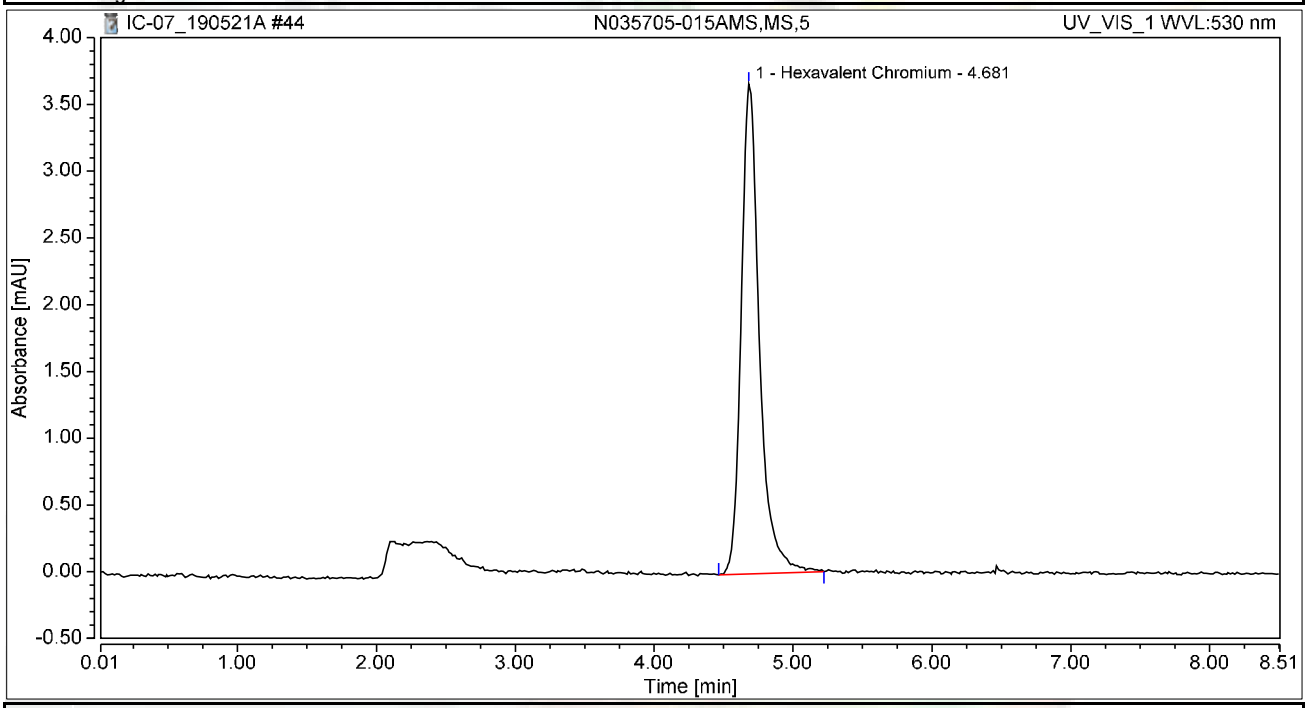
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.311	2.049	100.00	100.00	1.2327
Total:			**0.311**	**2.049**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-015AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 14:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

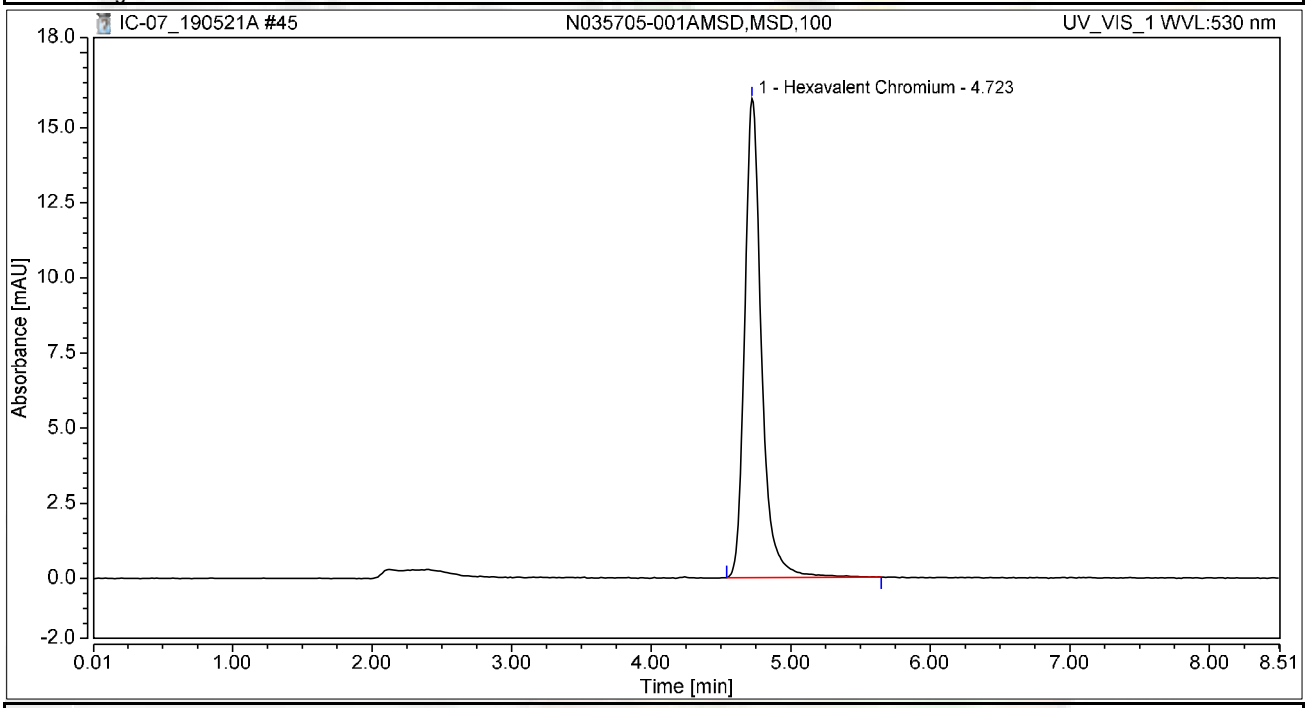
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.561	3.670	100.00	100.00	2.2246
Total:			**0.561**	**3.670**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-001AMSD,MSD,100**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 14:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

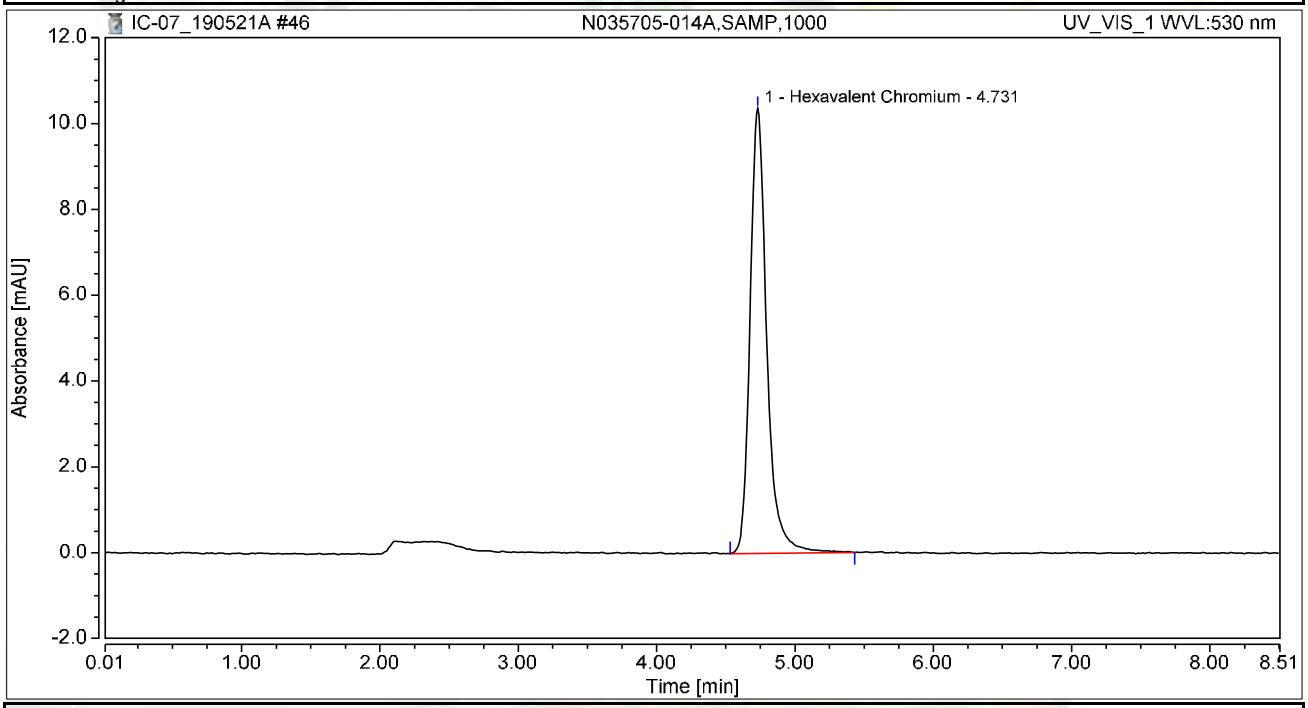
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.228	15.940	100.00	100.00	8.8385
Total:			**2.228**	**15.940**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-014A,SAMP,1000**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 14:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

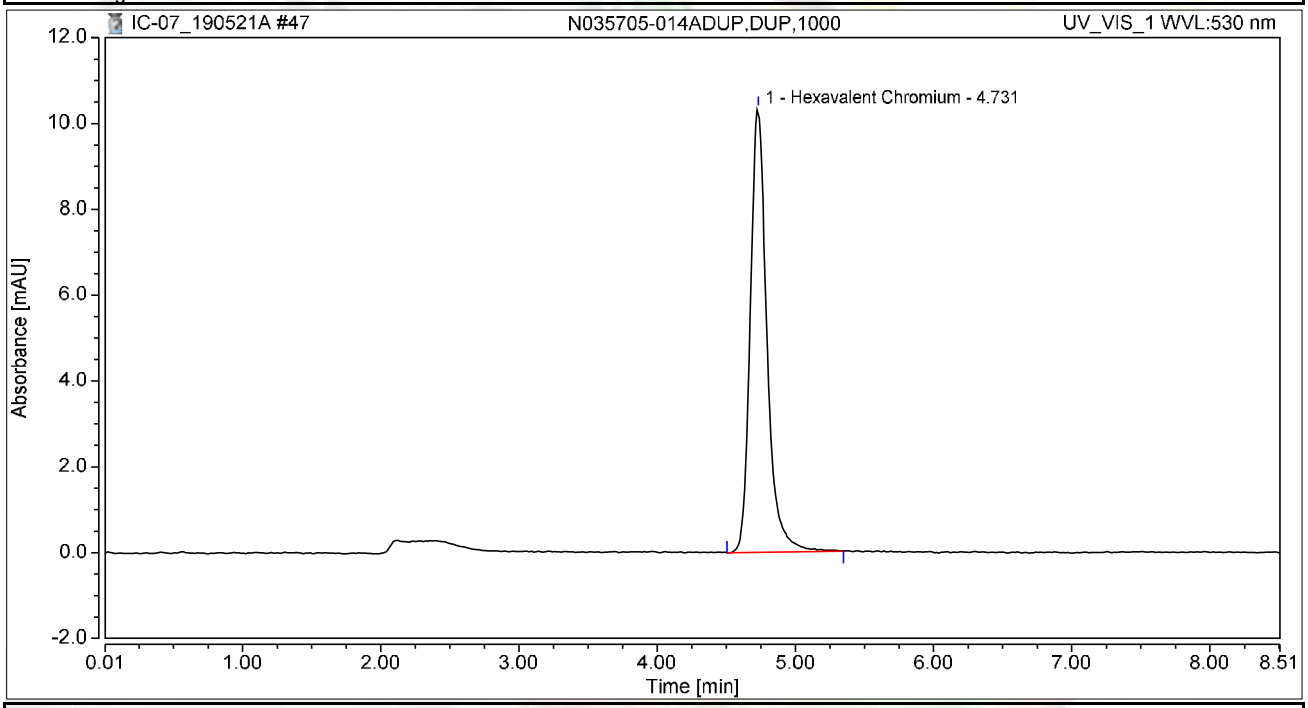
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.451	10.374	100.00	100.00	5.7552
Total:			**1.451**	**10.374**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-014ADUP,DUP,1000**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 15:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

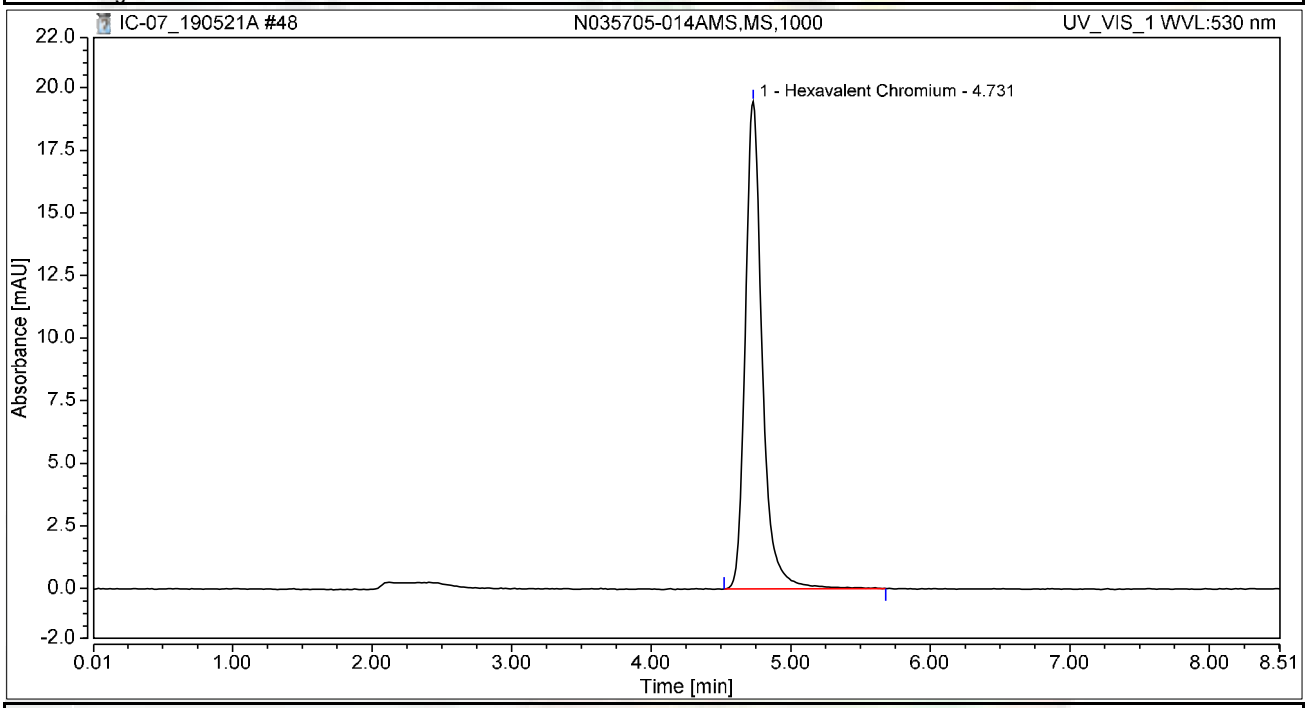
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.447	10.348	100.00	100.00	5.7402
Total:			**1.447**	**10.348**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-014AMS,MS,1000**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 15:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

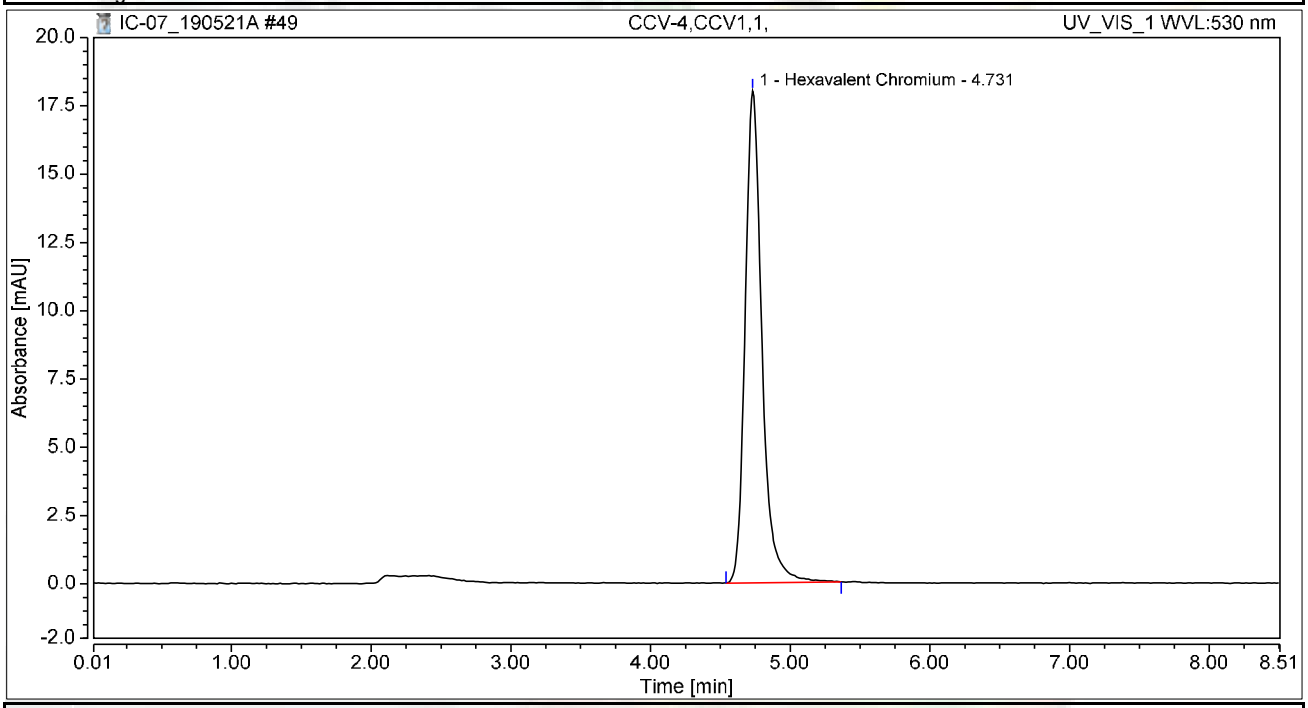
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.748	19.462	100.00	100.00	10.8981
Total:			**2.748**	**19.462**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 15:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

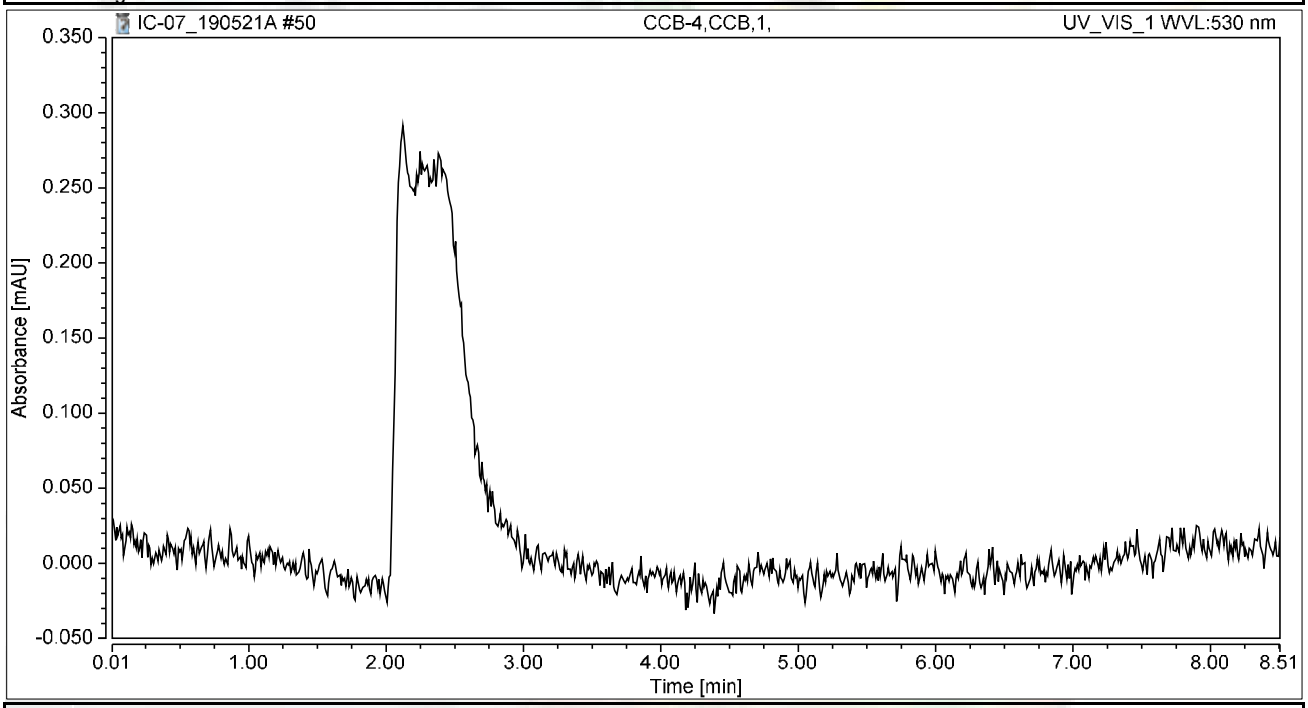
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.513	18.019	100.00	100.00	9.9688
Total:			**2.513**	**18.019**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 15:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

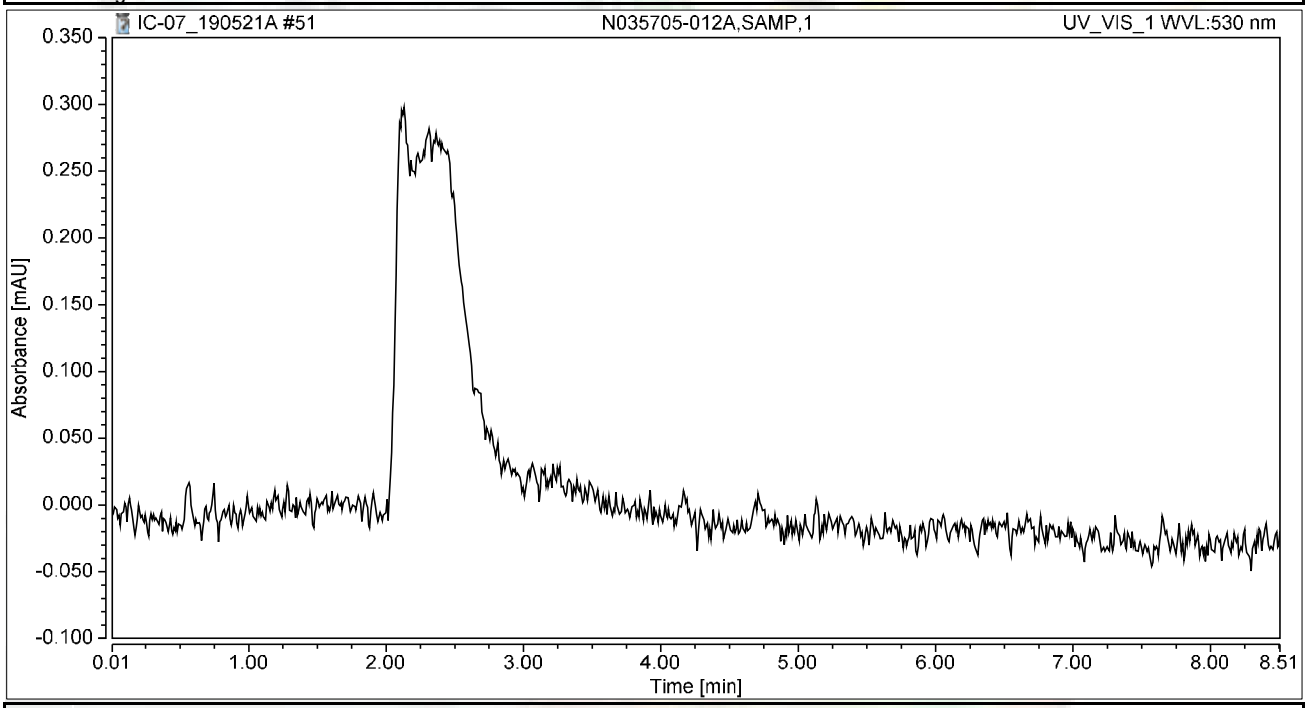
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 15:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

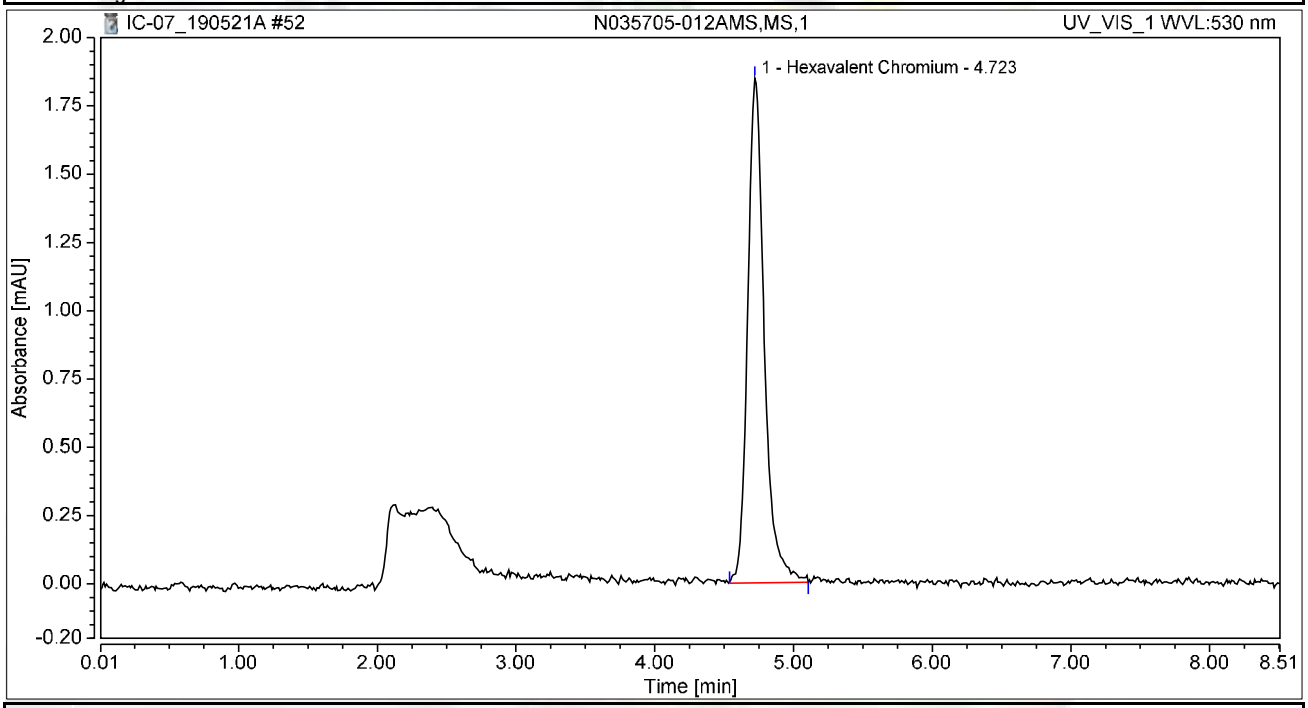
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 16:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

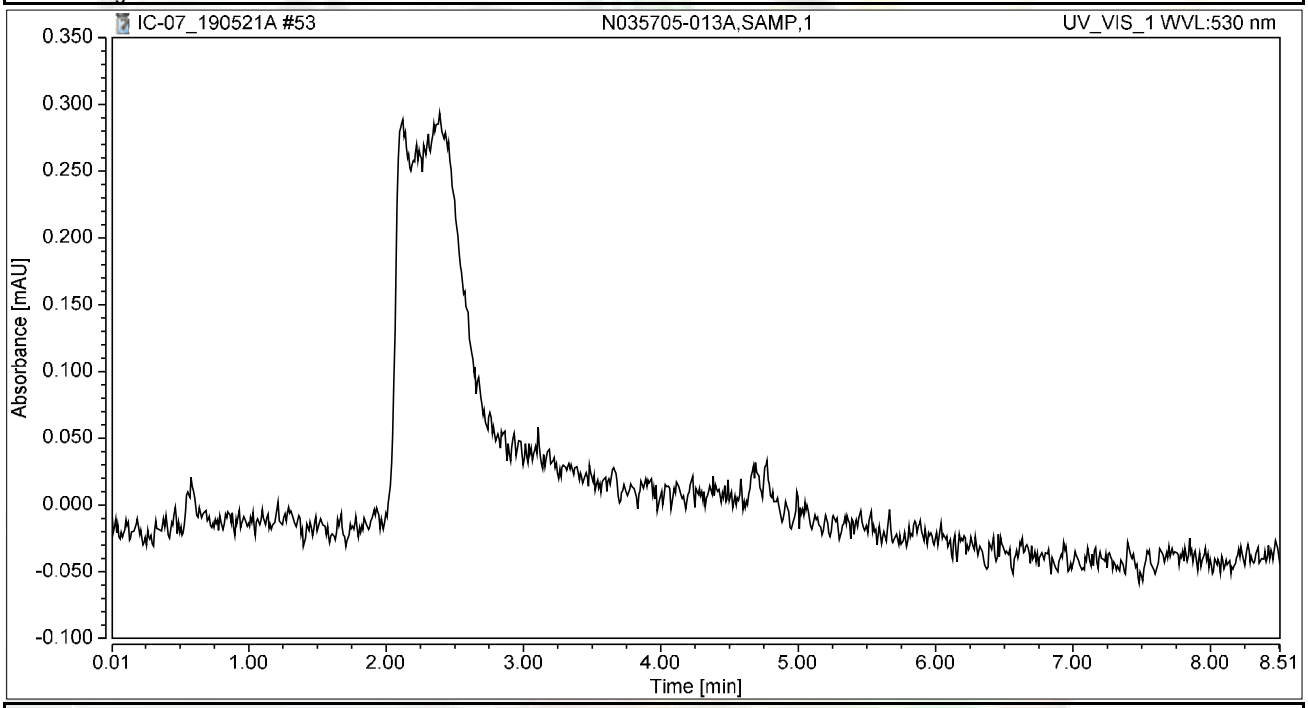
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.257	1.848	100.00	100.00	1.0185
Total:			**0.257**	**1.848**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-013A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 16:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

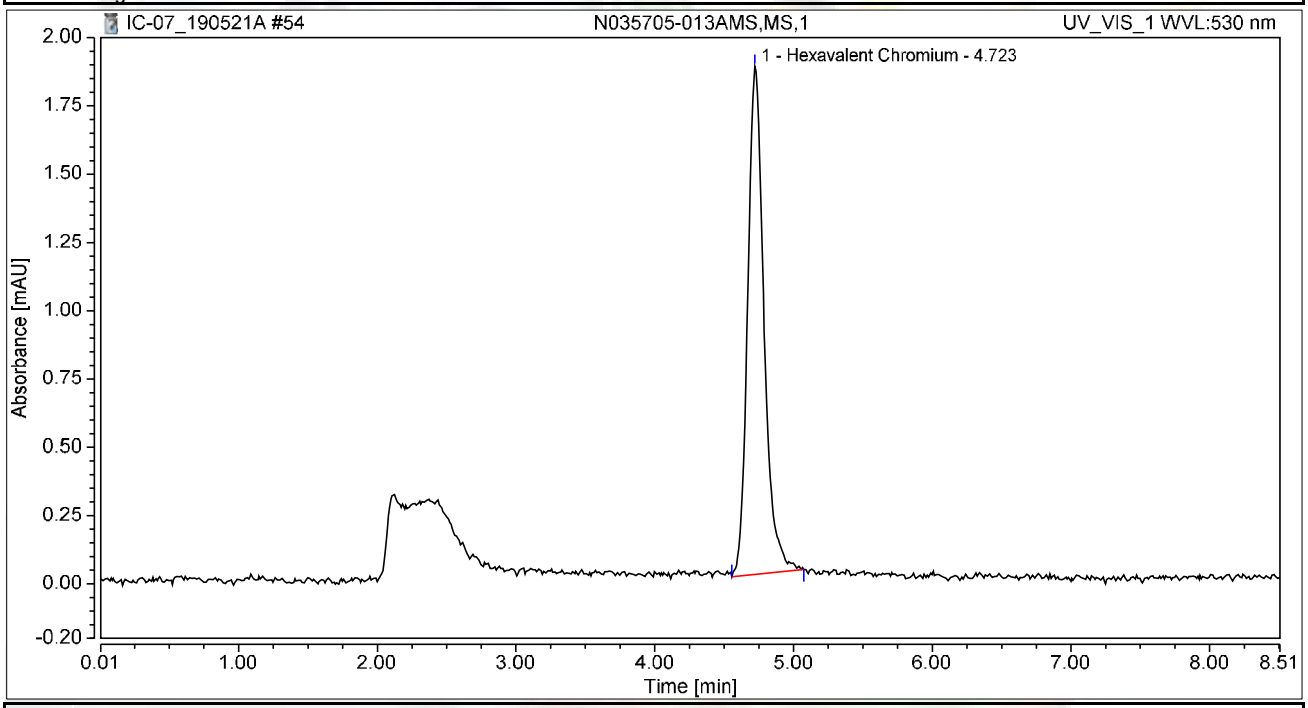
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 16:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

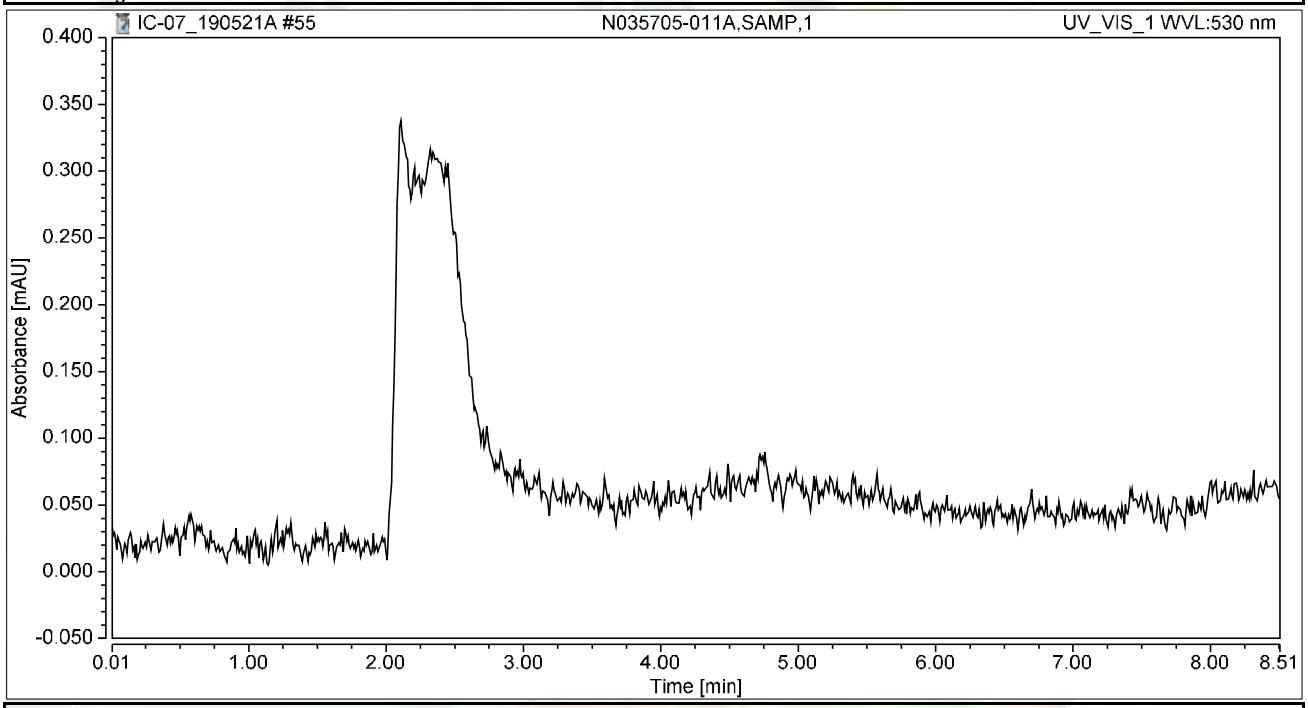
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.253	1.860	100.00	100.00	1.0048
Total:			**0.253**	**1.860**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-011A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 16:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

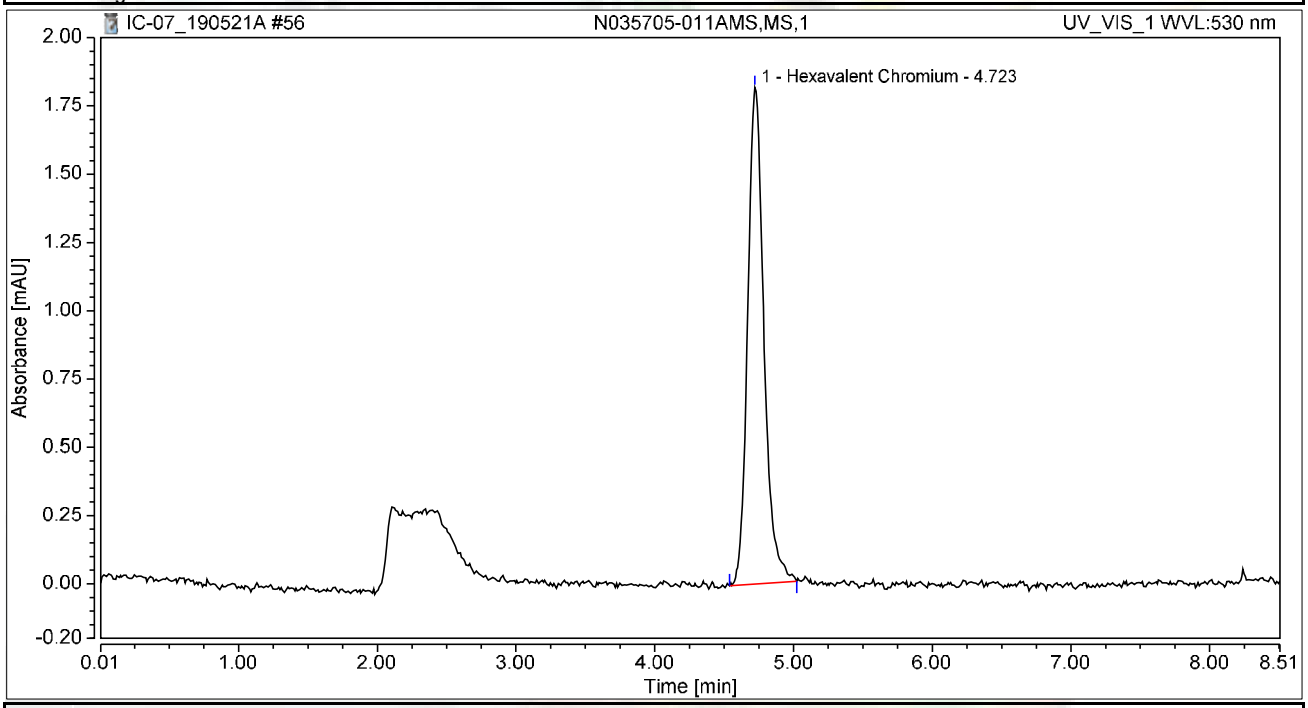
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-011AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 16:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

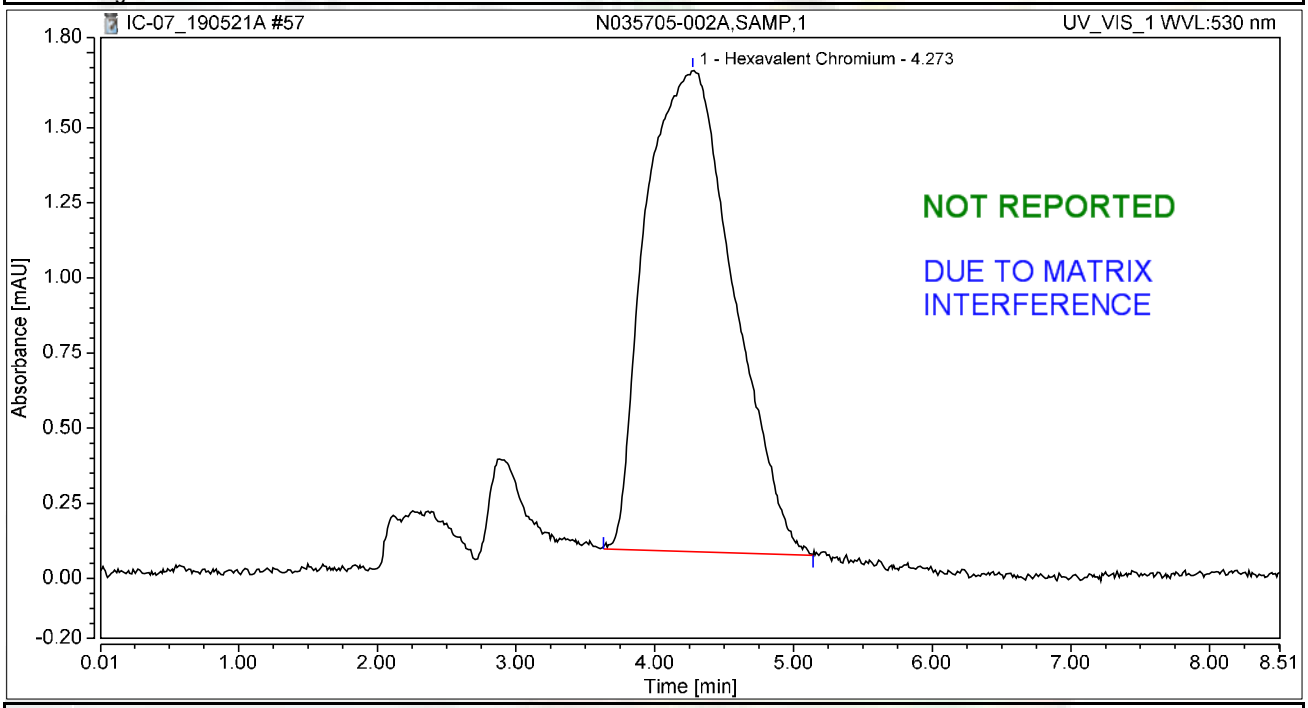
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.246	1.817	100.00	100.00	0.9768
Total:			**0.246**	**1.817**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 16:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

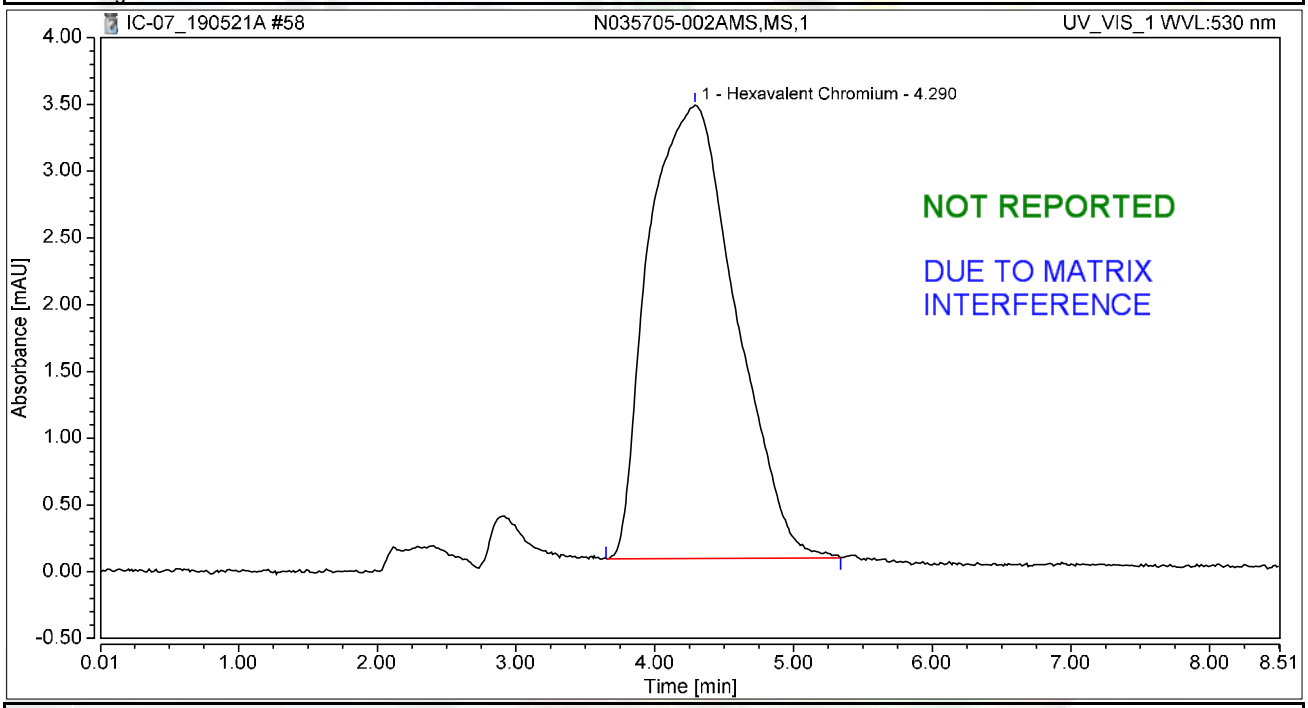
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.273	1.175	1.604	100.00	100.00	4.6601
Total:			**1.175**	**1.604**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 16:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

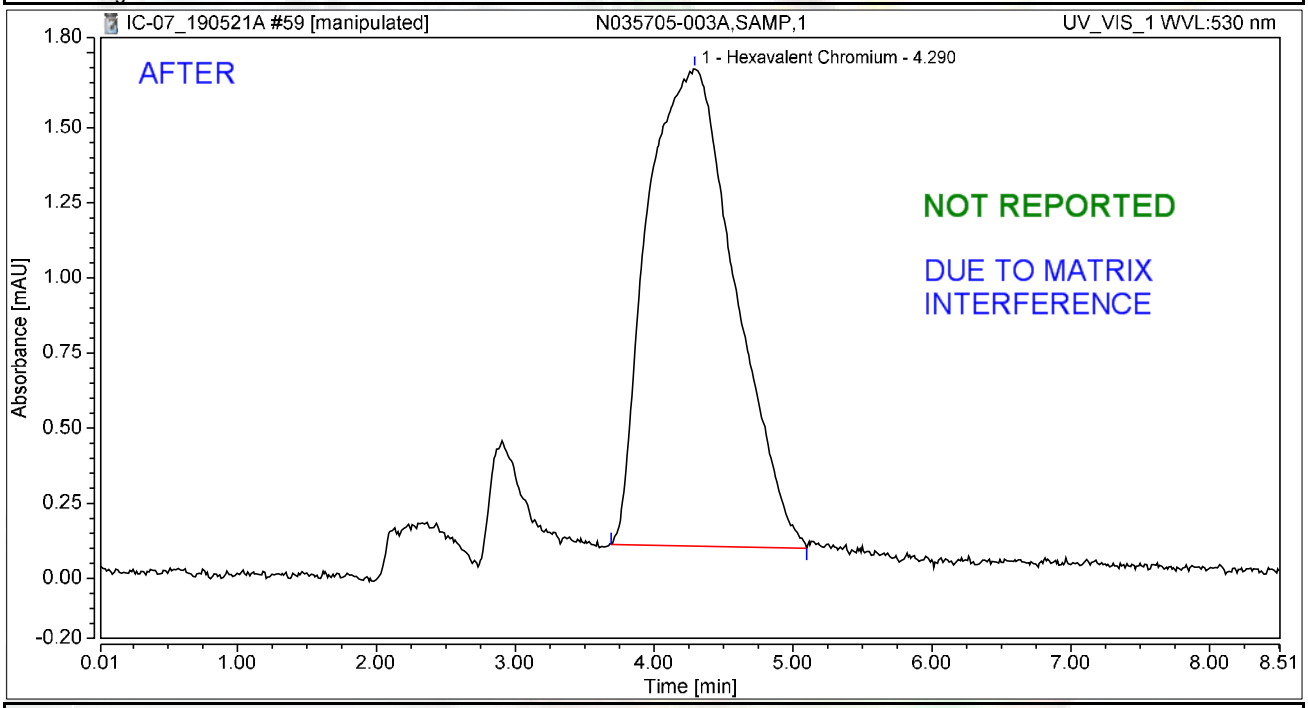
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	2.473	3.397	100.00	100.00	9.8091
Total:			**2.473**	**3.397**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 17:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.290	1.157	1.590	100.00	100.00	4.5878
Total:			**1.157**	**1.590**	**100.00**	**100.00**	

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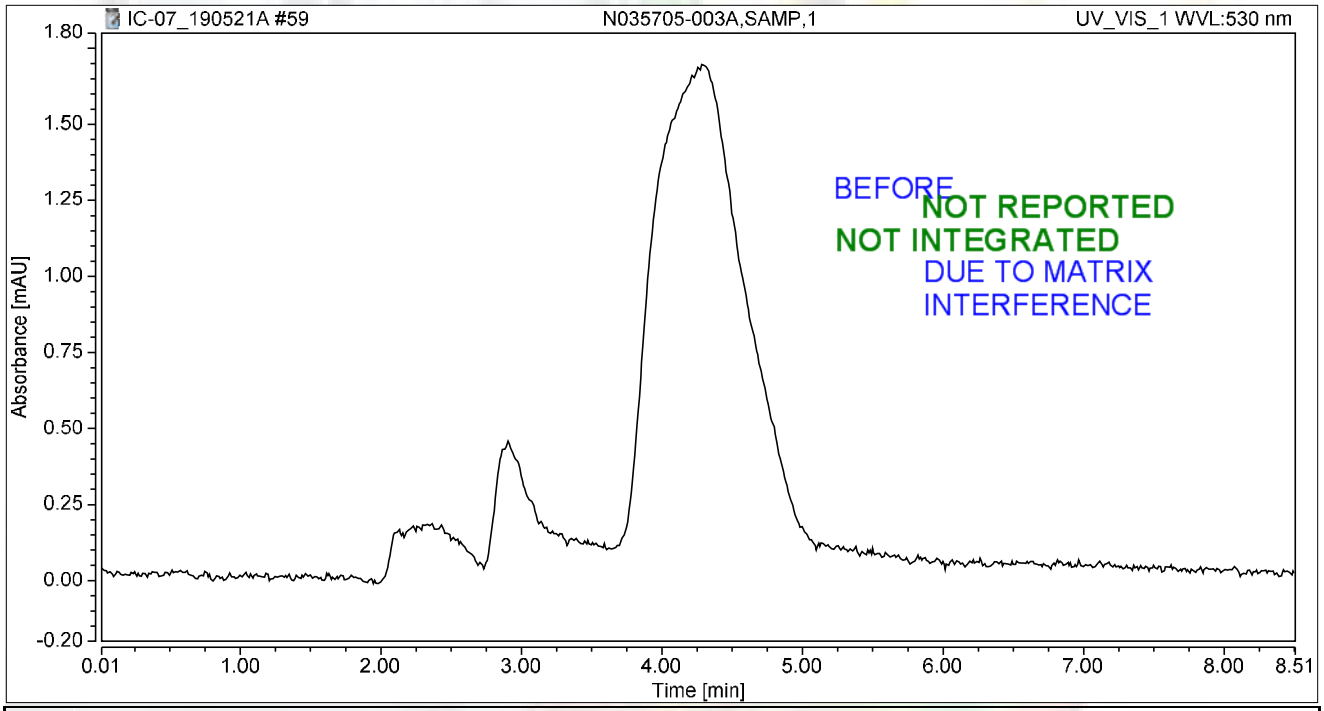
Chromatogram and Results

Injection Details

Injection Name:	**N035705-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 17:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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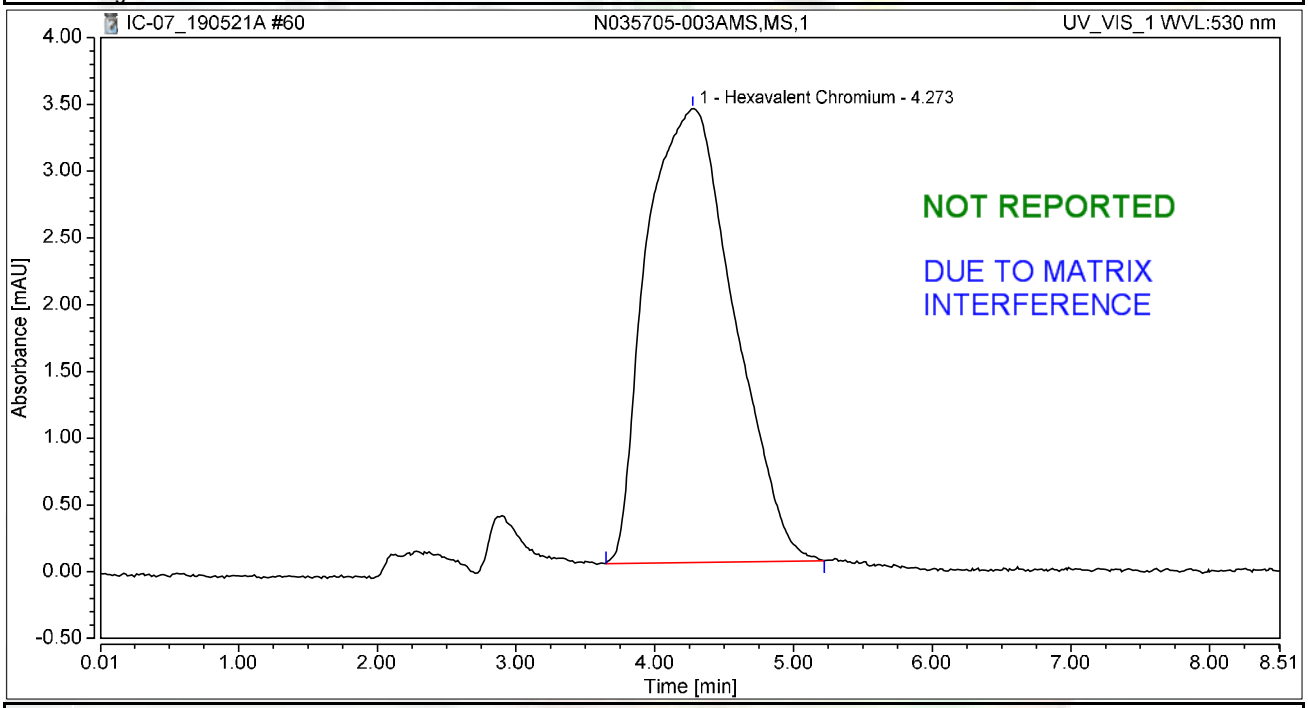
Chromatogram and Results

Injection Details

Injection Name:	**N035705-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 17:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

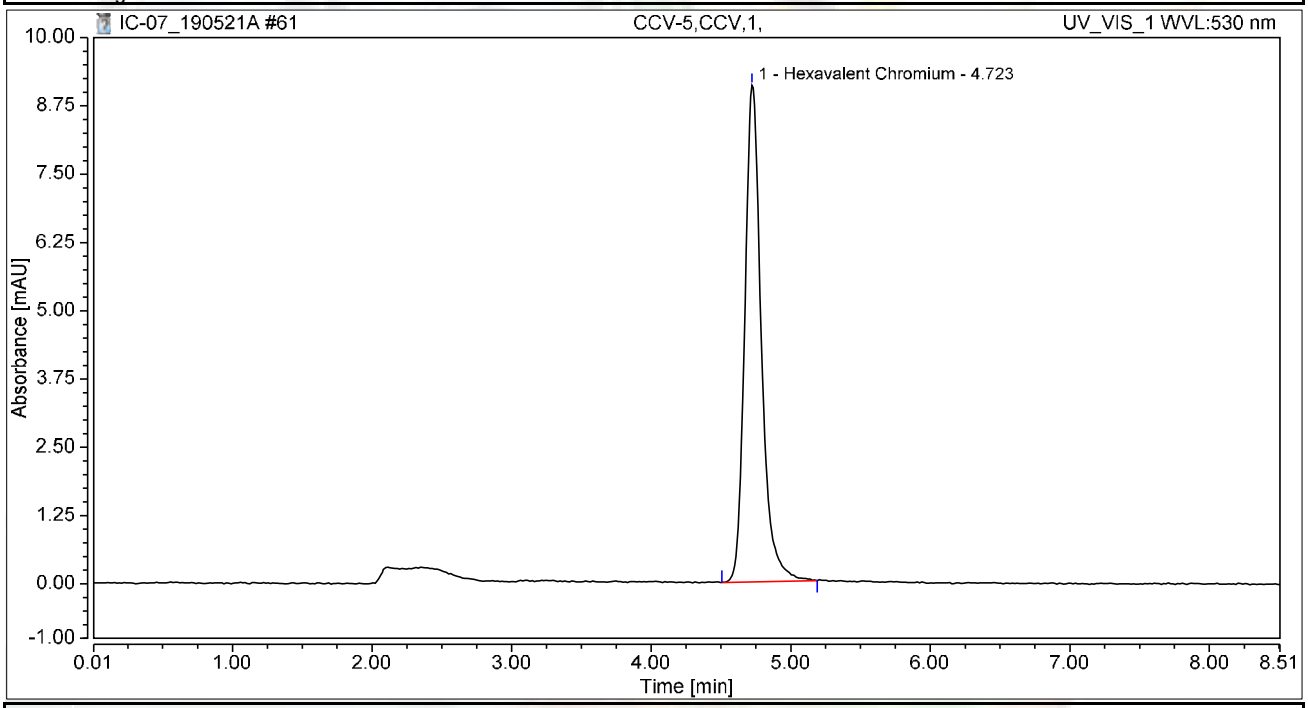
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.273	2.480	3.400	100.00	100.00	9.8351
Total:			**2.480**	**3.400**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 17:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

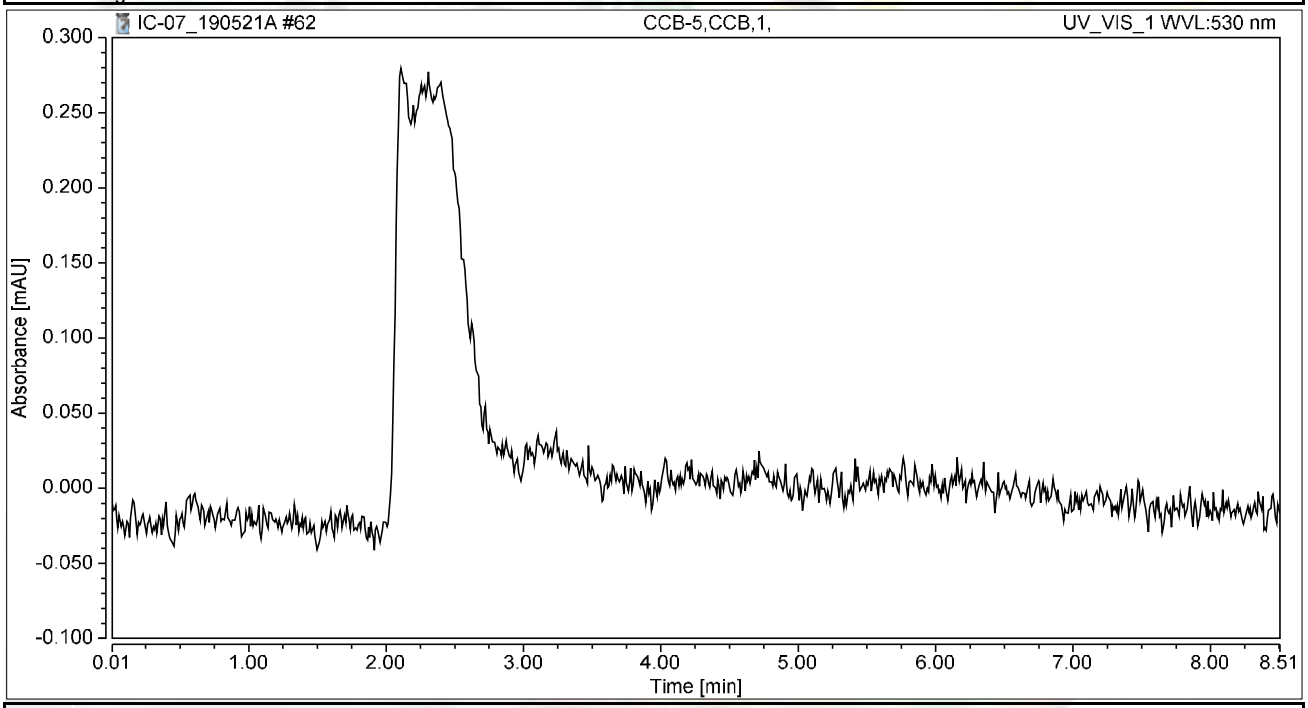
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.252	9.096	100.00	100.00	4.9648
Total:			**1.252**	**9.096**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 17:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

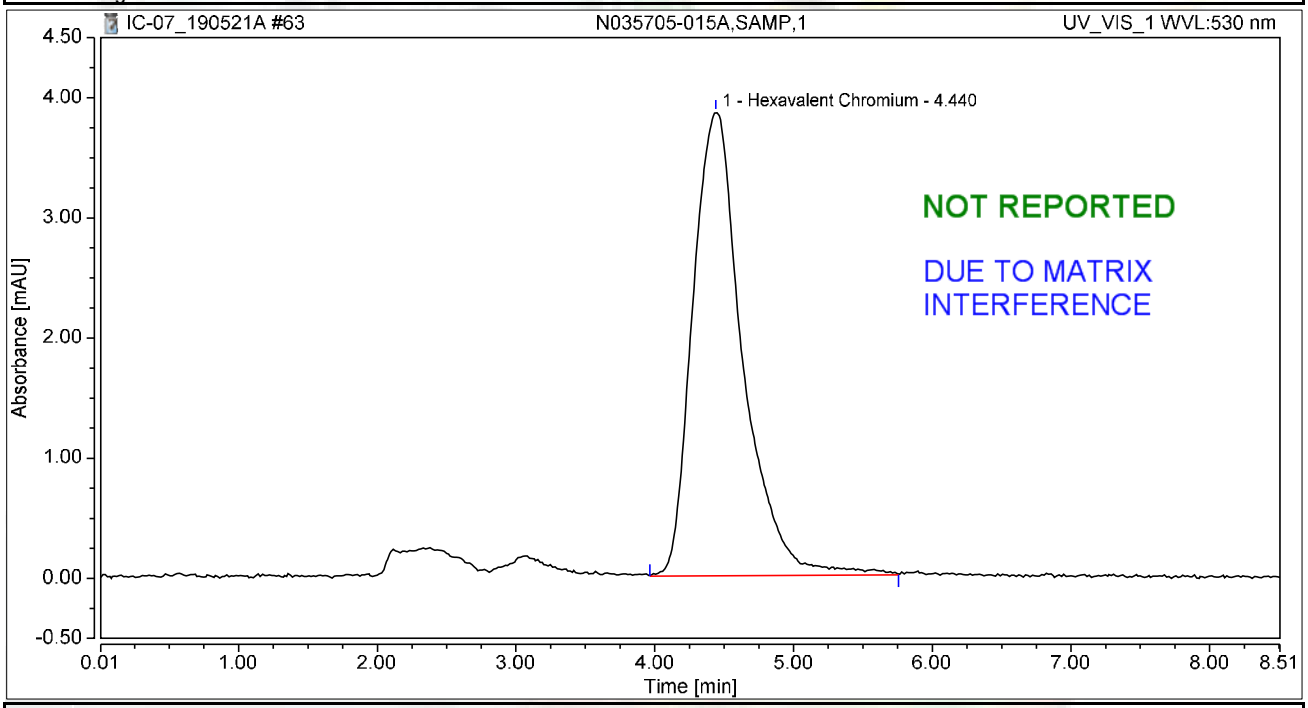
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-015A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 17:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

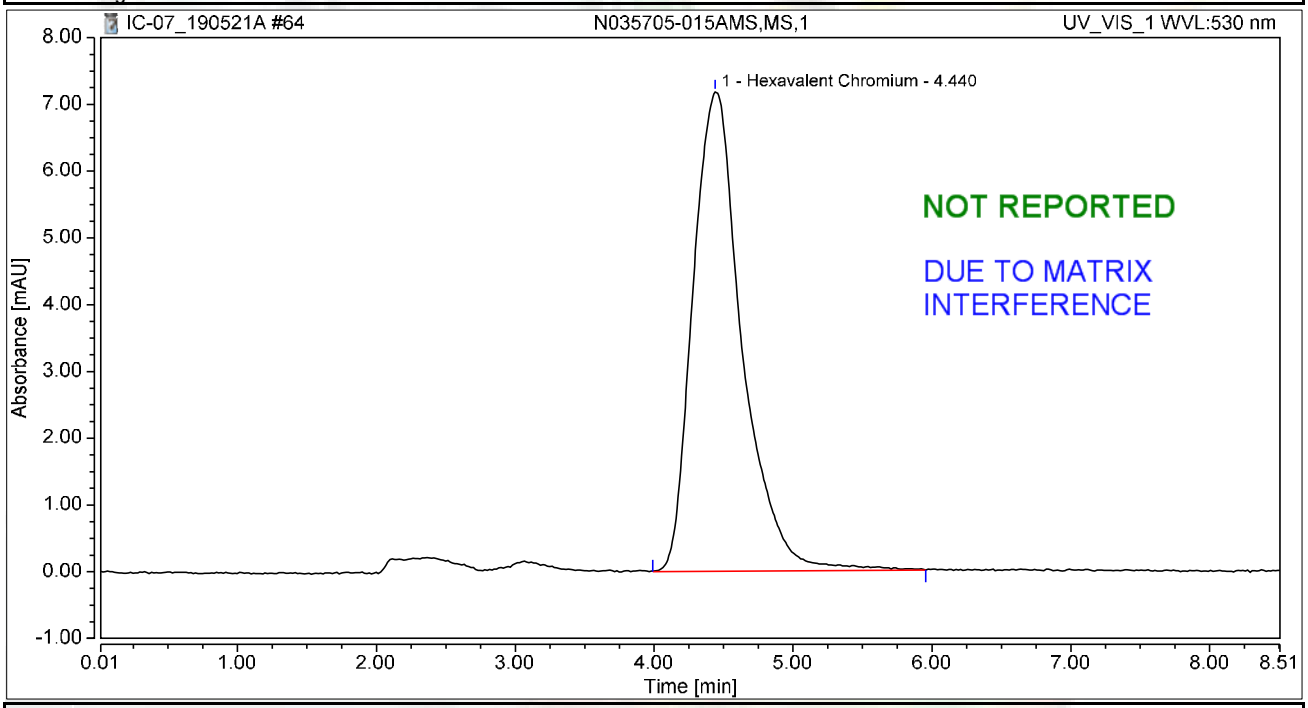
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.440	1.614	3.860	100.00	100.00	6.4014
Total:			**1.614**	**3.860**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-015AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 17:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

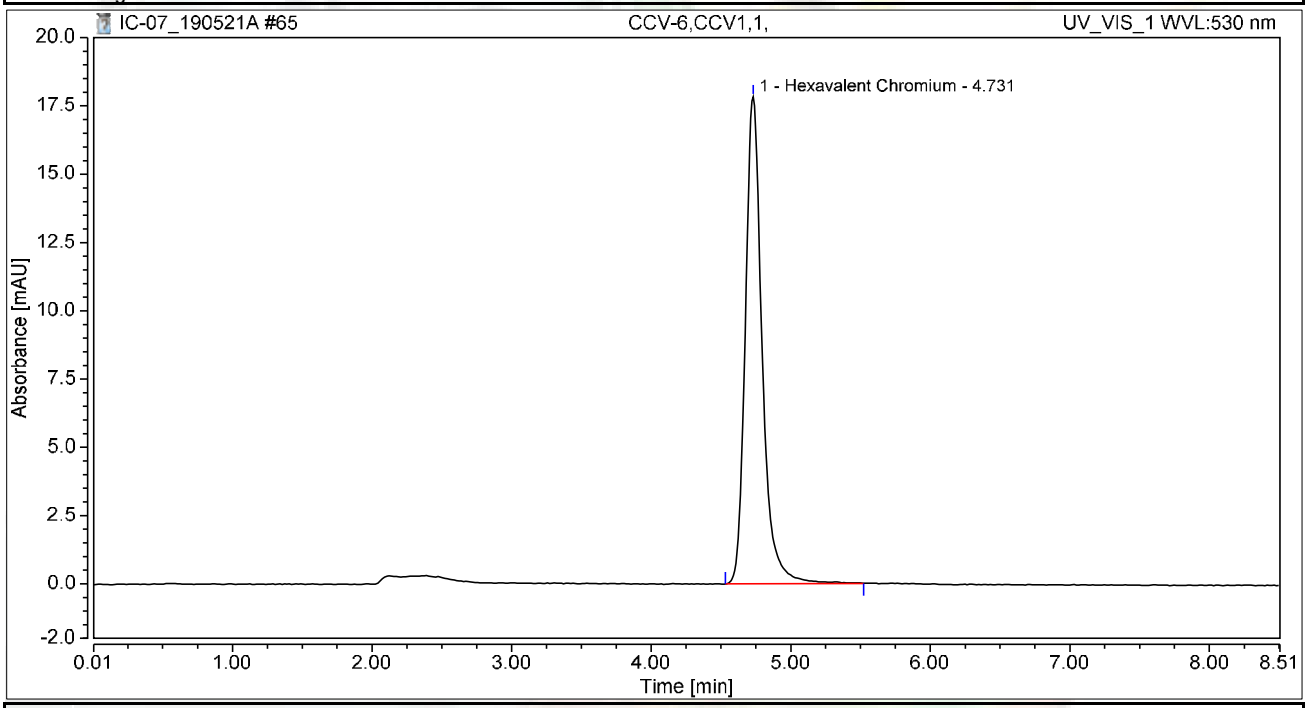
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.440	2.949	7.181	100.00	100.00	11.6952
Total:			**2.949**	**7.181**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 18:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

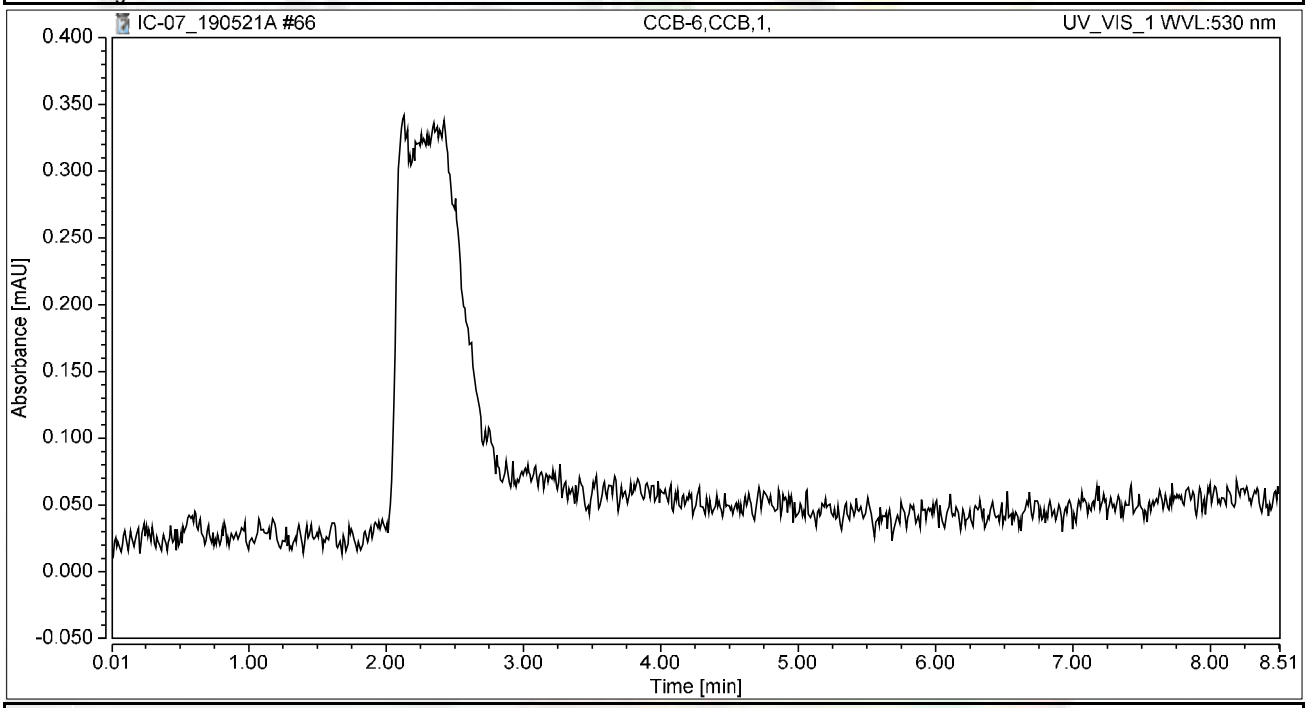
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.499	17.829	100.00	100.00	9.9100
Total:			**2.499**	**17.829**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 18:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

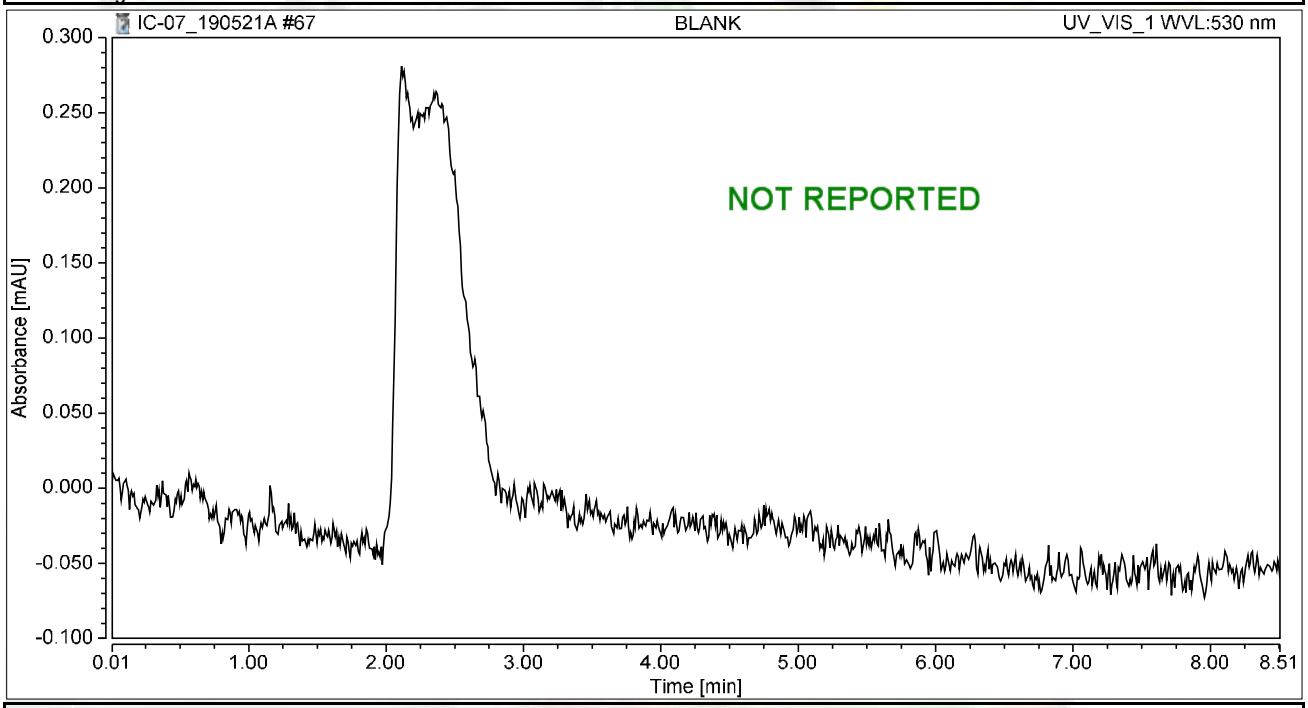
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**21/May/19 18:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134094 **Analyst:** QBM

ASSET #: N035599, 640, 662, 705 **Date Analyzed:** 5/22/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 6/25/2019

2nd Level Reviewer NS 6/25/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N035705-001C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N = 0.4816 * 20
= 9.632 mg/L

Reporting result in two significant figures,

Nitrate/Nitrite-N = 9.6 mg/L

NS 6/26/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

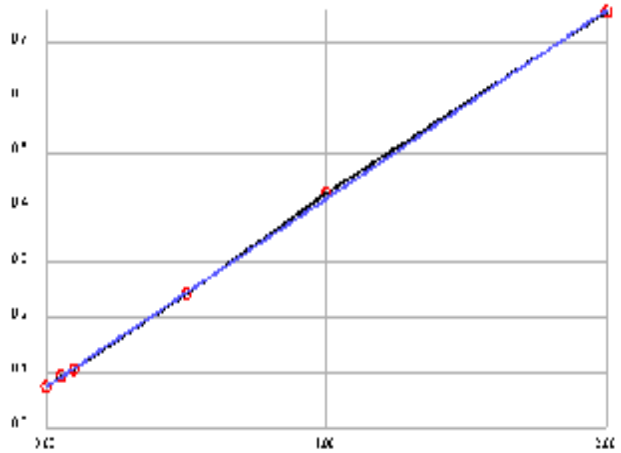
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3424x + 0.0756
Correlation	.999822

Calibrant	Energy	Set	Conc
1	0.0742	0.0000	-0.0040
2	0.0935	0.0500	0.0523
3	0.1070	0.1000	0.0918
4	0.2447	0.5000	0.4939
5	0.4277	1.0000	1.0283
6	0.7562	2.0000	1.9877

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **ICV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393902**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.499	0.050	0.5000	0	99.9	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393913**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.479	0.050	0.5000	0	95.7	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393924**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.481	0.050	0.5000	0	96.1	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCV**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **ICB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393914**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393925**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134092**
Client ID: **CCB**	Batch ID: **R134092**	TestNo: **SM4500-NO3**		Analysis Date: **5/22/2019**	SeqNo: **3393933**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 05-22-2019 18:03
Time end: 05-22-2019 20:51

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	20:12:05	0.0053		0.0774
2	<BLANK>	20:12:59	-0.0046		0.0740
3	<CAL1>	20:13:54	-0.0040	[0]	0.0742
4	<CAL2>	20:14:55	0.0523	[0.05]	0.0935
5	<CAL3>	20:15:51	0.0918	[0.1]	0.1070
6	<CAL4>	20:16:45	0.4939	[0.5]	0.2447
7	<CAL5>	20:17:47	1.0283	[1]	0.4277
8	<CAL6>	20:18:42	1.9877	[2]	0.7562
9	,BLANK,BLANK,1, NOT REPORTED	20:19:36	0.0135		0.0802
10	,ICV,ICV,1,	20:20:38	0.4994		0.2466
11	,ICB,ICB,1,	20:21:33	0.0053		0.0774
12	,MB-H2O,MBLK,1,	20:22:29	-0.0014		0.0751
13	,LCS-H2O,LCS,1,	20:23:23	0.4778		0.2392
14	,N035599-004C,SAMP,1,	20:24:25	0.0234		0.0836
15	,N035599-002C,SAMP,5,	20:25:20	0.6119		0.2851
16	,N035599-002CDUP,DUP,5,	20:26:14	0.6315		0.2918
17	,N035599-003C,SAMP,20,	20:27:10	0.5856		0.2761
18	,N035599-003CMS,MS,20,	20:28:12	1.0505		0.4353
19	,N035599-003CMSD,MSD,20,	20:29:07	1.0494		0.4349
20	,N035640-005C,SAMP,5,	20:30:02	0.5187		0.2532
21	,BLANK, NOT REPORTED	20:31:03	0.0006		0.0758
22	,CCV-1,CCV,1,	20:31:59	0.4787		0.2395
23	,CCB-1,CCB,1,	20:32:53	0.0001		0.0756
24	,N035640-006C,SAMP,20,	20:33:54	0.5050		0.2485
25	,N035640-007C,SAMP,50,	20:34:50	0.5146		0.2518
26	,N035640-008C,SAMP,20,	20:35:38	0.5371		0.2595

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035640-009C,SAMP,50,	20:36:22	0.4992		0.2465
28	,N035640-010C,SAMP,50,	20:37:05	0.4936		0.2446
29	,N035640-011C,SAMP,100,	20:37:53	0.7857		0.3446
30	,N035640-012C,SAMP,2,	20:38:37	0.2725		0.1689
31	,N035640-015C,SAMP,20,	20:39:19	0.6875		0.3110
32	,N035662-001B,SAMP,20,	20:40:02	0.5287		0.2566
33	,BLANK, NOT REPORTED	20:40:50	-0.0058		0.0736
34	,CCV-2,CCV,1,	20:41:34	0.4805		0.2401
35	,CCB-2,CCB,1,	20:42:16	-0.0096		0.0723
36	,N035705-002C,SAMP,1,	20:43:05	0.1113		0.1137
37	,N035705-003C,SAMP,1,	20:43:49	0.1008		0.1101
38	,N035705-001C,SAMP,20,	20:44:31	0.4816		0.2405
39	,N035705-008C,SAMP,5,	20:45:14	0.3458		0.1940
40	,N035705-009C,SAMP,5,	20:46:02	0.3473		0.1945
41	,N035705-015C,SAMP,1,	20:46:45	0.5532		0.2650
42	,BLANK, NOT REPORTED	20:47:33	-0.0116		0.0716
43	,CCV-3,CCV,1,	20:48:17	0.4723		0.2373
44	,CCB-3,CCB,1,	20:49:00	0.0117		0.0796

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 5/22/2019
Time Analyzed: 6:03 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190424E
Color reagent: R190424F
2% Copper Sulfate: R190424D
Ammonium Hydroxide: CINV-190402B

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035599-002C		7.80							
N035599-003C		8.29							
N035599-004C		8.57							
N035640-005C		8.46							
N035640-006C		8.33							
N035640-007C		7.80							
N035640-008C		7.40							
N035640-009C		8.45							
N035640-010C		8.66							
N035640-011C		7.55							
N035640-012C		8.84							
N035640-015C		8.21							
N035662-001B		7.34							
N035705-001C		7.76							
N035705-002C		8.23							
N035705-003C		8.18							
N035705-008C		7.62							
N035705-009C		6.43							
N035705-015C		8.01							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73996
ASSET #: N035705

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/13/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X			X	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.		X			X	
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Dilution test for Mn failed. However, PS passed criteria.
% RSD of Se in N035705-004B/005B failed. For rerun.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HSG Date: 6/25/2019

2nd Level Reviewer NS 6/25/2019 Date: ~

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73997
ASSET #: N035705

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/14/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HSG Date: 6/25/2019

2nd Level Reviewer NS 6/25/2019 Date: —

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73996
ASSET #: N035705

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/17/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X			X	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of Se in N035705-005B failed. For rerun.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HSG Date: 6/25/2019

2nd Level Reviewer NS 6/25/2019 Date: —

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74311
ASSET #: N035706 / 705

Instrument ID: ICPMS-02
Analyst: ~~CEI~~ HSG

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Date Analyzed: 6/24/2019

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Se run

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HSG Date: 6/25/2019

2nd Level Reviewer NS 6/25/2019 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035705-001B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 79.7909 * 5 *(25 / 25)

Chromium , ug/L = 398.9545

Reporting results in two significant figures,

Chromium , ug/L = 400

NS 6/26/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.056	22.29	15	<PQL	0.092	12.62	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.47	5.21	15	PASS	0.55	11.37	15	PASS
Std3-5/50 ppb	ICAL	1	5.08	3.27	15	PASS	5.23	3.51	15	PASS
Std4-10/100 ppb	ICAL	1	10.011	1.78	15	PASS	10.45	1.72	15	PASS
Std5-20/200 ppb	ICAL	1	19.62	1.68	15	PASS	20.33	1.086	15	PASS
Std6-40/400 ppb	ICAL	1	38.76	1.59	15	PASS	40.28	1.65	15	PASS
Std7-100/1000 ppb	ICAL	1	96.86	2.14	15	PASS	100.14	1.6	15	PASS
Std8-200/2000 ppb	ICAL	1	201.85	2.9	15	PASS	199.82	1.9	15	PASS
ICV	ICV	1	10.7	2.9	15	PASS	106.8	2.36	15	PASS
ICB	ICB	1	0.0021	254.37	15	<PQL	0.0036	354.91	15	<PQL
LLICV	CCV1	1	1.0089	4.21	20	PASS	0.52	5.66	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.38	2.38	15	PASS	17.31	2.83	15	PASS
LLICV	CCV1	1	0.97	4.45	20	PASS	0.55	5.68	20	PASS
CCV1	CCV	1	20.065	1.36	15	PASS	21.056	1.87	15	PASS
CCB1	CCB	1	0.0076	24.71	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.31	3.38	15	PASS	21.2	4.1	15	PASS
CCB2	CCB	1	0.0037	213.79	15	<PQL	0.0065	46.94	15	<PQL
CCV3	CCV	1	20.34	2.42	15	PASS	20.87	1.61	15	PASS
CCB3	CCB	1	0.19	12.33	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.027	2.93	15	PASS	20.8	2.18	15	PASS
CCB4	CCB	1	0.07	16.43	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.013	230.04	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.74	2.82	15	PASS	17.26	2.78	15	PASS
MB-73996	MBLK	1	0.015	93.48	15	<PQL	<0.000	N/A	15	<PQL
LCS-73996	LCS	1	10.31	2.17	15	PASS	105.0019	3.23	15	PASS
N035660-001A	SAMP	1	<0.000	N/A	15	<PQL	50.58	2.2	15	PASS
N035660-001A	SAMP	5	<0.000	N/A	15	<PQL	11.27	3.54	15	PASS
N035660-001A-PS	PS	1	8.68	2.62	15	PASS	139.84	2.47	15	PASS
N035660-001A-MS	MS	1	8.57	2.77	15	PASS	137.62	1.8	15	PASS
N035660-001A-MSD	MSD	1	8.6	0.71	15	PASS	138.79	1.56	15	PASS
N035663-001B	SAMP	1	148.12	2.95	15	PASS	<0.000	N/A	15	<PQL
N035663-002B	SAMP	1	175.1	1.92	15	PASS	<0.000	N/A	15	<PQL
N035663-002B	SAMP	5	36.11	3.26	15	PASS	<0.000	N/A	15	<PQL
CCV5	CCV	1	19.55	2.58	15	PASS	18.69	0.3	15	PASS
CCB5	CCB	1	0.0076	76.39	15	<PQL	<0.000	N/A	15	<PQL
N035663-003B	SAMP	1	174.44	1.75	15	PASS	<0.000	N/A	15	<PQL
N035663-003B	SAMP	5	35.55	2.98	15	PASS	<0.000	N/A	15	<PQL
N035663-004B	SAMP	1	48.76	2.93	15	PASS	1.47	10.66	15	PASS
N035663-005B	SAMP	1	17.46	1.91	15	PASS	21.46	2.7	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035663-005B	SAMP	5	3.86	2.41	15	PASS	6.18	1.085	15	PASS
N035663-006B	SAMP	1	5.66	2.016	15	PASS	46.23	1.99	15	PASS
N035663-007B	SAMP	1	0.64	2.79	15	PASS	15.83	2.58	15	PASS
N035663-008B	SAMP	1	72.83	1.43	15	PASS	100.31	1.59	15	PASS
N035663-008B	SAMP	5	16.83	2.67	15	PASS	24.53	1.92	15	PASS
N035663-009B	SAMP	1	73.18	1.49	15	PASS	100.97	1.28	15	PASS
CCV6	CCV	1	20.18	2.52	15	PASS	21.17	2.54	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035663-009B	SAMP	5	16.34	1.91	15	PASS	23.91	2.44	15	PASS
N035663-004B	SAMP	1	48.054	1.61	15	PASS	1.39	5.95	15	PASS
N035705-001B	SAMP	1	377.62	2.57	15	PASS	1.72	55.83	15	NR!
N035705-001B	SAMP	5	79.79	2.76	15	PASS	0.31	8.99	15	PASS
N035705-002B	SAMP	1	5.22	1.59	15	PASS	6.2	1.92	15	PASS
N035705-002B	SAMP	5	1.047	1.14	15	PASS	2.59	3.61	15	PASS
N035705-003B	SAMP	1	5.13	2.21	15	PASS	4.79	1.62	15	PASS
N035705-003B	SAMP	5	1.019	4.31	15	PASS	2.25	3.61	15	PASS
N035705-004B	SAMP	1	9.89	0.87	15	PASS	2.017	88.46	15	NR!
N035705-005B	SAMP	1	9.63	2.57	15	PASS	3.0097	3.38	15	PASS
CCV7	CCV	1	20.32	2.93	15	PASS	21.34	2.32	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035705-006B	SAMP	1	242.93	1.85	15	PASS	0.7	6.88	15	PASS
N035705-006B	SAMP	5	48.73	2.93	15	PASS	0.11	30.8	15	<PQL
N035705-007B	SAMP	1	235.4	1.92	15	PASS	0.49	6.38	15	PASS
N035705-007B	SAMP	5	48.2	2.69	15	PASS	0.094	8.63	15	PASS
N035705-008B	SAMP	1	1884.62	2.23	15	PASS	0.4	7.0036	15	PASS
N035705-008B	SAMP	5	439.84	2.53	15	PASS	0.88	2.86	15	PASS
N035705-008B	SAMP	25	86.26	2.17	15	PASS	0.18	8.39	15	PASS
N035705-009B	SAMP	1	1957.56	1.94	15	PASS	2.9	1.44	15	PASS
N035705-009B	SAMP	5	453.43	3.32	15	PASS	0.68	2.87	15	PASS
N035705-009B	SAMP	25	90.36	2.82	15	PASS	0.15	12.064	15	PASS
CCV8	CCV	1	20.29	2.89	15	PASS	21.23	2.44	15	PASS
CCB8	CCB	1	0.14	8.89	15	PASS	<0.000	N/A	15	<PQL
N035705-010B	SAMP	1	12.03	1.7	15	PASS	2.97	0.91	15	PASS
N035705-001B	SAMP	1	383.1	2.3	15	PASS	1.17	5.38	15	PASS
N035705-004B	SAMP	1	10.06	2.65	15	PASS	3.063	1.62	15	PASS
N035705-005B	SAMP	1	9.82	2.99	15	PASS	3.086	2.14	15	PASS
N035705-004B	SAMP	1	10.021	0.7	15	PASS	2.0067	92.097	15	NR!
CCV9	CCV	1	18.22	1.14	15	PASS	19.045	1.14	15	PASS
CCB9	CCB	1	0.003	190.96	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	18.54	1.14	15	PASS	16.75	1.064	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035705-004B	SAMP	1	9.61	1.64	15	PASS	2.91	2.24	15	PASS
MB-73997	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-73997	LCS	1	9.45	2.059	15	PASS	99.044	1.28	15	PASS
N035705-014B	SAMP	1	4988.11	0.95	15	PASS	<0.000	N/A	15	<PQL
N035705-014B	SAMP	5	1147.72	2.51	15	PASS	0.76	3.23	15	PASS
N035705-014B	SAMP	50	121.53	1.93	15	PASS	0.091	11.86	15	PASS
CCV10	CCV	1	20.086	1.84	15	PASS	20.64	1.95	15	PASS
CCB10	CCB	1	0.22	7.79	15	PASS	<0.000	N/A	15	<PQL
N035705-015B	SAMP	1	5.87	2.74	15	PASS	<0.000	N/A	15	<PQL
N035705-015B	SAMP	5	1.26	4.86	15	PASS	0.82	3.99	15	PASS
N035705-015B-PS	PS	1	13.81	0.88	15	PASS	90.44	0.63	15	PASS
N035705-015B-MS	MS	1	13.97	1.36	15	PASS	87.95	1.14	15	PASS
N035705-015B-MSD	MSD	1	13.92	1.42	15	PASS	87.29	1.46	15	PASS
N035705-015B	SAMP	25	0.28	6.35	15	PASS	0.19	10.47	15	PASS
N035705-015B-PS	PS	5	3.13	3	15	PASS	21.36	2.74	15	PASS
N035705-015B-MS	MS	5	3.12	4.17	15	PASS	21.017	1.69	15	PASS
N035705-015B-MSD	MSD	5	3.16	3.76	15	PASS	21.61	3.3	15	PASS
N035705-004B	SAMP	1	9.56	2.29	15	PASS	0.91	193.6	15	NR!
CCV11	CCV	1	17.51	0.9	15	PASS	18.19	0.18	15	PASS
CCB11	CCB	1	0.0068	86.43	15	<PQL	<0.000	N/A	15	<PQL
CCV11	CCV	1	17.74	2.62	15	PASS	18.82	1.47	15	PASS
CCB11	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035705-004B	SAMP	1	9.39	0.97	15	PASS	2.91	2.44	15	PASS
N035705-014B	SAMP	5	1079.55	1.71	15	PASS	0.68	1.78	15	PASS
N035705-015B-MS	MS	5	3.017	1.24	15	PASS	19.16	2.7	15	PASS
N035712-002B	SAMP	1	0.12	11.3	15	PASS	0.47	4.11	15	PASS
N035712-004B	SAMP	1	0.75	3.14	15	PASS	259.65	1.74	15	PASS
N035712-004B	SAMP	5	0.14	5.16	15	PASS	50.97	1.84	15	PASS
N035705-004B	SAMP	1	9.61	0.81	15	PASS	<0.000	N/A	15	<PQL
N035712-006B	SAMP	1	0.34	3.64	15	PASS	275.72	0.28	15	PASS
N035712-006B	SAMP	5	0.047	5.67	15	PASS	54.17	1.58	15	PASS
N035712-007B	SAMP	1	12.64	0.62	15	PASS	241.22	0.93	15	PASS
CCV12	CCV	1	17.81	2.73	15	PASS	18.96	3.43	15	PASS
CCB12	CCB	1	<0.000	N/A	15	<PQL	0.0019	203.33	15	<PQL
N035712-007B	SAMP	5	2.78	1.31	15	PASS	48.63	1.95	15	PASS
N035712-008B	SAMP	1	151.37	0.7	15	PASS	5.44	1.055	15	PASS
N035712-008B	SAMP	5	29.34	1.81	15	PASS	1.18	1.55	15	PASS
N035712-009B	SAMP	1	1367.13	0.93	15	PASS	3.8	1.54	15	PASS
N035712-009B	SAMP	5	304.29	1.64	15	PASS	0.86	1.097	15	PASS
N035712-009B	SAMP	10	153.56	3.032	15	PASS	0.46	5.18	15	PASS
N035712-010B	SAMP	1	19.29	0.36	15	PASS	66.49	0.26	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035712-010B	SAMP	5	4.056	0.77	15	PASS	15.061	1.78	15	PASS
N035712-011B	SAMP	1	8.24	0.88	15	PASS	10.22	0.49	15	PASS
N035712-011B	SAMP	5	1.66	3.51	15	PASS	3.24	3.72	15	PASS
CCV13	CCV	1	17.75	2.95	15	PASS	18.94	2.49	15	PASS
CCB13	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	17.16	2.52	15	PASS	16.29	1.17	15	PASS
N035712-012B	SAMP	1	2.4	2.52	15	PASS	26.67	0.84	15	PASS
N035712-012B	SAMP	5	0.33	4.96	15	PASS	7.066	2.2	15	PASS
N035712-013B	SAMP	1	0.089	12.21	15	PASS	823.41	0.47	15	PASS
N035712-013B	SAMP	5	<0.000	N/A	15	<PQL	170.99	1.79	15	PASS
N035712-013B	SAMP	10	<0.000	N/A	15	<PQL	85.98	2.59	15	PASS
N035712-016B	SAMP	1	30.99	1.53	15	PASS	0.32	3.5	15	PASS
N035712-017B	SAMP	1	0.91	1.9	15	PASS	0.33	12.52	15	PASS
N035712-018B	SAMP	1	512.61	1.71	15	PASS	0.89	6.54	15	PASS
N035712-020B	SAMP	1	2.54	1	15	PASS	2.34	3.51	15	PASS
N035712-016B	SAMP	5	6.94	1.77	15	PASS	0.83	3.25	15	PASS
CCV14	CCV	1	17.86	2.11	15	PASS	19.21	3.27	15	PASS
CCB14	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035712-017B	SAMP	5	0.058	2.59	15	PASS	0.88	3.44	15	PASS
N035712-018B	SAMP	5	91.42	1.65	15	PASS	0.18	4.18	15	PASS
N035712-020B	SAMP	5	0.53	4.41	15	PASS	0.52	5.61	15	PASS
N035712-010B	SAMP	1	19.13	1.15	15	PASS	67.4	1.6	15	PASS
N035712-011B	SAMP	1	8.2	1.49	15	PASS	10.24	1.23	15	PASS
N035712-012B	SAMP	1	2.45	1.89	15	PASS	26.84	0.82	15	PASS
CCV15	CCV	1	18.13	2.93	15	PASS	19.58	2.14	15	PASS
CCB15	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	17.33	2.085	15	PASS	16.89	2.036	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.088	5.36	15	PASS	0.097	26.055	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.5	7.018	15	PASS	0.49	18.76	15	<PQL
Std3-5/50 ppb	ICAL	1	4.81	1.96	15	PASS	5.069	9.24	15	PASS
Std4-10/100 ppb	ICAL	1	9.74	1.84	15	PASS	9.3	1.75	15	PASS
Std5-20/200 ppb	ICAL	1	19.57	0.62	15	PASS	19.43	3.0015	15	PASS
Std6-40/400 ppb	ICAL	1	38.59	0.22	15	PASS	38.99	1.37	15	PASS
Std7-100/1000 ppb	ICAL	1	98.57	1.27	15	PASS	97.26	0.95	15	PASS
Std8-200/2000 ppb	ICAL	1	201.059	0.73	15	PASS	201.66	1.96	15	PASS
ICV	ICV	1	9.87	0.93	15	PASS	9.93	4.51	15	PASS
ICB	ICB	1	0.0092	45.16	15	<PQL	0.017	115.59	15	<PQL
LLICV	CCV1	1	0.11	12.81	20	PASS	0.48	43.92	20	<PQL
ICSA1	ICSA	1	0.039	26.45	15	<PQL	0.024	43.24	15	<PQL
ICSAB1	ICSAB	1	19.86	1.77	15	PASS	18.072	2.29	15	PASS
LLICV	CCV1	1	0.12	3.87	20	PASS	0.53	6.79	20	PASS
CCV1	CCV	1	19.37	1.095	15	PASS	19.15	0.85	15	PASS
CCB1	CCB	1	0.031	26.11	15	<PQL	0.015	155.43	15	<PQL
CCV2	CCV	1	19.53	0.93	15	PASS	18.53	2.28	15	PASS
CCB2	CCB	1	0.021	67.75	15	<PQL	0.047	46.64	15	<PQL
CCV3	CCV	1	19.47	1.48	15	PASS	19.02	2.71	15	PASS
CCB3	CCB	1	0.017	26.87	15	<PQL	0.019	160.49	15	<PQL
CCV4	CCV	1	19.32	0.36	15	PASS	20.41	1.17	15	PASS
CCB4	CCB	1	0.014	36.86	15	<PQL	0.005	363.4	15	<PQL
ICSA2	ICSA	1	0.033	47.66	15	<PQL	0.017	228.55	15	<PQL
ICSAB2	ICSAB	1	19.44	1.49	15	PASS	18.24	1.65	15	PASS
MB-73996	MBLK	1	0.021	61.82	15	<PQL	0.02	221.82	15	<PQL
LCS-73996	LCS	1	9.71	2.039	15	PASS	9.46	4.41	15	PASS
N035660-001A	SAMP	1	1.68	3.3	15	PASS	1.49	8.68	15	PASS
N035660-001A	SAMP	5	0.36	7.038	15	PASS	0.35	27.37	15	<PQL
N035660-001A-PS	PS	1	11.83	0.81	15	PASS	11.29	6.22	15	PASS
N035660-001A-MS	MS	1	12.19	1.41	15	PASS	11.77	4.42	15	PASS
N035660-001A-MSD	MSD	1	11.79	0.34	15	PASS	10.83	2.39	15	PASS
N035663-001B	SAMP	1	1.83	3.42	15	PASS	5.69	5.34	15	PASS
N035663-002B	SAMP	1	2.53	1.39	15	PASS	6.39	4.69	15	PASS
N035663-002B	SAMP	5	0.56	1.25	15	PASS	1.31	17.58	15	NR!
CCV5	CCV	1	19.39	0.64	15	PASS	20.022	4.19	15	PASS
CCB5	CCB	1	0.02	52.37	15	<PQL	0.064	78.057	15	<PQL
N035663-003B	SAMP	1	2.5	1.62	15	PASS	6.74	7.7	15	PASS
N035663-003B	SAMP	5	0.55	3.28	15	PASS	1.23	15.65	15	NR!
N035663-004B	SAMP	1	1.41	5.67	15	PASS	4.74	16.37	15	NR!
N035663-005B	SAMP	1	7.15	1.29	15	PASS	0.16	52.078	15	<PQL

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035663-005B	SAMP	5	1.49	1.9	15	PASS	0.026	109.68	15	<PQL
N035663-006B	SAMP	1	5.82	2.24	15	PASS	3.66	9.58	15	PASS
N035663-007B	SAMP	1	0.092	20.96	15	<PQL	0.012	254.42	15	<PQL
N035663-008B	SAMP	1	3.065	2.67	15	PASS	1.26	19.92	15	NR!
N035663-008B	SAMP	5	0.61	4.099	15	PASS	0.2	41.65	15	<PQL
N035663-009B	SAMP	1	3.023	2.18	15	PASS	1.032	17.35	15	NR!
CCV6	CCV	1	19.36	1	15	PASS	19.068	4.51	15	PASS
CCB6	CCB	1	0.023	32.73	15	<PQL	0.02	42.52	15	<PQL
N035663-009B	SAMP	5	0.61	6.081	15	PASS	0.22	33.24	15	<PQL
N035663-004B	SAMP	1	1.45	1.88	15	PASS	4.7	6.37	15	PASS
N035705-001B	SAMP	1	1.28	5.12	15	PASS	3.16	2.3	15	PASS
N035705-001B	SAMP	5	0.27	12.58	15	PASS	0.8	13.96	15	PASS
N035705-002B	SAMP	1	3.38	5.96	15	PASS	0.33	23.32	15	<PQL
N035705-002B	SAMP	5	0.7	0.67	15	PASS	0.047	97.55	15	<PQL
N035705-003B	SAMP	1	3.39	3.76	15	PASS	0.32	44.06	15	<PQL
N035705-003B	SAMP	5	0.7	6.45	15	PASS	0.1	17.32	15	<PQL
N035705-004B	SAMP	1	3.32	3.61	15	PASS	0.54	39.98	15	NR!
N035705-005B	SAMP	1	3.15	0.98	15	PASS	0.57	37.1	15	NR!
CCV7	CCV	1	18.98	0.54	15	PASS	18.99	2.73	15	PASS
CCB7	CCB	1	0.022	69.56	15	<PQL	0.016	61.46	15	<PQL
N035705-006B	SAMP	1	1.04	1.1	15	PASS	2.25	6.39	15	PASS
N035705-006B	SAMP	5	0.21	8.77	15	PASS	0.52	14.31	15	PASS
N035705-007B	SAMP	1	1.033	2.24	15	PASS	1.75	11.11	15	PASS
N035705-007B	SAMP	5	0.22	1.42	15	PASS	0.52	32.53	15	NR!
N035705-008B	SAMP	1	2.26	2.86	15	PASS	1.77	8.62	15	PASS
N035705-008B	SAMP	5	0.45	5.52	15	PASS	0.47	16.78	15	<PQL
N035705-008B	SAMP	25	0.095	10.99	15	PASS	0.087	42.12	15	<PQL
N035705-009B	SAMP	1	2.24	1.32	15	PASS	1.91	8.36	15	PASS
N035705-009B	SAMP	5	0.44	10.94	15	PASS	0.44	13.11	15	PASS
N035705-009B	SAMP	25	0.084	11.49	15	PASS	0.081	50.26	15	<PQL
CCV8	CCV	1	19.27	0.77	15	PASS	19.82	3.2	15	PASS
CCB8	CCB	1	0.03	3.65	15	PASS	0.022	116.59	15	<PQL
N035705-010B	SAMP	1	1.98	3.085	15	PASS	0.65	10.41	15	PASS
N035705-001B	SAMP	1	1.23	5.78	15	PASS	3.71	3.27	15	PASS
N035705-004B	SAMP	1	3.28	5.25	15	PASS	0.58	39.5	15	NR!
N035705-005B	SAMP	1	3.062	0.42	15	PASS	0.5	44.63	15	NR!
N035705-004B	SAMP	1	3.15	2.021	15	PASS	0.7	31.62	15	NR!
CCV9	CCV	1	19.39	1.16	15	PASS	18.89	0.99	15	PASS
CCB9	CCB	1	0.014	48.65	15	<PQL	0.045	78.16	15	<PQL
ICSA3	ICSA	1	0.031	40.24	15	<PQL	0.00023	4371.42	15	<PQL
ICSAB3	ICSAB	1	19.47	1.096	15	PASS	19.12	2.95	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035705-004B	SAMP	1	3.34	1.38	15	PASS	0.55	23.65	15	NR!
MB-73997	MBLK	1	0.01	39.92	15	<PQL	0.011	152.53	15	<PQL
LCS-73997	LCS	1	9.74	0.21	15	PASS	9.51	3.54	15	PASS
N035705-014B	SAMP	1	3.71	1.38	15	PASS	3.37	3.64	15	PASS
N035705-014B	SAMP	5	0.72	1.66	15	PASS	0.74	30.85	15	NR!
N035705-014B	SAMP	50	0.07	17.61	15	<PQL	0.092	42.19	15	<PQL
CCV10	CCV	1	19.2	2.11	15	PASS	18.67	2.57	15	PASS
CCB10	CCB	1	0.013	11.78	15	PASS	0.027	4.68	15	PASS
N035705-015B	SAMP	1	3.58	3.63	15	PASS	0.57	18.79	15	NR!
N035705-015B	SAMP	5	0.75	4.6	15	PASS	0.11	51.58	15	<PQL
N035705-015B-PS	PS	1	13.61	1.57	15	PASS	10.43	2.23	15	PASS
N035705-015B-MS	MS	1	13.65	1.17	15	PASS	9.89	5.32	15	PASS
N035705-015B-MSD	MSD	1	13.57	0.84	15	PASS	10.49	1.89	15	PASS
N035705-015B	SAMP	25	0.16	9.039	15	PASS	0.024	60.17	15	<PQL
N035705-015B-PS	PS	5	2.9	1.38	15	PASS	1.98	6.66	15	PASS
N035705-015B-MS	MS	5	2.72	0.3	15	PASS	1.96	16.69	15	NR!
N035705-015B-MSD	MSD	5	2.85	3.29	15	PASS	2.25	2.16	15	PASS
N035705-004B	SAMP	1	3.14	3.55	15	PASS	0.65	33.51	15	NR!
CCV11	CCV	1	19.45	0.67	15	PASS	19.93	0.57	15	PASS
CCB11	CCB	1	0.021	69.67	15	<PQL	0.038	65.5	15	<PQL
CCV11	CCV	1	19.15	1.65	15	PASS	20.4	3.12	15	PASS
CCB11	CCB	1	0.017	40.26	15	<PQL	0.01	155.37	15	<PQL
N035705-004B	SAMP	1	3.28	0.56	15	PASS	0.74	22.45	15	NR!
N035705-014B	SAMP	5	0.73	4.8	15	PASS	0.76	14.091	15	PASS
N035705-015B-MS	MS	5	2.74	0.91	15	PASS	2.091	6.45	15	PASS
N035712-002B	SAMP	1	0.72	6.96	15	PASS	0.41	18.15	15	<PQL
N035712-004B	SAMP	1	2.11	4.28	15	PASS	0.059	96.083	15	<PQL
N035712-004B	SAMP	5	0.46	1.79	15	PASS	<0.000	0	15	PASS
N035705-004B	SAMP	1	3.2	1.9	15	PASS	0.64	11.7	15	PASS
N035712-006B	SAMP	1	13.91	2.29	15	PASS	0.3	30.00024	15	<PQL
N035712-006B	SAMP	5	2.87	1.53	15	PASS	0.067	42.79	15	<PQL
N035712-007B	SAMP	1	1.76	2.78	15	PASS	2.3	6.41	15	PASS
CCV12	CCV	1	19.27	1.056	15	PASS	19.81	2.27	15	PASS
CCB12	CCB	1	0.0057	81.75	15	<PQL	0.014	243.59	15	<PQL
N035712-007B	SAMP	5	0.34	4.43	15	PASS	0.46	15.18	15	<PQL
N035712-008B	SAMP	1	3.51	2.088	15	PASS	5.12	6.58	15	PASS
N035712-008B	SAMP	5	0.72	0.76	15	PASS	0.96	22.37	15	NR!
N035712-009B	SAMP	1	1.91	1.27	15	PASS	2.87	5.55	15	PASS
N035712-009B	SAMP	5	0.39	5.2	15	PASS	0.5	38.98	15	NR!
N035712-009B	SAMP	10	0.2	11.46	15	PASS	0.29	25.79	15	<PQL
N035712-010B	SAMP	1	1.67	6.37	15	PASS	0.85	23.71	15	NR!

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035712-010B	SAMP	5	0.32	6.53	15	PASS	0.2	7.65	15	PASS
N035712-011B	SAMP	1	1.89	1.86	15	PASS	0.63	29.41	15	NR!
N035712-011B	SAMP	5	0.37	5.024	15	PASS	0.073	57.038	15	<PQL
CCV13	CCV	1	19.14	1.74	15	PASS	19.82	2.95	15	PASS
CCB13	CCB	1	0.016	29.54	15	<PQL	0.013	248.18	15	<PQL
ICSA4	ICSA	1	0.048	23.2	15	<PQL	0.023	123.83	15	<PQL
ICSAB4	ICSAB	1	19.48	0.78	15	PASS	18.72	1.42	15	PASS
N035712-012B	SAMP	1	2.38	7.2	15	PASS	0.82	26.66	15	NR!
N035712-012B	SAMP	5	0.48	10.62	15	PASS	0.15	14.11	15	PASS
N035712-013B	SAMP	1	3.65	3.16	15	PASS	0.05	98.087	15	<PQL
N035712-013B	SAMP	5	0.77	4.11	15	PASS	0.014	121.34	15	<PQL
N035712-013B	SAMP	10	0.4	6.69	15	PASS	0.0036	436.87	15	<PQL
N035712-016B	SAMP	1	5.41	1.83	15	PASS	4.65	4.095	15	PASS
N035712-017B	SAMP	1	5.2	3.58	15	PASS	4.88	6.14	15	PASS
N035712-018B	SAMP	1	1.57	4.71	15	PASS	3.91	8.056	15	PASS
N035712-020B	SAMP	1	1.46	1.65	15	PASS	0.71	12.56	15	PASS
N035712-016B	SAMP	5	1.081	3.48	15	PASS	0.97	10.0043	15	PASS
CCV14	CCV	1	19.15	1.19	15	PASS	19.64	0.91	15	PASS
CCB14	CCB	1	0.017	70.44	15	<PQL	0.021	1.88	15	PASS
N035712-017B	SAMP	5	1.042	6.094	15	PASS	0.84	18.19	15	NR!
N035712-018B	SAMP	5	0.26	9.93	15	PASS	0.62	29.24	15	NR!
N035712-020B	SAMP	5	0.29	8.42	15	PASS	0.13	45.41	15	<PQL
N035712-010B	SAMP	1	1.58	1.61	15	PASS	0.6	13.62	15	PASS
N035712-011B	SAMP	1	1.93	3.95	15	PASS	0.73	15.54	15	NR!
N035712-012B	SAMP	1	2.44	4.23	15	PASS	0.82	6.17	15	PASS
CCV15	CCV	1	19.11	0.47	15	PASS	19.34	1.33	15	PASS
CCB15	CCB	1	0.019	31.75	15	<PQL	0.049	82.45	15	<PQL
ICSA5	ICSA	1	0.055	37.35	15	<PQL	0.0038	422.29	15	<PQL
ICSAB5	ICSAB	1	19.73	1.057	15	PASS	18.54	2.088	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.083	9.77	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.46	5.86	15	PASS
Std3-5/50 ppb	ICAL	1	4.57	1.21	15	PASS
Std4-10/100 ppb	ICAL	1	9.37	1.84	15	PASS
Std5-20/200 ppb	ICAL	1	18.88	1.65	15	PASS
Std6-40/400 ppb	ICAL	1	38.55	1.59	15	PASS
Std7-100/1000 ppb	ICAL	1	98.69	2.57	15	PASS
Std8-200/2000 ppb	ICAL	1	201.1	1.61	15	PASS
ICV	ICV	1	9.5	2.069	15	PASS
ICB	ICB	1	0.095	4.083	15	PASS
LLICV	CCV1	1	0.5	1.86	20	PASS
ICSA1	ICSA	1	0.061	19.25	15	<PQL
ICSAB1	ICSAB	1	20.55	0.5	15	PASS
LLICV	CCV1	1	0.66	2.82	20	PASS
CCV1	CCV	1	19.23	1.2	15	PASS
CCB1	CCB	1	0.16	12.48	15	PASS
CCV2	CCV	1	18.95	2.15	15	PASS
CCB2	CCB	1	0.18	7.2	15	PASS
CCV3	CCV	1	19.062	0.58	15	PASS
CCB3	CCB	1	0.18	12.55	15	PASS
CCV4	CCV	1	19.15	1.53	15	PASS
CCB4	CCB	1	0.21	12.69	15	PASS
ICSA2	ICSA	1	0.12	8.23	15	PASS
ICSAB2	ICSAB	1	20.33	1.87	15	PASS
MB-73996	MBLK	1	0.15	12.16	15	PASS
LCS-73996	LCS	1	9.48	0.88	15	PASS
N035660-001A	SAMP	1	41	0.68	15	PASS
N035660-001A	SAMP	5	8.01	0.44	15	PASS
N035660-001A-PS	PS	1	50.76	0.7	15	PASS
N035660-001A-MS	MS	1	51.61	1.37	15	PASS
N035660-001A-MSD	MSD	1	51.64	1.98	15	PASS
N035663-001B	SAMP	1	4.43	3.21	15	PASS
N035663-002B	SAMP	1	19.77	1.21	15	PASS
N035663-002B	SAMP	5	3.98	0.93	15	PASS
CCV5	CCV	1	18.3	0.65	15	PASS
CCB5	CCB	1	0.18	5.28	15	PASS
N035663-003B	SAMP	1	19.15	0.87	15	PASS
N035663-003B	SAMP	5	3.75	0.55	15	PASS
N035663-004B	SAMP	1	4.81	2.0067	15	PASS
N035663-005B	SAMP	1	83.37	1.3	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035663-005B	SAMP	5	16.059	1.3	15	PASS
N035663-006B	SAMP	1	22.32	1.39	15	PASS
N035663-007B	SAMP	1	114.36	1.58	15	PASS
N035663-008B	SAMP	1	58.48	1.68	15	PASS
N035663-008B	SAMP	5	11.27	0.68	15	PASS
N035663-009B	SAMP	1	57.75	1.78	15	PASS
CCV6	CCV	1	19	1.85	15	PASS
CCB6	CCB	1	0.22	5.52	15	PASS
N035663-009B	SAMP	5	10.93	1.48	15	PASS
N035663-004B	SAMP	1	4.98	1.45	15	PASS
N035705-001B	SAMP	1	3.97	2.16	15	PASS
N035705-001B	SAMP	5	0.8	0.54	15	PASS
N035705-002B	SAMP	1	81.62	0.76	15	PASS
N035705-002B	SAMP	5	16.19	1.12	15	PASS
N035705-003B	SAMP	1	84.76	0.71	15	PASS
N035705-003B	SAMP	5	16.51	0.78	15	PASS
N035705-004B	SAMP	1	30.69	1.36	15	PASS
N035705-005B	SAMP	1	29.58	1.35	15	PASS
CCV7	CCV	1	18.64	2.13	15	PASS
CCB7	CCB	1	0.17	5.52	15	PASS
N035705-006B	SAMP	1	12.8	1.67	15	PASS
N035705-006B	SAMP	5	2.54	2.1	15	PASS
N035705-007B	SAMP	1	12.73	0.51	15	PASS
N035705-007B	SAMP	5	2.54	2.76	15	PASS
N035705-008B	SAMP	1	9.45	1.31	15	PASS
N035705-008B	SAMP	5	1.86	2.43	15	PASS
N035705-008B	SAMP	25	0.37	3.55	15	PASS
N035705-009B	SAMP	1	9.032	2.37	15	PASS
N035705-009B	SAMP	5	1.73	2.57	15	PASS
N035705-009B	SAMP	25	0.37	6.54	15	PASS
CCV8	CCV	1	18.55	0.68	15	PASS
CCB8	CCB	1	0.15	11.39	15	PASS
N035705-010B	SAMP	1	13.57	1.51	15	PASS
N035705-001B	SAMP	1	3.98	2.9	15	PASS
N035705-004B	SAMP	1	30.29	0.48	15	PASS
N035705-005B	SAMP	1	29.5	1.18	15	PASS
N035705-004B	SAMP	1	30.34	0.68	15	PASS
CCV9	CCV	1	18.77	1.35	15	PASS
CCB9	CCB	1	0.14	19.048	15	<PQL
ICSA3	ICSA	1	0.087	7.032	15	PASS
ICSAB3	ICSAB	1	20.11	0.97	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035705-004B	SAMP	1	30.11	1.86	15	PASS
MB-73997	MBLK	1	0.12	7.57	15	PASS
LCS-73997	LCS	1	9.58	0.86	15	PASS
N035705-014B	SAMP	1	42.88	0.91	15	PASS
N035705-014B	SAMP	5	8.28	2.9	15	PASS
N035705-014B	SAMP	50	0.8	4.19	15	PASS
CCV10	CCV	1	18.53	1.61	15	PASS
CCB10	CCB	1	0.16	11.97	15	PASS
N035705-015B	SAMP	1	55.58	1.16	15	PASS
N035705-015B	SAMP	5	11.23	1.77	15	PASS
N035705-015B-PS	PS	1	65.63	0.92	15	PASS
N035705-015B-MS	MS	1	65.58	1.41	15	PASS
N035705-015B-MSD	MSD	1	66.85	1.072	15	PASS
N035705-015B	SAMP	25	2.15	3.3	15	PASS
N035705-015B-PS	PS	5	12.77	0.96	15	PASS
N035705-015B-MS	MS	5	12.75	1.74	15	PASS
N035705-015B-MSD	MSD	5	12.8	1.69	15	PASS
N035705-004B	SAMP	1	30.63	1.015	15	PASS
CCV11	CCV	1	18.99	2.22	15	PASS
CCB11	CCB	1	0.16	7.024	15	PASS
CCV11	CCV	1	19.015	1.33	15	PASS
CCB11	CCB	1	0.16	12.5	15	PASS
N035705-004B	SAMP	1	30.5	1.84	15	PASS
N035705-014B	SAMP	5	8.36	1.52	15	PASS
N035705-015B-MS	MS	5	12.87	2.59	15	PASS
N035712-002B	SAMP	1	4.43	0.95	15	PASS
N035712-004B	SAMP	1	22.35	1.18	15	PASS
N035712-004B	SAMP	5	4.28	1.18	15	PASS
N035705-004B	SAMP	1	30.6	0.66	15	PASS
N035712-006B	SAMP	1	28.81	0.78	15	PASS
N035712-006B	SAMP	5	5.89	1.45	15	PASS
N035712-007B	SAMP	1	24.98	1.54	15	PASS
CCV12	CCV	1	19.17	1.83	15	PASS
CCB12	CCB	1	0.14	3.9	15	PASS
N035712-007B	SAMP	5	4.84	1.53	15	PASS
N035712-008B	SAMP	1	62.94	1.16	15	PASS
N035712-008B	SAMP	5	12.19	0.89	15	PASS
N035712-009B	SAMP	1	19.55	0.77	15	PASS
N035712-009B	SAMP	5	3.74	1.97	15	PASS
N035712-009B	SAMP	10	1.87	0.64	15	PASS
N035712-010B	SAMP	1	45.9	1.056	15	PASS

PERCENT RSD SUMMARY: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035712-010B	SAMP	5	8.81	1.69	15	PASS
N035712-011B	SAMP	1	196.67	0.97	15	PASS
N035712-011B	SAMP	5	37.59	1.6	15	PASS
CCV13	CCV	1	19.51	0.97	15	PASS
CCB13	CCB	1	0.23	3.16	15	PASS
ICSA4	ICSA	1	0.14	7.78	15	PASS
ICSAB4	ICSAB	1	20.73	1.4	15	PASS
N035712-012B	SAMP	1	376.78	0.84	15	PASS
N035712-012B	SAMP	5	65.46	1.16	15	PASS
N035712-013B	SAMP	1	63.56	1.45	15	PASS
N035712-013B	SAMP	5	12.69	1.51	15	PASS
N035712-013B	SAMP	10	6.11	2.77	15	PASS
N035712-016B	SAMP	1	24.52	1.12	15	PASS
N035712-017B	SAMP	1	47.23	1.16	15	PASS
N035712-018B	SAMP	1	12.99	0.2	15	PASS
N035712-020B	SAMP	1	18.43	2.94	15	PASS
N035712-016B	SAMP	5	4.67	0.68	15	PASS
CCV14	CCV	1	19.026	1.26	15	PASS
CCB14	CCB	1	0.15	3.47	15	PASS
N035712-017B	SAMP	5	8.85	1.00027	15	PASS
N035712-018B	SAMP	5	2.29	1.78	15	PASS
N035712-020B	SAMP	5	3.59	1.28	15	PASS
N035712-010B	SAMP	1	46.26	1.22	15	PASS
N035712-011B	SAMP	1	196.65	0.79	15	PASS
N035712-012B	SAMP	1	376.92	1.19	15	PASS
CCV15	CCV	1	20.43	0.66	15	PASS
CCB15	CCB	1	0.41	8.44	15	PASS
ICSA5	ICSA	1	0.23	10.077	15	PASS
ICSAB5	ICSAB	1	20.77	2.54	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	1.92	15	PASS	0.095	3.86	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.5	6.57	15	PASS	0.54	1.66	15	PASS
Std3-5/50 ppb	ICAL	1	5.11	1.075	15	PASS	5.49	1.36	15	PASS
Std4-10/100 ppb	ICAL	1	10.11	1.86	15	PASS	10.79	2.029	15	PASS
Std5-20/200 ppb	ICAL	1	20.076	1.65	15	PASS	21.58	2.52	15	PASS
Std6-40/400 ppb	ICAL	1	39.47	2.38	15	PASS	42.37	2.28	15	PASS
Std7-100/1000 ppb	ICAL	1	96.34	1.57	15	PASS	102.52	1.29	15	PASS
Std8-200/2000 ppb	ICAL	1	201.92	3.14	15	PASS	198.057	2.47	15	PASS
ICV	ICV	1	10.48	2.33	15	PASS	108.42	2.012	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	1.029	1.87	20	PASS	0.55	6.44	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.46	2.053	15	PASS	17.82	2.9	15	PASS
LLICV	CCV1	1	1.037	2.71	20	PASS	0.57	1.16	20	PASS
CCV1	CCV	1	20.28	2.49	15	PASS	21.56	2.6	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.19	2.41	15	PASS	21.6	2.2	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035705-004B	SAMP	1	10.65	1.18	15	PASS	<0.000	N/A	15	<PQL
N035705-005B	SAMP	1	10.29	0.41	15	PASS	0.053	53.063	15	<PQL
MB-73997	MBLK	1	<0.000	N/A	15	<PQL	0.0073	25.46	15	<PQL
LCS-73997	LCS	1	9.87	2.94	15	PASS	103.89	2.35	15	PASS
N035705-014B	SAMP	1	5254.26	1.51	15	PASS	<0.000	N/A	15	<PQL
N035705-014B	SAMP	5	1204.31	2.43	15	PASS	0.79	2.62	15	PASS
CCV3	CCV	1	20.52	2.33	15	PASS	21.3	2.63	15	PASS
CCB3	CCB	1	0.21	6.016	15	PASS	<0.000	N/A	15	<PQL
N035705-014B	SAMP	50	123.28	2.069	15	PASS	0.11	7.43	15	PASS
N035705-015B	SAMP	1	5.98	1.063	15	PASS	<0.000	N/A	15	<PQL
N035705-015B	SAMP	5	1.31	1.43	15	PASS	0.87	4.35	15	PASS
N035705-015B-PS	PS	1	14.72	1.1	15	PASS	92.17	0.96	15	PASS
N035705-015B-MS	MS	1	14.53	1.7	15	PASS	91.72	1.028	15	PASS
N035705-015B-MSD	MSD	1	14.53	1.64	15	PASS	92.54	1.53	15	PASS
N035705-015B	SAMP	25	0.28	8.11	15	PASS	0.22	1.051	15	PASS
N035705-015B-PS	PS	5	3.21	3.98	15	PASS	21.87	1.97	15	PASS
N035705-015B-MS	MS	5	3.19	3.33	15	PASS	21.64	1.97	15	PASS
N035705-015B-MSD	MSD	5	3.23	3.8	15	PASS	21.7	3.044	15	PASS
CCV4	CCV	1	19.97	2.29	15	PASS	21.6	2.31	15	PASS
CCB4	CCB	1	0.02	32.71	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.0049	292.06	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.41	2.052	15	PASS	17.72	3.33	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035712-002B	SAMP	1	0.1	12.62	15	PASS	0.47	16.0052	15	<PQL
N035712-004B	SAMP	1	0.85	1.56	15	PASS	298.34	1.74	15	PASS
N035712-004B	SAMP	5	0.18	4.15	15	PASS	56.31	1.23	15	PASS
N035712-006B	SAMP	1	0.41	3.61	15	PASS	310.032	1.11	15	PASS
N035712-006B	SAMP	5	0.084	15.37	15	<PQL	60.11	1.32	15	PASS
N035712-007B	SAMP	1	14.048	0.62	15	PASS	268.75	1.4	15	PASS
N035712-007B	SAMP	5	3.087	2.16	15	PASS	53.28	1.33	15	PASS
N035712-008B	SAMP	1	165.92	1.96	15	PASS	6.026	3.22	15	PASS
N035712-008B	SAMP	5	32.09	2.77	15	PASS	1.33	2.19	15	PASS
N035712-009B	SAMP	1	1504.075	1.039	15	PASS	1.063	6.42	15	PASS
CCV5	CCV	1	19.86	1.77	15	PASS	20.89	1.48	15	PASS
CCB5	CCB	1	0.09	16.56	15	<PQL	<0.000	N/A	15	<PQL
N035712-009B	SAMP	5	337.42	2.34	15	PASS	0.89	3.9	15	PASS
N035712-009B	SAMP	10	169.94	2.64	15	PASS	0.54	3.45	15	PASS
N035712-010B	SAMP	1	21.32	1.96	15	PASS	74.056	1.92	15	PASS
N035712-010B	SAMP	5	4.6	2.6	15	PASS	16.79	2.58	15	PASS
N035712-011B	SAMP	1	9.053	0.78	15	PASS	11.14	1.43	15	PASS
N035712-011B	SAMP	5	1.88	1.38	15	PASS	3.68	1.22	15	PASS
N035712-012B	SAMP	1	2.66	1.95	15	PASS	29.073	0.44	15	PASS
N035712-012B	SAMP	5	0.41	4.92	15	PASS	7.91	2.93	15	PASS
N035712-013B	SAMP	1	0.16	6.26	15	PASS	922.19	1.56	15	PASS
N035712-013B	SAMP	5	<0.000	N/A	15	<PQL	211.57	3.37	15	PASS
CCV6	CCV	1	19.96	2.33	15	PASS	21.23	2.097	15	PASS
CCB6	CCB	1	0.015	12.35	15	PASS	<0.000	N/A	15	<PQL
N035712-013B	SAMP	10	<0.000	N/A	15	<PQL	95.69	2.12	15	PASS
N035712-016B	SAMP	1	34.68	0.65	15	PASS	0.37	3.23	15	PASS
N035712-016B	SAMP	5	7.69	2.54	15	PASS	0.98	2.96	15	PASS
N035712-017B	SAMP	1	1.068	4.32	15	PASS	0.36	1.91	15	PASS
N035712-017B	SAMP	5	0.099	12.64	15	PASS	1.011	1.87	15	PASS
N035712-018B	SAMP	1	572.22	1.51	15	PASS	0.89	3.74	15	PASS
N035712-018B	SAMP	5	111.21	1.22	15	PASS	0.14	4.63	15	PASS
N035712-020B	SAMP	1	2.83	3.38	15	PASS	2.5	1.57	15	PASS
N035712-020B	SAMP	5	0.65	1.82	15	PASS	0.57	2.33	15	PASS
CCV7	CCV	1	19.82	2.2	15	PASS	21.36	2.99	15	PASS
CCB7	CCB	1	0.016	24.41	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	0.0048	180.61	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.47	2.68	15	PASS	17.73	3.46	15	PASS
CCV8	CCV	1	20.017	2.46	15	PASS	20.99	1.66	15	PASS
CCB8	CCB	1	0.018	14.53	15	PASS	<0.000	N/A	15	<PQL
CCV9	CCV	1	19.97	2.47	15	PASS	21.11	1.16	15	PASS
CCB9	CCB	1	0.05	2.74	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSA4	ICSA	1	0.028	35.63	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	19.15	2.31	15	PASS	18.013	2.32	15	PASS
CCV10	CCV	1	19.78	1.72	15	PASS	21.38	1.26	15	PASS
CCB10	CCB	1	0.066	15.47	15	<PQL	<0.000	N/A	15	<PQL
CCV11	CCV	1	20.47	1.69	15	PASS	21.56	1.48	15	PASS
CCB11	CCB	1	0.21	2.73	15	PASS	<0.000	N/A	15	<PQL
CCV12	CCV	1	20.044	2.33	15	PASS	21.5	2.16	15	PASS
CCB12	CCB	1	0.12	5.36	15	PASS	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	0.067	5.88	15	PASS	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	19.29	1.63	15	PASS	18.12	2.085	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	23.18	15	NR!	0.083	49.022	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.53	2.82	15	PASS	0.53	24.29	15	NR!
Std3-5/50 ppb	ICAL	1	5.16	1.55	15	PASS	5.13	3.53	15	PASS
Std4-10/100 ppb	ICAL	1	10.15	2.21	15	PASS	10.053	5.14	15	PASS
Std5-20/200 ppb	ICAL	1	20.35	0.84	15	PASS	20.11	2.36	15	PASS
Std6-40/400 ppb	ICAL	1	40.3	0.69	15	PASS	40.27	2.39	15	PASS
Std7-100/1000 ppb	ICAL	1	100.7	0.14	15	PASS	101.64	0.4	15	PASS
Std8-200/2000 ppb	ICAL	1	199.54	0.98	15	PASS	199.11	1.44	15	PASS
ICV	ICV	1	10.08	1.93	15	PASS	9.41	4.66	15	PASS
ICB	ICB	1	0.02	62.39	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	0.1	19.15	20	PASS	0.52	29.45	20	NR!
ICSA1	ICSA	1	0.042	22.97	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.82	0.72	15	PASS	19.59	2.62	15	PASS
LLICV	CCV1	1	0.12	4.85	20	PASS	0.52	5.78	20	PASS
CCV1	CCV	1	20.22	0.22	15	PASS	19.99	2.32	15	PASS
CCB1	CCB	1	0.017	69.8	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.58	0.42	15	PASS	19.64	0.86	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.0091	97.37	15	<PQL
N035705-004B	SAMP	1	3.39	4.88	15	PASS	0.61	21.1	15	NR!
N035705-005B	SAMP	1	3.46	3.7	15	PASS	0.84	20.73	15	NR!
MB-73997	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-73997	LCS	1	10.21	1.11	15	PASS	9.7	1.46	15	PASS
N035705-014B	SAMP	1	4.0029	0.56	15	PASS	3.99	8.16	15	PASS
N035705-014B	SAMP	5	0.75	3.46	15	PASS	0.77	12.85	15	PASS
CCV3	CCV	1	20.25	0.41	15	PASS	19.48	2.91	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035705-014B	SAMP	50	0.056	37.091	15	<PQL	0.026	55.42	15	<PQL
N035705-015B	SAMP	1	3.79	2.59	15	PASS	0.39	43.97	15	<PQL
N035705-015B	SAMP	5	0.79	2.86	15	PASS	0.086	45.32	15	<PQL
N035705-015B-PS	PS	1	14.49	1.59	15	PASS	11.41	3.95	15	PASS
N035705-015B-MS	MS	1	14.5	0.83	15	PASS	11.42	0.35	15	PASS
N035705-015B-MSD	MSD	1	14.49	0.58	15	PASS	11.33	1.95	15	PASS
N035705-015B	SAMP	25	0.15	14.74	15	PASS	0.0025	1925.7	15	<PQL
N035705-015B-PS	PS	5	3.019	1.45	15	PASS	2.23	6.72	15	PASS
N035705-015B-MS	MS	5	2.97	0.27	15	PASS	2.3	5.12	15	PASS
N035705-015B-MSD	MSD	5	2.98	1.84	15	PASS	2.23	5.37	15	PASS
CCV4	CCV	1	19.97	1.57	15	PASS	19.88	2.3	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.035	10.38	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.78	0.58	15	PASS	20.09	1.66	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035712-002B	SAMP	1	0.81	2.37	15	PASS	0.4	34.18	15	<PQL
N035712-004B	SAMP	1	2.17	4.45	15	PASS	0.052	58.49	15	<PQL
N035712-004B	SAMP	5	0.45	8.0086	15	PASS	<0.000	N/A	15	<PQL
N035712-006B	SAMP	1	14.58	0.42	15	PASS	0.34	14.11	15	PASS
N035712-006B	SAMP	5	3.039	2.96	15	PASS	0.067	97.22	15	<PQL
N035712-007B	SAMP	1	1.89	1.17	15	PASS	1.92	8.76	15	PASS
N035712-007B	SAMP	5	0.38	11.36	15	PASS	0.45	19.97	15	<PQL
N035712-008B	SAMP	1	3.66	4.47	15	PASS	4.58	10.22	15	PASS
N035712-008B	SAMP	5	0.7	4.94	15	PASS	0.92	15.27	15	NR!
N035712-009B	SAMP	1	1.97	1.42	15	PASS	2.82	7	15	PASS
CCV5	CCV	1	20.47	1.099	15	PASS	19.88	2.7	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.01	137.5	15	<PQL
N035712-009B	SAMP	5	0.39	7.0026	15	PASS	0.45	12.3	15	PASS
N035712-009B	SAMP	10	0.18	12.33	15	PASS	0.23	8.12	15	PASS
N035712-010B	SAMP	1	1.68	2.02	15	PASS	0.7	29.31	15	NR!
N035712-010B	SAMP	5	0.34	2.2	15	PASS	0.18	56.046	15	<PQL
N035712-011B	SAMP	1	2.084	2.25	15	PASS	0.67	17.31	15	NR!
N035712-011B	SAMP	5	0.38	2.91	15	PASS	0.12	70.02	15	<PQL
N035712-012B	SAMP	1	2.43	0.82	15	PASS	0.75	21.75	15	NR!
N035712-012B	SAMP	5	0.5	4.75	15	PASS	0.093	37.52	15	<PQL
N035712-013B	SAMP	1	3.97	2.081	15	PASS	<0.000	N/A	15	<PQL
N035712-013B	SAMP	5	0.8	6.34	15	PASS	<0.000	N/A	15	<PQL
CCV6	CCV	1	20.19	0.92	15	PASS	20.15	1.46	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	0.0045	637.084	15	<PQL
N035712-013B	SAMP	10	0.34	16.007	15	NR!	<0.000	N/A	15	<PQL
N035712-016B	SAMP	1	5.67	1.22	15	PASS	5.31	10.99	15	PASS
N035712-016B	SAMP	5	1.13	6.66	15	PASS	1.04	6.061	15	PASS
N035712-017B	SAMP	1	5.61	1.055	15	PASS	5.12	9.41	15	PASS
N035712-017B	SAMP	5	1.061	4.52	15	PASS	0.97	19.34	15	NR!
N035712-018B	SAMP	1	1.62	4.12	15	PASS	4.31	6.52	15	PASS
N035712-018B	SAMP	5	0.26	5.46	15	PASS	0.81	11.49	15	PASS
N035712-020B	SAMP	1	1.49	8.044	15	PASS	0.87	22.87	15	NR!
N035712-020B	SAMP	5	0.3	4.99	15	PASS	0.22	14.33	15	PASS
CCV7	CCV	1	20.23	0.63	15	PASS	20.65	2.29	15	PASS
CCB7	CCB	1	0.0033	453.21	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	0.024	62.077	15	<PQL	0.0024	706.68	15	<PQL
ICSAB3	ICSAB	1	20.46	1.38	15	PASS	19.68	3.89	15	PASS
CCV8	CCV	1	20.014	0.96	15	PASS	20.26	3.49	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV9	CCV	1	20.15	0.61	15	PASS	19.39	3.14	15	PASS
CCB9	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSA4	ICSA	1	0.031	36.9	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	20.23	1.24	15	PASS	19.84	1.34	15	PASS
CCV10	CCV	1	19.95	1.25	15	PASS	19.35	3.29	15	PASS
CCB10	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV11	CCV	1	20.11	0.48	15	PASS	19.81	3.83	15	PASS
CCB11	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV12	CCV	1	20.067	0.48	15	PASS	20.026	0.57	15	PASS
CCB12	CCB	1	<0.000	N/A	15	<PQL	0.0062	352.59	15	<PQL
ICSA5	ICSA	1	0.022	94.5	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	20.26	1.58	15	PASS	19.6	1.83	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.084	20.16	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	1.25	15	PASS
Std3-5/50 ppb	ICAL	1	4.86	4.16	15	PASS
Std4-10/100 ppb	ICAL	1	9.91	1.36	15	PASS
Std5-20/200 ppb	ICAL	1	20.082	1.47	15	PASS
Std6-40/400 ppb	ICAL	1	40.17	0.28	15	PASS
Std7-100/1000 ppb	ICAL	1	100.45	1.42	15	PASS
Std8-200/2000 ppb	ICAL	1	199.74	0.3	15	PASS
ICV	ICV	1	9.69	1.98	15	PASS
ICB	ICB	1	0.13	18.15	15	<PQL
LLICV	CCV1	1	0.52	2.65	20	PASS
ICSA1	ICSA	1	0.046	28.087	15	<PQL
ICSAB1	ICSAB	1	21.44	1.069	15	PASS
LLICV	CCV1	1	0.57	3.62	20	PASS
CCV1	CCV	1	19.92	0.7	15	PASS
CCB1	CCB	1	0.035	52.58	15	<PQL
CCV2	CCV	1	19.78	1.73	15	PASS
CCB2	CCB	1	0.036	26.65	15	<PQL
N035705-004B	SAMP	1	31.58	0.1	15	PASS
N035705-005B	SAMP	1	31.33	1.057	15	PASS
MB-73997	MBLK	1	0.0095	82.86	15	<PQL
LCS-73997	LCS	1	10.12	1.18	15	PASS
N035705-014B	SAMP	1	45.17	0.83	15	PASS
N035705-014B	SAMP	5	8.59	1.004	15	PASS
CCV3	CCV	1	19.88	0.94	15	PASS
CCB3	CCB	1	0.02	85.78	15	<PQL
N035705-014B	SAMP	50	0.73	2.36	15	PASS
N035705-015B	SAMP	1	59.86	1.34	15	PASS
N035705-015B	SAMP	5	11.59	0.24	15	PASS
N035705-015B-PS	PS	1	70.33	0.87	15	PASS
N035705-015B-MS	MS	1	70.092	1.022	15	PASS
N035705-015B-MSD	MSD	1	70.66	1.12	15	PASS
N035705-015B	SAMP	25	2.32	3.092	15	PASS
N035705-015B-PS	PS	5	13.57	1.62	15	PASS
N035705-015B-MS	MS	5	13.43	1.43	15	PASS
N035705-015B-MSD	MSD	5	13.52	1.25	15	PASS
CCV4	CCV	1	20.16	0.6	15	PASS
CCB4	CCB	1	0.048	27.14	15	<PQL
ICSA2	ICSA	1	0.026	55.71	15	<PQL
ICSAB2	ICSAB	1	21.52	0.94	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035712-002B	SAMP	1	4.44	2.71	15	PASS
N035712-004B	SAMP	1	23.034	1.27	15	PASS
N035712-004B	SAMP	5	4.48	2.083	15	PASS
N035712-006B	SAMP	1	29.95	0.88	15	PASS
N035712-006B	SAMP	5	5.98	0.69	15	PASS
N035712-007B	SAMP	1	26.15	0.3	15	PASS
N035712-007B	SAMP	5	5.052	1.61	15	PASS
N035712-008B	SAMP	1	65.51	0.059	15	PASS
N035712-008B	SAMP	5	12.82	2.3	15	PASS
N035712-009B	SAMP	1	20.22	1.47	15	PASS
CCV5	CCV	1	20.065	0.91	15	PASS
CCB5	CCB	1	0.021	85.88	15	<PQL
N035712-009B	SAMP	5	3.76	1.7	15	PASS
N035712-009B	SAMP	10	1.82	1.99	15	PASS
N035712-010B	SAMP	1	47.8	0.75	15	PASS
N035712-010B	SAMP	5	9.045	1.81	15	PASS
N035712-011B	SAMP	1	205.13	0.37	15	PASS
N035712-011B	SAMP	5	38.87	0.97	15	PASS
N035712-012B	SAMP	1	389.64	0.83	15	PASS
N035712-012B	SAMP	5	67.49	1.15	15	PASS
N035712-013B	SAMP	1	65.44	1.34	15	PASS
N035712-013B	SAMP	5	12.93	1.16	15	PASS
CCV6	CCV	1	20.11	0.51	15	PASS
CCB6	CCB	1	0.05	34.67	15	<PQL
N035712-013B	SAMP	10	6.094	1.94	15	PASS
N035712-016B	SAMP	1	24.82	0.67	15	PASS
N035712-016B	SAMP	5	4.82	1.43	15	PASS
N035712-017B	SAMP	1	49.34	0.41	15	PASS
N035712-017B	SAMP	5	9.26	0.76	15	PASS
N035712-018B	SAMP	1	13.17	0.33	15	PASS
N035712-018B	SAMP	5	2.29	0.9	15	PASS
N035712-020B	SAMP	1	19.0048	1.12	15	PASS
N035712-020B	SAMP	5	3.84	1.68	15	PASS
CCV7	CCV	1	20.15	1.87	15	PASS
CCB7	CCB	1	0.017	59.97	15	<PQL
ICSA3	ICSA	1	0.022	84.35	15	<PQL
ICSAB3	ICSAB	1	21.72	1.22	15	PASS
CCV8	CCV	1	19.67	1.25	15	PASS
CCB8	CCB	1	0.046	52.94	15	<PQL
CCV9	CCV	1	19.67	2.46	15	PASS
CCB9	CCB	1	0.031	42.39	15	<PQL

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
ICSA4	ICSA	1	0.03	48.26	15	<PQL
ICSAB4	ICSAB	1	21.5	0.48	15	PASS
CCV10	CCV	1	20.058	0.84	15	PASS
CCB10	CCB	1	0.023	42.19	15	<PQL
CCV11	CCV	1	20.1	0.35	15	PASS
CCB11	CCB	1	0.042	31.22	15	<PQL
CCV12	CCV	1	19.9	1.34	15	PASS
CCB12	CCB	1	0.031	83.77	15	<PQL
ICSA5	ICSA	1	0.015	8.06	15	PASS
ICSAB5	ICSAB	1	21.39	1.59	15	PASS

PERCENT RSD SUMMARY: 190617B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.16	23.2	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.59	13.28	15	PASS
Std3-5/50 ppb	ICAL	1	4.92	1.22	15	PASS
Std4-10/100 ppb	ICAL	1	10.91	9.33	15	PASS
Std5-20/200 ppb	ICAL	1	20.069	1.62	15	PASS
Std6-40/400 ppb	ICAL	1	39.65	4.13	15	PASS
Std7-100/1000 ppb	ICAL	1	99.48	1.55	15	PASS
Std8-200/2000 ppb	ICAL	1	200.28	1.73	15	PASS
ICV	ICV	1	10.47	6.2	15	PASS
ICB	ICB	1	0.055	112.15	15	<PQL
LLICV	CCV1	1	0.42	19.49	20	PASS
ICSA1	ICSA	1	<0.000	0	15	PASS
ICSAB1	ICSAB	1	20.43	3.18	15	PASS
LLICV	CCV1	1	0.5	34.26	20	NR!
N035705-004B	SAMP	1	0.59	12.17	15	PASS
N035705-005B	SAMP	1	0.7	31.24	15	NR!
CCV1	CCV	1	20.15	5.0057	15	PASS
CCB1	CCB	1	0.038	109.04	15	<PQL
CCV2	CCV	1	20.22	4.029	15	PASS
CCB2	CCB	1	0.039	60.99	15	<PQL
CCV3	CCV	1	20.029	1.62	15	PASS
CCB3	CCB	1	0.013	248.06	15	<PQL
CCV4	CCV	1	19.66	2.96	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.0016	907.66	15	<PQL
ICSAB2	ICSAB	1	20.36	3.99	15	PASS
CCV5	CCV	1	19.69	2.91	15	PASS
CCB5	CCB	1	0.036	94.3	15	<PQL
CCV6	CCV	1	19.5	2.7	15	PASS
CCB6	CCB	1	0.022	156.66	15	<PQL
ICSA3	ICSA	1	<0.000	0	15	PASS
ICSAB3	ICSAB	1	20.44	4.12	15	PASS

PERCENT RSD SUMMARY: 190624B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	4.86	15	PASS	0.077	60.31	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.52	3.5	15	PASS	0.43	25.3	15	<PQL
Std3-5/50 ppb	ICAL	1	4.98	1.82	15	PASS	4.81	7.45	15	PASS
Std4-10/100 ppb	ICAL	1	9.98	2.35	15	PASS	10.13	9.53	15	PASS
Std5-20/200 ppb	ICAL	1	19.75	1.59	15	PASS	18.71	2.87	15	PASS
Std6-40/400 ppb	ICAL	1	39.052	1.36	15	PASS	39.71	1.23	15	PASS
Std7-100/1000 ppb	ICAL	1	96.11	0.66	15	PASS	97.12	0.59	15	PASS
Std8-200/2000 ppb	ICAL	1	202.16	2.58	15	PASS	201.63	0.86	15	PASS
ICV	ICV	1	10.36	2.19	15	PASS	10.65	4.21	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.024	59.68	15	<PQL
ICV	ICV	1	10.38	2.77	15	PASS	10.48	1.93	15	PASS
ICV	ICV	1	10.46	1.96	15	PASS	9.77	4.41	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.015	116.2	15	<PQL
LLICV	CCV1	1	1.047	2.0059	20	PASS	0.52	20.16	20	NR!
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.073	11.83	15	PASS
ICSAB1	ICSAB	1	19.1	2.86	15	PASS	18.55	2.83	15	PASS
MB-74311	MBLK	1	0.0063	43.43	15	<PQL	0.015	124.012	15	<PQL
LCS-74311	LCS	1	9.12	1.2	15	PASS	8.92	2.19	15	PASS
N035705-005B	SAMP	1	10.083	0.94	15	PASS	0.52	14.16	15	PASS
N035705-005B	SAMP	5	2.16	2.66	15	PASS	0.14	16.63	15	<PQL
N035705-005B-PS	PS	1	19.036	0.36	15	PASS	10.53	2.051	15	PASS
N035705-005B-MS	MS	1	18.37	1.67	15	PASS	10.54	4.8	15	PASS
N035705-005B-MSD	MSD	1	19.39	1.54	15	PASS	11.44	2.48	15	PASS
N035712-010B	SAMP	1	21.39	1.93	15	PASS	0.93	3.36	15	PASS
N035712-011B	SAMP	1	8.42	0.92	15	PASS	0.67	4.52	15	PASS
N035712-020B	SAMP	1	2.81	2.83	15	PASS	1.047	10.071	15	PASS
CCV1	CCV	1	20.55	4.2	15	PASS	20.76	3.48	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.025	159.067	15	<PQL
N035779-008B	SAMP	1	24.041	1.4	15	PASS	1.27	23.76	15	NR!
N035915-012B	SAMP	1	2.79	0.55	15	PASS	0.32	31.97	15	<PQL
N035915-013B	SAMP	1	8.052	2.039	15	PASS	0.14	41.88	15	<PQL
N035738-004B	SAMP	25	<0.000	N/A	15	<PQL	<0.000	0	15	PASS
N035779-008B	SAMP	1	23.6	1.46	15	PASS	1.22	19.77	15	NR!
CCV2	CCV	1	19.66	1.75	15	PASS	20.5	0.89	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.013	140.1	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.042	72.16	15	<PQL
ICSAB2	ICSAB	1	19.13	3.12	15	PASS	20.54	2.57	15	PASS
CCV3	CCV	1	19.29	0.98	15	PASS	20.49	1.63	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.0066	306.079	15	<PQL
CCV4	CCV	1	19.18	0.36	15	PASS	20.16	2.043	15	PASS

PERCENT RSD SUMMARY: 190624B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.014	0.92	15	PASS
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	0.042	120.13	15	<PQL
ICSAB3	ICSAB	1	19.096	1.74	15	PASS	20.87	4.25	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613001.D	RINSE	RINSE	1	06/13/19 4:20 AM
A0613002.D	Cal Blank	IBLK	1	06/13/19 4:25 AM
A0613003.D	Std1-0.1/1 ppb	ICAL	1	06/13/19 4:30 AM
A0613004.D	Std2-0.5/5 ppb	ICAL	1	06/13/19 4:34 AM
A0613005.D	Std3-5/50 ppb	ICAL	1	06/13/19 4:39 AM
A0613006.D	Std4-10/100 ppb	ICAL	1	06/13/19 4:44 AM
A0613007.D	Std5-20/200 ppb	ICAL	1	06/13/19 4:49 AM
A0613008.D	Std6-40/400 ppb	ICAL	1	06/13/19 4:54 AM
A0613009.D	Std7-100/1000 ppb	ICAL	1	06/13/19 4:59 AM
A0613010.D	Std8-200/2000 ppb	ICAL	1	06/13/19 5:04 AM
A0613011.D	ICV	ICV	1	06/13/19 5:09 AM
A0613012.D	ICB	ICB	1	06/13/19 5:14 AM
A0613013.D	LLICV	CCV1	1	06/13/19 5:19 AM
A0613014.D	ICSA1	ICSA	1	06/13/19 5:24 AM
A0613015.D	ICSAB1	ICSAB	1	06/13/19 5:29 AM
A0613016.D	LLICV	CCV1	1	06/13/19 5:34 AM
A0613017.D	MB-73911	MBLK	1	06/13/19 5:39 AM
A0613018.D	LCS-73911	LCS	1	06/13/19 5:44 AM
A0613019.D	N035596-001A	SAMP	1	06/13/19 5:49 AM
A0613020.D	N035599-001B	SAMP	1	06/13/19 5:54 AM
A0613021.D	N035599-001B	SAMP	5	06/13/19 5:59 AM
A0613022.D	N035599-001B-PS	PS	1	06/13/19 6:04 AM
A0613023.D	N035599-001B-MS	MS	1	06/13/19 6:09 AM
A0613024.D	N035599-001B-MSD	MSD	1	06/13/19 6:14 AM
A0613025.D	N035599-001B	SAMP	25	06/13/19 6:18 AM
A0613026.D	N035599-001B-PS	PS	5	06/13/19 6:23 AM
A0613027.D	CCV1	CCV	1	06/13/19 6:29 AM
A0613028.D	CCB1	CCB	1	06/13/19 6:34 AM
A0613029_190613A1.D	N035599-001B-MS	MS	5	06/13/19 6:41 AM
A0613030_190613A1.D	N035599-001B-MSD	MSD	5	06/13/19 6:46 AM
A0613031_190613A1.D	N035599-002B	SAMP	1	06/13/19 6:51 AM
A0613032_190613A1.D	N035599-003B	SAMP	1	06/13/19 6:56 AM
A0613033_190613A1.D	N035599-004B	SAMP	1	06/13/19 7:00 AM
A0613034_190613A1.D	N035599-004B	SAMP	5	06/13/19 7:05 AM
A0613035_190613A1.D	N035639-001A	SAMP	1	06/13/19 7:10 AM
A0613036_190613A1.D	N035640-001B	SAMP	1	06/13/19 7:15 AM
A0613037_190613A1.D	N035640-002B	SAMP	1	06/13/19 7:20 AM
A0613038_190613A1.D	N035640-003B	SAMP	1	06/13/19 7:25 AM
A0613039_190613A1.D	CCV2	CCV	1	06/13/19 7:30 AM
A0613040_190613A1.D	CCB2	CCB	1	06/13/19 7:35 AM
A0613041_190613A1.D	N035640-004B	SAMP	1	06/13/19 7:40 AM
A0613042_190613A1.D	N035640-004B	SAMP	5	06/13/19 7:45 AM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613043_190613A1.D	N035640-005B	SAMP	1	06/13/19 7:50 AM
A0613044_190613A1.D	N035640-006B	SAMP	1	06/13/19 7:55 AM
A0613045_190613A1.D	N035640-007B	SAMP	1	06/13/19 8:00 AM
A0613046_190613A1.D	N035640-007B	SAMP	25	06/13/19 8:05 AM
A0613047_190613A1.D	N035640-008B	SAMP	1	06/13/19 8:10 AM
A0613048_190613A1.D	N035640-008B	SAMP	5	06/13/19 8:15 AM
A0613049_190613A1.D	N035640-008B	SAMP	50	06/13/19 8:20 AM
A0613050_190613A1.D	N035640-009B	SAMP	1	06/13/19 8:25 AM
A0613051_190613A1.D	CCV3	CCV	1	06/13/19 8:30 AM
A0613052_190613A1.D	CCB3	CCB	1	06/13/19 8:35 AM
A0613053_190613A1.D	N035640-009B	SAMP	5	06/13/19 8:40 AM
A0613054_190613A1.D	N035640-010B	SAMP	1	06/13/19 8:45 AM
A0613055_190613A1.D	N035640-010B	SAMP	5	06/13/19 8:49 AM
A0613056_190613A1.D	N035640-011B	SAMP	1	06/13/19 8:54 AM
A0613057_190613A1.D	N035640-011B	SAMP	5	06/13/19 8:59 AM
A0613058_190613A1.D	N035640-011B	SAMP	25	06/13/19 9:04 AM
A0613059_190613A1.D	N035640-012B	SAMP	1	06/13/19 9:09 AM
A0613060_190613A1.D	N035640-012B	SAMP	5	06/13/19 9:14 AM
A0613061_190613A1.D	N035640-015B	SAMP	1	06/13/19 9:19 AM
A0613062_190613A1.D	N035640-015B	SAMP	5	06/13/19 9:24 AM
A0613063_190613A1.D	CCV4	CCV	1	06/13/19 9:29 AM
A0613064_190613A1.D	CCB4	CCB	1	06/13/19 9:34 AM
A0613065_190613A1.D	ICSA2	ICSA	1	06/13/19 9:39 AM
A0613066_190613A1.D	ICSAB2	ICSAB	1	06/13/19 9:44 AM
A0613067_190613A1.D	MB-73996	MBLK	1	06/13/19 9:49 AM
A0613068_190613A1.D	LCS-73996	LCS	1	06/13/19 9:54 AM
A0613069_190613A1.D	N035660-001A	SAMP	1	06/13/19 9:59 AM
A0613070_190613A1.D	N035660-001A	SAMP	5	06/13/19 10:04 AM
A0613071_190613A1.D	N035660-001A-PS	PS	1	06/13/19 10:09 AM
A0613072_190613A1.D	N035660-001A-MS	MS	1	06/13/19 10:14 AM
A0613073_190613A1.D	N035660-001A-MSD	MSD	1	06/13/19 10:19 AM
A0613074_190613A1.D	N035663-001B	SAMP	1	06/13/19 10:23 AM
A0613075_190613A1.D	N035663-002B	SAMP	1	06/13/19 10:28 AM
A0613076_190613A1.D	N035663-002B	SAMP	5	06/13/19 10:33 AM
A0613077.D	CCV5	CCV	1	06/13/19 11:36 AM
A0613078.D	CCB5	CCB	1	06/13/19 11:41 AM
A0613079.D	N035663-003B	SAMP	1	06/13/19 11:47 AM
A0613080.D	N035663-003B	SAMP	5	06/13/19 11:51 AM
A0613081.D	N035663-004B	SAMP	1	06/13/19 11:56 AM
A0613082.D	N035663-005B	SAMP	1	06/13/19 12:01 PM
A0613083.D	N035663-005B	SAMP	5	06/13/19 12:06 PM
A0613084.D	N035663-006B	SAMP	1	06/13/19 12:11 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613085.D	N035663-007B	SAMP	1	06/13/19 12:16 PM
A0613086.D	N035663-008B	SAMP	1	06/13/19 12:21 PM
A0613087.D	N035663-008B	SAMP	5	06/13/19 12:26 PM
A0613088.D	N035663-009B	SAMP	1	06/13/19 12:31 PM
A0613089.D	CCV6	CCV	1	06/13/19 12:36 PM
A0613090.D	CCB6	CCB	1	06/13/19 12:41 PM
A0613091.D	N035663-009B	SAMP	5	06/13/19 12:46 PM
A0613092.D	N035663-004B	SAMP	1	06/13/19 12:51 PM
A0613093.D	N035705-001B	SAMP	1	06/13/19 12:57 PM
A0613094.D	N035705-001B	SAMP	5	06/13/19 1:02 PM
A0613095.D	N035705-002B	SAMP	1	06/13/19 1:07 PM
A0613096.D	N035705-002B	SAMP	5	06/13/19 1:12 PM
A0613097.D	N035705-003B	SAMP	1	06/13/19 1:17 PM
A0613098.D	N035705-003B	SAMP	5	06/13/19 1:22 PM
A0613099.D	N035705-004B	SAMP	1	06/13/19 1:26 PM
A0613100.D	N035705-005B	SAMP	1	06/13/19 1:32 PM
A0613101.D	CCV7	CCV	1	06/13/19 1:41 PM
A0613102.D	CCB7	CCB	1	06/13/19 1:46 PM
A0613103.D	N035705-006B	SAMP	1	06/13/19 1:51 PM
A0613104.D	N035705-006B	SAMP	5	06/13/19 1:56 PM
A0613105.D	N035705-007B	SAMP	1	06/13/19 2:01 PM
A0613106.D	N035705-007B	SAMP	5	06/13/19 2:06 PM
A0613107.D	N035705-008B	SAMP	1	06/13/19 2:11 PM
A0613108.D	N035705-008B	SAMP	5	06/13/19 2:16 PM
A0613109.D	N035705-008B	SAMP	25	06/13/19 2:21 PM
A0613110.D	N035705-009B	SAMP	1	06/13/19 2:26 PM
A0613111.D	N035705-009B	SAMP	5	06/13/19 2:31 PM
A0613112.D	N035705-009B	SAMP	25	06/13/19 2:36 PM
A0613113.D	CCV8	CCV	1	06/13/19 2:40 PM
A0613114.D	CCB8	CCB	1	06/13/19 2:45 PM
A0613115.D	N035705-010B	SAMP	1	06/13/19 2:51 PM
A0613116.D	N035705-001B	SAMP	1	06/13/19 2:55 PM
A0613117.D	N035705-004B	SAMP	1	06/13/19 3:00 PM
A0613118.D	N035705-005B	SAMP	1	06/13/19 3:05 PM
A0613119.D	N035705-004B	SAMP	1	06/13/19 3:10 PM
A0613120.D	MB-74192	MBLK	1	06/13/19 3:15 PM
A0613121.D	LCS-74192	LCS	1	06/13/19 3:20 PM
A0613122.D	N035824-005A	SAMP	1	06/13/19 3:25 PM
A0613123.D	N035824-005A	SAMP	5	06/13/19 3:30 PM
A0613124.D	N035824-005A-PS	PS	1	06/13/19 3:35 PM
A0613125.D	CCV9	CCV	1	06/13/19 3:40 PM
A0613126.D	CCB9	CCB	1	06/13/19 3:45 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613127.D	ICSA3	ICSA	1	06/13/19 3:50 PM
A0613128.D	ICSAB3	ICSAB	1	06/13/19 3:55 PM
A0613129.D	N035824-005A-MS	MS	1	06/13/19 4:00 PM
A0613130.D	N035824-005A-MSD	MSD	1	06/13/19 4:05 PM
A0613131.D	N035956-001A	SAMP	5	06/13/19 4:10 PM
A0613132.D	N035956-001A	SAMP	25	06/13/19 4:15 PM
A0613133.D	N035705-004B	SAMP	1	06/13/19 4:20 PM
A0613134.D	MB-73997	MBLK	1	06/13/19 4:25 PM
A0613135.D	LCS-73997	LCS	1	06/13/19 4:30 PM
A0613136.D	N035705-014B	SAMP	1	06/13/19 4:35 PM
A0613137.D	N035705-014B	SAMP	5	06/13/19 4:40 PM
A0613138.D	N035705-014B	SAMP	50	06/13/19 4:45 PM
A0613139.D	CCV10	CCV	1	06/13/19 4:50 PM
A0613140.D	CCB10	CCB	1	06/13/19 4:55 PM
A0613141.D	N035705-015B	SAMP	1	06/13/19 5:00 PM
A0613142.D	N035705-015B	SAMP	5	06/13/19 5:05 PM
A0613143.D	N035705-015B-PS	PS	1	06/13/19 5:10 PM
A0613144.D	N035705-015B-MS	MS	1	06/13/19 5:15 PM
A0613145.D	N035705-015B-MSD	MSD	1	06/13/19 5:20 PM
A0613146.D	N035705-015B	SAMP	25	06/13/19 5:34 PM
A0613147.D	N035705-015B-PS	PS	5	06/13/19 5:38 PM
A0613148.D	N035705-015B-MS	MS	5	06/13/19 5:43 PM
A0613149.D	N035705-015B-MSD	MSD	5	06/13/19 5:48 PM
A0613150.D	N035705-004B	SAMP	1	06/13/19 5:59 PM
A0613151.D	CCV11	CCV	1	06/13/19 6:12 PM
A0613152.D	CCB11	CCB	1	06/13/19 6:17 PM
A0613153.D	CCV11	CCV	1	06/13/19 6:22 PM
A0613154.D	CCB11	CCB	1	06/13/19 6:27 PM
A0613155.D	N035705-004B	SAMP	1	06/13/19 6:32 PM
A0613156.D	N035705-014B	SAMP	5	06/13/19 6:37 PM
A0613157.D	N035705-015B-MS	MS	5	06/13/19 6:42 PM
A0613158.D	N035712-002B	SAMP	1	06/13/19 6:46 PM
A0613159.D	N035712-004B	SAMP	1	06/13/19 6:51 PM
A0613160.D	N035712-004B	SAMP	5	06/13/19 6:57 PM
A0613161.D	N035705-004B	SAMP	1	06/13/19 7:01 PM
A0613162.D	N035712-006B	SAMP	1	06/13/19 7:06 PM
A0613163.D	N035712-006B	SAMP	5	06/13/19 7:11 PM
A0613164.D	N035712-007B	SAMP	1	06/13/19 7:16 PM
A0613165.D	CCV12	CCV	1	06/13/19 7:21 PM
A0613166.D	CCB12	CCB	1	06/13/19 7:26 PM
A0613167.D	N035712-007B	SAMP	5	06/13/19 7:31 PM
A0613168.D	N035712-008B	SAMP	1	06/13/19 7:36 PM

INJECTION LOG: 190613A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0613169.D	N035712-008B	SAMP	5	06/13/19 7:41 PM
A0613170.D	N035712-009B	SAMP	1	06/13/19 7:46 PM
A0613171.D	N035712-009B	SAMP	5	06/13/19 7:51 PM
A0613172.D	N035712-009B	SAMP	10	06/13/19 7:56 PM
A0613173.D	N035712-010B	SAMP	1	06/13/19 8:01 PM
A0613174.D	N035712-010B	SAMP	5	06/13/19 8:06 PM
A0613175.D	N035712-011B	SAMP	1	06/13/19 8:11 PM
A0613176.D	N035712-011B	SAMP	5	06/13/19 8:16 PM
A0613177.D	CCV13	CCV	1	06/13/19 8:21 PM
A0613178.D	CCB13	CCB	1	06/13/19 8:26 PM
A0613179.D	ICSA4	ICSA	1	06/13/19 8:31 PM
A0613180.D	ICSAB4	ICSAB	1	06/13/19 8:35 PM
A0613181.D	N035712-012B	SAMP	1	06/13/19 8:40 PM
A0613182.D	N035712-012B	SAMP	5	06/13/19 8:45 PM
A0613183.D	N035712-013B	SAMP	1	06/13/19 8:50 PM
A0613184.D	N035712-013B	SAMP	5	06/13/19 8:55 PM
A0613185.D	N035712-013B	SAMP	10	06/13/19 9:00 PM
A0613186.D	N035712-016B	SAMP	1	06/13/19 9:05 PM
A0613187.D	N035712-017B	SAMP	1	06/13/19 9:11 PM
A0613188.D	N035712-018B	SAMP	1	06/13/19 9:16 PM
A0613189.D	N035712-020B	SAMP	1	06/13/19 9:21 PM
A0613190.D	N035712-016B	SAMP	5	06/13/19 9:26 PM
A0613191.D	CCV14	CCV	1	06/13/19 9:31 PM
A0613192.D	CCB14	CCB	1	06/13/19 9:36 PM
A0613193.D	N035712-017B	SAMP	5	06/13/19 9:41 PM
A0613194.D	N035712-018B	SAMP	5	06/13/19 9:46 PM
A0613195.D	N035712-020B	SAMP	5	06/13/19 9:51 PM
A0613196.D	N035712-010B	SAMP	1	06/13/19 9:55 PM
A0613197.D	N035712-011B	SAMP	1	06/13/19 10:00 PM
A0613198.D	N035712-012B	SAMP	1	06/13/19 10:05 PM
A0613199.D	CCV15	CCV	1	06/13/19 10:10 PM
A0613200.D	CCB15	CCB	1	06/13/19 10:15 PM
A0613201.D	ICSA5	ICSA	1	06/13/19 10:20 PM
A0613202.D	ICSAB5	ICSAB	1	06/13/19 10:25 PM

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614001.D	RINSE	RINSE	1	06/14/19 6:06 PM
B0614002.D	Cal Blank	IBLK	1	06/14/19 6:11 PM
B0614003.D	Std1-0.1/1 ppb	ICAL	1	06/14/19 6:16 PM
B0614004.D	Std2-0.5/5 ppb	ICAL	1	06/14/19 6:21 PM
B0614005.D	Std3-5/50 ppb	ICAL	1	06/14/19 6:26 PM
B0614006.D	Std4-10/100 ppb	ICAL	1	06/14/19 6:31 PM
B0614007.D	Std5-20/200 ppb	ICAL	1	06/14/19 6:36 PM
B0614008.D	Std6-40/400 ppb	ICAL	1	06/14/19 6:41 PM
B0614009.D	Std7-100/1000 ppb	ICAL	1	06/14/19 6:46 PM
B0614010.D	Std8-200/2000 ppb	ICAL	1	06/14/19 6:51 PM
B0614011.D	ICV	ICV	1	06/14/19 6:55 PM
B0614012.D	ICB	ICB	1	06/14/19 7:01 PM
B0614013.D	LLICV	CCV1	1	06/14/19 7:06 PM
B0614014.D	ICSA1	ICSA	1	06/14/19 7:11 PM
B0614015.D	ICSAB1	ICSAB	1	06/14/19 7:16 PM
B0614016.D	LLICV	CCV1	1	06/14/19 7:21 PM
B0614017.D	N035737-001E	SAMP	1	06/14/19 7:26 PM
B0614018.D	N035737-001E	SAMP	1	06/14/19 7:31 PM
B0614019.D	N035760-001E	SAMP	5	06/14/19 7:35 PM
B0614020.D	N035598-002D	SAMP	1	06/14/19 7:40 PM
B0614021.D	N035598-002D	SAMP	1	06/14/19 7:45 PM
B0614022.D	MB-73998	MBLK	1	06/14/19 7:49 PM
B0614023.D	LCS-73998	LCS	1	06/14/19 7:54 PM
B0614024.D	N036001-002A	SAMP	1	06/14/19 7:59 PM
B0614025.D	N036001-002A	SAMP	5	06/14/19 8:04 PM
B0614026.D	N036001-002A-PS	PS	1	06/14/19 8:09 PM
B0614027.D	CCV1	CCV	1	06/14/19 8:14 PM
B0614028.D	CCB1	CCB	1	06/14/19 8:19 PM
B0614029.D	N036001-002A-MS	MS	1	06/14/19 8:24 PM
B0614030.D	N036001-002A-MSD	MSD	1	06/14/19 8:29 PM
B0614031.D	N036001-002A	SAMP	25	06/14/19 8:34 PM
B0614032.D	N036001-002A-PS	PS	5	06/14/19 8:39 PM
B0614033.D	N036001-002A-MS	MS	5	06/14/19 8:44 PM
B0614034.D	N036001-002A-MSD	MSD	5	06/14/19 8:49 PM
B0614035.D	N035662-001D	SAMP	1	06/14/19 8:54 PM
B0614036.D	N035662-001D	SAMP	5	06/14/19 8:59 PM
B0614037.D	N035737-001D	SAMP	1	06/14/19 9:04 PM
B0614038.D	N035737-001D	SAMP	5	06/14/19 9:09 PM
B0614039.D	CCV2	CCV	1	06/14/19 9:13 PM
B0614040.D	CCB2	CCB	1	06/14/19 9:18 PM
B0614041.D	N035737-002D	SAMP	1	06/14/19 9:23 PM
B0614042.D	N035737-002D	SAMP	5	06/14/19 9:28 PM

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614043.D	N035760-001D	SAMP	5	06/14/19 9:33 PM
B0614044.D	N035760-001D	SAMP	25	06/14/19 9:38 PM
B0614045.D	N035705-004B	SAMP	1	06/14/19 9:43 PM
B0614046.D	N035705-005B	SAMP	1	06/14/19 9:48 PM
B0614047.D	MB-73997	MBLK	1	06/14/19 9:53 PM
B0614048.D	LCS-73997	LCS	1	06/14/19 9:58 PM
B0614049.D	N035705-014B	SAMP	1	06/14/19 10:03 PM
B0614050.D	N035705-014B	SAMP	5	06/14/19 10:08 PM
B0614051.D	CCV3	CCV	1	06/14/19 10:13 PM
B0614052.D	CCB3	CCB	1	06/14/19 10:18 PM
B0614053.D	N035705-014B	SAMP	50	06/14/19 10:23 PM
B0614054.D	N035705-015B	SAMP	1	06/14/19 10:28 PM
B0614055.D	N035705-015B	SAMP	5	06/14/19 10:32 PM
B0614056.D	N035705-015B-PS	PS	1	06/14/19 10:37 PM
B0614057.D	N035705-015B-MS	MS	1	06/14/19 10:42 PM
B0614058.D	N035705-015B-MSD	MSD	1	06/14/19 10:47 PM
B0614059.D	N035705-015B	SAMP	25	06/14/19 10:52 PM
B0614060.D	N035705-015B-PS	PS	5	06/14/19 10:57 PM
B0614061.D	N035705-015B-MS	MS	5	06/14/19 11:02 PM
B0614062.D	N035705-015B-MSD	MSD	5	06/14/19 11:07 PM
B0614063.D	CCV4	CCV	1	06/14/19 11:12 PM
B0614064.D	CCB4	CCB	1	06/14/19 11:17 PM
B0614065.D	ICSA2	ICSA	1	06/14/19 11:22 PM
B0614066.D	ICSAB2	ICSAB	1	06/14/19 11:27 PM
B0614067.D	N035712-002B	SAMP	1	06/14/19 11:32 PM
B0614068.D	N035712-004B	SAMP	1	06/14/19 11:37 PM
B0614069.D	N035712-004B	SAMP	5	06/14/19 11:42 PM
B0614070.D	N035712-006B	SAMP	1	06/14/19 11:47 PM
B0614071.D	N035712-006B	SAMP	5	06/14/19 11:51 PM
B0614072.D	N035712-007B	SAMP	1	06/14/19 11:56 PM
B0614073.D	N035712-007B	SAMP	5	06/15/19 12:01 AM
B0614074.D	N035712-008B	SAMP	1	06/15/19 12:06 AM
B0614075.D	N035712-008B	SAMP	5	06/15/19 12:11 AM
B0614076.D	N035712-009B	SAMP	1	06/15/19 12:16 AM
B0614077.D	CCV5	CCV	1	06/15/19 12:21 AM
B0614078.D	CCB5	CCB	1	06/15/19 12:26 AM
B0614079.D	N035712-009B	SAMP	5	06/15/19 12:31 AM
B0614080.D	N035712-009B	SAMP	10	06/15/19 12:36 AM
B0614081.D	N035712-010B	SAMP	1	06/15/19 12:41 AM
B0614082.D	N035712-010B	SAMP	5	06/15/19 12:46 AM
B0614083.D	N035712-011B	SAMP	1	06/15/19 12:51 AM
B0614084.D	N035712-011B	SAMP	5	06/15/19 12:56 AM

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614085.D	N035712-012B	SAMP	1	06/15/19 1:01 AM
B0614086.D	N035712-012B	SAMP	5	06/15/19 1:06 AM
B0614087.D	N035712-013B	SAMP	1	06/15/19 1:11 AM
B0614088.D	N035712-013B	SAMP	5	06/15/19 1:16 AM
B0614089.D	CCV6	CCV	1	06/15/19 1:20 AM
B0614090.D	CCB6	CCB	1	06/15/19 1:25 AM
B0614091.D	N035712-013B	SAMP	10	06/15/19 1:30 AM
B0614092.D	N035712-016B	SAMP	1	06/15/19 1:35 AM
B0614093.D	N035712-016B	SAMP	5	06/15/19 1:40 AM
B0614094.D	N035712-017B	SAMP	1	06/15/19 1:45 AM
B0614095.D	N035712-017B	SAMP	5	06/15/19 1:50 AM
B0614096.D	N035712-018B	SAMP	1	06/15/19 1:55 AM
B0614097.D	N035712-018B	SAMP	5	06/15/19 2:00 AM
B0614098.D	N035712-020B	SAMP	1	06/15/19 2:05 AM
B0614099.D	N035712-020B	SAMP	5	06/15/19 2:10 AM
B0614100.D	CCV7	CCV	1	06/15/19 2:15 AM
B0614101.D	CCB7	CCB	1	06/15/19 2:20 AM
B0614102.D	ICSA3	ICSA	1	06/15/19 2:25 AM
B0614103.D	ICSAB3	ICSAB	1	06/15/19 2:30 AM
B0614104.D	MB-73999	MBLK	1	06/15/19 2:35 AM
B0614105.D	LCS-73999	LCS	1	06/15/19 2:40 AM
B0614106.D	N035738-001B	SAMP	1	06/15/19 2:45 AM
B0614107.D	N035738-001B	SAMP	5	06/15/19 2:50 AM
B0614108.D	N035738-001B	SAMP	25	06/15/19 2:55 AM
B0614109.D	N035738-001B-PS	PS	1	06/15/19 3:00 AM
B0614110.D	N035738-001B-PS	PS	5	06/15/19 3:05 AM
B0614111.D	N035738-001B-MS	MS	1	06/15/19 3:10 AM
B0614112.D	N035738-001B-MS	MS	5	06/15/19 3:15 AM
B0614113.D	N035738-001B-MSD	MSD	1	06/15/19 3:19 AM
B0614114.D	CCV8	CCV	1	06/15/19 3:24 AM
B0614115.D	CCB8	CCB	1	06/15/19 3:29 AM
B0614116.D	N035738-001B-MSD	MSD	5	06/15/19 3:34 AM
B0614117.D	N035738-002B	SAMP	1	06/15/19 3:39 AM
B0614118.D	N035738-002B	SAMP	5	06/15/19 3:44 AM
B0614119.D	N035738-002B	SAMP	10	06/15/19 3:49 AM
B0614120.D	N035738-004B	SAMP	1	06/15/19 3:54 AM
B0614121.D	N035738-004B	SAMP	5	06/15/19 3:59 AM
B0614122.D	N035738-005B	SAMP	1	06/15/19 4:04 AM
B0614123.D	N035738-005B	SAMP	5	06/15/19 4:09 AM
B0614124.D	N035738-005B	SAMP	25	06/15/19 4:14 AM
B0614125.D	N035738-006B	SAMP	1	06/15/19 4:19 AM
B0614126.D	CCV9	CCV	1	06/15/19 4:24 AM

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614127.D	CCB9	CCB	1	06/15/19 4:29 AM
B0614128.D	ICSA4	ICSA	1	06/15/19 4:34 AM
B0614129.D	ICSAB4	ICSAB	1	06/15/19 4:39 AM
B0614130.D	N035738-006B	SAMP	5	06/15/19 4:44 AM
B0614131.D	N035738-007B	SAMP	1	06/15/19 4:48 AM
B0614132.D	N035738-007B	SAMP	5	06/15/19 4:53 AM
B0614133.D	N035738-008B	SAMP	1	06/15/19 4:58 AM
B0614134.D	N035738-008B	SAMP	5	06/15/19 5:03 AM
B0614135.D	N035738-009B	SAMP	1	06/15/19 5:08 AM
B0614136.D	N035738-009B	SAMP	5	06/15/19 5:13 AM
B0614137.D	N035738-009B	SAMP	50	06/15/19 5:18 AM
B0614138.D	N035738-010B	SAMP	1	06/15/19 5:23 AM
B0614139.D	N035738-010B	SAMP	5	06/15/19 5:28 AM
B0614140.D	CCV10	CCV	1	06/15/19 5:33 AM
B0614141.D	CCB10	CCB	1	06/15/19 5:38 AM
B0614142.D	N035738-011B	SAMP	1	06/15/19 5:43 AM
B0614143.D	N035738-011B	SAMP	5	06/15/19 5:47 AM
B0614144.D	N035738-012B	SAMP	1	06/15/19 5:52 AM
B0614145.D	N035738-012B	SAMP	5	06/15/19 5:57 AM
B0614146.D	N035738-013B	SAMP	1	06/15/19 6:02 AM
B0614147.D	N035738-013B	SAMP	5	06/15/19 6:07 AM
B0614148.D	N035738-014B	SAMP	1	06/15/19 6:12 AM
B0614149.D	N035738-014B	SAMP	5	06/15/19 6:17 AM
B0614150.D	N035738-014B	SAMP	25	06/15/19 6:22 AM
B0614151.D	N035738-015B	SAMP	1	06/15/19 6:27 AM
B0614152.D	CCV11	CCV	1	06/15/19 6:32 AM
B0614153.D	CCB11	CCB	1	06/15/19 6:37 AM
B0614154.D	N035738-015B	SAMP	5	06/15/19 6:42 AM
B0614155.D	N035738-015B	SAMP	25	06/15/19 6:47 AM
B0614156.D	CCV12	CCV	1	06/15/19 6:52 AM
B0614157.D	CCB12	CCB	1	06/15/19 6:57 AM
B0614158.D	ICSA5	ICSA	1	06/15/19 7:02 AM
B0614159.D	ICSAB5	ICSAB	1	06/15/19 7:07 AM

INJECTION LOG: 190617B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0617001.D	RINSE	RINSE	1	06/17/19 5:13 PM
B0617002.D	Cal Blank	IBLK	1	06/17/19 5:18 PM
B0617003.D	Std1-0.1/1 ppb	ICAL	1	06/17/19 5:23 PM
B0617004.D	Std2-0.5/5 ppb	ICAL	1	06/17/19 5:28 PM
B0617005.D	Std3-5/50 ppb	ICAL	1	06/17/19 5:33 PM
B0617006.D	Std4-10/100 ppb	ICAL	1	06/17/19 5:38 PM
B0617007.D	Std5-20/200 ppb	ICAL	1	06/17/19 5:43 PM
B0617008.D	Std6-40/400 ppb	ICAL	1	06/17/19 5:48 PM
B0617009.D	Std7-100/1000 ppb	ICAL	1	06/17/19 5:53 PM
B0617010.D	Std8-200/2000 ppb	ICAL	1	06/17/19 5:58 PM
B0617011.D	ICV	ICV	1	06/17/19 6:43 PM
B0617012.D	ICB	ICB	1	06/17/19 6:48 PM
B0617013.D	LLICV	CCV1	1	06/17/19 6:53 PM
B0617014.D	ICSA1	ICSA	1	06/17/19 6:58 PM
B0617015.D	ICSAB1	ICSAB	1	06/17/19 7:03 PM
B0617016.D	LLICV	CCV1	1	06/17/19 7:08 PM
B0617017.D	MB-74224	MBLK	1	06/17/19 7:13 PM
B0617018.D	LCS-74224	LCS	1	06/17/19 7:18 PM
B0617019.D	N036071-001A	SAMP	1	06/17/19 7:23 PM
B0617020.D	N036071-001A	SAMP	5	06/17/19 7:28 PM
B0617021.D	N036071-001A-DUP	DUP	1	06/17/19 7:33 PM
B0617022.D	N036071-001A-PS	PS	1	06/17/19 7:38 PM
B0617023.D	N036071-001A-MS	MS	1	06/17/19 7:43 PM
B0617024.D	N036071-001A-MSD	MSD	1	06/17/19 7:48 PM
B0617025.D	N035705-004B	SAMP	1	06/17/19 7:53 PM
B0617026.D	N035705-005B	SAMP	1	06/17/19 7:58 PM
B0617027.D	CCV1	CCV	1	06/17/19 8:03 PM
B0617028.D	CCB1	CCB	1	06/17/19 8:08 PM
B0617029.D	N035712-010B	SAMP	1	06/17/19 8:13 PM
B0617030.D	N035712-011B	SAMP	1	06/17/19 8:18 PM
B0617031.D	N035712-020B	SAMP	1	06/17/19 8:23 PM
B0617032.D	N035738-004B	SAMP	10	06/17/19 8:28 PM
B0617033.D	N035761-003B	SAMP	1	06/17/19 8:33 PM
B0617034.D	N035779-007B	SAMP	1	06/17/19 8:38 PM
B0617035.D	N035779-008B	SAMP	1	06/17/19 8:43 PM
B0617036.D	MB-74214	MBLK	1	06/17/19 8:48 PM
B0617037.D	LCS-74214	LCS	1	06/17/19 8:53 PM
B0617038.D	N035917-001A	SAMP	5	06/17/19 8:58 PM
B0617039.D	CCV2	CCV	1	06/17/19 9:03 PM
B0617040.D	CCB2	CCB	1	06/17/19 9:08 PM
B0617041.D	N035917-001A	SAMP	25	06/17/19 9:13 PM
B0617042.D	N035917-001A-PS	PS	5	06/17/19 9:18 PM

INJECTION LOG: 190617B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0617043.D	N035917-001A-MS	MS	5	06/17/19 9:23 PM
B0617044.D	N035917-001A-MSD	MSD	5	06/17/19 9:28 PM
B0617045.D	N035917-002A	SAMP	5	06/17/19 9:33 PM
B0617046.D	N035917-003A	SAMP	5	06/17/19 9:38 PM
B0617047.D	N035917-004A	SAMP	5	06/17/19 9:43 PM
B0617048.D	N035917-005A	SAMP	5	06/17/19 9:48 PM
B0617049.D	N035917-006A	SAMP	5	06/17/19 9:53 PM
B0617050.D	N035917-007A	SAMP	5	06/17/19 9:58 PM
B0617051.D	CCV3	CCV	1	06/17/19 10:03 PM
B0617052.D	CCB3	CCB	1	06/17/19 10:08 PM
B0617053.D	N035917-008B	SAMP	1	06/17/19 10:13 PM
B0617054.D	N035918-001A	SAMP	5	06/17/19 10:18 PM
B0617055.D	N035918-002A	SAMP	5	06/17/19 10:23 PM
B0617056.D	N035918-003A	SAMP	5	06/17/19 10:28 PM
B0617057.D	N035918-004A	SAMP	5	06/17/19 10:33 PM
B0617058.D	N035919-001A	SAMP	5	06/17/19 10:38 PM
B0617059.D	N035919-002A	SAMP	5	06/17/19 10:43 PM
B0617060.D	N035919-003A	SAMP	5	06/17/19 10:48 PM
B0617061.D	N035919-004A	SAMP	5	06/17/19 10:53 PM
B0617062.D	N035919-005A	SAMP	5	06/17/19 10:58 PM
B0617063.D	CCV4	CCV	1	06/17/19 11:03 PM
B0617064.D	CCB4	CCB	1	06/17/19 11:08 PM
B0617065.D	ICSA2	ICSA	1	06/17/19 11:13 PM
B0617066.D	ICSAB2	ICSAB	1	06/17/19 11:18 PM
B0617067.D	N035919-006A	SAMP	5	06/17/19 11:23 PM
B0617068.D	N035919-007A	SAMP	5	06/17/19 11:28 PM
B0617069.D	MB-74235	MBLK	1	06/17/19 11:33 PM
B0617070.D	LCS-74235	LCS	1	06/17/19 11:38 PM
B0617071.D	N036084-001A	SAMP	5	06/17/19 11:43 PM
B0617072.D	N036084-001A	SAMP	25	06/17/19 11:48 PM
B0617073.D	N036084-001A-PS	PS	5	06/17/19 11:53 PM
B0617074.D	N036084-001A-MS	MS	5	06/17/19 11:58 PM
B0617075.D	N036084-001A-MSD	MSD	5	06/18/19 12:03 AM
B0617076.D	N035978-001A	SAMP	5	06/18/19 12:08 AM
B0617077.D	CCV5	CCV	1	06/18/19 12:13 AM
B0617078.D	CCB5	CCB	1	06/18/19 12:18 AM
B0617079.D	N035978-004A	SAMP	5	06/18/19 12:23 AM
B0617080.D	N035978-007A	SAMP	5	06/18/19 12:28 AM
B0617081.D	CCV6	CCV	1	06/18/19 12:33 AM
B0617082.D	CCB6	CCB	1	06/18/19 12:38 AM
B0617083.D	ICSA3	ICSA	1	06/18/19 12:43 AM
B0617084.D	ICSAB3	ICSAB	1	06/18/19 12:48 AM

INJECTION LOG: 190624B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0524001.D	RINSE	RINSE	1	06/24/19 2:15 PM
B0524002.D	RINSE	RINSE	1	06/24/19 2:20 PM
B0524003.D	Cal Blank	IBLK	1	06/24/19 2:25 PM
B0524004.D	Std1-0.1/1 ppb	ICAL	1	06/24/19 2:30 PM
B0524005.D	Std2-0.5/5 ppb	ICAL	1	06/24/19 2:35 PM
B0524006.D	Std3-5/50 ppb	ICAL	1	06/24/19 2:40 PM
B0524007.D	Std4-10/100 ppb	ICAL	1	06/24/19 2:45 PM
B0524008.D	Std5-20/200 ppb	ICAL	1	06/24/19 2:50 PM
B0524009.D	Std6-40/400 ppb	ICAL	1	06/24/19 2:55 PM
B0524010.D	Std7-100/1000 ppb	ICAL	1	06/24/19 3:00 PM
B0524011.D	Std8-200/2000 ppb	ICAL	1	06/24/19 3:04 PM
B0524012.D	ICV	ICV	1	06/24/19 3:09 PM
B0524013.D	ICB	ICB	1	06/24/19 3:14 PM
B0524014.D	ICV	ICV	1	06/24/19 3:19 PM
B0524015.D	ICV	ICV	1	06/24/19 3:24 PM
B0524016.D	ICB	ICB	1	06/24/19 3:29 PM
B0524017.D	LLICV	CCV1	1	06/24/19 3:34 PM
B0524018.D	ICSA1	ICSA	1	06/24/19 3:39 PM
B0524019.D	ICSAB1	ICSAB	1	06/24/19 3:44 PM
B0524020.D	MB-74311	MBLK	1	06/24/19 3:49 PM
B0524021.D	LCS-74311	LCS	1	06/24/19 3:54 PM
B0524022.D	N035705-005B	SAMP	1	06/24/19 4:01 PM
B0524023.D	N035705-005B	SAMP	5	06/24/19 4:06 PM
B0524024.D	N035705-005B-PS	PS	1	06/24/19 4:11 PM
B0524025.D	N035705-005B-MS	MS	1	06/24/19 4:16 PM
B0524026.D	N035705-005B-MSD	MSD	1	06/24/19 4:21 PM
B0524027.D	N035712-010B	SAMP	1	06/24/19 4:26 PM
B0524028.D	N035712-011B	SAMP	1	06/24/19 4:30 PM
B0524029.D	N035712-020B	SAMP	1	06/24/19 4:35 PM
B0524030.D	CCV1	CCV	1	06/24/19 4:40 PM
B0524031.D	CCB1	CCB	1	06/24/19 4:45 PM
B0524032.D	N035779-008B	SAMP	1	06/24/19 4:50 PM
B0524033.D	N035915-012B	SAMP	1	06/24/19 4:55 PM
B0524034.D	N035915-013B	SAMP	1	06/24/19 5:00 PM
B0524035.D	N035738-004B	SAMP	25	06/24/19 5:05 PM
B0524036.D	N035779-008B	SAMP	1	06/24/19 5:10 PM
B0524037.D	MB-74319	MBLK	1	06/24/19 5:15 PM
B0524038.D	LCS-74319	LCS	1	06/24/19 5:20 PM
B0524039.D	N036174-001A	SAMP	1	06/24/19 5:25 PM
B0524040.D	N036174-001A	SAMP	5	06/24/19 5:30 PM
B0524041.D	N036174-001A-PS	PS	5	06/24/19 5:35 PM
B0524042.D	CCV2	CCV	1	06/24/19 5:40 PM

INJECTION LOG: 190624B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0524043.D	CCB2	CCB	1	06/24/19 5:45 PM
B0524044.D	ICSA2	ICSA	1	06/24/19 5:50 PM
B0524045.D	ICSAB2	ICSAB	1	06/24/19 5:55 PM
B0524046.D	N036174-001A-MS	MS	5	06/24/19 6:00 PM
B0524047.D	N036174-001A-MS	MS	5	06/24/19 6:05 PM
B0524048.D	N036174-001A-MSD	MSD	5	06/24/19 6:10 PM
B0524049.D	N036174-002A	SAMP	1	06/24/19 6:15 PM
B0524050.D	N036174-003A	SAMP	1	06/24/19 6:20 PM
B0524051.D	N036174-004A	SAMP	1	06/24/19 6:25 PM
B0524052.D	N036174-005A	SAMP	1	06/24/19 6:30 PM
B0524053.D	N036174-006A	SAMP	1	06/24/19 6:35 PM
B0524054.D	N036174-007A	SAMP	1	06/24/19 6:40 PM
B0524055.D	N036174-008A	SAMP	1	06/24/19 6:45 PM
B0524056.D	CCV3	CCV	1	06/24/19 6:49 PM
B0524057.D	CCB3	CCB	1	06/24/19 6:54 PM
B0524058.D	N036174-009A	SAMP	1	06/24/19 6:59 PM
B0524059.D	N036174-010A	SAMP	1	06/24/19 7:04 PM
B0524060.D	N036174-011A	SAMP	1	06/24/19 7:09 PM
B0524061.D	N036174-012A	SAMP	1	06/24/19 7:14 PM
B0524062.D	N036174-013A	SAMP	1	06/24/19 7:19 PM
B0524063.D	N036174-014A	SAMP	1	06/24/19 7:24 PM
B0524064.D	N036174-015A	SAMP	1	06/24/19 7:29 PM
B0524065.D	N036174-016A	SAMP	1	06/24/19 7:34 PM
B0524066.D	N036174-017A	SAMP	1	06/24/19 7:39 PM
B0524067.D	CCV4	CCV	1	06/24/19 7:44 PM
B0524068.D	CCB4	CCB	1	06/24/19 7:49 PM
B0524069.D	ICSA3	ICSA	1	06/24/19 7:54 PM
B0524070.D	ICSAB3	ICSAB	1	06/24/19 7:59 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/24/2019 7:12:36**
Prep End Date: **5/24/2019 12:00:00**
Reviewed/ Date: NS 6/26/2019
Initials/ Date: for

Prep Batch **73996** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-16**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73996	Aqueous		25	☐	0	0	25	1.000		
MB-73996	Aqueous		25	☐	0	0	25	1.000		
N035660-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035660-001A-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035660-001A-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035663-009B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/24/2019 7:12:36**
Prep End Date: **5/24/2019 12:00:00**
Reviewed/ Date: NS 6/26/2019
Initials/ Date: for

Prep Batch **73996** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-16**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035705-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-010B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/24/2019 7:14:47**
Prep End Date: **5/24/2019 12:00:00**
Reviewed/ Date: NS 6/26/2019
Initials/ Date: for

Prep Batch **73997** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**01-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73997	Aqueous		25	☐	0	0	25	1.000		
MB-73997	Aqueous		25	☐	0	0	25	1.000		
N035705-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-015B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-015B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-015B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-011B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/24/2019 7:14:47**
Prep End Date: **5/24/2019 12:00:00**
Reviewed/ Date: NS 6/26/2019
Initials/ Date: for
Prep Batch **73997** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**01-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035712-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-016B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-017B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-018B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-020B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/22/2019 7:58:39**
Prep End Date: **6/22/2019 12:00:00**
Prep Batch **74311** Prep Code: **3010_W_MS**

Reviewed/ Date: NS 6/26/2019
Initials/ Date: for
Technician **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74311	Aqueous		25	☐	0	0	25	1.000		
MB-74311	Aqueous		25	☐	0	0	25	1.000		
N035705-005B	Water	<2	25	☐	0	0	25	1.000		
N035705-005B-MS	Water	<2	25	☐	0	0	25	1.000		
N035705-005B-MS	Water	<2	25	☐	0	0	25	1.000		
N035712-010B	Water	<2	25	☐	0	0	25	1.000		
N035712-011B	Water	<2	25	☐	0	0	25	1.000		
N035712-020B	Water	<2	25	☐	0	0	25	1.000		
N035779-008B	Water	<2	25	☐	0	0	25	1.000		
N035915-012B	Water	<2	25	☐	0	0	25	1.000		
N035915-013B	Water	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 13 Jun 2019 03:50:19 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	189117.00	0.00	
24 Mg	466211.00	0.00	
25 Mg	61234.40	0.00	
26 Mg	70391.80	0.00	
59 Co	588709.00	0.00	
115 In	839911.00	0.00	
206 Pb	222452.00	0.00	
207 Pb	196044.00	0.00	
208 Pb	479118.00	0.00	

RSD (%)

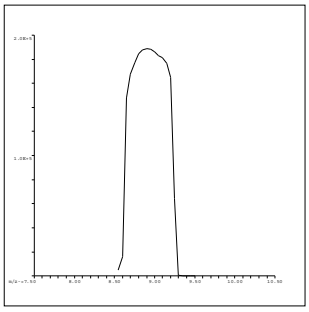
Element	Actual	Required	Flag
9 Be	0.26	5.00	
24 Mg	0.80	5.00	
25 Mg	0.82	5.00	
26 Mg	1.11	5.00	
59 Co	0.66	5.00	
115 In	0.60	5.00	
206 Pb	0.85	5.00	
207 Pb	1.04	5.00	
208 Pb	0.56	5.00	

Ion Ratio

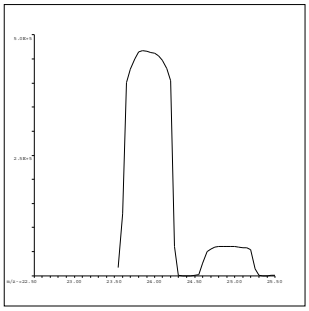
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

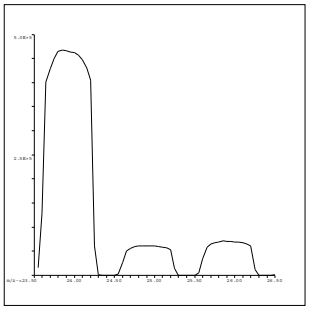
Element	Actual	Required	Flag



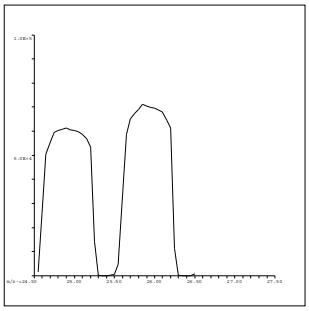
9 Be
Mass Calib.
Actual: 8.90
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



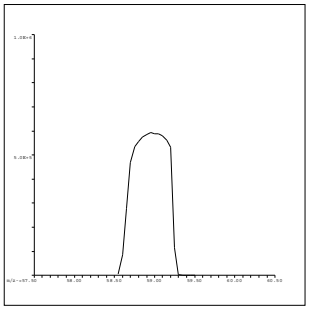
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



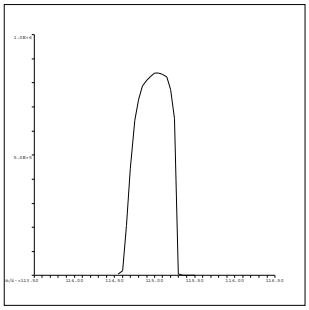
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



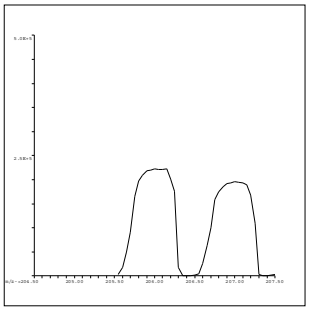
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



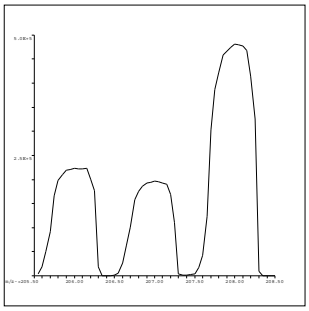
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



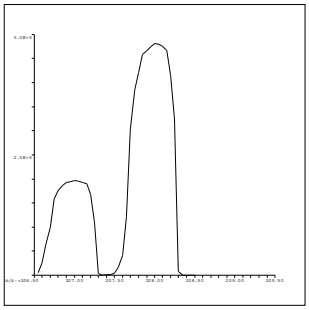
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.05
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Jun 2019 11:23:08 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	213841.00	0.00	
24	Mg	563643.00	0.00	
25	Mg	73874.10	0.00	
26	Mg	85617.90	0.00	
59	Co	664188.00	0.00	
115	In	969237.00	0.00	
206	Pb	292392.00	0.00	
207	Pb	252987.00	0.00	
208	Pb	627226.00	0.00	

RSD (%)

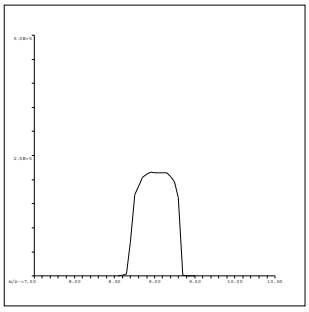
Element		Actual	Required	Flag
9	Be	0.78	5.00	
24	Mg	0.59	5.00	
25	Mg	0.18	5.00	
26	Mg	0.94	5.00	
59	Co	0.72	5.00	
115	In	0.53	5.00	
206	Pb	0.92	5.00	
207	Pb	0.65	5.00	
208	Pb	1.36	5.00	

Ion Ratio

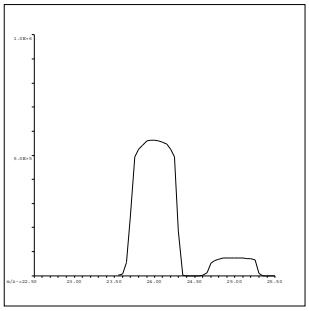
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

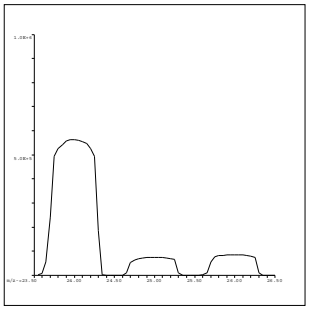
Element	Actual	Required	Flag



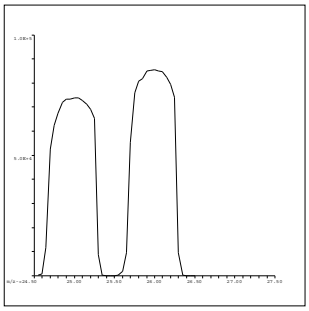
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



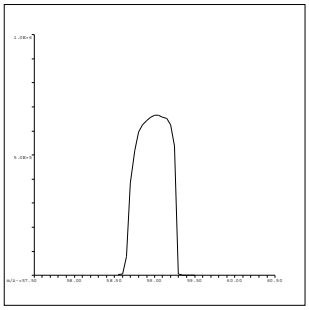
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



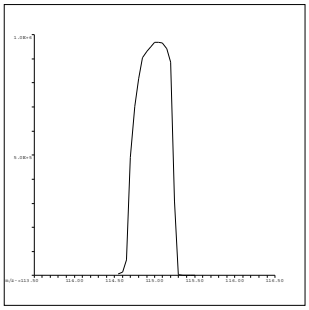
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



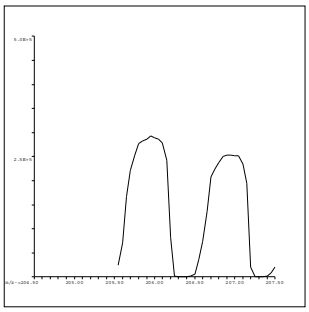
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



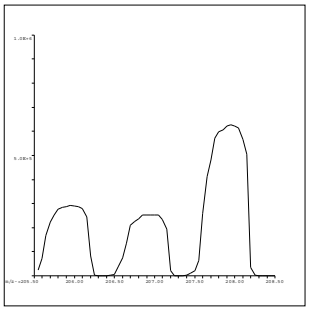
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



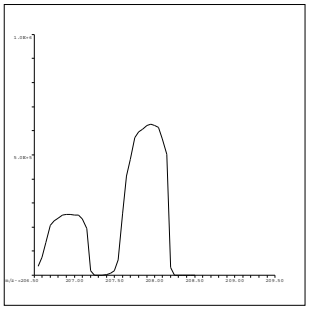
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 17 Jun 2019 08:21:02 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	88402.10	0.00	
24 Mg	450740.00	0.00	
25 Mg	59046.80	0.00	
26 Mg	67694.60	0.00	
59 Co	459728.00	0.00	
115 In	882603.00	0.00	
206 Pb	278857.00	0.00	
207 Pb	242545.00	0.00	
208 Pb	599319.00	0.00	

RSD (%)

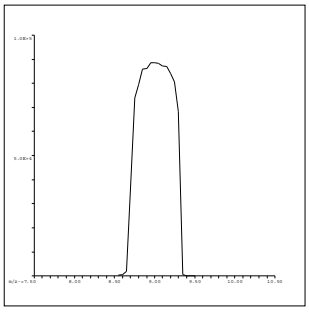
Element	Actual	Required	Flag
9 Be	0.87	5.00	
24 Mg	1.08	5.00	
25 Mg	0.48	5.00	
26 Mg	1.02	5.00	
59 Co	1.25	5.00	
115 In	0.72	5.00	
206 Pb	0.83	5.00	
207 Pb	1.18	5.00	
208 Pb	1.07	5.00	

Ion Ratio

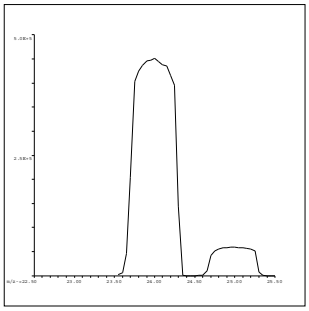
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

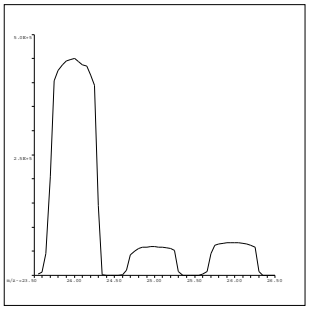
Element	Actual	Required	Flag



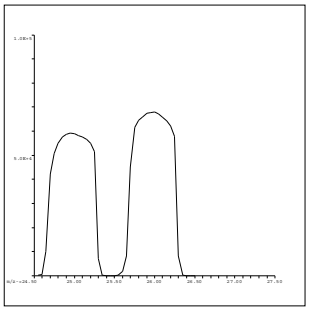
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



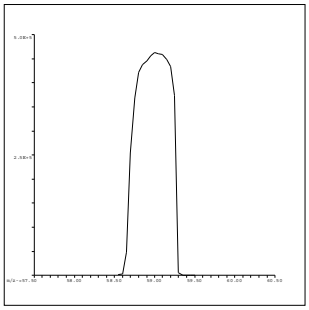
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



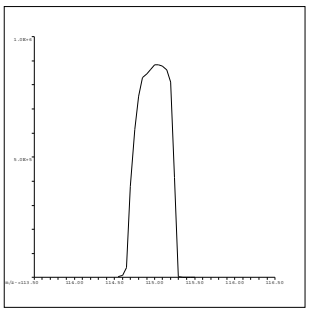
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



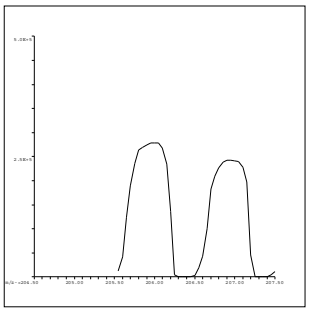
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



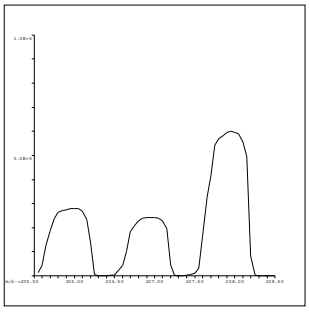
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



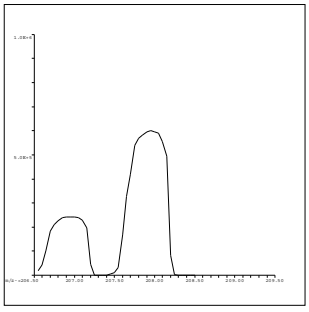
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 24 Jun 2019 02:04:01 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	238148.00	0.00	
24	Mg	613011.00	0.00	
25	Mg	81112.00	0.00	
26	Mg	93657.00	0.00	
59	Co	1436430.00	0.00	
115	In	1085800.00	0.00	
206	Pb	322671.00	0.00	
207	Pb	281324.00	0.00	
208	Pb	688401.00	0.00	

RSD (%)

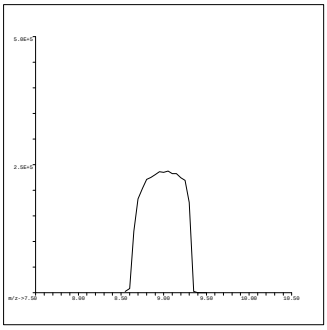
Element		Actual	Required	Flag
9	Be	0.95	5.00	
24	Mg	0.87	5.00	
25	Mg	1.02	5.00	
26	Mg	1.32	5.00	
59	Co	1.19	5.00	
115	In	1.54	5.00	
206	Pb	1.08	5.00	
207	Pb	1.68	5.00	
208	Pb	1.31	5.00	

Ion Ratio

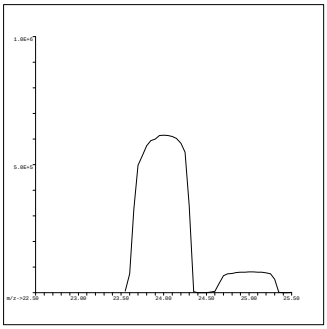
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

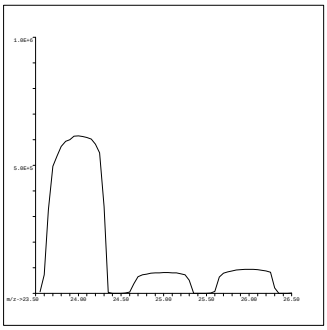
Element	Actual	Required	Flag



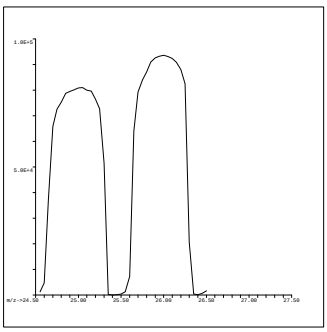
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



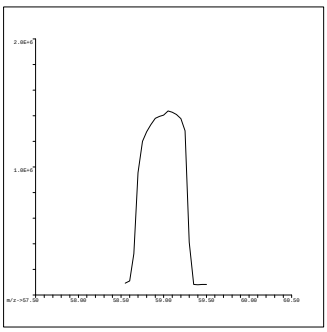
24 Mg
Mass Calib.
Actual: 24.05
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



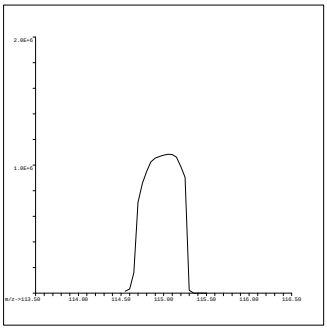
25 Mg
Mass Calib.
Actual: 25.05
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



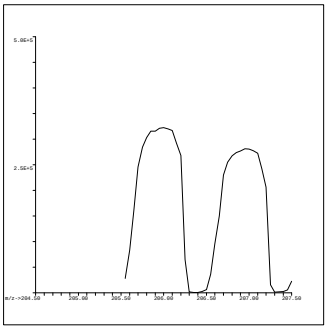
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



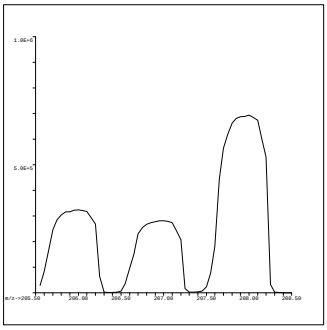
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



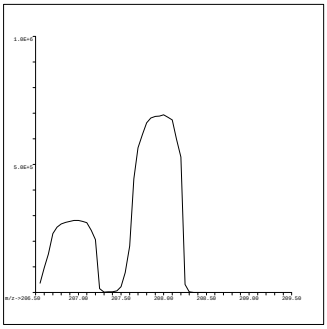
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190613A

Instrument ID: ICPMS-02

Analyte	Data File	A0613002.D	A0613003.D	A0613004.D	A0613005.D	A0613006.D	A0613007.D	A0613008.D	A0613009.D	A0613010.D	
	Acq. Date-Time	06/13/2019 04:25 AM	06/13/2019 04:30 AM	06/13/2019 04:34 AM	06/13/2019 04:39 AM	06/13/2019 04:44 AM	06/13/2019 04:49 AM	06/13/2019 04:54 AM	06/13/2019 04:59 AM	06/13/2019 05:04 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	118299.9		119867.1	119272.4	118909.5	123008	123835.8	123010	120294.7	
55 Mn [2]	CPS	155.5		2913.2	26071.6	51762.2	104092.5	207457.2	511984.7	998890.8	1.0000
52 Cr [2]	CPS	744.3		5335.4	49830.7	97211.2	196338.1	389716.7	966206.2	1968079.5	0.9998
72 Ge (ISTD) [1]	CPS	52885.6		53986.2	54439.8	52967.2	53485.6	53722.5	52414.3	50289.6	
78 Se [1]	CPS	1.1		101.1	1045.6	1865.8	3932.9	7927.8	19292.3	38379.9	0.9999
72 Ge (ISTD) [2]	CPS	84806.3	86959.6	85862.7	85668.5	85550.4	85531.1	86259.6	83976.2	80020	
75 As [2]	CPS	25.8	124.9	575.6	5307.1	10697.8	21470.3	42664.1	106037.5	206119.6	0.9999
103 Rh (ISTD) [2]	CPS	2396812.1		2410984	2394967.6	2359479.3	2385170.2	2326277.7	2269384.6	2185897.5	
95 Mo [2]	CPS	62.2		2590.3	25126.2	50703.3	103222.5	205459.7	512984.2	1006879.5	0.9999

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190614B

Instrument ID: ICPMS-02

Analyte	Data File	B0614002.D	B0614003.D	B0614004.D	B0614005.D	B0614006.D	B0614007.D	B0614008.D	B0614009.D	B0614010.D	
	Acq. Date-Time	06/14/2019 06:11 PM	06/14/2019 06:16 PM	06/14/2019 06:21 PM	06/14/2019 06:26 PM	06/14/2019 06:31 PM	06/14/2019 06:36 PM	06/14/2019 06:41 PM	06/14/2019 06:46 PM	06/14/2019 06:51 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	138450.6		139281	140698.7	140059.2	141567.2	142028	142929	142399.1	
55 Mn [2]	CPS	118.7		3057.2	30103	58822.3	118743.7	233811.1	569282.5	1095207.8	0.9998
52 Cr [2]	CPS	428.7		5707.7	54695.5	107311.4	215067.6	423638.1	1040404.5	2170888.5	0.9998
72 Ge (ISTD) [1]	CPS	59802.7		59480.4	59760.5	59799.4	59876.4	59312	58353	57369.6	
78 Se [1]	CPS	6.7		117.8	1083.4	2118	4236.3	8392.5	20835.3	40117.3	1.0000
72 Ge (ISTD) [2]	CPS	100089.4	100231.7	100312.8	99723.9	99784	101369.6	100890.6	98839.5	96944.5	
75 As [2]	CPS	65.3	193.3	718.3	6399.6	12551.2	25473.8	50160.7	122689.5	238399.6	1.0000
103 Rh (ISTD) [2]	CPS	2810378.2		2794918.4	2819697.6	2807864.9	2797987.8	2774758.3	2735620.2	2679139.9	
95 Mo [2]	CPS	381.1		3284.9	30893	62272.9	125388.5	248363.8	611761.8	1190925.3	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190617B

Instrument ID: ICPMS-02

Analyte	Data File	B0617002.D	B0617004.D	B0617005.D	B0617006.D	B0617007.D	B0617008.D	B0617009.D	B0617010.D	
	Acq. Date-Time	06/17/2019 05:18 PM	06/17/2019 05:28 PM	06/17/2019 05:33 PM	06/17/2019 05:38 PM	06/17/2019 05:43 PM	06/17/2019 05:48 PM	06/17/2019 05:53 PM	06/17/2019 05:58 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [1]	CPS	45220.5	45574.8	45749.7	45608.2	45923.5	45811	45767.6	45063.2	
78 Se [1]	CPS	2.2	90	732.3	1617.9	2992.6	5896.9	14777.3	29287.5	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190624B

Instrument ID: ICPMS-02

Analyte	Data File	B0524003.D	B0524005.D	B0524006.D	B0524007.D	B0524008.D	B0524009.D	B0524010.D	B0524011.D	
	Acq. Date-Time	06/24/2019 02:25 PM	06/24/2019 02:35 PM	06/24/2019 02:40 PM	06/24/2019 02:45 PM	06/24/2019 02:50 PM	06/24/2019 02:55 PM	06/24/2019 03:00 PM	06/24/2019 03:04 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	127945.7	134081.6	135424.9	135024.7	136400.7	138686.4	137706.3	136614.9	
52 Cr [2]	CPS	348.9	5563.3	50244.2	100085.1	199818.1	401342.3	980356.6	2044316.7	0.9997
72 Ge (ISTD) [1]	CPS	67244.8	69125.5	69387.2	69650.5	75198.4	70155.1	67603.1	66084.6	
78 Se [1]	CPS	1.1	98.9	1106.8	2338.1	4662	9229.7	21748.7	44141.3	0.9998

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	9.869	0.10	10.00	0	98.7	90	110				
Manganese	106.801	0.50	100.0	0	107	90	110				
Molybdenum	9.499	0.50	10.00	0	95.0	90	110				
Selenium	9.930	0.50	10.00	0	99.3	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ZZZZZZ** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.108	0.10	0.1000	0	108	80	120				
Manganese	0.520	0.50	0.5000	0	104	80	120				
Molybdenum	0.497	0.50	0.5000	0	99.4	80	120				
Selenium	0.485	0.50	0.5000	0	97.0	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.375	0.10	20.00	0	96.9	90	110				
Manganese	21.056	0.50	20.00	0	105	90	110				
Molybdenum	19.228	0.50	20.00	0	96.1	90	110				
Selenium	19.147	0.50	20.00	0	95.7	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.530	0.10	20.00	0	97.7	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.199	0.50	20.00	0	106	90	110				
Molybdenum	18.955	0.50	20.00	0	94.8	90	110				
Selenium	18.535	0.50	20.00	0	92.7	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409881**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.467	0.10	20.00	0	97.3	90	110				
Manganese	20.869	0.50	20.00	0	104	90	110				
Molybdenum	19.062	0.50	20.00	0	95.3	90	110				
Selenium	19.020	0.50	20.00	0	95.1	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409893**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.322	0.10	20.00	0	96.6	90	110				
Manganese	20.803	0.50	20.00	0	104	90	110				
Molybdenum	19.152	0.50	20.00	0	95.8	90	110				
Selenium	20.412	0.50	20.00	0	102	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.387	0.10	20.00	0	96.9	90	110				
Manganese	18.694	0.50	20.00	0	93.5	90	110				
Molybdenum	18.301	0.50	20.00	0	91.5	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409907**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.022	0.50	20.00	0	100	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409919**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.357	0.10	20.00	0	96.8	90	110				
Manganese	21.167	0.50	20.00	0	106	90	110				
Molybdenum	18.998	0.50	20.00	0	95.0	90	110				
Selenium	19.068	0.50	20.00	0	95.3	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409931**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	18.981	0.10	20.00	0	94.9	90	110				
Manganese	21.343	0.50	20.00	0	107	90	110				
Molybdenum	18.641	0.50	20.00	0	93.2	90	110				
Selenium	18.994	0.50	20.00	0	95.0	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCV**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409943**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.271	0.10	20.00	0	96.4	90	110				
Manganese	21.230	0.50	20.00	0	106	90	110				
Molybdenum	18.548	0.50	20.00	0	92.7	90	110				
Selenium	19.825	0.50	20.00	0	99.1	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **CCV** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.387	0.10	20.00	0	96.9	90	110				
Manganese	19.045	0.50	20.00	0	95.2	90	110				
Molybdenum	18.771	0.50	20.00	0	93.9	90	110				
Selenium	18.888	0.50	20.00	0	94.4	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.080	0.10	10.00	0	101	90	110				
Chromium	10.483	1.0	10.00	0	105	90	110				
Manganese	108.417	0.50	100.0	0	108	90	110				
Molybdenum	9.689	0.50	10.00	0	96.9	90	110				
Selenium	9.408	0.50	10.00	0	94.1	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ZZZZZZ**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.102	0.10	0.1000	0	102	80	120				
Chromium	1.029	1.0	1.000	0	103	80	120				
Manganese	0.551	0.50	0.5000	0	110	80	120				
Molybdenum	0.524	0.50	0.5000	0	105	80	120				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ZZZZZZ**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.516	0.50	0.5000	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.215	0.10	20.00	0	101	90	110				
Chromium	20.284	1.0	20.00	0	101	90	110				
Manganese	21.561	0.50	20.00	0	108	90	110				
Molybdenum	19.922	0.50	20.00	0	99.6	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.993	0.50	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.580	0.10	20.00	0	103	90	110				
Chromium	20.187	1.0	20.00	0	101	90	110				
Manganese	21.598	0.50	20.00	0	108	90	110				
Molybdenum	19.782	0.50	20.00	0	98.9	90	110				
Selenium	19.637	0.50	20.00	0	98.2	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.253	0.10	20.00	0	101	90	110				
Chromium	20.523	1.0	20.00	0	103	90	110				
Manganese	21.297	0.50	20.00	0	106	90	110				
Molybdenum	19.881	0.50	20.00	0	99.4	90	110				
Selenium	19.476	0.50	20.00	0	97.4	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.974	0.10	20.00	0	99.9	90	110				
Chromium	19.968	1.0	20.00	0	99.8	90	110				
Manganese	21.603	0.50	20.00	0	108	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	20.162	0.50	20.00	0	101	90	110				
Selenium	19.882	0.50	20.00	0	99.4	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.472	0.10	20.00	0	102	90	110				
Chromium	19.860	1.0	20.00	0	99.3	90	110				
Manganese	20.887	0.50	20.00	0	104	90	110				
Molybdenum	20.065	0.50	20.00	0	100	90	110				
Selenium	19.877	0.50	20.00	0	99.4	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413090**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.189	0.10	20.00	0	101	90	110				
Chromium	19.958	1.0	20.00	0	99.8	90	110				
Manganese	21.227	0.50	20.00	0	106	90	110				
Molybdenum	20.107	0.50	20.00	0	101	90	110				
Selenium	20.149	0.50	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.234	0.10	20.00	0	101	90	110				
Chromium	19.818	1.0	20.00	0	99.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV7** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.361	0.50	20.00	0	107	90	110				
Molybdenum	20.146	0.50	20.00	0	101	90	110				
Selenium	20.651	0.50	20.00	0	103	90	110				

Sample ID **CCV8** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.014	0.10	20.00	0	100	90	110				
Chromium	20.017	1.0	20.00	0	100	90	110				
Manganese	20.986	0.50	20.00	0	105	90	110				
Molybdenum	19.674	0.50	20.00	0	98.4	90	110				
Selenium	20.258	0.50	20.00	0	101	90	110				

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413127**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.146	0.10	20.00	0	101	90	110				
Chromium	19.969	1.0	20.00	0	99.8	90	110				
Manganese	21.109	0.50	20.00	0	106	90	110				
Molybdenum	19.669	0.50	20.00	0	98.3	90	110				
Selenium	19.394	0.50	20.00	0	97.0	90	110				

Sample ID **CCV10** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.953	0.10	20.00	0	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.775	1.0	20.00	0	98.9	90	110				
Manganese	21.376	0.50	20.00	0	107	90	110				
Molybdenum	20.058	0.50	20.00	0	100	90	110				
Selenium	19.351	0.50	20.00	0	96.8	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.107	0.10	20.00	0	101	90	110				
Chromium	20.472	1.0	20.00	0	102	90	110				
Manganese	21.561	0.50	20.00	0	108	90	110				
Molybdenum	20.100	0.50	20.00	0	101	90	110				
Selenium	19.812	0.50	20.00	0	99.1	90	110				

Sample ID **CCV12**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.067	0.10	20.00	0	100	90	110				
Chromium	20.044	1.0	20.00	0	100	90	110				
Manganese	21.499	0.50	20.00	0	107	90	110				
Molybdenum	19.896	0.50	20.00	0	99.5	90	110				
Selenium	20.026	0.50	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	115.339	0.50	100.0	0	115	90	110				S
Selenium	10.468	0.50	10.00	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ZZZZZZ**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.565	0.50	0.5000	0	113	80	120				
Selenium	0.416	0.50	0.5000	0	83.2	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.233	0.50	20.00	0	106	90	110				
Selenium	20.146	0.50	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.484	0.50	20.00	0	97.4	90	110				
Selenium	20.221	0.50	20.00	0	101	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.254	0.50	20.00	0	96.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

%Rec of Mn in ICV failed, biased high. Mn not reported on this run.

NS 6/26/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.029	0.50	20.00	0	100	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.070	0.50	20.00	0	95.4	90	110				
Selenium	19.656	0.50	20.00	0	98.3	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICV**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.648	0.50	10.00	0	106	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ZZZZZZ**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.516	0.50	0.5000	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **CCV**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.756	0.50	20.00	0	104	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **CCV**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.497	0.50	20.00	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.695	1.0	10.00	0	107	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ZZZZZZ**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.009	1.0	1.000	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.065	1.0	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409741**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.314	1.0	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409753**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.342	1.0	20.00	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.027	1.0	20.00	0	100	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409779**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.551	1.0	20.00	0	97.8	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409791**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.183	1.0	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409803**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.319	1.0	20.00	0	102	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409815**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.292	1.0	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCV**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.221	1.0	20.00	0	91.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.483	1.0	10.00	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ZZZZZZ**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.029	1.0	1.000	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.284	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412891**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.187	1.0	20.00	0	101	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.523	1.0	20.00	0	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.968	1.0	20.00	0	99.8	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.860	1.0	20.00	0	99.3	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412941**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.958	1.0	20.00	0	99.8	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.818	1.0	20.00	0	99.1	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412966**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.017	1.0	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412978**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.969	1.0	20.00	0	99.8	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.775	1.0	20.00	0	98.9	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413004**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.472	1.0	20.00	0	102	90	110				

Sample ID **CCV12**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413008**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.044	1.0	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409882**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409894**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	0.216	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409920**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409932**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409944**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **CCB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413013**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	0.212	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	0.213	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB12** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCB** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415785**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415821**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415821**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICB**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **CCB**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **CCB**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409754**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.190	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409766**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409780**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409792**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409804**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409816**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.140	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **CCB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.212	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412930**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412967**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.213	1.0									

Sample ID **CCB12**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413009**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSA**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409844**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSAB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.856	0.10	20.00	0	99.3	80	120				
Manganese	17.305	0.50	20.00	0	86.5	80	120				
Molybdenum	20.553	0.50	20.00	0	103	80	120				
Selenium	18.072	0.50	20.00	0	90.4	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSA**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409895**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134493**
Client ID: **ICSAB**	Batch ID: **R134493**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.436	0.10	20.00	0	97.2	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSAB** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409896**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.264	0.50	20.00	0	86.3	80	120				
Molybdenum	20.328	0.50	20.00	0	102	80	120				
Selenium	18.241	0.50	20.00	0	91.2	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSA** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ICSAB** Batch ID: **R134493** TestNo: **EPA 6020** Analysis Date: **6/13/2019** SeqNo: **3409958**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.471	0.10	20.00	0	97.4	80	120				
Manganese	16.754	0.50	20.00	0	83.8	80	120				
Molybdenum	20.106	0.50	20.00	0	101	80	120				
Selenium	19.121	0.50	20.00	0	95.6	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.824	0.10	20.00	0	104	80	120				
Chromium	19.461	1.0	20.00	0	97.3	80	120				
Manganese	17.819	0.50	20.00	0	89.1	80	120				
Molybdenum	21.445	0.50	20.00	0	107	80	120				
Selenium	19.587	0.50	20.00	0	97.9	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.783	0.10	20.00	0	104	80	120				
Chromium	19.415	1.0	20.00	0	97.1	80	120				
Manganese	17.715	0.50	20.00	0	88.6	80	120				
Molybdenum	21.517	0.50	20.00	0	108	80	120				
Selenium	20.090	0.50	20.00	0	100	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.464	0.10	20.00	0	102	80	120				
Chromium	19.473	1.0	20.00	0	97.4	80	120				
Manganese	17.732	0.50	20.00	0	88.7	80	120				
Molybdenum	21.715	0.50	20.00	0	109	80	120				
Selenium	19.675	0.50	20.00	0	98.4	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.230	0.10	20.00	0	101	80	120				
Chromium	19.154	1.0	20.00	0	95.8	80	120				
Manganese	18.013	0.50	20.00	0	90.1	80	120				
Molybdenum	21.495	0.50	20.00	0	107	80	120				
Selenium	19.840	0.50	20.00	0	99.2	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413159**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB5** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **ICSAB** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413160**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.259	0.10	20.00	0	101	80	120				
Chromium	19.288	1.0	20.00	0	96.4	80	120				
Manganese	18.121	0.50	20.00	0	90.6	80	120				
Molybdenum	21.392	0.50	20.00	0	107	80	120				
Selenium	19.603	0.50	20.00	0	98.0	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSA**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415771**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSAB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.967	0.50	20.00	0	99.8	80	120				
Selenium	20.431	0.50	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSA**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSAB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.695	0.50	20.00	0	98.5	80	120				
Selenium	20.364	0.50	20.00	0	102	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICSA**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICSAB**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.550	0.50	20.00	0	92.7	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICSA**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICSAB**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.544	0.50	20.00	0	103	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.378	1.0	20.00	0	96.9	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.742	1.0	20.00	0	98.7	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSA**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID: **ICSAB**	Batch ID: **R134492**	TestNo: **EPA 6020**		Analysis Date: **6/13/2019**	SeqNo: **3409830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.542	1.0	20.00	0	92.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.461	1.0	20.00	0	97.3	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.415	1.0	20.00	0	97.1	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.473	1.0	20.00	0	97.4	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.154	1.0	20.00	0	95.8	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413010**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413011**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.288	1.0	20.00	0	96.4	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	118299.9	118299.9	100	PASS	70-125	84806.3	84806.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	121078	118299.9	102.35	PASS	70-125	86959.6	84806.3	102.54	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	119867.1	118299.9	101.32	PASS	70-125	85862.7	84806.3	101.25	PASS	70-125
Std3-5/50 ppb	ICAL	1	119272.4	118299.9	100.82	PASS	70-125	85668.5	84806.3	101.02	PASS	70-125
Std4-10/100 ppb	ICAL	1	118909.5	118299.9	100.52	PASS	70-125	85550.4	84806.3	100.88	PASS	70-125
Std5-20/200 ppb	ICAL	1	123008	118299.9	103.98	PASS	70-125	85531.1	84806.3	100.85	PASS	70-125
Std6-40/400 ppb	ICAL	1	123835.8	118299.9	104.68	PASS	70-125	86259.6	84806.3	101.71	PASS	70-125
Std7-100/1000 ppb	ICAL	1	123010	118299.9	103.98	PASS	70-125	83976.2	84806.3	99.021	PASS	70-125
Std8-200/2000 ppb	ICAL	1	120294.7	118299.9	101.69	PASS	70-125	80020	84806.3	94.36	PASS	70-125
ICV	ICV	1	107067.5	118299.9	90.51	PASS	70-125	79175	84806.3	93.36	PASS	70-125
ICB	ICB	1	113385.9	118299.9	95.85	PASS	70-125	83289.3	84806.3	98.21	PASS	70-125
LLICV	CCV1	1	114048.8	118299.9	96.41	PASS	70-125	84285.8	84806.3	99.39	PASS	70-125
ICSA1	ICSA	1	116558.7	118299.9	98.53	PASS	70-125	82217.4	84806.3	96.95	PASS	70-125
ICSAB1	ICSAB	1	121151.6	118299.9	102.41	PASS	70-125	83592	84806.3	98.57	PASS	70-125
LLICV	CCV1	1	130218.2	118299.9	110.08	PASS	70-125	93292	84806.3	110.01	PASS	70-125
CCV1	CCV	1	131653.7	118299.9	111.29	PASS	70-125	93444.8	84806.3	110.19	PASS	70-125
CCB1	CCB	1	124611.9	118299.9	105.34	PASS	70-125	91023.7	84806.3	107.33	PASS	70-125
CCV2	CCV	1	137138.8	118299.9	115.92	PASS	70-125	98271.7	84806.3	115.88	PASS	70-125
CCB2	CCB	1	133901.7	118299.9	113.19	PASS	70-125	97139.8	84806.3	114.54	PASS	70-125
CCV3	CCV	1	137592.8	118299.9	116.31	PASS	70-125	98647.8	84806.3	116.32	PASS	70-125
CCB3	CCB	1	130525.4	118299.9	110.33	PASS	70-125	96350.6	84806.3	113.61	PASS	70-125
CCV4	CCV	1	138359.3	118299.9	116.96	PASS	70-125	99023.2	84806.3	116.76	PASS	70-125
CCB4	CCB	1	129876.9	118299.9	109.79	PASS	70-125	96572.2	84806.3	113.87	PASS	70-125
ICSA2	ICSA	1	127416.6	118299.9	107.71	PASS	70-125	90619.8	84806.3	106.86	PASS	70-125
ICSAB2	ICSAB	1	129109.7	118299.9	109.14	PASS	70-125	91644.4	84806.3	108.06	PASS	70-125
MB-73996	MBLK	1	138058.5	118299.9	116.7	PASS	70-125	101467.3	84806.3	119.65	PASS	70-125
LCS-73996	LCS	1	129027.5	118299.9	109.07	PASS	70-125	96480.7	84806.3	113.77	PASS	70-125
N035660-001A	SAMP	1	120411.1	118299.9	101.78	PASS	70-125	76851.6	84806.3	90.62	PASS	70-125
N035660-001A	SAMP	5	129776.2	118299.9	109.7	PASS	70-125	90689.7	84806.3	106.94	PASS	70-125
N035660-001A-PS	PS	1	126006.4	118299.9	106.51	PASS	70-125	80354.9	84806.3	94.75	PASS	70-125
N035660-001A-MS	MS	1	129742.1	118299.9	109.67	PASS	70-125	80308	84806.3	94.7	PASS	70-125
N035660-001A-MSD	MSD	1	129283.5	118299.9	109.28	PASS	70-125	81433.4	84806.3	96.023	PASS	70-125
N035663-001B	SAMP	1	128328.6	118299.9	108.48	PASS	70-125	84594.9	84806.3	99.75	PASS	70-125
N035663-002B	SAMP	1	130021.7	118299.9	109.91	PASS	70-125	85912	84806.3	101.3	PASS	70-125
N035663-002B	SAMP	5	129545.2	118299.9	109.51	PASS	70-125	92235.1	84806.3	108.76	PASS	70-125
CCV5	CCV	1	120169.2	118299.9	101.58	PASS	70-125	79871.9	84806.3	94.18	PASS	70-125
CCB5	CCB	1	112973.5	118299.9	95.5	PASS	70-125	81724.4	84806.3	96.37	PASS	70-125
N035663-003B	SAMP	1	112076.6	118299.9	94.74	PASS	70-125	75842.8	84806.3	89.43	PASS	70-125
N035663-003B	SAMP	5	114743.3	118299.9	96.99	PASS	70-125	84435.4	84806.3	99.56	PASS	70-125
N035663-004B	SAMP	1	115838.1	118299.9	97.92	PASS	70-125	77762.4	84806.3	91.69	PASS	70-125
N035663-005B	SAMP	1	108254	118299.9	91.51	PASS	70-125	64951.1	84806.3	76.59	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035663-005B	SAMP	5	124715.8	118299.9	105.42	PASS	70-125	85625	84806.3	100.97	PASS	70-125
N035663-006B	SAMP	1	132550.9	118299.9	112.05	PASS	70-125	87877.7	84806.3	103.62	PASS	70-125
N035663-007B	SAMP	1	131879	118299.9	111.48	PASS	70-125	86456.3	84806.3	101.95	PASS	70-125
N035663-008B	SAMP	1	114635.3	118299.9	96.9	PASS	70-125	68503.9	84806.3	80.78	PASS	70-125
N035663-008B	SAMP	5	125018.2	118299.9	105.68	PASS	70-125	85950.9	84806.3	101.35	PASS	70-125
N035663-009B	SAMP	1	115064	118299.9	97.26	PASS	70-125	68655.2	84806.3	80.96	PASS	70-125
CCV6	CCV	1	130365.4	118299.9	110.2	PASS	70-125	95358.3	84806.3	112.44	PASS	70-125
CCB6	CCB	1	128516.5	118299.9	108.64	PASS	70-125	93763.2	84806.3	110.56	PASS	70-125
N035663-009B	SAMP	5	125598.4	118299.9	106.17	PASS	70-125	85723	84806.3	101.08	PASS	70-125
N035663-004B	SAMP	1	129277.1	118299.9	109.28	PASS	70-125	85933.1	84806.3	101.33	PASS	70-125
N035705-001B	SAMP	1	129946.8	118299.9	109.85	PASS	70-125	86245	84806.3	101.7	PASS	70-125
N035705-001B	SAMP	5	122587.5	118299.9	103.62	PASS	70-125	89964.2	84806.3	106.08	PASS	70-125
N035705-002B	SAMP	1	113731.4	118299.9	96.14	PASS	70-125	69388.2	84806.3	81.82	PASS	70-125
N035705-002B	SAMP	5	124239.2	118299.9	105.02	PASS	70-125	86253.8	84806.3	101.71	PASS	70-125
N035705-003B	SAMP	1	117051	118299.9	98.94	PASS	70-125	70053.3	84806.3	82.6	PASS	70-125
N035705-003B	SAMP	5	124549.7	118299.9	105.28	PASS	70-125	86428	84806.3	101.91	PASS	70-125
N035705-004B	SAMP	1	123718.8	118299.9	104.58	PASS	70-125	75893.6	84806.3	89.49	PASS	70-125
N035705-005B	SAMP	1	124211.5	118299.9	105	PASS	70-125	76495.4	84806.3	90.2	PASS	70-125
CCV7	CCV	1	129951.8	118299.9	109.85	PASS	70-125	97687	84806.3	115.19	PASS	70-125
CCB7	CCB	1	121923.9	118299.9	103.06	PASS	70-125	92957.1	84806.3	109.61	PASS	70-125
N035705-006B	SAMP	1	124091.1	118299.9	104.9	PASS	70-125	82334.8	84806.3	97.086	PASS	70-125
N035705-006B	SAMP	5	128396.1	118299.9	108.53	PASS	70-125	91464.2	84806.3	107.85	PASS	70-125
N035705-007B	SAMP	1	124925.4	118299.9	105.6	PASS	70-125	82034.4	84806.3	96.73	PASS	70-125
N035705-007B	SAMP	5	126139.1	118299.9	106.63	PASS	70-125	90491.2	84806.3	106.7	PASS	70-125
N035705-008B	SAMP	1	117492.6	118299.9	99.32	PASS	70-125	71971.4	84806.3	84.87	PASS	70-125
N035705-008B	SAMP	5	125064.3	118299.9	105.72	PASS	70-125	86535.5	84806.3	102.04	PASS	70-125
N035705-008B	SAMP	25	124962.5	118299.9	105.63	PASS	70-125	92363.7	84806.3	108.91	PASS	70-125
N035705-009B	SAMP	1	117292	118299.9	99.15	PASS	70-125	71871.6	84806.3	84.75	PASS	70-125
N035705-009B	SAMP	5	123549.8	118299.9	104.44	PASS	70-125	86730.7	84806.3	102.27	PASS	70-125
N035705-009B	SAMP	25	124015.5	118299.9	104.83	PASS	70-125	92478.4	84806.3	109.05	PASS	70-125
CCV8	CCV	1	123209.4	118299.9	104.15	PASS	70-125	91092.5	84806.3	107.41	PASS	70-125
CCB8	CCB	1	115201.6	118299.9	97.38	PASS	70-125	86809.3	84806.3	102.36	PASS	70-125
N035705-010B	SAMP	1	115995.5	118299.9	98.052	PASS	70-125	76317.2	84806.3	89.99	PASS	70-125
N035705-001B	SAMP	1	120762.8	118299.9	102.08	PASS	70-125	81591.4	84806.3	96.21	PASS	70-125
N035705-004B	SAMP	1	114243	118299.9	96.57	PASS	70-125	72016.3	84806.3	84.92	PASS	70-125
N035705-005B	SAMP	1	116696	118299.9	98.64	PASS	70-125	72951.3	84806.3	86.021	PASS	70-125
N035705-004B	SAMP	1	119015.7	118299.9	100.61	PASS	70-125	73749.3	84806.3	86.96	PASS	70-125
CCV9	CCV	1	132929.8	118299.9	112.37	PASS	70-125	89958	84806.3	106.08	PASS	70-125
CCB9	CCB	1	122515.4	118299.9	103.56	PASS	70-125	86943.7	84806.3	102.52	PASS	70-125
ICSA3	ICSA	1	120646.9	118299.9	101.98	PASS	70-125	82979.6	84806.3	97.85	PASS	70-125
ICSAB3	ICSAB	1	122250.3	118299.9	103.34	PASS	70-125	84116.8	84806.3	99.19	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035705-004B	SAMP	1	108838.4	118299.9	92.002	PASS	70-125	66618.1	84806.3	78.55	PASS	70-125
MB-73997	MBLK	1	121056.3	118299.9	102.33	PASS	70-125	85027.3	84806.3	100.26	PASS	70-125
LCS-73997	LCS	1	123004.2	118299.9	103.98	PASS	70-125	86972.6	84806.3	102.55	PASS	70-125
N035705-014B	SAMP	1	102658.2	118299.9	86.78	PASS	70-125	61449.7	84806.3	72.46	PASS	70-125
N035705-014B	SAMP	5	120195.2	118299.9	101.6	PASS	70-125	81074.8	84806.3	95.6	PASS	70-125
N035705-014B	SAMP	50	125543.1	118299.9	106.12	PASS	70-125	92168.1	84806.3	108.68	PASS	70-125
CCV10	CCV	1	126311.1	118299.9	106.77	PASS	70-125	91611	84806.3	108.02	PASS	70-125
CCB10	CCB	1	122094.1	118299.9	103.21	PASS	70-125	89692.6	84806.3	105.76	PASS	70-125
N035705-015B	SAMP	1	112880.7	118299.9	95.42	PASS	70-125	69340.3	84806.3	81.76	PASS	70-125
N035705-015B	SAMP	5	125240	118299.9	105.87	PASS	70-125	85485.1	84806.3	100.8	PASS	70-125
N035705-015B-PS	PS	1	122087.6	118299.9	103.2	PASS	70-125	74944.1	84806.3	88.37	PASS	70-125
N035705-015B-MS	MS	1	120426.9	118299.9	101.8	PASS	70-125	74434.9	84806.3	87.77	PASS	70-125
N035705-015B-MSD	MSD	1	122920.2	118299.9	103.91	PASS	70-125	75235.2	84806.3	88.71	PASS	70-125
N035705-015B	SAMP	25	128915.6	118299.9	108.97	PASS	70-125	96017.8	84806.3	113.22	PASS	70-125
N035705-015B-PS	PS	5	123694.1	118299.9	104.56	PASS	70-125	86167.4	84806.3	101.6	PASS	70-125
N035705-015B-MS	MS	5	120687.5	118299.9	102.02	PASS	70-125	84954	84806.3	100.17	PASS	70-125
N035705-015B-MSD	MSD	5	119219.8	118299.9	100.78	PASS	70-125	84047.9	84806.3	99.11	PASS	70-125
N035705-004B	SAMP	1	131515.2	118299.9	111.17	PASS	70-125	75915.5	84806.3	89.52	PASS	70-125
CCV11	CCV	1	147709.8	118299.9	124.86	PASS	70-125	94478.5	84806.3	111.41	PASS	70-125
CCB11	CCB	1	143820.2	118299.9	121.57	PASS	70-125	96776.4	84806.3	114.11	PASS	70-125
CCV11	CCV	1	146814.8	118299.9	124.1	PASS	70-125	97466.2	84806.3	114.93	PASS	70-125
CCB11	CCB	1	137425.9	118299.9	116.17	PASS	70-125	94192.4	84806.3	111.07	PASS	70-125
N035705-004B	SAMP	1	126644.5	118299.9	107.05	PASS	70-125	75067.3	84806.3	88.52	PASS	70-125
N035705-014B	SAMP	5	139544.6	118299.9	117.96	PASS	70-125	87962.3	84806.3	103.72	PASS	70-125
N035705-015B-MS	MS	5	142859.3	118299.9	120.76	PASS	70-125	91973.9	84806.3	108.45	PASS	70-125
N035712-002B	SAMP	1	142788.7	118299.9	120.7	PASS	70-125	91362.9	84806.3	107.73	PASS	70-125
N035712-004B	SAMP	1	140845.9	118299.9	119.06	PASS	70-125	84420.1	84806.3	99.54	PASS	70-125
N035712-004B	SAMP	5	143457.9	118299.9	121.27	PASS	70-125	93908.5	84806.3	110.73	PASS	70-125
N035705-004B	SAMP	1	132594.5	118299.9	112.08	PASS	70-125	78366	84806.3	92.41	PASS	70-125
N035712-006B	SAMP	1	146200.7	118299.9	123.58	PASS	70-125	90912.6	84806.3	107.2	PASS	70-125
N035712-006B	SAMP	5	148628.5	118299.9	125.64	NR!	70-125	96219.5	84806.3	113.46	PASS	70-125
N035712-007B	SAMP	1	139338.7	118299.9	117.78	PASS	70-125	82957.3	84806.3	97.82	PASS	70-125
CCV12	CCV	1	149318.2	118299.9	126.22	NR!	70-125	98987.9	84806.3	116.72	PASS	70-125
CCB12	CCB	1	139329	118299.9	117.78	PASS	70-125	94352	84806.3	111.26	PASS	70-125
N035712-007B	SAMP	5	135773.8	118299.9	114.77	PASS	70-125	88615.9	84806.3	104.49	PASS	70-125
N035712-008B	SAMP	1	131728.6	118299.9	111.35	PASS	70-125	83380.8	84806.3	98.32	PASS	70-125
N035712-008B	SAMP	5	139772.2	118299.9	118.15	PASS	70-125	93815.5	84806.3	110.62	PASS	70-125
N035712-009B	SAMP	1	129321.6	118299.9	109.32	PASS	70-125	76843.1	84806.3	90.61	PASS	70-125
N035712-009B	SAMP	5	138210	118299.9	116.83	PASS	70-125	89902.3	84806.3	106.01	PASS	70-125
N035712-009B	SAMP	10	139441.6	118299.9	117.87	PASS	70-125	92796.4	84806.3	109.42	PASS	70-125
N035712-010B	SAMP	1	130487.2	118299.9	110.3	PASS	70-125	75803.1	84806.3	89.38	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035712-010B	SAMP	5	145897.2	118299.9	123.33	PASS	70-125	93552.8	84806.3	110.31	PASS	70-125
N035712-011B	SAMP	1	131788.3	118299.9	111.4	PASS	70-125	76594.5	84806.3	90.32	PASS	70-125
N035712-011B	SAMP	5	145186.3	118299.9	122.73	PASS	70-125	91876.7	84806.3	108.34	PASS	70-125
CCV13	CCV	1	155808.6	118299.9	131.71	NR!	70-125	104956.3	84806.3	123.76	PASS	70-125
CCB13	CCB	1	146712.9	118299.9	124.02	PASS	70-125	100434	84806.3	118.43	PASS	70-125
ICSA4	ICSA	1	147712.9	118299.9	124.86	PASS	70-125	98365.8	84806.3	115.99	PASS	70-125
ICSAB4	ICSAB	1	150301.7	118299.9	127.05	NR!	70-125	98183.3	84806.3	115.77	PASS	70-125
N035712-012B	SAMP	1	130369.8	118299.9	110.2	PASS	70-125	76188.6	84806.3	89.84	PASS	70-125
N035712-012B	SAMP	5	148514.7	118299.9	125.54	NR!	70-125	95014.8	84806.3	112.04	PASS	70-125
N035712-013B	SAMP	1	141361.9	118299.9	119.49	PASS	70-125	82480.3	84806.3	97.26	PASS	70-125
N035712-013B	SAMP	5	150332.2	118299.9	127.08	NR!	70-125	96915.5	84806.3	114.28	PASS	70-125
N035712-013B	SAMP	10	150081.5	118299.9	126.87	NR!	70-125	99360.4	84806.3	117.16	PASS	70-125
N035712-016B	SAMP	1	134323	118299.9	113.54	PASS	70-125	76891	84806.3	90.67	PASS	70-125
N035712-017B	SAMP	1	129396.5	118299.9	109.38	PASS	70-125	74497	84806.3	87.84	PASS	70-125
N035712-018B	SAMP	1	122920.2	118299.9	103.91	PASS	70-125	76925.9	84806.3	90.71	PASS	70-125
N035712-020B	SAMP	1	141396	118299.9	119.52	PASS	70-125	88358	84806.3	104.19	PASS	70-125
N035712-016B	SAMP	5	143164.1	118299.9	121.02	PASS	70-125	92745.8	84806.3	109.36	PASS	70-125
CCV14	CCV	1	140471.2	118299.9	118.74	PASS	70-125	96391.8	84806.3	113.66	PASS	70-125
CCB14	CCB	1	141379.3	118299.9	119.51	PASS	70-125	98448	84806.3	116.09	PASS	70-125
N035712-017B	SAMP	5	134797	118299.9	113.95	PASS	70-125	88122.9	84806.3	103.91	PASS	70-125
N035712-018B	SAMP	5	134732.1	118299.9	113.89	PASS	70-125	91508.5	84806.3	107.9	PASS	70-125
N035712-020B	SAMP	5	138217.9	118299.9	116.84	PASS	70-125	93591	84806.3	110.36	PASS	70-125
N035712-010B	SAMP	1	130924.1	118299.9	110.67	PASS	70-125	77658.2	84806.3	91.57	PASS	70-125
N035712-011B	SAMP	1	130858	118299.9	110.62	PASS	70-125	76263.8	84806.3	89.93	PASS	70-125
N035712-012B	SAMP	1	129569.6	118299.9	109.53	PASS	70-125	76333	84806.3	90.009	PASS	70-125
CCV15	CCV	1	144515.8	118299.9	122.16	PASS	70-125	100360.5	84806.3	118.34	PASS	70-125
CCB15	CCB	1	144951.9	118299.9	122.53	PASS	70-125	102142.4	84806.3	120.44	PASS	70-125
ICSA5	ICSA	1	140709.1	118299.9	118.94	PASS	70-125	95807.8	84806.3	112.97	PASS	70-125
ICSAB5	ICSAB	1	141283.8	118299.9	119.43	PASS	70-125	93986.6	84806.3	110.83	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	52885.6	52885.6	100	PASS	70-125	2396812.1	2396812.1	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	54733.9	52885.6	103.49	PASS	70-125	2447111.2	2396812.1	102.1	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	53986.2	52885.6	102.08	PASS	70-125	2410984	2396812.1	100.59	PASS	70-125
Std3-5/50 ppb	ICAL	1	54439.8	52885.6	102.94	PASS	70-125	2394967.6	2396812.1	99.92	PASS	70-125
Std4-10/100 ppb	ICAL	1	52967.2	52885.6	100.15	PASS	70-125	2359479.3	2396812.1	98.44	PASS	70-125
Std5-20/200 ppb	ICAL	1	53485.6	52885.6	101.13	PASS	70-125	2385170.2	2396812.1	99.51	PASS	70-125
Std6-40/400 ppb	ICAL	1	53722.5	52885.6	101.58	PASS	70-125	2326277.7	2396812.1	97.057	PASS	70-125
Std7-100/1000 ppb	ICAL	1	52414.3	52885.6	99.11	PASS	70-125	2269384.6	2396812.1	94.68	PASS	70-125
Std8-200/2000 ppb	ICAL	1	50289.6	52885.6	95.091	PASS	70-125	2185897.5	2396812.1	91.2	PASS	70-125
ICV	ICV	1	47132.7	52885.6	89.12	PASS	70-125	2267150	2396812.1	94.59	PASS	70-125
ICB	ICB	1	53234.5	52885.6	100.66	PASS	70-125	2304559.4	2396812.1	96.15	PASS	70-125
LLICV	CCV1	1	52815.6	52885.6	99.87	PASS	70-125	2346500.7	2396812.1	97.9	PASS	70-125
ICSA1	ICSA	1	50145.9	52885.6	94.82	PASS	70-125	2124323.6	2396812.1	88.63	PASS	70-125
ICSAB1	ICSAB	1	51617.3	52885.6	97.6	PASS	70-125	2120252	2396812.1	88.46	PASS	70-125
LLICV	CCV1	1	60802.1	52885.6	114.97	PASS	70-125	2538827	2396812.1	105.93	PASS	70-125
CCV1	CCV	1	56614.7	52885.6	107.05	PASS	70-125	2501641.2	2396812.1	104.37	PASS	70-125
CCB1	CCB	1	56838.9	52885.6	107.48	PASS	70-125	2491903.6	2396812.1	103.97	PASS	70-125
CCV2	CCV	1	61854	52885.6	116.96	PASS	70-125	2637526.6	2396812.1	110.04	PASS	70-125
CCB2	CCB	1	61945.2	52885.6	117.13	PASS	70-125	2575075.8	2396812.1	107.44	PASS	70-125
CCV3	CCV	1	60233.1	52885.6	113.89	PASS	70-125	2626607.6	2396812.1	109.59	PASS	70-125
CCB3	CCB	1	58767	52885.6	111.12	PASS	70-125	2580943.9	2396812.1	107.68	PASS	70-125
CCV4	CCV	1	57448.9	52885.6	108.63	PASS	70-125	2624575.8	2396812.1	109.5	PASS	70-125
CCB4	CCB	1	55462	52885.6	104.87	PASS	70-125	2559089.3	2396812.1	106.77	PASS	70-125
ICSA2	ICSA	1	51264.8	52885.6	96.94	PASS	70-125	2289759.1	2396812.1	95.53	PASS	70-125
ICSAB2	ICSAB	1	51946.1	52885.6	98.22	PASS	70-125	2277901	2396812.1	95.039	PASS	70-125
MB-73996	MBLK	1	58540.2	52885.6	110.69	PASS	70-125	2691254.3	2396812.1	112.28	PASS	70-125
LCS-73996	LCS	1	55574.5	52885.6	105.08	PASS	70-125	2609018.1	2396812.1	108.85	PASS	70-125
N035660-001A	SAMP	1	40148.4	52885.6	75.92	PASS	70-125	1858587.1	2396812.1	77.54	PASS	70-125
N035660-001A	SAMP	5	50714.3	52885.6	95.89	PASS	70-125	2270806.1	2396812.1	94.74	PASS	70-125
N035660-001A-PS	PS	1	42385	52885.6	80.14	PASS	70-125	1908143	2396812.1	79.61	PASS	70-125
N035660-001A-MS	MS	1	42906.3	52885.6	81.13	PASS	70-125	1917401.9	2396812.1	80	PASS	70-125
N035660-001A-MSD	MSD	1	42846.3	52885.6	81.017	PASS	70-125	1907385.4	2396812.1	79.58	PASS	70-125
N035663-001B	SAMP	1	49168.5	52885.6	92.97	PASS	70-125	2098821.6	2396812.1	87.57	PASS	70-125
N035663-002B	SAMP	1	50701	52885.6	95.87	PASS	70-125	2119565	2396812.1	88.43	PASS	70-125
N035663-002B	SAMP	5	54625	52885.6	103.29	PASS	70-125	2338638.2	2396812.1	97.57	PASS	70-125
CCV5	CCV	1	42360.7	52885.6	80.099	PASS	70-125	2248826.9	2396812.1	93.83	PASS	70-125
CCB5	CCB	1	47151.4	52885.6	89.16	PASS	70-125	2266355	2396812.1	94.56	PASS	70-125
N035663-003B	SAMP	1	41842.4	52885.6	79.12	PASS	70-125	1950986.7	2396812.1	81.4	PASS	70-125
N035663-003B	SAMP	5	48848.9	52885.6	92.37	PASS	70-125	2185558.5	2396812.1	91.19	PASS	70-125
N035663-004B	SAMP	1	44143.1	52885.6	83.47	PASS	70-125	2001834.2	2396812.1	83.52	PASS	70-125
N035663-005B	SAMP	1	31446.8	52885.6	59.46	NR!	70-125	1478875.3	2396812.1	61.7	NR!	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035663-005B	SAMP	5	46880.6	52885.6	88.65	PASS	70-125	2090442.7	2396812.1	87.22	PASS	70-125
N035663-006B	SAMP	1	51514.5	52885.6	97.41	PASS	70-125	2195936	2396812.1	91.62	PASS	70-125
N035663-007B	SAMP	1	51998.4	52885.6	98.32	PASS	70-125	2130334.3	2396812.1	88.88	PASS	70-125
N035663-008B	SAMP	1	35710.3	52885.6	67.52	NR!	70-125	1567631.2	2396812.1	65.4	NR!	70-125
N035663-008B	SAMP	5	48952.4	52885.6	92.56	PASS	70-125	2127026.2	2396812.1	88.74	PASS	70-125
N035663-009B	SAMP	1	35103.2	52885.6	66.38	NR!	70-125	1588480.3	2396812.1	66.27	NR!	70-125
CCV6	CCV	1	58321.1	52885.6	110.28	PASS	70-125	2543894.4	2396812.1	106.14	PASS	70-125
CCB6	CCB	1	57574.2	52885.6	108.87	PASS	70-125	2511700.8	2396812.1	104.79	PASS	70-125
N035663-009B	SAMP	5	47877.9	52885.6	90.53	PASS	70-125	2108518.4	2396812.1	87.97	PASS	70-125
N035663-004B	SAMP	1	50595	52885.6	95.67	PASS	70-125	2147721.7	2396812.1	89.61	PASS	70-125
N035705-001B	SAMP	1	51671.8	52885.6	97.7	PASS	70-125	2143335	2396812.1	89.42	PASS	70-125
N035705-001B	SAMP	5	53252.2	52885.6	100.69	PASS	70-125	2310552.1	2396812.1	96.4	PASS	70-125
N035705-002B	SAMP	1	34656.6	52885.6	65.53	NR!	70-125	1612249.4	2396812.1	67.27	NR!	70-125
N035705-002B	SAMP	5	49756.9	52885.6	94.084	PASS	70-125	2113153.8	2396812.1	88.17	PASS	70-125
N035705-003B	SAMP	1	35236.8	52885.6	66.63	NR!	70-125	1599613.7	2396812.1	66.74	NR!	70-125
N035705-003B	SAMP	5	49943.1	52885.6	94.44	PASS	70-125	2118192.8	2396812.1	88.38	PASS	70-125
N035705-004B	SAMP	1	40461.3	52885.6	76.51	PASS	70-125	1782917.9	2396812.1	74.39	PASS	70-125
N035705-005B	SAMP	1	41792.3	52885.6	79.024	PASS	70-125	1807583.4	2396812.1	75.42	PASS	70-125
CCV7	CCV	1	59262.3	52885.6	112.06	PASS	70-125	2562067.6	2396812.1	106.89	PASS	70-125
CCB7	CCB	1	56050.8	52885.6	105.98	PASS	70-125	2447922.6	2396812.1	102.13	PASS	70-125
N035705-006B	SAMP	1	48387.3	52885.6	91.49	PASS	70-125	2051812.6	2396812.1	85.61	PASS	70-125
N035705-006B	SAMP	5	54341.6	52885.6	102.75	PASS	70-125	2298958	2396812.1	95.92	PASS	70-125
N035705-007B	SAMP	1	47309.6	52885.6	89.46	PASS	70-125	2018008.4	2396812.1	84.2	PASS	70-125
N035705-007B	SAMP	5	53934.5	52885.6	101.98	PASS	70-125	2277883.1	2396812.1	95.038	PASS	70-125
N035705-008B	SAMP	1	37506.3	52885.6	70.92	PASS	70-125	1687952	2396812.1	70.42	PASS	70-125
N035705-008B	SAMP	5	49758.1	52885.6	94.086	PASS	70-125	2168142.6	2396812.1	90.46	PASS	70-125
N035705-008B	SAMP	25	54350.6	52885.6	102.77	PASS	70-125	2370371.3	2396812.1	98.9	PASS	70-125
N035705-009B	SAMP	1	37309.2	52885.6	70.55	PASS	70-125	1691877.3	2396812.1	70.59	PASS	70-125
N035705-009B	SAMP	5	49488.6	52885.6	93.58	PASS	70-125	2166311.5	2396812.1	90.38	PASS	70-125
N035705-009B	SAMP	25	54676.1	52885.6	103.39	PASS	70-125	2358667.9	2396812.1	98.41	PASS	70-125
CCV8	CCV	1	54644.7	52885.6	103.33	PASS	70-125	2449837.7	2396812.1	102.21	PASS	70-125
CCB8	CCB	1	52684.1	52885.6	99.62	PASS	70-125	2339360.9	2396812.1	97.6	PASS	70-125
N035705-010B	SAMP	1	43633.8	52885.6	82.51	PASS	70-125	1905225.2	2396812.1	79.49	PASS	70-125
N035705-001B	SAMP	1	49589.8	52885.6	93.77	PASS	70-125	2049630.5	2396812.1	85.51	PASS	70-125
N035705-004B	SAMP	1	38053.1	52885.6	71.95	PASS	70-125	1715886.9	2396812.1	71.59	PASS	70-125
N035705-005B	SAMP	1	39404.2	52885.6	74.51	PASS	70-125	1736558.4	2396812.1	72.45	PASS	70-125
N035705-004B	SAMP	1	40234.1	52885.6	76.078	PASS	70-125	1757929.1	2396812.1	73.34	PASS	70-125
CCV9	CCV	1	55313.8	52885.6	104.59	PASS	70-125	2436501.1	2396812.1	101.66	PASS	70-125
CCB9	CCB	1	52765.6	52885.6	99.77	PASS	70-125	2351258.9	2396812.1	98.099	PASS	70-125
ICSA3	ICSA	1	50052.5	52885.6	94.64	PASS	70-125	2146100.3	2396812.1	89.54	PASS	70-125
ICSAB3	ICSAB	1	49589.7	52885.6	93.77	PASS	70-125	2140563.6	2396812.1	89.31	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035705-004B	SAMP	1	37112.1	52885.6	70.17	PASS	70-125	1645087.9	2396812.1	68.64	NR!	70-125
MB-73997	MBLK	1	52123.5	52885.6	98.56	PASS	70-125	2303521.7	2396812.1	96.11	PASS	70-125
LCS-73997	LCS	1	53510.2	52885.6	101.18	PASS	70-125	2367437.8	2396812.1	98.77	PASS	70-125
N035705-014B	SAMP	1	31214.3	52885.6	59.022	NR!	70-125	1428109.8	2396812.1	59.58	NR!	70-125
N035705-014B	SAMP	5	46253.3	52885.6	87.46	PASS	70-125	1996937	2396812.1	83.32	PASS	70-125
N035705-014B	SAMP	50	53715.3	52885.6	101.57	PASS	70-125	2322874.7	2396812.1	96.92	PASS	70-125
CCV10	CCV	1	54610.9	52885.6	103.26	PASS	70-125	2449064	2396812.1	102.18	PASS	70-125
CCB10	CCB	1	53794.4	52885.6	101.72	PASS	70-125	2382349.3	2396812.1	99.4	PASS	70-125
N035705-015B	SAMP	1	36242.5	52885.6	68.53	NR!	70-125	1670298.7	2396812.1	69.69	NR!	70-125
N035705-015B	SAMP	5	50317.5	52885.6	95.14	PASS	70-125	2130640.1	2396812.1	88.89	PASS	70-125
N035705-015B-PS	PS	1	38718.2	52885.6	73.21	PASS	70-125	1763144.4	2396812.1	73.56	PASS	70-125
N035705-015B-MS	MS	1	39488.9	52885.6	74.67	PASS	70-125	1751650.9	2396812.1	73.083	PASS	70-125
N035705-015B-MSD	MSD	1	40962.6	52885.6	77.46	PASS	70-125	1753550.8	2396812.1	73.16	PASS	70-125
N035705-015B	SAMP	25	60472	52885.6	114.34	PASS	70-125	2393013.5	2396812.1	99.84	PASS	70-125
N035705-015B-PS	PS	5	51470.3	52885.6	97.32	PASS	70-125	2149497.2	2396812.1	89.68	PASS	70-125
N035705-015B-MS	MS	5	49481.7	52885.6	93.56	PASS	70-125	2121254	2396812.1	88.5	PASS	70-125
N035705-015B-MSD	MSD	5	49025.9	52885.6	92.7	PASS	70-125	2111489.4	2396812.1	88.096	PASS	70-125
N035705-004B	SAMP	1	40198.3	52885.6	76.01	PASS	70-125	1855306.9	2396812.1	77.41	PASS	70-125
CCV11	CCV	1	56431.9	52885.6	106.71	PASS	70-125	2622300.7	2396812.1	109.41	PASS	70-125
CCB11	CCB	1	61021.5	52885.6	115.38	PASS	70-125	2637261.4	2396812.1	110.03	PASS	70-125
CCV11	CCV	1	60712.3	52885.6	114.8	PASS	70-125	2651908.5	2396812.1	110.64	PASS	70-125
CCB11	CCB	1	56182.2	52885.6	106.23	PASS	70-125	2573807.2	2396812.1	107.38	PASS	70-125
N035705-004B	SAMP	1	41142.7	52885.6	77.8	PASS	70-125	1830058.4	2396812.1	76.35	PASS	70-125
N035705-014B	SAMP	5	51115.2	52885.6	96.65	PASS	70-125	2186128.4	2396812.1	91.21	PASS	70-125
N035705-015B-MS	MS	5	53800.6	52885.6	101.73	PASS	70-125	2318609.9	2396812.1	96.74	PASS	70-125
N035712-002B	SAMP	1	56895.7	52885.6	107.58	PASS	70-125	2332610.9	2396812.1	97.32	PASS	70-125
N035712-004B	SAMP	1	50453.5	52885.6	95.4	PASS	70-125	2093100.1	2396812.1	87.33	PASS	70-125
N035712-004B	SAMP	5	58054.1	52885.6	109.77	PASS	70-125	2407288.7	2396812.1	100.44	PASS	70-125
N035705-004B	SAMP	1	42675.6	52885.6	80.69	PASS	70-125	1866902.2	2396812.1	77.89	PASS	70-125
N035712-006B	SAMP	1	56368.2	52885.6	106.59	PASS	70-125	2307533.3	2396812.1	96.28	PASS	70-125
N035712-006B	SAMP	5	60437.1	52885.6	114.28	PASS	70-125	2469967.8	2396812.1	103.05	PASS	70-125
N035712-007B	SAMP	1	47503.6	52885.6	89.82	PASS	70-125	2010317.5	2396812.1	83.87	PASS	70-125
CCV12	CCV	1	62220.4	52885.6	117.65	PASS	70-125	2667290.8	2396812.1	111.28	PASS	70-125
CCB12	CCB	1	59512.9	52885.6	112.53	PASS	70-125	2577460.6	2396812.1	107.54	PASS	70-125
N035712-007B	SAMP	5	54276.5	52885.6	102.63	PASS	70-125	2291987.4	2396812.1	95.63	PASS	70-125
N035712-008B	SAMP	1	50611.8	52885.6	95.7	PASS	70-125	2103578.5	2396812.1	87.77	PASS	70-125
N035712-008B	SAMP	5	58680.8	52885.6	110.96	PASS	70-125	2388318	2396812.1	99.65	PASS	70-125
N035712-009B	SAMP	1	42639.1	52885.6	80.63	PASS	70-125	1792556.8	2396812.1	74.79	PASS	70-125
N035712-009B	SAMP	5	54541.9	52885.6	103.13	PASS	70-125	2260161.3	2396812.1	94.3	PASS	70-125
N035712-009B	SAMP	10	58104.4	52885.6	109.87	PASS	70-125	2373048.2	2396812.1	99.009	PASS	70-125
N035712-010B	SAMP	1	42308.1	52885.6	80	PASS	70-125	1799539.7	2396812.1	75.081	PASS	70-125

INTERNAL STANDARD: 190613A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035712-010B	SAMP	5	56994.8	52885.6	107.77	PASS	70-125	2335017.7	2396812.1	97.42	PASS	70-125
N035712-011B	SAMP	1	41620.8	52885.6	78.7	PASS	70-125	1733597.1	2396812.1	72.33	PASS	70-125
N035712-011B	SAMP	5	55884.4	52885.6	105.67	PASS	70-125	2298253.3	2396812.1	95.89	PASS	70-125
CCV13	CCV	1	67499	52885.6	127.63	NR!	70-125	2774619.7	2396812.1	115.76	PASS	70-125
CCB13	CCB	1	65250.1	52885.6	123.38	PASS	70-125	2676741.9	2396812.1	111.68	PASS	70-125
ICSA4	ICSA	1	60682.7	52885.6	114.74	PASS	70-125	2461665.8	2396812.1	102.71	PASS	70-125
ICSAB4	ICSAB	1	61276.8	52885.6	115.87	PASS	70-125	2433637.9	2396812.1	101.54	PASS	70-125
N035712-012B	SAMP	1	41385.6	52885.6	78.25	PASS	70-125	1708540.8	2396812.1	71.28	PASS	70-125
N035712-012B	SAMP	5	57757.5	52885.6	109.21	PASS	70-125	2308267.9	2396812.1	96.31	PASS	70-125
N035712-013B	SAMP	1	47222.6	52885.6	89.29	PASS	70-125	1936206.8	2396812.1	80.78	PASS	70-125
N035712-013B	SAMP	5	60634.5	52885.6	114.65	PASS	70-125	2418818.2	2396812.1	100.92	PASS	70-125
N035712-013B	SAMP	10	63896.8	52885.6	120.82	PASS	70-125	2514096	2396812.1	104.89	PASS	70-125
N035712-016B	SAMP	1	43045.6	52885.6	81.39	PASS	70-125	1765028.2	2396812.1	73.64	PASS	70-125
N035712-017B	SAMP	1	42083	52885.6	79.57	PASS	70-125	1732778.9	2396812.1	72.3	PASS	70-125
N035712-018B	SAMP	1	48093.1	52885.6	90.94	PASS	70-125	1881092.9	2396812.1	78.48	PASS	70-125
N035712-020B	SAMP	1	54059.2	52885.6	102.22	PASS	70-125	2122042.5	2396812.1	88.54	PASS	70-125
N035712-016B	SAMP	5	59988.6	52885.6	113.43	PASS	70-125	2330462	2396812.1	97.23	PASS	70-125
CCV14	CCV	1	64170	52885.6	121.34	PASS	70-125	2588998.9	2396812.1	108.02	PASS	70-125
CCB14	CCB	1	67120.6	52885.6	126.92	NR!	70-125	2663601.6	2396812.1	111.13	PASS	70-125
N035712-017B	SAMP	5	56878.9	52885.6	107.55	PASS	70-125	2232700.7	2396812.1	93.15	PASS	70-125
N035712-018B	SAMP	5	60463.7	52885.6	114.33	PASS	70-125	2330203.8	2396812.1	97.22	PASS	70-125
N035712-020B	SAMP	5	61355	52885.6	116.02	PASS	70-125	2351331.3	2396812.1	98.1	PASS	70-125
N035712-010B	SAMP	1	44900.6	52885.6	84.9	PASS	70-125	1813949.3	2396812.1	75.68	PASS	70-125
N035712-011B	SAMP	1	42932.8	52885.6	81.18	PASS	70-125	1736892.7	2396812.1	72.47	PASS	70-125
N035712-012B	SAMP	1	42552	52885.6	80.46	PASS	70-125	1717690.8	2396812.1	71.67	PASS	70-125
CCV15	CCV	1	67642	52885.6	127.9	NR!	70-125	2656766.3	2396812.1	110.85	PASS	70-125
CCB15	CCB	1	69949.6	52885.6	132.27	NR!	70-125	2705951	2396812.1	112.9	PASS	70-125
ICSA5	ICSA	1	63117.1	52885.6	119.35	PASS	70-125	2395525.5	2396812.1	99.95	PASS	70-125
ICSAB5	ICSAB	1	62251.7	52885.6	117.71	PASS	70-125	2357064.5	2396812.1	98.34	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	138450.6	138450.6	100	PASS	70-125	100089.4	100089.4	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	139737.6	138450.6	100.93	PASS	70-125	100231.7	100089.4	100.14	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	139281	138450.6	100.6	PASS	70-125	100312.8	100089.4	100.22	PASS	70-125
Std3-5/50 ppb	ICAL	1	140698.7	138450.6	101.62	PASS	70-125	99723.9	100089.4	99.63	PASS	70-125
Std4-10/100 ppb	ICAL	1	140059.2	138450.6	101.16	PASS	70-125	99784	100089.4	99.69	PASS	70-125
Std5-20/200 ppb	ICAL	1	141567.2	138450.6	102.25	PASS	70-125	101369.6	100089.4	101.28	PASS	70-125
Std6-40/400 ppb	ICAL	1	142028	138450.6	102.58	PASS	70-125	100890.6	100089.4	100.8	PASS	70-125
Std7-100/1000 ppb	ICAL	1	142929	138450.6	103.23	PASS	70-125	98839.5	100089.4	98.75	PASS	70-125
Std8-200/2000 ppb	ICAL	1	142399.1	138450.6	102.85	PASS	70-125	96944.5	100089.4	96.86	PASS	70-125
ICV	ICV	1	139075.9	138450.6	100.45	PASS	70-125	104224	100089.4	104.13	PASS	70-125
ICB	ICB	1	132427.2	138450.6	95.65	PASS	70-125	95470	100089.4	95.38	PASS	70-125
LLICV	CCV1	1	141196.4	138450.6	101.98	PASS	70-125	101588.8	100089.4	101.5	PASS	70-125
ICSA1	ICSA	1	146642.8	138450.6	105.92	PASS	70-125	102172.1	100089.4	102.08	PASS	70-125
ICSAB1	ICSAB	1	151415.6	138450.6	109.36	PASS	70-125	103722.7	100089.4	103.63	PASS	70-125
LLICV	CCV1	1	166183.8	138450.6	120.03	PASS	70-125	116707.9	100089.4	116.6	PASS	70-125
CCV1	CCV	1	145774.4	138450.6	105.29	PASS	70-125	103415	100089.4	103.32	PASS	70-125
CCB1	CCB	1	139281.4	138450.6	100.6	PASS	70-125	100683.1	100089.4	100.59	PASS	70-125
CCV2	CCV	1	155012.9	138450.6	111.96	PASS	70-125	109701	100089.4	109.6	PASS	70-125
CCB2	CCB	1	147043.6	138450.6	106.21	PASS	70-125	105571.7	100089.4	105.48	PASS	70-125
N035705-004B	SAMP	1	158183.4	138450.6	114.25	PASS	70-125	97528.8	100089.4	97.44	PASS	70-125
N035705-005B	SAMP	1	161235.5	138450.6	116.46	PASS	70-125	98152.1	100089.4	98.064	PASS	70-125
MB-73997	MBLK	1	169294.3	138450.6	122.28	PASS	70-125	119729.4	100089.4	119.62	PASS	70-125
LCS-73997	LCS	1	171718.6	138450.6	124.03	PASS	70-125	119814.1	100089.4	119.71	PASS	70-125
N035705-014B	SAMP	1	147975.7	138450.6	106.88	PASS	70-125	87436.4	100089.4	87.36	PASS	70-125
N035705-014B	SAMP	5	163661.2	138450.6	118.21	PASS	70-125	108141.4	100089.4	108.05	PASS	70-125
CCV3	CCV	1	168712.9	138450.6	121.86	PASS	70-125	118984.1	100089.4	118.88	PASS	70-125
CCB3	CCB	1	161311.5	138450.6	116.51	PASS	70-125	114756.4	100089.4	114.65	PASS	70-125
N035705-014B	SAMP	50	161045.8	138450.6	116.32	PASS	70-125	114246.7	100089.4	114.14	PASS	70-125
N035705-015B	SAMP	1	156714.5	138450.6	113.19	PASS	70-125	96069.2	100089.4	95.98	PASS	70-125
N035705-015B	SAMP	5	165168.6	138450.6	119.3	PASS	70-125	111236.7	100089.4	111.14	PASS	70-125
N035705-015B-PS	PS	1	167378.8	138450.6	120.89	PASS	70-125	102511.8	100089.4	102.42	PASS	70-125
N035705-015B-MS	MS	1	166197.9	138450.6	120.04	PASS	70-125	100925.5	100089.4	100.84	PASS	70-125
N035705-015B-MSD	MSD	1	168457.9	138450.6	121.67	PASS	70-125	104166.5	100089.4	104.07	PASS	70-125
N035705-015B	SAMP	25	171167.6	138450.6	123.63	PASS	70-125	120582	100089.4	120.47	PASS	70-125
N035705-015B-PS	PS	5	164732.6	138450.6	118.98	PASS	70-125	110891.9	100089.4	110.79	PASS	70-125
N035705-015B-MS	MS	5	161987.4	138450.6	117	PASS	70-125	111008.3	100089.4	110.91	PASS	70-125
N035705-015B-MSD	MSD	5	163864.5	138450.6	118.36	PASS	70-125	111748.1	100089.4	111.65	PASS	70-125
CCV4	CCV	1	167841.9	138450.6	121.23	PASS	70-125	119025.4	100089.4	118.92	PASS	70-125
CCB4	CCB	1	160553	138450.6	115.96	PASS	70-125	113991.9	100089.4	113.89	PASS	70-125
ICSA2	ICSA	1	161591.2	138450.6	116.71	PASS	70-125	112913.1	100089.4	112.81	PASS	70-125
ICSAB2	ICSAB	1	162533.5	138450.6	117.39	PASS	70-125	112663.6	100089.4	112.56	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035712-002B	SAMP	1	156823.8	138450.6	113.27	PASS	70-125	106024	100089.4	105.93	PASS	70-125
N035712-004B	SAMP	1	153467.5	138450.6	110.85	PASS	70-125	101045.1	100089.4	100.95	PASS	70-125
N035712-004B	SAMP	5	166959.4	138450.6	120.59	PASS	70-125	113549.6	100089.4	113.45	PASS	70-125
N035712-006B	SAMP	1	160279.7	138450.6	115.77	PASS	70-125	105840	100089.4	105.75	PASS	70-125
N035712-006B	SAMP	5	164407.9	138450.6	118.75	PASS	70-125	112312	100089.4	112.21	PASS	70-125
N035712-007B	SAMP	1	156733.5	138450.6	113.21	PASS	70-125	98966.5	100089.4	98.88	PASS	70-125
N035712-007B	SAMP	5	161682.8	138450.6	116.78	PASS	70-125	109516.5	100089.4	109.42	PASS	70-125
N035712-008B	SAMP	1	156808.7	138450.6	113.26	PASS	70-125	103128.2	100089.4	103.04	PASS	70-125
N035712-008B	SAMP	5	164005.8	138450.6	118.46	PASS	70-125	113340.2	100089.4	113.24	PASS	70-125
N035712-009B	SAMP	1	155002.2	138450.6	111.95	PASS	70-125	96277.5	100089.4	96.19	PASS	70-125
CCV5	CCV	1	169686.1	138450.6	122.56	PASS	70-125	117788	100089.4	117.68	PASS	70-125
CCB5	CCB	1	158834.8	138450.6	114.72	PASS	70-125	113812.6	100089.4	113.71	PASS	70-125
N035712-009B	SAMP	5	152067.6	138450.6	109.84	PASS	70-125	104888.8	100089.4	104.8	PASS	70-125
N035712-009B	SAMP	10	155051	138450.6	111.99	PASS	70-125	109187.1	100089.4	109.09	PASS	70-125
N035712-010B	SAMP	1	153795	138450.6	111.08	PASS	70-125	95380.7	100089.4	95.3	PASS	70-125
N035712-010B	SAMP	5	166878.3	138450.6	120.53	PASS	70-125	112678.5	100089.4	112.58	PASS	70-125
N035712-011B	SAMP	1	156412.7	138450.6	112.97	PASS	70-125	94796.1	100089.4	94.71	PASS	70-125
N035712-011B	SAMP	5	167001.8	138450.6	120.62	PASS	70-125	112950.1	100089.4	112.85	PASS	70-125
N035712-012B	SAMP	1	159355.9	138450.6	115.1	PASS	70-125	97159.9	100089.4	97.073	PASS	70-125
N035712-012B	SAMP	5	166745.6	138450.6	120.44	PASS	70-125	112543	100089.4	112.44	PASS	70-125
N035712-013B	SAMP	1	163448.5	138450.6	118.06	PASS	70-125	101634.5	100089.4	101.54	PASS	70-125
N035712-013B	SAMP	5	165273.2	138450.6	119.37	PASS	70-125	114056.4	100089.4	113.95	PASS	70-125
CCV6	CCV	1	169729.1	138450.6	122.59	PASS	70-125	120279.1	100089.4	120.17	PASS	70-125
CCB6	CCB	1	160515.2	138450.6	115.94	PASS	70-125	115754.8	100089.4	115.65	PASS	70-125
N035712-013B	SAMP	10	157688.3	138450.6	113.89	PASS	70-125	111067.5	100089.4	110.97	PASS	70-125
N035712-016B	SAMP	1	152607.4	138450.6	110.23	PASS	70-125	91964.7	100089.4	91.88	PASS	70-125
N035712-016B	SAMP	5	161700.3	138450.6	116.79	PASS	70-125	109227.1	100089.4	109.13	PASS	70-125
N035712-017B	SAMP	1	150870	138450.6	108.97	PASS	70-125	91714.3	100089.4	91.63	PASS	70-125
N035712-017B	SAMP	5	160922.2	138450.6	116.23	PASS	70-125	109788.8	100089.4	109.69	PASS	70-125
N035712-018B	SAMP	1	142773.7	138450.6	103.12	PASS	70-125	94083.3	100089.4	94	PASS	70-125
N035712-018B	SAMP	5	163331.7	138450.6	117.97	PASS	70-125	115524.7	100089.4	115.42	PASS	70-125
N035712-020B	SAMP	1	163888.5	138450.6	118.37	PASS	70-125	106496.3	100089.4	106.4	PASS	70-125
N035712-020B	SAMP	5	166497	138450.6	120.26	PASS	70-125	116563.3	100089.4	116.46	PASS	70-125
CCV7	CCV	1	167680	138450.6	121.11	PASS	70-125	120095.1	100089.4	119.99	PASS	70-125
CCB7	CCB	1	156867.8	138450.6	113.3	PASS	70-125	114403.6	100089.4	114.3	PASS	70-125
ICSA3	ICSA	1	157262.6	138450.6	113.59	PASS	70-125	109908.5	100089.4	109.81	PASS	70-125
ICSAB3	ICSAB	1	155045.9	138450.6	111.99	PASS	70-125	109009.1	100089.4	108.91	PASS	70-125
CCV8	CCV	1	142542.2	138450.6	102.96	PASS	70-125	102784.7	100089.4	102.69	PASS	70-125
CCB8	CCB	1	160924.2	138450.6	116.23	PASS	70-125	117585.1	100089.4	117.48	PASS	70-125
CCV9	CCV	1	139442.8	138450.6	100.72	PASS	70-125	100665.6	100089.4	100.58	PASS	70-125
CCB9	CCB	1	160279.2	138450.6	115.77	PASS	70-125	116873.2	100089.4	116.77	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSA4	ICSA	1	151926.7	138450.6	109.73	PASS	70-125	109489.2	100089.4	109.39	PASS	70-125
ICSAB4	ICSAB	1	152222.6	138450.6	109.95	PASS	70-125	107613.4	100089.4	107.52	PASS	70-125
CCV10	CCV	1	166807.4	138450.6	120.48	PASS	70-125	118677.3	100089.4	118.57	PASS	70-125
CCB10	CCB	1	156271.9	138450.6	112.87	PASS	70-125	113818.2	100089.4	113.72	PASS	70-125
CCV11	CCV	1	166620.9	138450.6	120.35	PASS	70-125	119808.3	100089.4	119.7	PASS	70-125
CCB11	CCB	1	155413.1	138450.6	112.25	PASS	70-125	113253.5	100089.4	113.15	PASS	70-125
CCV12	CCV	1	152920.4	138450.6	110.45	PASS	70-125	110820	100089.4	110.72	PASS	70-125
CCB12	CCB	1	144513.1	138450.6	104.38	PASS	70-125	107406.3	100089.4	107.31	PASS	70-125
ICSA5	ICSA	1	141891.1	138450.6	102.49	PASS	70-125	102789.2	100089.4	102.7	PASS	70-125
ICSAB5	ICSAB	1	143194.2	138450.6	103.43	PASS	70-125	102275.4	100089.4	102.18	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	59802.7	59802.7	100	PASS	70-125	2810378.2	2810378.2	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	60700.5	59802.7	101.5	PASS	70-125	2833740.4	2810378.2	100.83	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	59480.4	59802.7	99.46	PASS	70-125	2794918.4	2810378.2	99.45	PASS	70-125
Std3-5/50 ppb	ICAL	1	59760.5	59802.7	99.93	PASS	70-125	2819697.6	2810378.2	100.33	PASS	70-125
Std4-10/100 ppb	ICAL	1	59799.4	59802.7	99.99	PASS	70-125	2807864.9	2810378.2	99.91	PASS	70-125
Std5-20/200 ppb	ICAL	1	59876.4	59802.7	100.12	PASS	70-125	2797987.8	2810378.2	99.56	PASS	70-125
Std6-40/400 ppb	ICAL	1	59312	59802.7	99.18	PASS	70-125	2774758.3	2810378.2	98.73	PASS	70-125
Std7-100/1000 ppb	ICAL	1	58353	59802.7	97.58	PASS	70-125	2735620.2	2810378.2	97.34	PASS	70-125
Std8-200/2000 ppb	ICAL	1	57369.6	59802.7	95.93	PASS	70-125	2679139.9	2810378.2	95.33	PASS	70-125
ICV	ICV	1	62428	59802.7	104.39	PASS	70-125	2936622.3	2810378.2	104.49	PASS	70-125
ICB	ICB	1	57017.3	59802.7	95.34	PASS	70-125	2715865.4	2810378.2	96.64	PASS	70-125
LLICV	CCV1	1	59898.5	59802.7	100.16	PASS	70-125	2883616.8	2810378.2	102.61	PASS	70-125
ICSA1	ICSA	1	57395.4	59802.7	95.97	PASS	70-125	2621897.4	2810378.2	93.29	PASS	70-125
ICSAB1	ICSAB	1	59298.7	59802.7	99.16	PASS	70-125	2638459.6	2810378.2	93.88	PASS	70-125
LLICV	CCV1	1	69272.1	59802.7	115.83	PASS	70-125	3202857.3	2810378.2	113.97	PASS	70-125
CCV1	CCV	1	60437.5	59802.7	101.06	PASS	70-125	2841939.5	2810378.2	101.12	PASS	70-125
CCB1	CCB	1	58158.1	59802.7	97.25	PASS	70-125	2814913.1	2810378.2	100.16	PASS	70-125
CCV2	CCV	1	64999.3	59802.7	108.69	PASS	70-125	2995397	2810378.2	106.58	PASS	70-125
CCB2	CCB	1	61705.6	59802.7	103.18	PASS	70-125	2877053.5	2810378.2	102.37	PASS	70-125
N035705-004B	SAMP	1	50327.7	59802.7	84.16	PASS	70-125	2305943.3	2810378.2	82.051	PASS	70-125
N035705-005B	SAMP	1	49934.3	59802.7	83.5	PASS	70-125	2289403	2810378.2	81.46	PASS	70-125
MB-73997	MBLK	1	69109.7	59802.7	115.56	PASS	70-125	3178778.3	2810378.2	113.11	PASS	70-125
LCS-73997	LCS	1	70641.9	59802.7	118.12	PASS	70-125	3193153.5	2810378.2	113.62	PASS	70-125
N035705-014B	SAMP	1	42513.2	59802.7	71.089	PASS	70-125	1988720.7	2810378.2	70.76	PASS	70-125
N035705-014B	SAMP	5	58683.1	59802.7	98.13	PASS	70-125	2678411.5	2810378.2	95.3	PASS	70-125
CCV3	CCV	1	68790.1	59802.7	115.03	PASS	70-125	3156407.1	2810378.2	112.31	PASS	70-125
CCB3	CCB	1	66441.6	59802.7	111.1	PASS	70-125	3055434.5	2810378.2	108.72	PASS	70-125
N035705-014B	SAMP	50	65988.7	59802.7	110.34	PASS	70-125	2926007.1	2810378.2	104.11	PASS	70-125
N035705-015B	SAMP	1	47524.6	59802.7	79.47	PASS	70-125	2237423.7	2810378.2	79.61	PASS	70-125
N035705-015B	SAMP	5	61579.5	59802.7	102.97	PASS	70-125	2761328.4	2810378.2	98.25	PASS	70-125
N035705-015B-PS	PS	1	50729.8	59802.7	84.83	PASS	70-125	2348867.4	2810378.2	83.58	PASS	70-125
N035705-015B-MS	MS	1	51262.5	59802.7	85.72	PASS	70-125	2353515.8	2810378.2	83.74	PASS	70-125
N035705-015B-MSD	MSD	1	52288.3	59802.7	87.43	PASS	70-125	2383169.1	2810378.2	84.8	PASS	70-125
N035705-015B	SAMP	25	72039.8	59802.7	120.46	PASS	70-125	3064426.8	2810378.2	109.04	PASS	70-125
N035705-015B-PS	PS	5	64574.1	59802.7	107.98	PASS	70-125	2769503.5	2810378.2	98.55	PASS	70-125
N035705-015B-MS	MS	5	62702.5	59802.7	104.85	PASS	70-125	2760407.5	2810378.2	98.22	PASS	70-125
N035705-015B-MSD	MSD	5	62306.4	59802.7	104.19	PASS	70-125	2758020.7	2810378.2	98.14	PASS	70-125
CCV4	CCV	1	69473.3	59802.7	116.17	PASS	70-125	3152833.2	2810378.2	112.19	PASS	70-125
CCB4	CCB	1	68825.9	59802.7	115.09	PASS	70-125	3070335	2810378.2	109.25	PASS	70-125
ICSA2	ICSA	1	63382.8	59802.7	105.99	PASS	70-125	2821550.8	2810378.2	100.4	PASS	70-125
ICSAB2	ICSAB	1	64598.9	59802.7	108.02	PASS	70-125	2772332.7	2810378.2	98.65	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035712-002B	SAMP	1	65375.4	59802.7	109.32	PASS	70-125	2693771.3	2810378.2	95.85	PASS	70-125
N035712-004B	SAMP	1	56605.8	59802.7	94.65	PASS	70-125	2439047.6	2810378.2	86.79	PASS	70-125
N035712-004B	SAMP	5	67346.5	59802.7	112.61	PASS	70-125	2866856.7	2810378.2	102.01	PASS	70-125
N035712-006B	SAMP	1	60979.3	59802.7	101.97	PASS	70-125	2633696	2810378.2	93.71	PASS	70-125
N035712-006B	SAMP	5	67057.5	59802.7	112.13	PASS	70-125	2848039.3	2810378.2	101.34	PASS	70-125
N035712-007B	SAMP	1	52077.6	59802.7	87.082	PASS	70-125	2347495.9	2810378.2	83.53	PASS	70-125
N035712-007B	SAMP	5	63399.8	59802.7	106.02	PASS	70-125	2750486.4	2810378.2	97.87	PASS	70-125
N035712-008B	SAMP	1	58424.3	59802.7	97.7	PASS	70-125	2522305.1	2810378.2	89.75	PASS	70-125
N035712-008B	SAMP	5	66624.7	59802.7	111.41	PASS	70-125	2867017.2	2810378.2	102.02	PASS	70-125
N035712-009B	SAMP	1	49564.1	59802.7	82.88	PASS	70-125	2196849.6	2810378.2	78.17	PASS	70-125
CCV5	CCV	1	69627.7	59802.7	116.43	PASS	70-125	3122760.1	2810378.2	111.12	PASS	70-125
CCB5	CCB	1	67877.6	59802.7	113.5	PASS	70-125	3012642	2810378.2	107.2	PASS	70-125
N035712-009B	SAMP	5	59319.8	59802.7	99.19	PASS	70-125	2615377.8	2810378.2	93.061	PASS	70-125
N035712-009B	SAMP	10	63600.2	59802.7	106.35	PASS	70-125	2759298.9	2810378.2	98.18	PASS	70-125
N035712-010B	SAMP	1	46650.2	59802.7	78.007	PASS	70-125	2191488.3	2810378.2	77.98	PASS	70-125
N035712-010B	SAMP	5	63534.6	59802.7	106.24	PASS	70-125	2778922	2810378.2	98.88	PASS	70-125
N035712-011B	SAMP	1	45806.3	59802.7	76.6	PASS	70-125	2116775.8	2810378.2	75.32	PASS	70-125
N035712-011B	SAMP	5	64117.9	59802.7	107.22	PASS	70-125	2736268.7	2810378.2	97.36	PASS	70-125
N035712-012B	SAMP	1	46715.7	59802.7	78.12	PASS	70-125	2157852.7	2810378.2	76.78	PASS	70-125
N035712-012B	SAMP	5	62855.1	59802.7	105.1	PASS	70-125	2727049.4	2810378.2	97.035	PASS	70-125
N035712-013B	SAMP	1	51730.8	59802.7	86.5	PASS	70-125	2352505.9	2810378.2	83.71	PASS	70-125
N035712-013B	SAMP	5	64528.6	59802.7	107.9	PASS	70-125	2789341	2810378.2	99.25	PASS	70-125
CCV6	CCV	1	71189.2	59802.7	119.04	PASS	70-125	3177418.2	2810378.2	113.06	PASS	70-125
CCB6	CCB	1	69603.6	59802.7	116.39	PASS	70-125	3086302.3	2810378.2	109.82	PASS	70-125
N035712-013B	SAMP	10	65080.6	59802.7	108.83	PASS	70-125	2790793.6	2810378.2	99.3	PASS	70-125
N035712-016B	SAMP	1	45506.7	59802.7	76.095	PASS	70-125	2116688.2	2810378.2	75.32	PASS	70-125
N035712-016B	SAMP	5	61995.6	59802.7	103.67	PASS	70-125	2701031.3	2810378.2	96.11	PASS	70-125
N035712-017B	SAMP	1	44966.5	59802.7	75.19	PASS	70-125	2097319.5	2810378.2	74.63	PASS	70-125
N035712-017B	SAMP	5	62579.9	59802.7	104.64	PASS	70-125	2714417.6	2810378.2	96.59	PASS	70-125
N035712-018B	SAMP	1	52144.4	59802.7	87.19	PASS	70-125	2259001.6	2810378.2	80.38	PASS	70-125
N035712-018B	SAMP	5	68134.2	59802.7	113.93	PASS	70-125	2858748.3	2810378.2	101.72	PASS	70-125
N035712-020B	SAMP	1	57475.6	59802.7	96.11	PASS	70-125	2533199	2810378.2	90.14	PASS	70-125
N035712-020B	SAMP	5	69365.8	59802.7	115.99	PASS	70-125	2874956.7	2810378.2	102.3	PASS	70-125
CCV7	CCV	1	72875.7	59802.7	121.86	PASS	70-125	3156500.7	2810378.2	112.32	PASS	70-125
CCB7	CCB	1	69569.3	59802.7	116.33	PASS	70-125	3035534	2810378.2	108.01	PASS	70-125
ICSA3	ICSA	1	64735.2	59802.7	108.25	PASS	70-125	2757892.8	2810378.2	98.13	PASS	70-125
ICSAB3	ICSAB	1	64054.8	59802.7	107.11	PASS	70-125	2690254.2	2810378.2	95.73	PASS	70-125
CCV8	CCV	1	60483.1	59802.7	101.14	PASS	70-125	2800651.6	2810378.2	99.65	PASS	70-125
CCB8	CCB	1	71926.8	59802.7	120.27	PASS	70-125	3083972.4	2810378.2	109.74	PASS	70-125
CCV9	CCV	1	59402.6	59802.7	99.33	PASS	70-125	2771760.7	2810378.2	98.63	PASS	70-125
CCB9	CCB	1	72154.8	59802.7	120.65	PASS	70-125	3103769.2	2810378.2	110.44	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSA4	ICSA	1	64731.8	59802.7	108.24	PASS	70-125	2718529.2	2810378.2	96.73	PASS	70-125
ICSAB4	ICSAB	1	62714.7	59802.7	104.87	PASS	70-125	2628604.9	2810378.2	93.53	PASS	70-125
CCV10	CCV	1	73221.6	59802.7	122.44	PASS	70-125	3106996.1	2810378.2	110.55	PASS	70-125
CCB10	CCB	1	69904.2	59802.7	116.89	PASS	70-125	2974144.5	2810378.2	105.83	PASS	70-125
CCV11	CCV	1	73052.3	59802.7	122.16	PASS	70-125	3095579.4	2810378.2	110.15	PASS	70-125
CCB11	CCB	1	70600.3	59802.7	118.06	PASS	70-125	2981586.1	2810378.2	106.09	PASS	70-125
CCV12	CCV	1	67700.6	59802.7	113.21	PASS	70-125	2945366.6	2810378.2	104.8	PASS	70-125
CCB12	CCB	1	66361.7	59802.7	110.97	PASS	70-125	2877090.8	2810378.2	102.37	PASS	70-125
ICSA5	ICSA	1	61420.1	59802.7	102.7	PASS	70-125	2588681.9	2810378.2	92.11	PASS	70-125
ICSAB5	ICSAB	1	61249.4	59802.7	102.42	PASS	70-125	2545753.3	2810378.2	90.58	PASS	70-125

INTERNAL STANDARD: 190617B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	45220.5	45220.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	45165.8	45220.5	99.88	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	45574.8	45220.5	100.78	PASS	70-125
Std3-5/50 ppb	ICAL	1	45749.7	45220.5	101.17	PASS	70-125
Std4-10/100 ppb	ICAL	1	45608.2	45220.5	100.86	PASS	70-125
Std5-20/200 ppb	ICAL	1	45923.5	45220.5	101.55	PASS	70-125
Std6-40/400 ppb	ICAL	1	45811	45220.5	101.31	PASS	70-125
Std7-100/1000 ppb	ICAL	1	45767.6	45220.5	101.21	PASS	70-125
Std8-200/2000 ppb	ICAL	1	45063.2	45220.5	99.65	PASS	70-125
ICV	ICV	1	41166.3	45220.5	91.035	PASS	70-125
ICB	ICB	1	43498	45220.5	96.19	PASS	70-125
LLICV	CCV1	1	50787	45220.5	112.31	PASS	70-125
ICSA1	ICSA	1	42803.8	45220.5	94.66	PASS	70-125
ICSAB1	ICSAB	1	44957.4	45220.5	99.42	PASS	70-125
LLICV	CCV1	1	58221.7	45220.5	128.75	NR!	70-125
N035705-004B	SAMP	1	39087.9	45220.5	86.44	PASS	70-125
N035705-005B	SAMP	1	38399.3	45220.5	84.92	PASS	70-125
CCV1	CCV	1	51990.8	45220.5	114.97	PASS	70-125
CCB1	CCB	1	51011.9	45220.5	112.81	PASS	70-125
CCV2	CCV	1	50248.6	45220.5	111.12	PASS	70-125
CCB2	CCB	1	50788.2	45220.5	112.31	PASS	70-125
CCV3	CCV	1	48161	45220.5	106.5	PASS	70-125
CCB3	CCB	1	47945.8	45220.5	106.03	PASS	70-125
CCV4	CCV	1	45278.5	45220.5	100.13	PASS	70-125
CCB4	CCB	1	44925.4	45220.5	99.35	PASS	70-125
ICSA2	ICSA	1	40831.1	45220.5	90.29	PASS	70-125
ICSAB2	ICSAB	1	44430.6	45220.5	98.25	PASS	70-125
CCV5	CCV	1	47517.1	45220.5	105.08	PASS	70-125
CCB5	CCB	1	46769.3	45220.5	103.42	PASS	70-125
CCV6	CCV	1	47328.7	45220.5	104.66	PASS	70-125
CCB6	CCB	1	45886.7	45220.5	101.47	PASS	70-125
ICSA3	ICSA	1	42876.4	45220.5	94.82	PASS	70-125
ICSAB3	ICSAB	1	47026.8	45220.5	103.99	PASS	70-125

INTERNAL STANDARD: 190624B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	127945.7	127945.7	100	PASS	70-125	67244.8	67244.8	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	134250.4	127945.7	104.93	PASS	70-125	69241.4	67244.8	102.97	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	134081.6	127945.7	104.8	PASS	70-125	69125.5	67244.8	102.8	PASS	70-125
Std3-5/50 ppb	ICAL	1	135424.9	127945.7	105.85	PASS	70-125	69387.2	67244.8	103.19	PASS	70-125
Std4-10/100 ppb	ICAL	1	135024.7	127945.7	105.53	PASS	70-125	69650.5	67244.8	103.58	PASS	70-125
Std5-20/200 ppb	ICAL	1	136400.7	127945.7	106.61	PASS	70-125	75198.4	67244.8	111.83	PASS	70-125
Std6-40/400 ppb	ICAL	1	138686.4	127945.7	108.39	PASS	70-125	70155.1	67244.8	104.33	PASS	70-125
Std7-100/1000 ppb	ICAL	1	137706.3	127945.7	107.63	PASS	70-125	67603.1	67244.8	100.53	PASS	70-125
Std8-200/2000 ppb	ICAL	1	136614.9	127945.7	106.78	PASS	70-125	66084.6	67244.8	98.27	PASS	70-125
ICV	ICV	1	133486.8	127945.7	104.33	PASS	70-125	68897.4	67244.8	102.46	PASS	70-125
ICB	ICB	1	128918.8	127945.7	100.76	PASS	70-125	68005.5	67244.8	101.13	PASS	70-125
ICV	ICV	1	133294.8	127945.7	104.18	PASS	70-125	68422.2	67244.8	101.75	PASS	70-125
ICV	ICV	1	133378.6	127945.7	104.25	PASS	70-125	71699.5	67244.8	106.62	PASS	70-125
ICB	ICB	1	127143.1	127945.7	99.37	PASS	70-125	67354.4	67244.8	100.16	PASS	70-125
LLICV	CCV1	1	132031.5	127945.7	103.19	PASS	70-125	67519.5	67244.8	100.41	PASS	70-125
ICSA1	ICSA	1	146814.9	127945.7	114.75	PASS	70-125	68926.3	67244.8	102.5	PASS	70-125
ICSAB1	ICSAB	1	169040.6	127945.7	132.12	NR!	70-125	82035.4	67244.8	122	PASS	70-125
MB-74311	MBLK	1	162552.6	127945.7	127.05	NR!	70-125	84604.4	67244.8	125.82	NR!	70-125
LCS-74311	LCS	1	156467.9	127945.7	122.29	PASS	70-125	78765.6	67244.8	117.13	PASS	70-125
N035705-005B	SAMP	1	143237.7	127945.7	111.95	PASS	70-125	57265.9	67244.8	85.16	PASS	70-125
N035705-005B	SAMP	5	138282.1	127945.7	108.08	PASS	70-125	65318.5	67244.8	97.14	PASS	70-125
N035705-005B-PS	PS	1	142870.6	127945.7	111.67	PASS	70-125	55014.7	67244.8	81.81	PASS	70-125
N035705-005B-MS	MS	1	146745.5	127945.7	114.69	PASS	70-125	59182.7	67244.8	88.011	PASS	70-125
N035705-005B-MSD	MSD	1	144193.3	127945.7	112.7	PASS	70-125	54029.1	67244.8	80.35	PASS	70-125
N035712-010B	SAMP	1	140081	127945.7	109.48	PASS	70-125	50353.3	67244.8	74.88	PASS	70-125
N035712-011B	SAMP	1	138897.7	127945.7	108.56	PASS	70-125	49488.3	67244.8	73.59	PASS	70-125
N035712-020B	SAMP	1	140896.9	127945.7	110.12	PASS	70-125	57073.1	67244.8	84.87	PASS	70-125
CCV1	CCV	1	143799.6	127945.7	112.39	PASS	70-125	67110	67244.8	99.8	PASS	70-125
CCB1	CCB	1	132347.4	127945.7	103.44	PASS	70-125	66159.3	67244.8	98.39	PASS	70-125
N035779-008B	SAMP	1	130068.9	127945.7	101.66	PASS	70-125	51032.1	67244.8	75.89	PASS	70-125
N035915-012B	SAMP	1	141544.3	127945.7	110.63	PASS	70-125	63606.2	67244.8	94.59	PASS	70-125
N035915-013B	SAMP	1	140240.9	127945.7	109.61	PASS	70-125	64881	67244.8	96.48	PASS	70-125
N035738-004B	SAMP	25	124746.6	127945.7	97.5	PASS	70-125	60525.6	67244.8	90.008	PASS	70-125
N035779-008B	SAMP	1	128870.5	127945.7	100.72	PASS	70-125	48505.4	67244.8	72.13	PASS	70-125
CCV2	CCV	1	123496.5	127945.7	96.52	PASS	70-125	58607.5	67244.8	87.16	PASS	70-125
CCB2	CCB	1	109334	127945.7	85.45	PASS	70-125	54990.5	67244.8	81.78	PASS	70-125
ICSA2	ICSA	1	111160	127945.7	86.88	PASS	70-125	50000.9	67244.8	74.36	PASS	70-125
ICSAB2	ICSAB	1	121984.1	127945.7	95.34	PASS	70-125	53653.8	67244.8	79.79	PASS	70-125
CCV3	CCV	1	118706.2	127945.7	92.78	PASS	70-125	56264.9	67244.8	83.67	PASS	70-125
CCB3	CCB	1	108314.8	127945.7	84.66	PASS	70-125	56657	67244.8	84.25	PASS	70-125
CCV4	CCV	1	118077.5	127945.7	92.29	PASS	70-125	56387.7	67244.8	83.85	PASS	70-125

INTERNAL STANDARD: 190624B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB4	CCB	1	107880.4	127945.7	84.32	PASS	70-125	53970.4	67244.8	80.26	PASS	70-125
ICSA3	ICSA	1	109482.2	127945.7	85.57	PASS	70-125	49466	67244.8	73.56	PASS	70-125
ICSAB3	ICSAB	1	118454.9	127945.7	92.58	PASS	70-125	52920.1	67244.8	78.7	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035705
Test Method: EPA 6020
Analysis Date: 6/13/2019

Matrix: Groundwater
Batch No.: 73996

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Mn failed. However, PS passed criteria.
Dilution test is not applicable to Cr, Mn, Se. The cal culated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035660-001A DT 5x	Chromium	Cr	µg/L	0	NA	0		10
N035660-001A DT 5x	Arsenic	As	µg/L	1.77949	NA	1.675398	6.21%	10
N035660-001A DT 5x	Manganese	Mn	µg/L	56.36091	FAIL	50.58463	11.42%	10
N035660-001A DT 5x	Molybdenum	Mo	µg/L	40.05061	PASS	40.99871	2.31%	10
N035660-001A DT 5x	Selenium	Se	µg/L	0	NA	1.494358	100.00%	10

NS 6/26/2019

Note: NA - Not Applicable

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035705
Test Method: EPA 6020
Analysis Date: 6/14/2019

Matrix: Groundwater
Batch No.: 73997

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn, Se, Cr. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035705-015B DT 5x	Arsenic	As	µg/L	3.938521	PASS	3.788764	3.95%	10
N035705-015B DT 5x	Manganese	Mn	µg/L	4.339603	NA	0		10
N035705-015B DT 5x	Molybdenum	Mo	µg/L	57.92896	PASS	59.8573	3.22%	10
N035705-015B DT 5x	Selenium	Se	µg/L	0	NA	0.3922345	100.00%	10
N035705-015B DT 5x	Chromium	Cr	µg/L	6.561661	NA	5.980824	9.71%	10

Note: NA - Not Applicable

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035705
Test Method: EPA 6020
Analysis Date: 6/24/2019

Matrix: Groundwater
Batch No.: 74311

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Hanah Glodoviza

Dilution test is not applicable to Se. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035705-005B DT 5x	Selenium	Se	µg/L	0	NA	0.5231527	100.00%	10

Note: NA - Not Applicable

ASSET Laboratories

Date: *25-Jun-19*

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035660-001A-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134493**
Client ID: **ZZZZZZ** Batch ID: **73996** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/13/2019** SeqNo: **3409901**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	11.831	0.10	10.00	1.675	102	80	120				
Manganese	139.840	0.50	100.0	50.58	89.3	80	120				
Molybdenum	50.763	0.50	10.00	41.00	97.6	80	120				
Selenium	11.291	0.50	10.00	1.494	98.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035705-015B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **73997** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/14/2019** SeqNo: **3413057**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.494	0.10	10.00	3.789	107	80	120				
Manganese	92.166	0.50	100.0	0	92.2	80	120				
Molybdenum	70.329	0.50	10.00	59.86	105	80	120				
Selenium	11.410	0.50	10.00	0.3922	110	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	**N035705-005B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID:	**ZZZZZZ**	Batch ID: **74311**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/24/2019**	SeqNo: **3419559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.533	0.50	10.00	0.5232	100	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N035660-001A-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134492**
Client ID:	**ZZZZZZ**	Batch ID: **73996**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/13/2019**	SeqNo: **3409773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.682	1.0	10.00	0	86.8	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035705
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N035705-015B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID:	**ZZZZZZ**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3412908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.722	1.0	10.00	5.981	87.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

June 27, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035712

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 21, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucao for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (21 ug/L) and hexavalent chromium (5.5 ug/L) for sample N035712-010 (MW-33-150-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Because the results for total dissolved chromium (1.1 ug/L) and hexavalent chromium (ND ug/L) for sample N035712-017 (MW-23-080-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Because the results for total dissolved chromium (2.8 ug/L) and hexavalent chromium (1.3 ug/L) for sample N035712-020 (MW-63-065-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Dilution was necessary for some samples due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Because the results for total dissolved chromium (21 ug/L) and hexavalent chromium (5.5 ug/L) for sample N035712-010 (MW-33-150-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 20 and 14 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (1.1 ug/L) and hexavalent chromium (ND ug/L) for sample N035712-017 (MW-23-080-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 0.92 and 0.85 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (2.8 ug/L) and hexavalent chromium (1.3 ug/L) for sample N035712-020 (MW-63-065-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 2.5 and 1.2 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035712
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035712-001A	MW-28-025-EB-Q219	Groundwater	5/21/2019 9:44:00 AM	5/21/2019	6/27/2019
N035712-002A	MW-28-025-Q219	Groundwater	5/21/2019 9:36:00 AM	5/21/2019	6/27/2019
N035712-002B	MW-28-025-Q219	Groundwater	5/21/2019 9:36:00 AM	5/21/2019	6/27/2019
N035712-002C	MW-28-025-Q219	Groundwater	5/21/2019 9:36:00 AM	5/21/2019	6/27/2019
N035712-002D	MW-28-025-Q219	Groundwater	5/21/2019 9:36:00 AM	5/21/2019	6/27/2019
N035712-003A	MW-28-090-EB-Q219	Groundwater	5/21/2019 9:40:00 AM	5/21/2019	6/27/2019
N035712-004A	MW-28-090-Q219	Groundwater	5/21/2019 9:38:00 AM	5/21/2019	6/27/2019
N035712-004B	MW-28-090-Q219	Groundwater	5/21/2019 9:38:00 AM	5/21/2019	6/27/2019
N035712-004C	MW-28-090-Q219	Groundwater	5/21/2019 9:38:00 AM	5/21/2019	6/27/2019
N035712-004D	MW-28-090-Q219	Groundwater	5/21/2019 9:38:00 AM	5/21/2019	6/27/2019
N035712-005A	MW-29-EB-Q219	Groundwater	5/21/2019 1:30:00 PM	5/21/2019	6/27/2019
N035712-006A	MW-29-Q219	Groundwater	5/21/2019 1:21:00 PM	5/21/2019	6/27/2019
N035712-006B	MW-29-Q219	Groundwater	5/21/2019 1:21:00 PM	5/21/2019	6/27/2019
N035712-006C	MW-29-Q219	Groundwater	5/21/2019 1:21:00 PM	5/21/2019	6/27/2019
N035712-006D	MW-29-Q219	Groundwater	5/21/2019 1:21:00 PM	5/21/2019	6/27/2019
N035712-007A	MW-58BR-Q219	Groundwater	5/21/2019 3:36:00 PM	5/21/2019	6/27/2019
N035712-007B	MW-58BR-Q219	Groundwater	5/21/2019 3:36:00 PM	5/21/2019	6/27/2019
N035712-007C	MW-58BR-Q219	Groundwater	5/21/2019 3:36:00 PM	5/21/2019	6/27/2019
N035712-007D	MW-58BR-Q219	Groundwater	5/21/2019 3:36:00 PM	5/21/2019	6/27/2019
N035712-008A	MW-70-105-Q219	Groundwater	5/21/2019 2:26:00 PM	5/21/2019	6/27/2019
N035712-008B	MW-70-105-Q219	Groundwater	5/21/2019 2:26:00 PM	5/21/2019	6/27/2019
N035712-008C	MW-70-105-Q219	Groundwater	5/21/2019 2:26:00 PM	5/21/2019	6/27/2019
N035712-008D	MW-70-105-Q219	Groundwater	5/21/2019 2:26:00 PM	5/21/2019	6/27/2019
N035712-009A	MW-70BR-225-LF-Q219	Groundwater	5/21/2019 2:33:00 PM	5/21/2019	6/27/2019
N035712-009B	MW-70BR-225-LF-Q219	Groundwater	5/21/2019 2:33:00 PM	5/21/2019	6/27/2019
N035712-009C	MW-70BR-225-LF-Q219	Groundwater	5/21/2019 2:33:00 PM	5/21/2019	6/27/2019
N035712-009D	MW-70BR-225-LF-Q219	Groundwater	5/21/2019 2:33:00 PM	5/21/2019	6/27/2019
N035712-010A	MW-33-150-Q219	Groundwater	5/21/2019 12:34:00 PM	5/21/2019	6/27/2019
N035712-010B	MW-33-150-Q219	Groundwater	5/21/2019 12:34:00 PM	5/21/2019	6/27/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035712
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035712-010C	MW-33-150-Q219	Groundwater	5/21/2019 12:34:00 PM	5/21/2019	6/27/2019
N035712-010D	MW-33-150-Q219	Groundwater	5/21/2019 12:34:00 PM	5/21/2019	6/27/2019
N035712-011A	MW-46-175-Q219	Groundwater	5/21/2019 10:56:00 AM	5/21/2019	6/27/2019
N035712-011B	MW-46-175-Q219	Groundwater	5/21/2019 10:56:00 AM	5/21/2019	6/27/2019
N035712-011C	MW-46-175-Q219	Groundwater	5/21/2019 10:56:00 AM	5/21/2019	6/27/2019
N035712-011D	MW-46-175-Q219	Groundwater	5/21/2019 10:56:00 AM	5/21/2019	6/27/2019
N035712-012A	MW-46-205-Q219	Groundwater	5/21/2019 10:48:00 AM	5/21/2019	6/27/2019
N035712-012B	MW-46-205-Q219	Groundwater	5/21/2019 10:48:00 AM	5/21/2019	6/27/2019
N035712-012C	MW-46-205-Q219	Groundwater	5/21/2019 10:48:00 AM	5/21/2019	6/27/2019
N035712-013A	MW-64BR-Q219	Groundwater	5/21/2019 9:18:00 AM	5/21/2019	6/27/2019
N035712-013B	MW-64BR-Q219	Groundwater	5/21/2019 9:18:00 AM	5/21/2019	6/27/2019
N035712-013C	MW-64BR-Q219	Groundwater	5/21/2019 9:18:00 AM	5/21/2019	6/27/2019
N035712-013D	MW-64BR-Q219	Groundwater	5/21/2019 9:18:00 AM	5/21/2019	6/27/2019
N035712-014A	MW-718-Q219	Groundwater	5/21/2019 3:40:00 PM	5/21/2019	6/27/2019
N035712-015A	MW-719-Q219	Groundwater	5/21/2019 3:45:00 PM	5/21/2019	6/27/2019
N035712-016A	MW-23-060-Q219	Groundwater	5/21/2019 1:48:00 PM	5/21/2019	6/27/2019
N035712-016B	MW-23-060-Q219	Groundwater	5/21/2019 1:48:00 PM	5/21/2019	6/27/2019
N035712-016C	MW-23-060-Q219	Groundwater	5/21/2019 1:48:00 PM	5/21/2019	6/27/2019
N035712-017A	MW-23-080-Q219	Groundwater	5/21/2019 1:04:00 PM	5/21/2019	6/27/2019
N035712-017B	MW-23-080-Q219	Groundwater	5/21/2019 1:04:00 PM	5/21/2019	6/27/2019
N035712-017C	MW-23-080-Q219	Groundwater	5/21/2019 1:04:00 PM	5/21/2019	6/27/2019
N035712-018A	MW-62-065-Q219	Groundwater	5/21/2019 12:10:00 PM	5/21/2019	6/27/2019
N035712-018B	MW-62-065-Q219	Groundwater	5/21/2019 12:10:00 PM	5/21/2019	6/27/2019
N035712-018C	MW-62-065-Q219	Groundwater	5/21/2019 12:10:00 PM	5/21/2019	6/27/2019
N035712-018D	MW-62-065-Q219	Groundwater	5/21/2019 12:10:00 PM	5/21/2019	6/27/2019
N035712-019A	MW-717-Q219	Groundwater	5/21/2019 3:30:00 PM	5/21/2019	6/27/2019
N035712-020A	MW-63-065-Q219	Groundwater	5/21/2019 10:54:00 AM	5/21/2019	6/27/2019
N035712-020B	MW-63-065-Q219	Groundwater	5/21/2019 10:54:00 AM	5/21/2019	6/27/2019
N035712-020C	MW-63-065-Q219	Groundwater	5/21/2019 10:54:00 AM	5/21/2019	6/27/2019
N035712-020D	MW-63-065-Q219	Groundwater	5/21/2019 10:54:00 AM	5/21/2019	6/27/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-025-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:36:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-090-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:38:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	4600	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-29-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:21:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	2500	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	8200	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70-105-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	3500	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70BR-225-LF-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-150-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 12:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:56:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-205-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:48:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	21000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-23-060-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-23-080-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:04:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 12:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	6200	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	6700	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035712-004DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **134081**
Client ID: **ZZZZZZ** Batch ID: **R134081** TestNo: **EPA 120.1** Analysis Date: **5/22/2019** SeqNo: **3393515**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	4640.000	0.10						4590	1.08	2	

Sample ID: **N035712-020DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **134081**
Client ID: **ZZZZZZ** Batch ID: **R134081** TestNo: **EPA 120.1** Analysis Date: **5/22/2019** SeqNo: **3393528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6620.000	0.10						6660	0.602	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-025-EB-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:44:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 10:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-025-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:36:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 10:28 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/14/2019 11:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-090-EB-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:40:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 10:38 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-090-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:38:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 10:47 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/14/2019 11:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-29-EB-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-29-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:21:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 11:16 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/14/2019 11:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	12	0.033	0.20		µg/L	1	5/22/2019 11:25 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	14	0.13	1.0		µg/L	1	6/14/2019 11:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70-105-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	170	0.66	4.0		µg/L	20	5/22/2019 12:03 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	170	0.13	1.0		µg/L	1	6/15/2019 12:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70BR-225-LF-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	1600	6.6	40		µg/L	200	5/22/2019 12:13 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	1700	1.3	10		µg/L	10	6/15/2019 12:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-150-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 12:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	5.5	0.17	1.0		µg/L	5	5/22/2019 12:50 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	21	0.13	1.0		µg/L	1	6/15/2019 12:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:56:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	7.6	0.17	1.0		µg/L	5	5/22/2019 01:09 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	9.1	0.13	1.0		µg/L	1	6/15/2019 12:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-205-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:48:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	2.4	0.17	1.0		µg/L	5	5/22/2019 01:47 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	2.7	0.13	1.0		µg/L	1	6/15/2019 01:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/22/2019 02:06 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 01:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-718-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 05:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-719-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_190522A** QC Batch: **R134128** PrepDate: Analyst: **RAB**							
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 05:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-23-060-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	40	0.17	1.0		µg/L	5	5/22/2019 12:32 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	35	0.13	1.0		µg/L	1	6/15/2019 01:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-23-080-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:04:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/22/2019 02:25 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	1.1	0.13	1.0		µg/L	1	6/15/2019 01:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 12:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	570	3.3	20		µg/L	100	5/22/2019 12:22 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	560	0.65	5.0		µg/L	5	6/15/2019 02:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-717-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_190522A** QC Batch: **R134128** PrepDate: Analyst: **RAB**							
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 06:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	1.3	0.033	0.20		µg/L	1	5/22/2019 11:54 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	2.8	0.13	1.0		µg/L	1	6/15/2019 02:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R134128**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **PBW**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R134128**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **LCSW**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.075	0.20	5.000	0	102	90	110				

Sample ID: **N035712-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.072	0.20	1.000	0	107	90	110				

Sample ID: **N035712-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.057	0.20	1.000	0	106	90	110				

Sample ID: **N035712-020ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.301	0.20						1.298	0.215	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035712-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.544	1.0	5.000	5.462	102	90	110				

Sample ID: **N035712-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.645	1.0	5.000	7.572	101	90	110				

Sample ID: **N035712-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	7.419	1.0	5.000	2.411	100	90	110				

Sample ID: **N035712-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.222	1.0	5.000	0	104	90	110				

Sample ID: **N035712-017AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.557	1.0	5.000	0.4540	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035712-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2657.800	40	1000	1634	102	90	110				

Sample ID: **N035712-009AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395642**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2664.260	40	1000	1634	103	90	110	2658	0.243	20	

Sample ID: **N035712-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	273.836	4.0	100.0	171.8	102	90	110				

Sample ID: **N035712-018AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1075.420	20	500.0	566.4	102	90	110				

Sample ID: **N035712-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	17.039	0.20	5.000	11.64	108	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035712-016AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	65.760	1.0	25.00	39.80	104	90	110				

Sample ID: **N035712-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.085	0.20	1.000	0	108	90	110				

Sample ID: **N035712-020AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.340	0.20	1.000	1.298	104	90	110				

Sample ID: **N035712-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395651**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.032	0.20	1.000	0	103	90	110				

Sample ID: **N035712-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.036	0.20	1.000	0	104	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035712-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.029	0.20	1.000	0	103	90	110				

Sample ID: **N035712-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.016	0.20	1.000	0	102	90	110				

Sample ID: **N035712-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.023	0.20	1.000	0	102	90	110				

Sample ID: **N035712-019AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-73997**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **PBW**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3412899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-73997**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **LCSW**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3412900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.867	1.0	10.00	0	98.7	85	115				

Sample ID: **N035705-015B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **ZZZZZZ**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3412909**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.533	1.0	10.00	5.981	85.5	75	125				

Sample ID: **N035705-015B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **ZZZZZZ**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3412910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.534	1.0	10.00	5.981	85.5	75	125	14.53	0.00912	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-025-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:36:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-090-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:38:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-29-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:21:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.68	0.032	0.050		mg/L	1	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70-105-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	4.9	0.16	0.25		mg/L	5	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70BR-225-LF-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	3.5	0.16	0.25		mg/L	5	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-150-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 12:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	1.5	0.063	0.10		mg/L	2	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:56:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	1.1	0.032	0.050		mg/L	1	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 12:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	4.8	0.16	0.25		mg/L	5	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.93	0.032	0.050		mg/L	1	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134192**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **PBW**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134192**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **LCSW**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.503	0.050	0.5000	0	101	85	115				

Sample ID: **N035663-003CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **ZZZZZZ**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	11.362	1.0						11.55	1.68	20	

Sample ID: **N035663-004CMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **ZZZZZZ**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.816	0.50	5.000	5.115	94.0	75	125				

Sample ID: **N035663-004CMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **ZZZZZZ**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.772	0.50	5.000	5.115	93.1	75	125	9.816	0.449	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134212**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **PBW**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134212**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **LCSW**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399168**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.490	0.050	0.5000	0	98.1	85	115				

Sample ID: **N035712-018CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **ZZZZZZ**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399180**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	4.646	0.25						4.814	3.55	20	

Sample ID: **N035712-010CMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **ZZZZZZ**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.450	0.10	1.000	1.503	94.7	75	125				

Sample ID: **N035712-010CMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **ZZZZZZ**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.474	0.10	1.000	1.503	97.2	75	125	2.450	1.01	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-002

Client Sample ID: MW-28-025-Q219
Collection Date: 5/21/2019 9:36:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	0.81	0.081	0.10		µg/L	1	6/14/2019 11:32 PM
Manganese	ND	0.26	0.50		µg/L	1	6/14/2019 11:32 PM
Molybdenum	4.4	0.21	0.50		µg/L	1	6/14/2019 11:32 PM
Selenium	ND	0.36	0.50		µg/L	1	6/14/2019 11:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-004

Client Sample ID: MW-28-090-Q219
Collection Date: 5/21/2019 9:38:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	6/14/2019 11:37 PM
Manganese	280	1.3	2.5		µg/L	5	6/14/2019 11:42 PM
Molybdenum	23	0.21	0.50		µg/L	1	6/14/2019 11:37 PM
Selenium	ND	0.36	0.50		µg/L	1	6/14/2019 11:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-006

Client Sample ID: MW-29-Q219
Collection Date: 5/21/2019 1:21:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	15	0.081	0.10		µg/L	1	6/14/2019 11:47 PM
Manganese	300	1.3	2.5		µg/L	5	6/14/2019 11:51 PM
Molybdenum	30	0.21	0.50		µg/L	1	6/14/2019 11:47 PM
Selenium	ND	0.36	0.50		µg/L	1	6/14/2019 11:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-007

Client Sample ID: MW-58BR-Q219
Collection Date: 5/21/2019 3:36:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	1.9	0.081	0.10		µg/L	1	6/14/2019 11:56 PM
Manganese	270	1.3	2.5		µg/L	5	6/15/2019 12:01 AM
Molybdenum	26	0.21	0.50		µg/L	1	6/14/2019 11:56 PM
Selenium	1.9	0.36	0.50		µg/L	1	6/14/2019 11:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-008

Client Sample ID: MW-70-105-Q219
Collection Date: 5/21/2019 2:26:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	3.7	0.081	0.10		µg/L	1	6/15/2019 12:06 AM
Manganese	6.0	0.26	0.50		µg/L	1	6/15/2019 12:06 AM
Molybdenum	66	0.21	0.50		µg/L	1	6/15/2019 12:06 AM
Selenium	4.6	0.36	0.50		µg/L	1	6/15/2019 12:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-009

Client Sample ID: MW-70BR-225-LF-Q219
Collection Date: 5/21/2019 2:33:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	2.0	0.081	0.10		µg/L	1	6/15/2019 12:16 AM
Manganese	1.1	0.26	0.50		µg/L	1	6/15/2019 12:16 AM
Molybdenum	20	0.21	0.50		µg/L	1	6/15/2019 12:16 AM
Selenium	2.8	0.36	0.50		µg/L	1	6/15/2019 12:16 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-010

Client Sample ID: MW-33-150-Q219
Collection Date: 5/21/2019 12:34:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	1.7	0.081	0.10		µg/L	1	6/15/2019 12:41 AM
Manganese	74	0.26	0.50		µg/L	1	6/15/2019 12:41 AM
Molybdenum	48	0.21	0.50		µg/L	1	6/15/2019 12:41 AM
Selenium	0.93	0.36	0.50		µg/L	1	6/24/2019 04:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:56:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Molybdenum	190	1.1	2.5		µg/L	5	6/15/2019 12:56 AM
Selenium	0.78	0.36	0.50		µg/L	1	6/17/2019 08:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**				PrepDate:	**5/24/2019**	Analyst: **CEI**
Arsenic	4.0	0.081	0.10		µg/L	1	6/15/2019 01:11 AM
Manganese	960	2.6	5.0		µg/L	10	6/15/2019 01:30 AM
Molybdenum	65	0.21	0.50		µg/L	1	6/15/2019 01:11 AM
Selenium	ND	0.36	0.50		µg/L	1	6/15/2019 01:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-23-060-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Arsenic	5.7	0.081	0.10		µg/L	1	6/15/2019 01:35 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 01:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-017

Client Sample ID: MW-23-080-Q219
Collection Date: 5/21/2019 1:04:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	5.6	0.081	0.10		µg/L	1	6/15/2019 01:45 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 01:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-018

Client Sample ID: MW-62-065-Q219
Collection Date: 5/21/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	1.6	0.081	0.10		µg/L	1	6/15/2019 01:55 AM
Manganese	0.89	0.26	0.50		µg/L	1	6/15/2019 01:55 AM
Molybdenum	13	0.21	0.50		µg/L	1	6/15/2019 01:55 AM
Selenium	4.3	0.36	0.50		µg/L	1	6/15/2019 01:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Arsenic	1.5	0.081	0.10		µg/L	1	6/15/2019 02:05 AM
Manganese	2.5	0.26	0.50		µg/L	1	6/15/2019 02:05 AM
Molybdenum	19	0.21	0.50		µg/L	1	6/15/2019 02:05 AM
Selenium	1.0	0.36	0.50		µg/L	1	6/24/2019 04:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-73997**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134540**
Client ID: **PBW**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3413048**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-73997**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134540**
Client ID: **LCSW**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3413049**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.211	0.10	10.00	0	102	85	115				
Manganese	103.890	0.50	100.0	0	104	85	115				
Molybdenum	10.120	0.50	10.00	0	101	85	115				
Selenium	9.698	0.50	10.00	0	97.0	85	115				

Sample ID: **N035705-015B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134540**
Client ID: **ZZZZZZ**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3413058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.504	0.10	10.00	3.789	107	75	125				
Manganese	91.722	0.50	100.0	0	91.7	75	125				
Molybdenum	70.092	0.50	10.00	59.86	102	75	125				
Selenium	11.425	0.50	10.00	0.3922	110	75	125				

Sample ID: **N035705-015B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134540**
Client ID: **ZZZZZZ**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3413059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.486	0.10	10.00	3.789	107	75	125	14.50	0.124	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035705-015B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/24/2019** RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **73997** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/14/2019** SeqNo: **3413059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	92.540	0.50	100.0	0	92.5	75	125	91.72	0.888	20	
Molybdenum	70.665	0.50	10.00	59.86	108	75	125	70.09	0.814	20	
Selenium	11.326	0.50	10.00	0.3922	109	75	125	11.42	0.867	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
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CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Others ✓ (Specify: RWQCB)
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RWQCB ✓
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled Y; 2. Headspace; 3. Container Intact Y; 4. Seal Present; 5. IR number 2
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:	Global ID:	Specify State:
Signature: Date: 5/21/19	Sampled By: Jason Marlow	6. Method of Cooling: ICE	
I Hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for	Sample Temp: 2.5 | 1.9	
Project Name: PG&E Topock - GMP	Signature: Date: 5/21/2019	Courier:	
Project Number: RC000753.8010		Tracking No.:	

Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7); HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035712-01	MW-28-025-EB-Q219	5/21/2019	9:44		X															E	1	P	B
2	-02	MW-28-025-Q219	5/21/2019	9:36			X	X	X	X	X	X	X		X						E	5	P	BNS
3	-03	MW-28-090-EB-Q219	5/21/2019	9:40		X															E	1	P	B
4	-04	MW-28-090-Q219	5/21/2019	9:38			X	X	X	X	X	X	X		X						E	5	P	BNS
5	-05	MW-29-EB-Q219	5/21/2019	13:30		X															E	1	P	B
6	-06	MW-29-Q219	5/21/2019	13:21			X	X	X	X	X	X	X		X						E	5	P	BNS
7	-07	MW-58BR-Q219	5/21/2019	15:36		X		X	X	X	X	X	X		X						E	4	P	BNS
8	-08	MW-70-105-Q219	5/21/2019	14:26		X		X	X	X	X	X	X		X						E	4	P	BNS
9	-09	MW-70BR-225-LF-Q219	5/21/2019	14:33		X		X	X	X	X	X	X		X						E	4	P	BNS
10	-10	MW-33-150-Q219	5/21/2019	12:34		X		X	X	X	X	X	X		X						E	4	P	BNS

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Jason Marlow	5/21/19 1631	for DAN Ice	5-21-19 1631
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
JORDAN Ice	5-21-19 1836	JORDAN Ice	5-21-19 1836
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=60% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 2 of 2

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec	CalTrans	2. Headspace
Submitted By: Joe Gatel		P.O.# SWA-ASSET-C9817-051	Others ✓	LEVEL III	3. Container Intact ✓
Title: Scientist 1	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present ✓
Signature: Date: 5/21/19	Sampled By: Jason Marks		Global ID:	Regulatory	5. IR number NA
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for			Specify State:	6. Method of Cooling: ICE
Project Name: PG&E Topock - GMP	Signature: Date: 5/21/2019				Sample Temp: 2.5 / 1.9
Project Number: RC000753.801D					Courier: Tracking No.:

Matrix: Ground x | Sediment; Potable | Soil; NPDES | Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (6020AFF) Arsenic; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved Metals (SW6020A) FF Manganese; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Molybdenum; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Selenium; HNO3 (125 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035712-11	MW-46-175-Q219	5/21/2019	10:56		X			X		X	X	X		X						E	4	P	BNS	
2	-12	MW-46-205-Q219	5/21/2019	10:48		X			X						X						E	3	P	BN	
3	-13	MW-64BR-Q219	5/21/2019	9:18		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	-14	MW-718-Q219	5/21/2019	15:40		X															E	1	P	B	
5	-15	MW-719-Q219	5/21/2019	15:45		X															E	1	P	B	
6	-16	MW-23-060-Q219	5/21/2019	13:48		X		X	X	X					X						E	3	P	BN	
7	-17	MW-23-080-Q219	5/21/2019	13:04		X		X	X	X					X						E	3	P	BN	
8	-18	MW-62-065-Q219	5/21/2019	12:10		X		X	X	X	X	X	X		X						E	4	P	BNS	
9	-19	MW-717-Q219	5/21/2019	15:30		X															E	1	P	B	
10	-20	MW-63-065-Q219	5/21/2019	10:54		X		X	X	X	X	X	X		X						E	4	P	BNS	

Relinquished by (Signature and Printed Name): Jason Marks Date/Time: 5/21/19 1631
Received by (Signature and Printed Name): JORDAN 166 Date/Time: 5-21-19 1631
Relinquished by (Signature and Printed Name): JORDAN 166 Date/Time: 5/21/19 1636
Received by (Signature and Printed Name): JORDAN 166 Date/Time: 5-21-19 1836
Relinquished by (Signature and Printed Name): Date/Time:
Received by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
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- [ ] D = 3 Workdays
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TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

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9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives: H=HCL; N=HNO_3; S=H_2SO_4; C=4°C; Z=$Zn(AC)_2$; O=NaOH; T=$Na_2S_2O_3$; Others/Specify: B (NH4)2SO4/NH4OH

Container Type: T=Tube; V=VOA; P=Pint; J=Jar; B=Tedlar; G=Glass; M=Metal; M=Metal; C=Can

Write=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/21/2019	Workorder:	N035712
Rep sample Temp (Deg C):	2.5/1.9	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 5/22/2019

Reviewed By: LG 060419

ASSET Laboratories

WORK ORDER Summary

22-May-19

WorkOrder: N035712

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/21/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035712-001A	MW-28-025-EB-Q219	5/21/2019 9:44:00 AM	6/5/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-002A	MW-28-025-Q219	5/21/2019 9:36:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-002B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-002C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-002D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-003A	MW-28-090-EB-Q219	5/21/2019 9:40:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-004A	MW-28-090-Q219	5/21/2019 9:38:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-004B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-004C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-004D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-005A	MW-29-EB-Q219	5/21/2019 1:30:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-006A	MW-29-Q219	5/21/2019 1:21:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-006B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-006C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-006D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

22-May-19

WorkOrder: N035712

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/21/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035712-007A	MW-58BR-Q219	5/21/2019 3:36:00 PM	6/5/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-007B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-007C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-007D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-008A	MW-70-105-Q219	5/21/2019 2:26:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-008B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-008C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-008D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-009A	MW-70BR-225-LF-Q219	5/21/2019 2:33:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-009B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-009C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-009D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-010A	MW-33-150-Q219	5/21/2019 12:34:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-010B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

22-May-19

WorkOrder: N035712

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/21/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035712-010B	MW-33-150-Q219	5/21/2019 12:34:00 PM	6/5/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-010C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-010D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-011A	MW-46-175-Q219	5/21/2019 10:56:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-011B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-011C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-011D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-012A	MW-46-205-Q219	5/21/2019 10:48:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-012B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-012C			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-013A	MW-64BR-Q219	5/21/2019 9:18:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-013B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-013C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-013D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-014A	MW-718-Q219	5/21/2019 3:40:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-015A	MW-719-Q219	5/21/2019 3:45:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

22-May-19

WorkOrder: N035712

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/21/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035712-016A	MW-23-060-Q219	5/21/2019 1:48:00 PM	6/5/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-016B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-016C			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-017A	MW-23-080-Q219	5/21/2019 1:04:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-017B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-017C			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-018A	MW-62-065-Q219	5/21/2019 12:10:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-018B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-018C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-018D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-019A	MW-717-Q219	5/21/2019 3:30:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-020A	MW-63-065-Q219	5/21/2019 10:54:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-020B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

22-May-19

WorkOrder: N035712

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/21/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035712-020C	MW-63-065-Q219	5/21/2019 10:54:00 AM	6/5/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-020D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-021A	FOLDER	6/5/2019	6/5/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/5/2019		Folder	Folder	☐	☐	☐	LAB
			6/5/2019		Folder	Folder	☐	☐	☐	LAB

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-74311**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/22/2019**	RunNo: **134703**
Client ID: **PBW**	Batch ID: **74311**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/24/2019**	SeqNo: **3419555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID: **LCS-74311**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/22/2019**	RunNo: **134703**
Client ID: **LCSW**	Batch ID: **74311**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/24/2019**	SeqNo: **3419556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	8.916	0.50	10.00	0	89.2	85	115				

Sample ID: **N035705-005B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/22/2019**	RunNo: **134703**
Client ID: **ZZZZZZ**	Batch ID: **74311**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/24/2019**	SeqNo: **3419560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.544	0.50	10.00	0.5232	100	75	125				

Sample ID: **N035705-005B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/22/2019**	RunNo: **134703**
Client ID: **ZZZZZZ**	Batch ID: **74311**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/24/2019**	SeqNo: **3419561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.442	0.50	10.00	0.5232	109	75	125	10.54	8.17	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035712

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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June 27, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035712

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 21, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Ribucao for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Because the results for total dissolved chromium (21 ug/L) and hexavalent chromium (5.5 ug/L) for sample N035712-010 (MW-33-150-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Because the results for total dissolved chromium (1.1 ug/L) and hexavalent chromium (ND ug/L) for sample N035712-017 (MW-23-080-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Because the results for total dissolved chromium (2.8 ug/L) and hexavalent chromium (1.3 ug/L) for sample N035712-020 (MW-63-065-Q219) are discrepant, sample re-analysis and Matrix Spike protocol were performed and result confirmed initial analysis.

Dilution was necessary for some samples due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Because the results for total dissolved chromium (21 ug/L) and hexavalent chromium (5.5 ug/L) for sample N035712-010 (MW-33-150-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 20 and 14 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (1.1 ug/L) and hexavalent chromium (ND ug/L) for sample N035712-017 (MW-23-080-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 0.92 and 0.85 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

Because the results for total dissolved chromium (2.8 ug/L) and hexavalent chromium (1.3 ug/L) for sample N035712-020 (MW-63-065-Q219) are discrepant, sample from both the total dissolved chromium and hexavalent chromium containers were redigested and analyzed for total dissolved chromium. The results from the redigested samples were 2.5 and 1.2 ug/L, respectively. Since these data confirmed the original result for total dissolved chromium, the original result is reported.

ASSET Laboratories

Date: *27-Jun-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035712
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035712-001A	MW-28-025-EB-Q219	Groundwater	5/21/2019 9:44:00 AM	5/21/2019	6/27/2019
N035712-002A	MW-28-025-Q219	Groundwater	5/21/2019 9:36:00 AM	5/21/2019	6/27/2019
N035712-002B	MW-28-025-Q219	Groundwater	5/21/2019 9:36:00 AM	5/21/2019	6/27/2019
N035712-002C	MW-28-025-Q219	Groundwater	5/21/2019 9:36:00 AM	5/21/2019	6/27/2019
N035712-002D	MW-28-025-Q219	Groundwater	5/21/2019 9:36:00 AM	5/21/2019	6/27/2019
N035712-003A	MW-28-090-EB-Q219	Groundwater	5/21/2019 9:40:00 AM	5/21/2019	6/27/2019
N035712-004A	MW-28-090-Q219	Groundwater	5/21/2019 9:38:00 AM	5/21/2019	6/27/2019
N035712-004B	MW-28-090-Q219	Groundwater	5/21/2019 9:38:00 AM	5/21/2019	6/27/2019
N035712-004C	MW-28-090-Q219	Groundwater	5/21/2019 9:38:00 AM	5/21/2019	6/27/2019
N035712-004D	MW-28-090-Q219	Groundwater	5/21/2019 9:38:00 AM	5/21/2019	6/27/2019
N035712-005A	MW-29-EB-Q219	Groundwater	5/21/2019 1:30:00 PM	5/21/2019	6/27/2019
N035712-006A	MW-29-Q219	Groundwater	5/21/2019 1:21:00 PM	5/21/2019	6/27/2019
N035712-006B	MW-29-Q219	Groundwater	5/21/2019 1:21:00 PM	5/21/2019	6/27/2019
N035712-006C	MW-29-Q219	Groundwater	5/21/2019 1:21:00 PM	5/21/2019	6/27/2019
N035712-006D	MW-29-Q219	Groundwater	5/21/2019 1:21:00 PM	5/21/2019	6/27/2019
N035712-007A	MW-58BR-Q219	Groundwater	5/21/2019 3:36:00 PM	5/21/2019	6/27/2019
N035712-007B	MW-58BR-Q219	Groundwater	5/21/2019 3:36:00 PM	5/21/2019	6/27/2019
N035712-007C	MW-58BR-Q219	Groundwater	5/21/2019 3:36:00 PM	5/21/2019	6/27/2019
N035712-007D	MW-58BR-Q219	Groundwater	5/21/2019 3:36:00 PM	5/21/2019	6/27/2019
N035712-008A	MW-70-105-Q219	Groundwater	5/21/2019 2:26:00 PM	5/21/2019	6/27/2019
N035712-008B	MW-70-105-Q219	Groundwater	5/21/2019 2:26:00 PM	5/21/2019	6/27/2019
N035712-008C	MW-70-105-Q219	Groundwater	5/21/2019 2:26:00 PM	5/21/2019	6/27/2019
N035712-008D	MW-70-105-Q219	Groundwater	5/21/2019 2:26:00 PM	5/21/2019	6/27/2019
N035712-009A	MW-70BR-225-LF-Q219	Groundwater	5/21/2019 2:33:00 PM	5/21/2019	6/27/2019
N035712-009B	MW-70BR-225-LF-Q219	Groundwater	5/21/2019 2:33:00 PM	5/21/2019	6/27/2019
N035712-009C	MW-70BR-225-LF-Q219	Groundwater	5/21/2019 2:33:00 PM	5/21/2019	6/27/2019
N035712-009D	MW-70BR-225-LF-Q219	Groundwater	5/21/2019 2:33:00 PM	5/21/2019	6/27/2019
N035712-010A	MW-33-150-Q219	Groundwater	5/21/2019 12:34:00 PM	5/21/2019	6/27/2019
N035712-010B	MW-33-150-Q219	Groundwater	5/21/2019 12:34:00 PM	5/21/2019	6/27/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035712
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035712-010C	MW-33-150-Q219	Groundwater	5/21/2019 12:34:00 PM	5/21/2019	6/27/2019
N035712-010D	MW-33-150-Q219	Groundwater	5/21/2019 12:34:00 PM	5/21/2019	6/27/2019
N035712-011A	MW-46-175-Q219	Groundwater	5/21/2019 10:56:00 AM	5/21/2019	6/27/2019
N035712-011B	MW-46-175-Q219	Groundwater	5/21/2019 10:56:00 AM	5/21/2019	6/27/2019
N035712-011C	MW-46-175-Q219	Groundwater	5/21/2019 10:56:00 AM	5/21/2019	6/27/2019
N035712-011D	MW-46-175-Q219	Groundwater	5/21/2019 10:56:00 AM	5/21/2019	6/27/2019
N035712-012A	MW-46-205-Q219	Groundwater	5/21/2019 10:48:00 AM	5/21/2019	6/27/2019
N035712-012B	MW-46-205-Q219	Groundwater	5/21/2019 10:48:00 AM	5/21/2019	6/27/2019
N035712-012C	MW-46-205-Q219	Groundwater	5/21/2019 10:48:00 AM	5/21/2019	6/27/2019
N035712-013A	MW-64BR-Q219	Groundwater	5/21/2019 9:18:00 AM	5/21/2019	6/27/2019
N035712-013B	MW-64BR-Q219	Groundwater	5/21/2019 9:18:00 AM	5/21/2019	6/27/2019
N035712-013C	MW-64BR-Q219	Groundwater	5/21/2019 9:18:00 AM	5/21/2019	6/27/2019
N035712-013D	MW-64BR-Q219	Groundwater	5/21/2019 9:18:00 AM	5/21/2019	6/27/2019
N035712-014A	MW-718-Q219	Groundwater	5/21/2019 3:40:00 PM	5/21/2019	6/27/2019
N035712-015A	MW-719-Q219	Groundwater	5/21/2019 3:45:00 PM	5/21/2019	6/27/2019
N035712-016A	MW-23-060-Q219	Groundwater	5/21/2019 1:48:00 PM	5/21/2019	6/27/2019
N035712-016B	MW-23-060-Q219	Groundwater	5/21/2019 1:48:00 PM	5/21/2019	6/27/2019
N035712-016C	MW-23-060-Q219	Groundwater	5/21/2019 1:48:00 PM	5/21/2019	6/27/2019
N035712-017A	MW-23-080-Q219	Groundwater	5/21/2019 1:04:00 PM	5/21/2019	6/27/2019
N035712-017B	MW-23-080-Q219	Groundwater	5/21/2019 1:04:00 PM	5/21/2019	6/27/2019
N035712-017C	MW-23-080-Q219	Groundwater	5/21/2019 1:04:00 PM	5/21/2019	6/27/2019
N035712-018A	MW-62-065-Q219	Groundwater	5/21/2019 12:10:00 PM	5/21/2019	6/27/2019
N035712-018B	MW-62-065-Q219	Groundwater	5/21/2019 12:10:00 PM	5/21/2019	6/27/2019
N035712-018C	MW-62-065-Q219	Groundwater	5/21/2019 12:10:00 PM	5/21/2019	6/27/2019
N035712-018D	MW-62-065-Q219	Groundwater	5/21/2019 12:10:00 PM	5/21/2019	6/27/2019
N035712-019A	MW-717-Q219	Groundwater	5/21/2019 3:30:00 PM	5/21/2019	6/27/2019
N035712-020A	MW-63-065-Q219	Groundwater	5/21/2019 10:54:00 AM	5/21/2019	6/27/2019
N035712-020B	MW-63-065-Q219	Groundwater	5/21/2019 10:54:00 AM	5/21/2019	6/27/2019
N035712-020C	MW-63-065-Q219	Groundwater	5/21/2019 10:54:00 AM	5/21/2019	6/27/2019
N035712-020D	MW-63-065-Q219	Groundwater	5/21/2019 10:54:00 AM	5/21/2019	6/27/2019

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-002

Client Sample ID: MW-28-025-Q219
Collection Date: 5/21/2019 9:36:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	1000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-004

Client Sample ID: MW-28-090-Q219
Collection Date: 5/21/2019 9:38:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	4600	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-29-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:21:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	2500	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	8200	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70-105-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	3500	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70BR-225-LF-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-150-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 12:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:56:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-205-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:48:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	21000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-23-060-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-23-080-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:04:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 12:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	6200	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190522B**	QC Batch: **R134081**			PrepDate:			Analyst: **LR**
Specific Conductance	6700	0.10	0.10		umhos/cm	1	5/22/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N035712-004DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **134081**
Client ID: **ZZZZZZ** Batch ID: **R134081** TestNo: **EPA 120.1** Analysis Date: **5/22/2019** SeqNo: **3393515**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	4640.000	0.10						4590	1.08	2	

Sample ID: **N035712-020DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **134081**
Client ID: **ZZZZZZ** Batch ID: **R134081** TestNo: **EPA 120.1** Analysis Date: **5/22/2019** SeqNo: **3393528**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6620.000	0.10						6660	0.602	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-025-EB-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:44:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 10:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-025-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:36:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 10:28 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/14/2019 11:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-090-EB-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:40:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 10:38 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-004

Client Sample ID: MW-28-090-Q219
Collection Date: 5/21/2019 9:38:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 10:47 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate: **5/24/2019**			Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/14/2019 11:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-29-EB-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-29-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:21:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 11:16 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/14/2019 11:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	12	0.033	0.20		µg/L	1	5/22/2019 11:25 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	14	0.13	1.0		µg/L	1	6/14/2019 11:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70-105-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	170	0.66	4.0		µg/L	20	5/22/2019 12:03 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	170	0.13	1.0		µg/L	1	6/15/2019 12:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70BR-225-LF-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	1600	6.6	40		µg/L	200	5/22/2019 12:13 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	1700	1.3	10		µg/L	10	6/15/2019 12:36 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-010

Client Sample ID: MW-33-150-Q219
Collection Date: 5/21/2019 12:34:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	5.5	0.17	1.0		µg/L	5	5/22/2019 12:50 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate: **5/24/2019**			Analyst: **CEI**
Chromium	21	0.13	1.0		µg/L	1	6/15/2019 12:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-011

Client Sample ID: MW-46-175-Q219
Collection Date: 5/21/2019 10:56:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	7.6	0.17	1.0		µg/L	5	5/22/2019 01:09 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	9.1	0.13	1.0		µg/L	1	6/15/2019 12:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-012

Client Sample ID: MW-46-205-Q219
Collection Date: 5/21/2019 10:48:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	2.4	0.17	1.0		µg/L	5	5/22/2019 01:47 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	2.7	0.13	1.0		µg/L	1	6/15/2019 01:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-013

Client Sample ID: MW-64BR-Q219
Collection Date: 5/21/2019 9:18:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/22/2019 02:06 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 01:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-014

Client Sample ID: MW-718-Q219
Collection Date: 5/21/2019 3:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 05:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-719-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A**	QC Batch: **R134128**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 05:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-23-060-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	40	0.17	1.0		µg/L	5	5/22/2019 12:32 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	35	0.13	1.0		µg/L	1	6/15/2019 01:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-017

Client Sample ID: MW-23-080-Q219
Collection Date: 5/21/2019 1:04:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/22/2019 02:25 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	1.1	0.13	1.0		µg/L	1	6/15/2019 01:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-018

Client Sample ID: MW-62-065-Q219
Collection Date: 5/21/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	570	3.3	20		µg/L	100	5/22/2019 12:22 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	560	0.65	5.0		µg/L	5	6/15/2019 02:00 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-717-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-019		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_190522A** QC Batch: **R134128** PrepDate: Analyst: **RAB**							
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/22/2019 06:17 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190522A** QC Batch: **R134128**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	1.3	0.033	0.20		µg/L	1	5/22/2019 11:54 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190614D** QC Batch: **73997**				PrepDate:	**5/24/2019**		Analyst: **CEI**
Chromium	2.8	0.13	1.0		µg/L	1	6/15/2019 02:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R134128** SampType: **MBLK** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **PBW** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R134128** SampType: **LCS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **LCSW** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.075	0.20	5.000	0	102	90	110				

Sample ID: **N035712-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395617**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.072	0.20	1.000	0	107	90	110				

Sample ID: **N035712-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395618**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.057	0.20	1.000	0	106	90	110				

Sample ID: **N035712-020ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395628**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.301	0.20						1.298	0.215	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035712-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395630**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.544	1.0	5.000	5.462	102	90	110				

Sample ID: **N035712-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395632**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	12.645	1.0	5.000	7.572	101	90	110				

Sample ID: **N035712-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	7.419	1.0	5.000	2.411	100	90	110				

Sample ID: **N035712-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395638**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.222	1.0	5.000	0	104	90	110				

Sample ID: **N035712-017AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395640**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.557	1.0	5.000	0.4540	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035712-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395641**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2657.800	40	1000	1634	102	90	110				

Sample ID: **N035712-009AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395642**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2664.260	40	1000	1634	103	90	110	2658	0.243	20	

Sample ID: **N035712-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395645**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	273.836	4.0	100.0	171.8	102	90	110				

Sample ID: **N035712-018AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395646**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1075.420	20	500.0	566.4	102	90	110				

Sample ID: **N035712-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	17.039	0.20	5.000	11.64	108	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035712-016AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	65.760	1.0	25.00	39.80	104	90	110				

Sample ID: **N035712-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.085	0.20	1.000	0	108	90	110				

Sample ID: **N035712-020AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2.340	0.20	1.000	1.298	104	90	110				

Sample ID: **N035712-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395651**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.032	0.20	1.000	0	103	90	110				

Sample ID: **N035712-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395652**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.036	0.20	1.000	0	104	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N035712-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395654**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.029	0.20	1.000	0	103	90	110				

Sample ID: **N035712-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395658**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.016	0.20	1.000	0	102	90	110				

Sample ID: **N035712-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395660**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.023	0.20	1.000	0	102	90	110				

Sample ID: **N035712-019AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134128**
Client ID: **ZZZZZZ** Batch ID: **R134128** TestNo: **EPA 218.6** Analysis Date: **5/22/2019** SeqNo: **3395662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.015	0.20	1.000	0	102	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-73997**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **PBW**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3412899**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-73997**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **LCSW**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3412900**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.867	1.0	10.00	0	98.7	85	115				

Sample ID: **N035705-015B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **ZZZZZZ**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3412909**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.533	1.0	10.00	5.981	85.5	75	125				

Sample ID: **N035705-015B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **ZZZZZZ**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3412910**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.534	1.0	10.00	5.981	85.5	75	125	14.53	0.00912	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-025-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:36:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-28-090-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:38:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-29-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:21:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-58BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 3:36:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.68	0.032	0.050		mg/L	1	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70-105-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	4.9	0.16	0.25		mg/L	5	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70BR-225-LF-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	3.5	0.16	0.25		mg/L	5	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-33-150-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 12:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	1.5	0.063	0.10		mg/L	2	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:56:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	1.1	0.032	0.050		mg/L	1	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-64BR-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 9:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190528C**	QC Batch: **R134192**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	5/28/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 12:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-018		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	4.8	0.16	0.25		mg/L	5	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190529A**	QC Batch: **R134212**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.93	0.032	0.050		mg/L	1	5/29/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134192** SampType: **MBLK** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **134192**
Client ID: **PBW** Batch ID: **R134192** TestNo: **SM4500-NO3** Analysis Date: **5/28/2019** SeqNo: **3398376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134192** SampType: **LCS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **134192**
Client ID: **LCSW** Batch ID: **R134192** TestNo: **SM4500-NO3** Analysis Date: **5/28/2019** SeqNo: **3398377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.503	0.050	0.5000	0	101	85	115				

Sample ID: **N035663-003CDUP** SampType: **DUP** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **134192**
Client ID: **ZZZZZZ** Batch ID: **R134192** TestNo: **SM4500-NO3** Analysis Date: **5/28/2019** SeqNo: **3398381**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	11.362	1.0						11.55	1.68	20	

Sample ID: **N035663-004CMS** SampType: **MS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **134192**
Client ID: **ZZZZZZ** Batch ID: **R134192** TestNo: **SM4500-NO3** Analysis Date: **5/28/2019** SeqNo: **3398383**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.816	0.50	5.000	5.115	94.0	75	125				

Sample ID: **N035663-004CMSD** SampType: **MSD** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **134192**
Client ID: **ZZZZZZ** Batch ID: **R134192** TestNo: **SM4500-NO3** Analysis Date: **5/28/2019** SeqNo: **3398384**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	9.772	0.50	5.000	5.115	93.1	75	125	9.816	0.449	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134212**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **PBW**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399165**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134212**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **LCSW**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399168**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.490	0.050	0.5000	0	98.1	85	115				

Sample ID: **N035712-018CDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **ZZZZZZ**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399180**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	4.646	0.25						4.814	3.55	20	

Sample ID: **N035712-010CMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **ZZZZZZ**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.450	0.10	1.000	1.503	94.7	75	125				

Sample ID: **N035712-010CMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **ZZZZZZ**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.474	0.10	1.000	1.503	97.2	75	125	2.450	1.01	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-002

Client Sample ID: MW-28-025-Q219
Collection Date: 5/21/2019 9:36:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	0.81	0.081	0.10		µg/L	1	6/14/2019 11:32 PM
Manganese	ND	0.26	0.50		µg/L	1	6/14/2019 11:32 PM
Molybdenum	4.4	0.21	0.50		µg/L	1	6/14/2019 11:32 PM
Selenium	ND	0.36	0.50		µg/L	1	6/14/2019 11:32 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-004

Client Sample ID: MW-28-090-Q219
Collection Date: 5/21/2019 9:38:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	6/14/2019 11:37 PM
Manganese	280	1.3	2.5		µg/L	5	6/14/2019 11:42 PM
Molybdenum	23	0.21	0.50		µg/L	1	6/14/2019 11:37 PM
Selenium	ND	0.36	0.50		µg/L	1	6/14/2019 11:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-006

Client Sample ID: MW-29-Q219
Collection Date: 5/21/2019 1:21:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	15	0.081	0.10		µg/L	1	6/14/2019 11:47 PM
Manganese	300	1.3	2.5		µg/L	5	6/14/2019 11:51 PM
Molybdenum	30	0.21	0.50		µg/L	1	6/14/2019 11:47 PM
Selenium	ND	0.36	0.50		µg/L	1	6/14/2019 11:47 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-007

Client Sample ID: MW-58BR-Q219
Collection Date: 5/21/2019 3:36:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	1.9	0.081	0.10		µg/L	1	6/14/2019 11:56 PM
Manganese	270	1.3	2.5		µg/L	5	6/15/2019 12:01 AM
Molybdenum	26	0.21	0.50		µg/L	1	6/14/2019 11:56 PM
Selenium	1.9	0.36	0.50		µg/L	1	6/14/2019 11:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70-105-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**				PrepDate:	**5/24/2019**	Analyst: **CEI**
Arsenic	3.7	0.081	0.10		µg/L	1	6/15/2019 12:06 AM
Manganese	6.0	0.26	0.50		µg/L	1	6/15/2019 12:06 AM
Molybdenum	66	0.21	0.50		µg/L	1	6/15/2019 12:06 AM
Selenium	4.6	0.36	0.50		µg/L	1	6/15/2019 12:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-70BR-225-LF-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 2:33:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	2.0	0.081	0.10		µg/L	1	6/15/2019 12:16 AM
Manganese	1.1	0.26	0.50		µg/L	1	6/15/2019 12:16 AM
Molybdenum	20	0.21	0.50		µg/L	1	6/15/2019 12:16 AM
Selenium	2.8	0.36	0.50		µg/L	1	6/15/2019 12:16 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-010

Client Sample ID: MW-33-150-Q219
Collection Date: 5/21/2019 12:34:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	1.7	0.081	0.10		µg/L	1	6/15/2019 12:41 AM
Manganese	74	0.26	0.50		µg/L	1	6/15/2019 12:41 AM
Molybdenum	48	0.21	0.50		µg/L	1	6/15/2019 12:41 AM
Selenium	0.93	0.36	0.50		µg/L	1	6/24/2019 04:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-46-175-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:56:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Molybdenum	190	1.1	2.5		µg/L	5	6/15/2019 12:56 AM
Selenium	0.78	0.36	0.50		µg/L	1	6/17/2019 08:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-013

Client Sample ID: MW-64BR-Q219
Collection Date: 5/21/2019 9:18:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	4.0	0.081	0.10		µg/L	1	6/15/2019 01:11 AM
Manganese	960	2.6	5.0		µg/L	10	6/15/2019 01:30 AM
Molybdenum	65	0.21	0.50		µg/L	1	6/15/2019 01:11 AM
Selenium	ND	0.36	0.50		µg/L	1	6/15/2019 01:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-23-060-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:48:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Arsenic	5.7	0.081	0.10		µg/L	1	6/15/2019 01:35 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 01:35 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-23-080-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 1:04:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Arsenic	5.6	0.081	0.10		µg/L	1	6/15/2019 01:45 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 01:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035712
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035712-018

Client Sample ID: MW-62-065-Q219
Collection Date: 5/21/2019 12:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:		**5/24/2019**	Analyst: **CEI**
Arsenic	1.6	0.081	0.10		µg/L	1	6/15/2019 01:55 AM
Manganese	0.89	0.26	0.50		µg/L	1	6/15/2019 01:55 AM
Molybdenum	13	0.21	0.50		µg/L	1	6/15/2019 01:55 AM
Selenium	4.3	0.36	0.50		µg/L	1	6/15/2019 01:55 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-63-065-Q219
Lab Order:	N035712	**Collection Date:**	5/21/2019 10:54:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035712-020		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73997**			PrepDate:	**5/24/2019**		Analyst: **CEI**
Arsenic	1.5	0.081	0.10		µg/L	1	6/15/2019 02:05 AM
Manganese	2.5	0.26	0.50		µg/L	1	6/15/2019 02:05 AM
Molybdenum	19	0.21	0.50		µg/L	1	6/15/2019 02:05 AM
Selenium	1.0	0.36	0.50		µg/L	1	6/24/2019 04:35 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-73997** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/24/2019** RunNo: **134540**
Client ID: **PBW** Batch ID: **73997** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/14/2019** SeqNo: **3413048**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-73997** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/24/2019** RunNo: **134540**
Client ID: **LCSW** Batch ID: **73997** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/14/2019** SeqNo: **3413049**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.211	0.10	10.00	0	102	85	115				
Manganese	103.890	0.50	100.0	0	104	85	115				
Molybdenum	10.120	0.50	10.00	0	101	85	115				
Selenium	9.698	0.50	10.00	0	97.0	85	115				

Sample ID: **N035705-015B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/24/2019** RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **73997** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/14/2019** SeqNo: **3413058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.504	0.10	10.00	3.789	107	75	125				
Manganese	91.722	0.50	100.0	0	91.7	75	125				
Molybdenum	70.092	0.50	10.00	59.86	102	75	125				
Selenium	11.425	0.50	10.00	0.3922	110	75	125				

Sample ID: **N035705-015B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/24/2019** RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **73997** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/14/2019** SeqNo: **3413059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.486	0.10	10.00	3.789	107	75	125	14.50	0.124	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N035705-015B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/24/2019** RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **73997** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/14/2019** SeqNo: **3413059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	92.540	0.50	100.0	0	92.5	75	125	91.72	0.888	20	
Molybdenum	70.665	0.50	10.00	59.86	108	75	125	70.09	0.814	20	
Selenium	11.326	0.50	10.00	0.3922	109	75	125	11.42	0.867	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-74311**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/22/2019**	RunNo: **134703**
Client ID: **PBW**	Batch ID: **74311**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/24/2019**	SeqNo: **3419555**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID: **LCS-74311**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/22/2019**	RunNo: **134703**
Client ID: **LCSW**	Batch ID: **74311**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/24/2019**	SeqNo: **3419556**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	8.916	0.50	10.00	0	89.2	85	115				

Sample ID: **N035705-005B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/22/2019**	RunNo: **134703**
Client ID: **ZZZZZZ**	Batch ID: **74311**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/24/2019**	SeqNo: **3419560**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.544	0.50	10.00	0.5232	100	75	125				

Sample ID: **N035705-005B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/22/2019**	RunNo: **134703**
Client ID: **ZZZZZZ**	Batch ID: **74311**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/24/2019**	SeqNo: **3419561**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.442	0.50	10.00	0.5232	109	75	125	10.54	8.17	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	Labspec	CalTrans	2. Headspace
Submitted By: Joe Gatel		P.O.# SWA-ASSET-C9817-051	Others ✓	LEVEL III	3. Container Intact
Title: Scientist 1	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present
Signature: Date: 5/21/19	Sampled By: Joseph Mahn			Regulatory	5. IR number 2
I Hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Global ID:	Specify State:	6. Method of Cooling: Ice
Project Name: PG&E Topock - GMP	Signature:	Date: 5/21/2019			Sample Temp: 2.5 / 1.9
Project Number: RC000753.601D					Courier: Tracking No.:

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7); HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035712-01	MW-28-025-EB-Q219	5/21/2019	9:44		X																E	1	P	B	
2	-02	MW-28-025-Q219	5/21/2019	9:36			X	X	X	X	X	X	X		X							E	5	P	BNS	
3	-03	MW-28-090-EB-Q219	5/21/2019	9:40		X																E	1	P	B	
4	-04	MW-28-090-Q219	5/21/2019	9:38			X	X	X	X	X	X	X		X							E	5	P	BNS	
5	-05	MW-29-EB-Q219	5/21/2019	13:30		X																E	1	P	B	
6	-06	MW-29-Q219	5/21/2019	13:21			X	X	X	X	X	X	X		X							E	5	P	BNS	
7	-07	MW-58BR-Q219	5/21/2019	15:36		X		X	X	X	X	X	X		X							E	4	P	BNS	
8	-08	MW-70-105-Q219	5/21/2019	14:26		X		X	X	X	X	X	X		X							E	4	P	BNS	
9	-09	MW-70BR-225-LF-Q219	5/21/2019	14:33		X		X	X	X	X	X	X		X							E	4	P	BNS	
10	-10	MW-33-150-Q219	5/21/2019	12:34		X		X	X	X	X	X	X		X							E	4	P	BNS	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Joseph Mahn	5/21/19 1631	for DAN	5-21-19 1631
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
JORDAN	5-21-19 1836	JORDAN	5-21-19 1836
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=60% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivax.com	Labspec	CalTrans	2. Headspace
Submitted By: Joe Gatel		P.O.# SWA-ASSET-C9817-051	Others ✓	LEVEL III	3. Container Intact ✓
Title: Scientist 1	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present ✓
Signature: Date: 5/21/19	Sampled By: Jason Marks		Global ID:	Regulatory	5. IR number N
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for			Specify State:	6. Method of Cooling: ICE
Project Name: PG&E Topock - GMP	Signature: Date: 5/21/2019				Sample Temp: 2.5 / 1.9
Project Number: RC000753.801D					Courier: Tracking No.:

Matrix: Ground x | Sediment; Potable | Soil; NPDES | Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035712-11	MW-46-175-Q219	5/21/2019	10:56		X			X		X	X	X		X						E	4	P	BNS	
2	-12	MW-46-205-Q219	5/21/2019	10:48		X			X						X						E	3	P	BN	
3	-13	MW-64BR-Q219	5/21/2019	9:18		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	-14	MW-718-Q219	5/21/2019	15:40		X															E	1	P	B	
5	-15	MW-719-Q219	5/21/2019	15:45		X															E	1	P	B	
6	-16	MW-23-060-Q219	5/21/2019	13:48		X		X	X	X					X						E	3	P	BN	
7	-17	MW-23-080-Q219	5/21/2019	13:04		X		X	X	X					X						E	3	P	BN	
8	-18	MW-62-065-Q219	5/21/2019	12:10		X		X	X	X	X	X	X		X						E	4	P	BNS	
9	-19	MW-717-Q219	5/21/2019	15:30		X															E	1	P	B	
10	-20	MW-63-065-Q219	5/21/2019	10:54		X		X	X	X	X	X	X		X						E	4	P	BNS	

Relinquished by (Signature and Printed Name): Jason Marks Date/Time: 5/21/19 1631
Received by (Signature and Printed Name): JORDAN 166 Date/Time: 5-21-19 1631
Relinquished by (Signature and Printed Name): JORDAN 166 Date/Time: 5/21/19 1636
Received by (Signature and Printed Name): JORDAN 166 Date/Time: 5-21-19 1836
Relinquished by (Signature and Printed Name): Date/Time:
Received by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable samples.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives: H=HCL; N=HNO_3; S=H_2SO_4; C=4°C; Z=$Zn(AC)_2$; O=NaOH; T=$Na_2S_2O_3$; Others/Specify: B (NH4)2SO4/NH4OH

Container Type: T=Tube; V=VOA; P=Pint; J=Jar; B=Tedlar; G=Glass; M=Metal; M=Metal; C=Can

Write=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/21/2019	Workorder:	N035712
Rep sample Temp (Deg C):	2.5/1.9	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 5/22/2019

Reviewed By: LG 060419

ASSET Laboratories

WORK ORDER Summary

22-May-19

WorkOrder: N035712

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/21/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035712-001A	MW-28-025-EB-Q219	5/21/2019 9:44:00 AM	6/5/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-002A	MW-28-025-Q219	5/21/2019 9:36:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-002B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-002C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-002D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-003A	MW-28-090-EB-Q219	5/21/2019 9:40:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-004A	MW-28-090-Q219	5/21/2019 9:38:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-004B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-004C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-004D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-005A	MW-29-EB-Q219	5/21/2019 1:30:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-006A	MW-29-Q219	5/21/2019 1:21:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-006B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-006C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-006D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

WORK ORDER Summary

22-May-19

WorkOrder: N035712

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/21/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035712-007A	MW-58BR-Q219	5/21/2019 3:36:00 PM	6/5/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-007B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-007C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-007D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-008A	MW-70-105-Q219	5/21/2019 2:26:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-008B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-008C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-008D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-009A	MW-70BR-225-LF-Q219	5/21/2019 2:33:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-009B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-009C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-009D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-010A	MW-33-150-Q219	5/21/2019 12:34:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-010B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

22-May-19

WorkOrder: N035712

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/21/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035712-010B	MW-33-150-Q219	5/21/2019 12:34:00 PM	6/5/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-010C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-010D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-011A	MW-46-175-Q219	5/21/2019 10:56:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-011B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-011C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-011D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-012A	MW-46-205-Q219	5/21/2019 10:48:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-012B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-012C			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-013A	MW-64BR-Q219	5/21/2019 9:18:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-013B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-013C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-013D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-014A	MW-718-Q219	5/21/2019 3:40:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-015A	MW-719-Q219	5/21/2019 3:45:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW

WORK ORDER Summary

22-May-19

WorkOrder: N035712

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/21/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035712-016A	MW-23-060-Q219	5/21/2019 1:48:00 PM	6/5/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-016B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-016C			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-017A	MW-23-080-Q219	5/21/2019 1:04:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-017B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-017C			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-018A	MW-62-065-Q219	5/21/2019 12:10:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-018B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035712-018C			6/5/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-018D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-019A	MW-717-Q219	5/21/2019 3:30:00 PM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-020A	MW-63-065-Q219	5/21/2019 10:54:00 AM	6/5/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035712-020B			6/5/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/5/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

22-May-19

WorkOrder: N035712

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/21/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035712-020C	MW-63-065-Q219	5/21/2019 10:54:00 AM	6/5/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035712-020D			6/5/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035712-021A	FOLDER	6/5/2019	6/5/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/5/2019		Folder	Folder	☐	☐	☐	LAB
			6/5/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035712

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134081 **Analyst:** LSR

ASSET #: N035712 **Date Analyzed:** 22-May

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer Silvia Ramit Date: 5/30/2019

2nd Level Reviewer 6/13/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 5/22/19 950
Analyst: IRR

Standard	Std ID	Reading	Comments
9.56 uS/cm	CIW-181121A	9.65 @ 18.9C	% Rec: (90-110%)
1411	190425C	1408 @ 19.1C	
9965	190218B	9950 @ 19.2C	
100390	190218C	100200 @ 19.2C	

	Sample ID	Matrix	Reading	Comments
1	NO35705-14C	H2O	21300 @ 17.9C	
2	15D		13640 @ 17.8C	
3	15DUP		13610 @ 17.8C	
4				
5				
6				
7				
8				
9	1413 uS/cm	CIW-190313A	1437 @ 18.8C	
10	10000	B	10000 @ 18.7C	
Dup	99922	CIW-190111H	99900 @ 18.7C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 5/22/19 1140
Analyst: IRR

Silvia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
9.56 uS/cm	CIW-181121A	9.36 @ 19.1C	% Rec: (90-110%)
1411	190425C	1444 @ 19.2C	
9965	190218B	10030 @ 19.2C	
100390	190218C	101400 @ 19.5C	

	Sample ID	Matrix	Reading	Comments
1	NO35712-2D	H2O	1006 @ 17.5C	
2	4D		4590 @ 17.2C	STD CHECK
3	4DDUP		46440 @ 17.5C	1413 CIW 190313A
4	6D		2540 @ 17.4C	= 1458 @ 18.5C
5	7D		8160 @ 17.7C	10000 CIW 190313B
6	8D		3520 @ 17.9C	= 9920 @ 18.9C
7	9D		12820 @ 17.8C	99922 CIW 190111H
8	10D		14280 @ 17.7C	= 96500 @ 19.0C
9	11D		17460 @ 17.6C	
10	12C		20600 @ 17.6C	
Dup	13D		13370 @ 17.9C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

Conductivity Logbook

Date: 5/22/19 1140
Analyst: LSR (CONT'D)

Standard	Std ID	Reading	Comments
9.84 mS/cm	CNW-181121A	9.76 @ 19.1°C	% Rec: (90-110%)
1411	190425C	1444 @ 19.2°C	
9965	190218B	10030 @ 19.2°C	
100390	190218C	101401 @ 19.2°C	

	Sample ID	Matrix	Reading	Comments
1	NW35712-16C	H2O	16270 @ 18.1°C	
2	17C		16780 @ 18.3°C	
3	18D		6230 @ 18.1°C	
4	20D		6660 @ 18.4°C	
5	20D DUP		6620 @ 18.2°C	
6				
7				
8				
9	MB mS/cm	CNW-190313A	1445 @ 18.6°C	
10	10000	B	10010 @ 18.7°C	
Dup	99922	CNW-190111H	98400 @ 18.7°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 5/23/19 1130
Analyst: LSR

Julia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
9.84 mS/cm	CNW-181121A	9.70 @ 18.8°C	% Rec: (90-110%)
1411	190425C	1419 @ 18.8°C	
9965	190218B	9950 @ 18.8°C	
100390	190218C	100400 @ 18.8°C	

	Sample ID	Matrix	Reading	Comments
1	NW35738-1D	H2O	16150 @ 17.7°C	
2	2D		8670 @ 18.0°C	STD CHECK
3	4D		17810 @ 17.9°C	1413 CNW 190313A
4	5D		6930 @ 17.9°C	= 1427 @ 18.5°C
5	5D DUP		6970 @ 17.5°C	10000 CNW 190313B
6	6D		14730 @ 17.5°C	= 9830 @ 18.6°C
7	7D		14760 @ 17.5°C	99922 CNW 190111H
8	8D		2110 @ 17.9°C	= 98000 @ 18.6°C
9	9D		3470 @ 18.0°C	
10	10D		12500 @ 17.9°C	
Dup	11D		796 @ 18.0°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R134128
ASSET #: N035712

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 5/22/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments: Dilution were necessary in N035712-010A/011A/012A/013A/017A due to matrix interference. MS @ 1X failed Rt criteria.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer RBA Date: 6/10/2019

2nd Level Reviewer _____ Date: 6/10/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035712-007A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 11.6380 * 1$$

$$Cr^{+6}, \mu g/L = 11.6380$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 12}$$

6/10/2019

ANALYSIS RUN LOG

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

jrba 5/11/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 5/11/2019

INJECTION LOG: 190522A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/22/19 9:21 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/22/19 9:32 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/22/19 9:41 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/22/19 9:51 AM	Reported
14	MB-R134128	MBLK	1	Hexavalent Chromium	05/22/19 10:00 AM	Reported
15	LCS-R134128	LCS	1	Hexavalent Chromium	05/22/19 10:10 AM	Reported
16	N035712-001A	SAMP	1	Hexavalent Chromium	05/22/19 10:19 AM	Reported
17	N035712-002A	SAMP	1	Hexavalent Chromium	05/22/19 10:28 AM	Reported
18	N035712-003A	SAMP	1	Hexavalent Chromium	05/22/19 10:38 AM	Reported
19	N035712-004A	SAMP	1	Hexavalent Chromium	05/22/19 10:47 AM	Reported
20	N035712-002AMS	MS	1	Hexavalent Chromium	05/22/19 10:57 AM	Reported
21	N035712-004AMS	MS	1	Hexavalent Chromium	05/22/19 11:06 AM	Reported
22	N035712-006A	SAMP	1	Hexavalent Chromium	05/22/19 11:16 AM	Reported
23	N035712-007A	SAMP	1	Hexavalent Chromium	05/22/19 11:25 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	05/22/19 11:35 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/22/19 11:44 AM	Reported
26	N035712-020A	SAMP	1	Hexavalent Chromium	05/22/19 11:54 AM	Reported
27	N035712-008A	SAMP	20	Hexavalent Chromium	05/22/19 12:03 PM	Reported
28	N035712-009A	SAMP	200	Hexavalent Chromium	05/22/19 12:13 PM	Reported
29	N035712-018A	SAMP	100	Hexavalent Chromium	05/22/19 12:22 PM	Reported
30	N035712-016A	SAMP	5	Hexavalent Chromium	05/22/19 12:32 PM	Reported
31	N035712-020ADUP	DUP	1	Hexavalent Chromium	05/22/19 12:41 PM	Reported
32	N035712-010A	SAMP	5	Hexavalent Chromium	05/22/19 12:50 PM	Reported
33	N035712-010AMS	MS	5	Hexavalent Chromium	05/22/19 1:00 PM	Reported
34	N035712-011A	SAMP	5	Hexavalent Chromium	05/22/19 1:09 PM	Reported
35	N035712-011AMS	MS	5	Hexavalent Chromium	05/22/19 1:19 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	05/22/19 1:28 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/22/19 1:38 PM	Reported
38	N035712-012A	SAMP	5	Hexavalent Chromium	05/22/19 1:47 PM	Reported
39	N035712-012AMS	MS	5	Hexavalent Chromium	05/22/19 1:57 PM	Reported
40	N035712-013A	SAMP	5	Hexavalent Chromium	05/22/19 2:06 PM	Reported
41	N035712-013AMS	MS	5	Hexavalent Chromium	05/22/19 2:16 PM	Reported
42	N035712-017A	SAMP	5	Hexavalent Chromium	05/22/19 2:25 PM	Reported

INJECTION LOG: 190522A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035712-017AMS	MS	5	Hexavalent Chromium	05/22/19 2:34 PM	Reported
44	N035712-009AMS	MS	200	Hexavalent Chromium	05/22/19 2:44 PM	Reported
45	N035712-009AMSD	MSD	200	Hexavalent Chromium	05/22/19 2:53 PM	Reported
46	N035457-003A	SAMP	1	Hexavalent Chromium	05/22/19 3:03 PM	Not Reported
47	N035457-003AMS	MS	1	Hexavalent Chromium	05/22/19 3:12 PM	Not Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	05/22/19 3:22 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	05/22/19 3:31 PM	Reported
50	N035712-008AMS	MS	20	Hexavalent Chromium	05/22/19 3:44 PM	Reported
51	N035712-018AMS	MS	100	Hexavalent Chromium	05/22/19 3:55 PM	Reported
52	N035712-007AMS	MS	1	Hexavalent Chromium	05/22/19 4:04 PM	Reported
53	N035712-016AMS	MS	5	Hexavalent Chromium	05/22/19 4:14 PM	Reported
54	N035712-006AMS	MS	1	Hexavalent Chromium	05/22/19 4:23 PM	Reported
55	N035712-020AMS	MS	1	Hexavalent Chromium	05/22/19 4:33 PM	Reported
56	N035712-001AMS	MS	1	Hexavalent Chromium	05/22/19 4:42 PM	Reported
57	N035712-003AMS	MS	1	Hexavalent Chromium	05/22/19 4:52 PM	Reported
58	N035712-005A	SAMP	1	Hexavalent Chromium	05/22/19 5:01 PM	Reported
59	N035712-005AMS	MS	1	Hexavalent Chromium	05/22/19 5:11 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	05/22/19 5:20 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	05/22/19 5:30 PM	Reported
62	N035712-014A	SAMP	1	Hexavalent Chromium	05/22/19 5:39 PM	Reported
63	N035712-014AMS	MS	1	Hexavalent Chromium	05/22/19 5:48 PM	Reported
64	N035712-015A	SAMP	1	Hexavalent Chromium	05/22/19 5:58 PM	Reported
65	N035712-015AMS	MS	1	Hexavalent Chromium	05/22/19 6:07 PM	Reported
66	N035712-019A	SAMP	1	Hexavalent Chromium	05/22/19 6:17 PM	Reported
67	N035712-019AMS	MS	1	Hexavalent Chromium	05/22/19 6:26 PM	Reported
68	N035712-010A	SAMP	1	Hexavalent Chromium	05/22/19 6:36 PM	Not Reported
69	N035712-010AMS	MS	1	Hexavalent Chromium	05/22/19 6:45 PM	Not Reported
70	N035712-011A	SAMP	1	Hexavalent Chromium	05/22/19 6:55 PM	Not Reported
71	N035712-011AMS	MS	1	Hexavalent Chromium	05/22/19 7:04 PM	Not Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	05/22/19 7:14 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	05/22/19 7:23 PM	Reported
74	N035712-012A	SAMP	1	Hexavalent Chromium	05/22/19 7:32 PM	Not Reported
75	N035712-012AMS	MS	1	Hexavalent Chromium	05/22/19 7:42 PM	Not Reported
76	N035712-013A	SAMP	1	Hexavalent Chromium	05/22/19 7:51 PM	Not Reported
77	N035712-013AMS	MS	1	Hexavalent Chromium	05/22/19 8:01 PM	Not Reported
78	N035712-017A	SAMP	1	Hexavalent Chromium	05/22/19 8:10 PM	Not Reported
79	N035712-017AMS	MS	1	Hexavalent Chromium	05/22/19 8:20 PM	Not Reported
80	CCV-7	CCV	1	Hexavalent Chromium	05/22/19 8:29 PM	Reported
81	CCB-7	CCB	1	Hexavalent Chromium	05/22/19 8:39 PM	Reported
82	BLANK	BLANK	1	Hexavalent Chromium	05/22/19 8:48 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190522A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**23/May/19 17:42:51**
No. of Injections:	**85**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/22/2019 09:21	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/22/2019 09:32	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/22/2019 09:41	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/22/2019 09:51	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/22/2019 10:00	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/22/2019 10:10	Finished	LCS @5ppb, IWST-190423B
16	N035712-001A,SAMF	7	1000	Unknown		05/22/2019 10:19	Finished	SAMP,10mL
17	N035712-002A,SAMF	8	1000	Unknown		05/22/2019 10:28	Finished	SAMP,10mL
18	N035712-003A,SAMF	9	1000	Unknown		05/22/2019 10:38	Finished	SAMP,10mL
19	N035712-004A,SAMF	10	1000	Unknown		05/22/2019 10:47	Finished	SAMP,10mL
20	N035712-002AMS,MS	11	1000	Unknown		05/22/2019 10:57	Finished	MS (1ppb), IWST-190423B,10
21	N035712-004AMS,MS	12	1000	Unknown		05/22/2019 11:06	Finished	MS (1ppb), IWST-190423B,10
22	N035712-006A,SAMF	13	1000	Unknown		05/22/2019 11:16	Finished	SAMP,10mL
23	N035712-007A,SAMF	14	1000	Unknown		05/22/2019 11:25	Finished	SAMP,10mL
24	CCV-2,CCV1,1,	15	1000	Unknown		05/22/2019 11:35	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	16	1000	Unknown		05/22/2019 11:44	Finished	CCB R190508A
26	N035712-020A,SAMF	17	1000	Unknown		05/22/2019 11:54	Finished	SAMP,10mL
27	N035712-008A,SAMF	18	1000	Unknown		05/22/2019 12:03	Finished	SAMP,0.5> 10mL
28	N035712-009A,SAMF	19	1000	Unknown		05/22/2019 12:13	Finished	SAMP,0.05> 10mL
29	N035712-018A,SAMF	20	1000	Unknown		05/22/2019 12:22	Finished	SAMP,0.1> 10mL
30	N035712-016A,SAMF	21	1000	Unknown		05/22/2019 12:32	Finished	SAMP,2> 10mL
31	N035712-020ADUP,D	22	1000	Unknown		05/22/2019 12:41	Finished	DUP,10mL
32	N035712-010A,SAMF	23	1000	Unknown		05/22/2019 12:50	Finished	SAMP,2> 10mL
33	N035712-010AMS,MS	24	1000	Unknown		05/22/2019 13:00	Finished	MS (1ppb), IWST-190423B,2>1
34	N035712-011A,SAMF	25	1000	Unknown		05/22/2019 13:09	Finished	SAMP,2> 10mL
35	N035712-011AMS,MS	26	1000	Unknown		05/22/2019 13:19	Finished	MS (1ppb), IWST-190423B,2>1
36	CCV-3,CCV,1,	27	1000	Unknown		05/22/2019 13:28	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	28	1000	Unknown		05/22/2019 13:38	Finished	CCB R190508A
38	N035712-012A,SAMF	29	1000	Unknown		05/22/2019 13:47	Finished	SAMP,2> 10mL
39	N035712-012AMS,MS	30	1000	Unknown		05/22/2019 13:57	Finished	MS (1ppb), IWST-190423B,2>1
40	N035712-013A,SAMF	31	1000	Unknown		05/22/2019 14:06	Finished	SAMP,2> 10mL
41	N035712-013AMS,MS	32	1000	Unknown		05/22/2019 14:16	Finished	MS (1ppb), IWST-190423B,2>1
42	N035712-017A,SAMF	33	1000	Unknown		05/22/2019 14:25	Finished	SAMP,2> 10mL
43	N035712-017AMS,MS	34	1000	Unknown		05/22/2019 14:34	Finished	MS (1ppb), IWST-190423B,2>1
44	N035712-009AMS,MS	35	1000	Unknown		05/22/2019 14:44	Finished	MS (5ppb), IWST-190423B,0.0
45	N035712-009AMSD,M	36	1000	Unknown		05/22/2019 14:53	Finished	MSD (5ppb), IWST-190423B,0.
46	N035457-003A,SAMF	37	1000	Unknown		05/22/2019 15:03	Finished	SAMP, 10mL
47	N035457-003AMS,MS	38	1000	Unknown		05/22/2019 15:12	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	39	1000	Unknown		05/22/2019 15:22	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	40	1000	Unknown		05/22/2019 15:31	Finished	CCB R190508A
50	N035712-008AMS,MS	1	1000	Unknown		05/22/2019 15:44	Finished	MS (5ppb), IWST-190423B,0.5
51	N035712-018AMS,MS	2	1000	Unknown		05/22/2019 15:55	Finished	MS (5ppb), IWST-190423B,0.1
52	N035712-007AMS,MS	3	1000	Unknown		05/22/2019 16:04	Finished	MS (5ppb), IWST-190423B,10
53	N035712-016AMS,MS	4	1000	Unknown		05/22/2019 16:14	Finished	MS (5ppb), IWST-190423B,10
54	N035712-006AMS,MS	5	1000	Unknown		05/22/2019 16:23	Finished	MS (1ppb), IWST-190423B,10
55	N035712-020AMS,MS	6	1000	Unknown		05/22/2019 16:33	Finished	MS (1ppb), IWST-190423B,10
56	N035712-001AMS,MS	7	1000	Unknown		05/22/2019 16:42	Finished	MS (1ppb), IWST-190423B,10
57	N035712-003AMS,MS	8	1000	Unknown		05/22/2019 16:52	Finished	MS (1ppb), IWST-190423B,10
58	N035712-005A,SAMF	9	1000	Unknown		05/22/2019 17:01	Finished	SAMP, 10mL
59	N035712-005AMS,MS	10	1000	Unknown		05/22/2019 17:11	Finished	MS (1ppb), IWST-190423B,10
60	CCV-5,CCV,1,	11	1000	Unknown		05/22/2019 17:20	Finished	CCV @5ppb, IWST-190423A

61	CCB-5,CCB,1,	12	1000	Unknown		05/22/2019 17:30	Finished	CCB R190508A
62	N035712-014A,SAMF	13	1000	Unknown		05/22/2019 17:39	Finished	SAMP, 10mL
63	N035712-014AMS,MS	14	1000	Unknown		05/22/2019 17:48	Finished	MS (1ppb), IWST-190423B,10
64	N035712-015A,SAMF	15	1000	Unknown		05/22/2019 17:58	Finished	SAMP, 10mL
65	N035712-015AMS,MS	16	1000	Unknown		05/22/2019 18:07	Finished	MS (1ppb), IWST-190423B,10
66	N035712-019A,SAMF	17	1000	Unknown		05/22/2019 18:17	Finished	SAMP, 10mL
67	N035712-019AMS,MS	18	1000	Unknown		05/22/2019 18:26	Finished	MS (1ppb), IWST-190423B,10
68	N035712-010A,SAMF	19	1000	Unknown		05/22/2019 18:36	Finished	SAMP, 10mL
69	N035712-010AMS,MS	20	1000	Unknown		05/22/2019 18:45	Finished	MS (5ppb), IWST-190423B,10
70	N035712-011A,SAMF	21	1000	Unknown		05/22/2019 18:55	Finished	SAMP, 10mL
71	N035712-011AMS,MS	22	1000	Unknown		05/22/2019 19:04	Finished	MS (5ppb), IWST-190423B,10
72	CCV-6,CCV1,1,	23	1000	Unknown		05/22/2019 19:14	Finished	CCV @10ppb, IWST-190423A
73	CCB-6,CCB,1,	24	1000	Unknown		05/22/2019 19:23	Finished	CCB R190508A
74	N035712-012A,SAMF	25	1000	Unknown		05/22/2019 19:32	Finished	SAMP, 10mL
75	N035712-012AMS,MS	26	1000	Unknown		05/22/2019 19:42	Finished	MS (1ppb), IWST-190423B,10
76	N035712-013A,SAMF	27	1000	Unknown		05/22/2019 19:51	Finished	SAMP, 10mL
77	N035712-013AMS,MS	28	1000	Unknown		05/22/2019 20:01	Finished	MS (1ppb), IWST-190423B,10
78	N035712-017A,SAMF	29	1000	Unknown		05/22/2019 20:10	Finished	SAMP, 10mL
79	N035712-017AMS,MS	30	1000	Unknown		05/22/2019 20:20	Finished	MS (1ppb), IWST-190423B,10
80	CCV-7,CCV,1,	31	1000	Unknown		05/22/2019 20:29	Finished	CCV @5ppb, IWST-190423A
81	CCB-7,CCB,1,	32	1000	Unknown		05/22/2019 20:39	Finished	CCB R190508A
82	BLANK	33	1000	Unknown		05/22/2019 20:48	Finished	BLANK
83	SHUTDOWN	34	1000	Unknown		05/22/2019 20:58	Finished	
84	Eluent: R190522A	35	1000	Unknown		n.a.	Finished	Eluent
85	PCR: R190522B	36	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 5/21/19
Time Prepared: 0807A
Prepared By: MSA

Slope: 97.5 %
pH 4: 4.01
7: 7.03
10: 10.00

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: M90520A
NH4OH + NH4SO4 buffer: M90508A / M90414

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N075705-1A	9.44	-	~250ml	~250ml		
2)	2A	9.68	-				
3)	3A	9.69	-				
4)	4A	9.64	-				1/2
5)	5A	9.63	-				1/2
6)	6A	9.62					
7)	7A	9.58	-				
8)	8A	9.49	-				
9)	9A	9.57	-				
10)	10A	9.52	-				
11)	11A	9.71	-				
12)	12A	9.72	-				
13)	13A	9.66	-				
14)	14A	9.61	-				
15)	15A	9.64	-				
	4A	9.64	-				2/2
	5A	9.65	-				2/2

Sample Preparation

Date Prepared: 5/22/19
Time Prepared: 0904H
Prepared By: MSA

Slope: 97.2%
pH 4: 4.01
7: 7.03
10: 10.00

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CINV-190329A
NH4OH + NH4SO4 eluent: M90522A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N075712-1A	9.67	-	~250ml	~250ml		
2)	2A	9.62	-				1/2
3)	2A	9.60	-				2/2
4)	3A	9.70	-				
5)	4A	9.49	-				1/2
6)	4A	9.50	-				2/2
7)	5A	9.68	-				
8)	6A	9.39	-				1/2
9)	6A	9.78	-				2/2
10)	7A	9.54	-				
11)	8A	9.59	-				
12)	9A	9.58	-				
13)	10A	9.64	-				
14)	11A	9.68	-				
15)	12A	9.66	-				
	13A	9.62	-				

Logbook No. 16

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 5/22/19
Time Prepared: 0904H
Prepared By: NBA

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNN - 190329A
NH4OH + NH4SO4 eluent: M90522A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N035772-04A	9.72	-	~250ml	~250ml		
2)	15A	9.72	-				
3)	16A	9.66	-				
4)	17A	9.70	-				
5)	18A	9.59	-				
6)	19A	9.70	-				
7)	20A	9.36	-				
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 5/23/19
Time Prepared: 0921H
Prepared By: NBA

Stope: 9.74
pH 4: 4.02
7: 7.02
10: 10.02

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNN - 190329A
NH4OH + NH4SO4 eluent: M90522A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N035736-001A	9.39	-	~250ml	~250ml		
2)	2A	9.63	-				
3)	N035737-3A	9.72	-				
4)	N035738-1A	9.68	-				
5)	2A	9.63	-				
6)	3A	9.70	-				
7)	4A	9.65	-				
8)	5A	9.67	-				
9)	6A	9.63	-				
10)	7A	9.67	-				
11)	8A	9.65	-				
12)	9A	9.59	-				
13)	10A	9.58	-				
14)	11A	9.63	-				
15)	12A	9.56	-				
	13A	9.68	-				

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 5/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2514	1.2615	2.5188	3.7985	5.0310	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ICV**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3395605**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.175	0.20	5.000	0	104	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3395606**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCV**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395608**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.096	0.20	5.000	0	102	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.201	0.20	0.2000	0	100	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395621**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.976	0.20	10.00	0	99.8	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCV**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395633**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.072	0.20	5.000	0	101	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395643**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.132	0.20	10.00	0	101	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCV**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395655**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.064	0.20	5.000	0	101	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ZZZZZZ**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395663**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.048	0.20	10.00	0	100	95	105				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCV**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.075	0.20	5.000	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **ICB**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3395607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCB**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395610**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCB**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395622**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCB**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395634**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCB**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395644**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCB**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395656**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCB**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134128**
Client ID: **CCB**	Batch ID: **R134128**	TestNo: **EPA 218.6**		Analysis Date: **5/22/2019**	SeqNo: **3395666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/22/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.740	
CCV-3	4.740	
CCV-4	4.740	
CCV-5	4.740	
CCV-6	4.740	
CCV-7	4.740	

Average	4.740
Actual RT Window	4.660 - 4.820
Applied RT Window	4.540 - 4.940

MB-R134128	N.A.	N.A.
LCS-R134128	4.740	PASS
N035712-001A	N.A.	N.A.
N035712-002A	N.A.	N.A.
N035712-003A	N.A.	N.A.
N035712-004A	N.A.	N.A.
N035712-002AMS	4.740	PASS
N035712-004AMS	4.690	PASS
N035712-006A	N.A.	N.A.
N035712-007A	4.606	PASS
N035712-020A	4.656	PASS
N035712-008A	4.740	PASS
N035712-009A	4.740	PASS
N035712-018A	4.740	PASS
N035712-016A	4.690	PASS
N035712-020ADUP	4.656	PASS
N035712-010A	4.706	PASS
N035712-010AMS	4.706	PASS
N035712-011A	4.690	PASS
N035712-011AMS	4.690	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/22/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.740	
CCV-3	4.740	
CCV-4	4.740	
CCV-5	4.740	
CCV-6	4.740	
CCV-7	4.740	
Average	4.740	
Actual RT Window	4.660 - 4.820	
Applied RT Window	4.540 - 4.940	
N035712-012A	4.681	PASS
N035712-012AMS	4.673	PASS
N035712-013A	N.A.	N.A.
N035712-013AMS	4.706	PASS
N035712-017A	4.681	PASS
N035712-017AMS	4.690	PASS
N035712-009AMS	4.740	PASS
N035712-009AMSD	4.740	PASS
N035457-003A	4.740	PASS
N035457-003AMS	4.740	PASS
N035712-008AMS	4.740	PASS
N035712-018AMS	4.740	PASS
N035712-007AMS	4.606	PASS
N035712-016AMS	4.690	PASS
N035712-006AMS	4.723	PASS
N035712-020AMS	4.648	PASS
N035712-001AMS	4.740	PASS
N035712-003AMS	4.740	PASS
N035712-005A	N.A.	N.A.
N035712-005AMS	4.740	PASS
N035712-014A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/22/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.740	
CCV-3	4.740	
CCV-4	4.740	
CCV-5	4.740	
CCV-6	4.740	
CCV-7	4.740	
Average	4.740	
Actual RT Window	4.660 - 4.820	
Applied RT Window	4.540 - 4.940	
N035712-014AMS	4.740	PASS
N035712-015A	N.A.	N.A.
N035712-015AMS	4.731	PASS
N035712-019A	N.A.	N.A.
N035712-019AMS	4.740	PASS
N035712-010A	4.406	FAIL
N035712-010AMS	4.423	FAIL
N035712-011A	4.306	FAIL
N035712-011AMS	4.315	FAIL
N035712-012A	4.190	FAIL
N035712-012AMS	4.098	FAIL
N035712-013A	N.A.	N.A.
N035712-013AMS	4.473	FAIL
N035712-017A	N.A.	N.A.
N035712-017AMS	4.315	FAIL

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

rba 5/11/2019

6/06/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

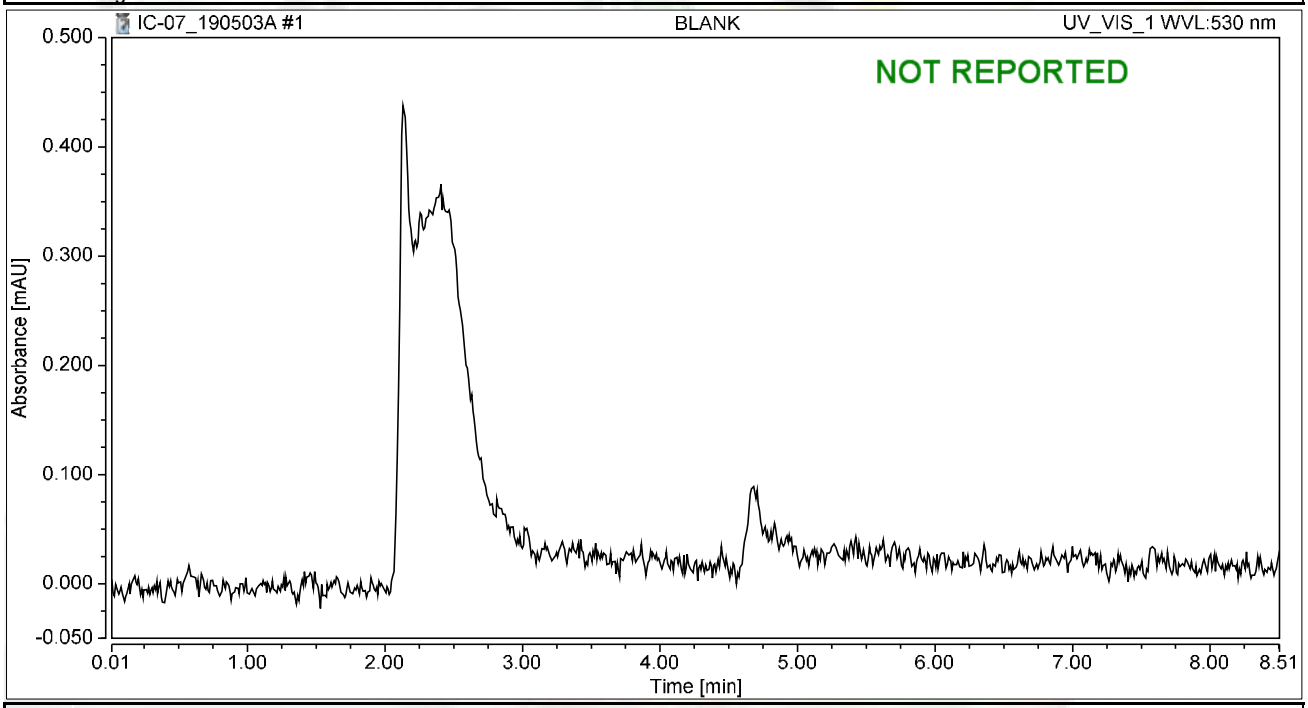
rba 5/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 09:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

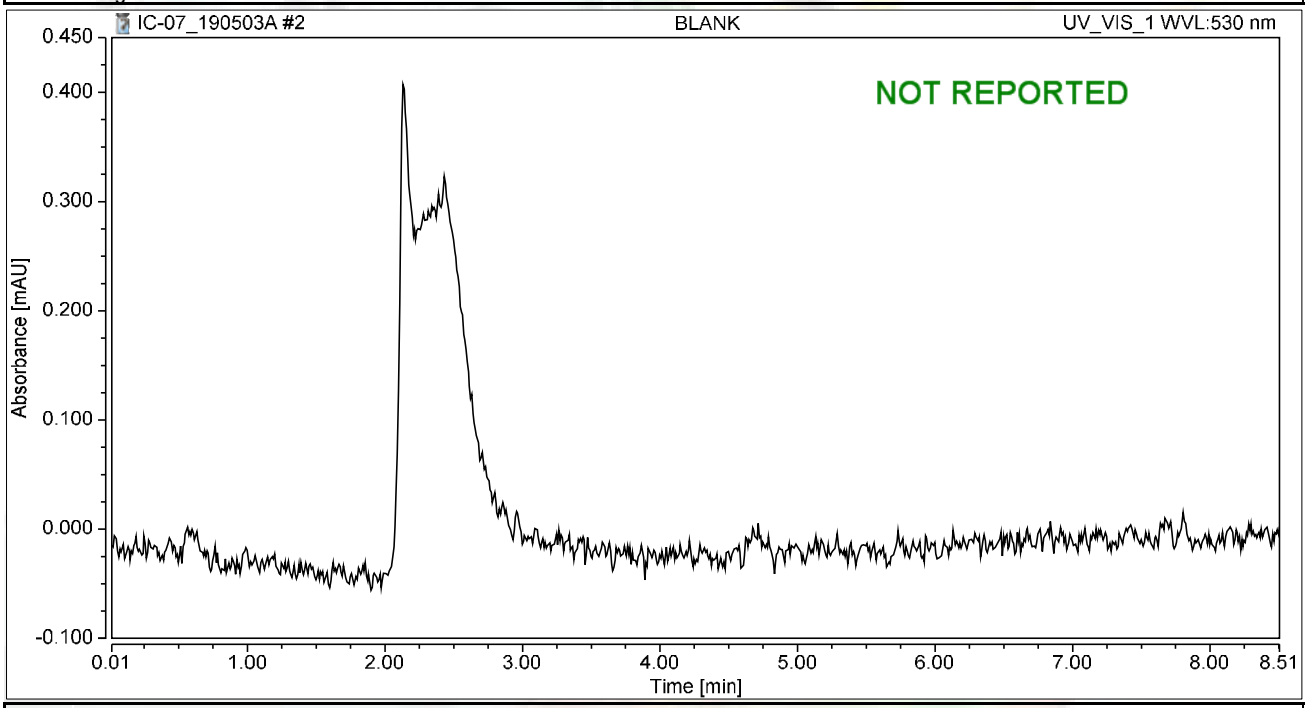
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

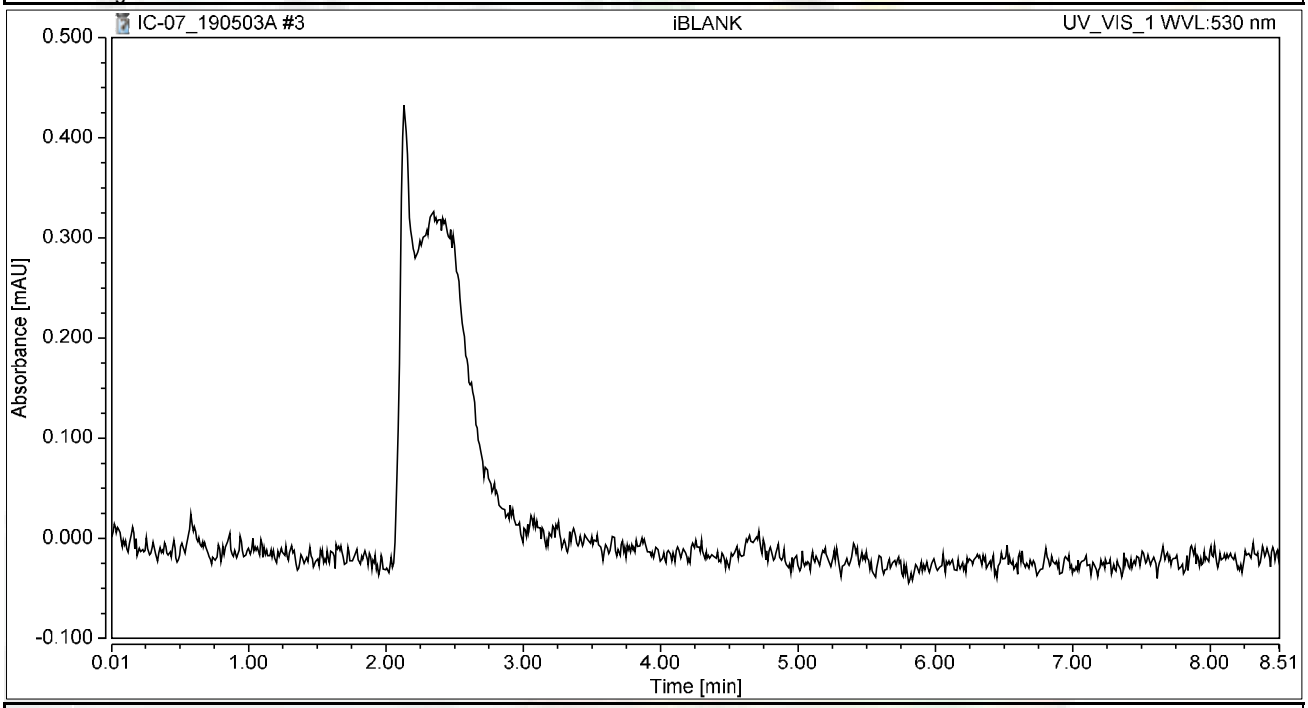
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

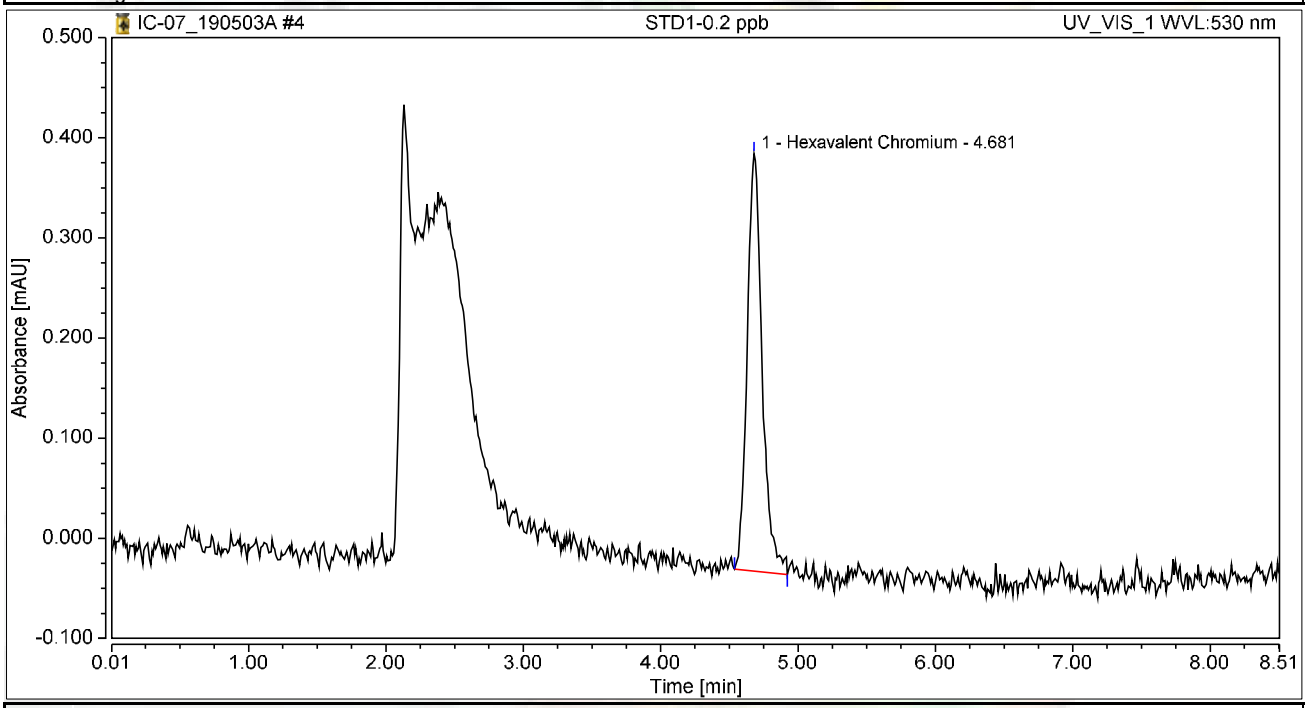
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

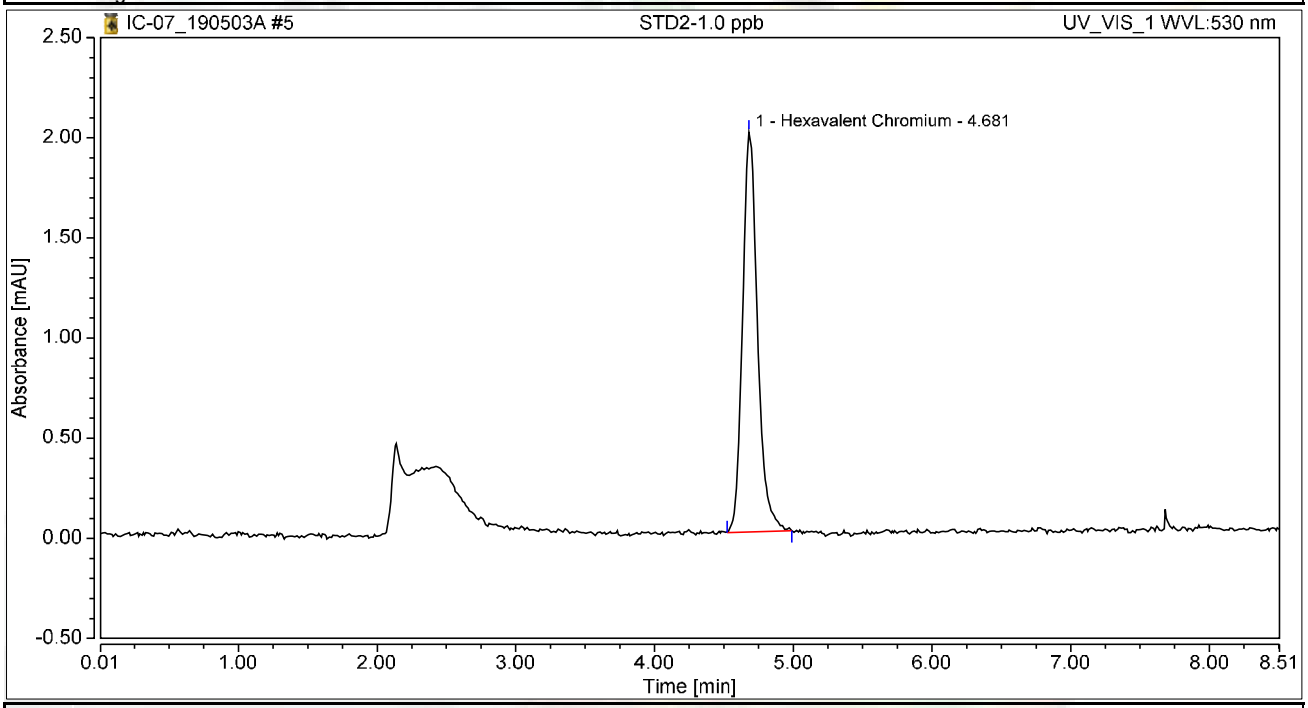
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.053	0.417	100.00	100.00	0.2092
Total:			**0.053**	**0.417**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

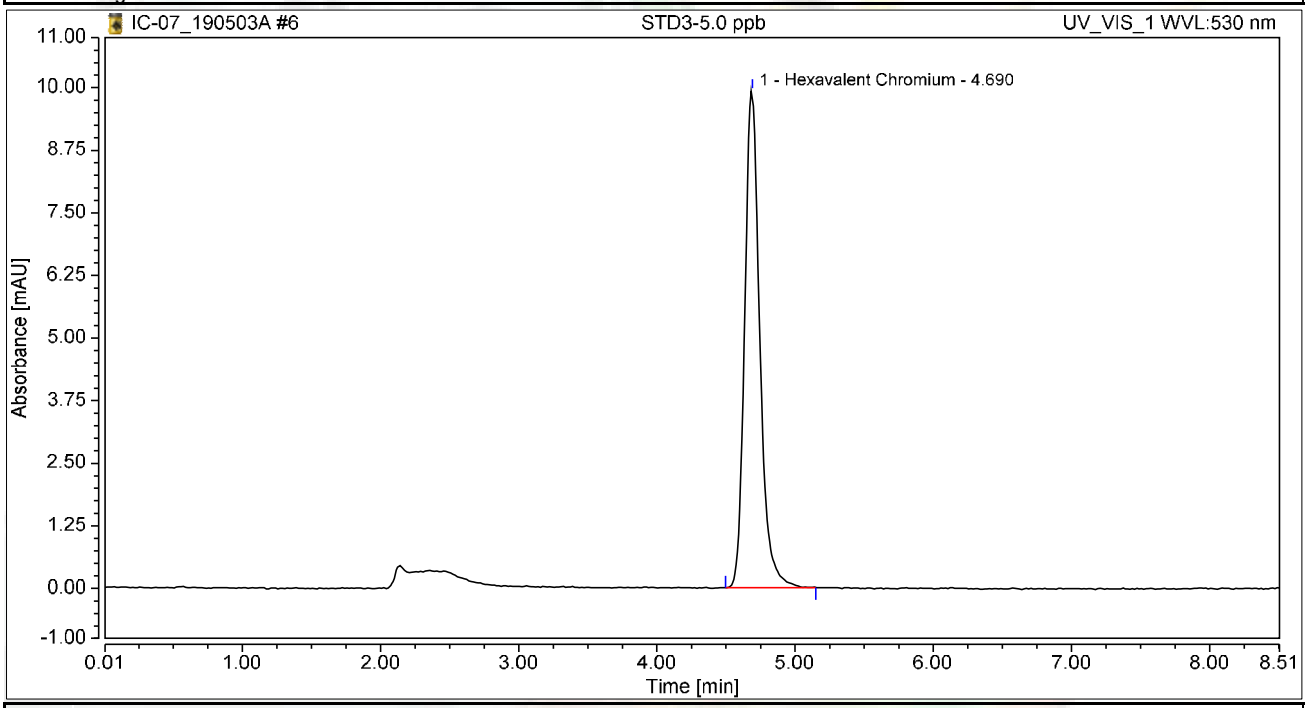
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.251	1.997	100.00	100.00	0.9971
Total:			**0.251**	**1.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

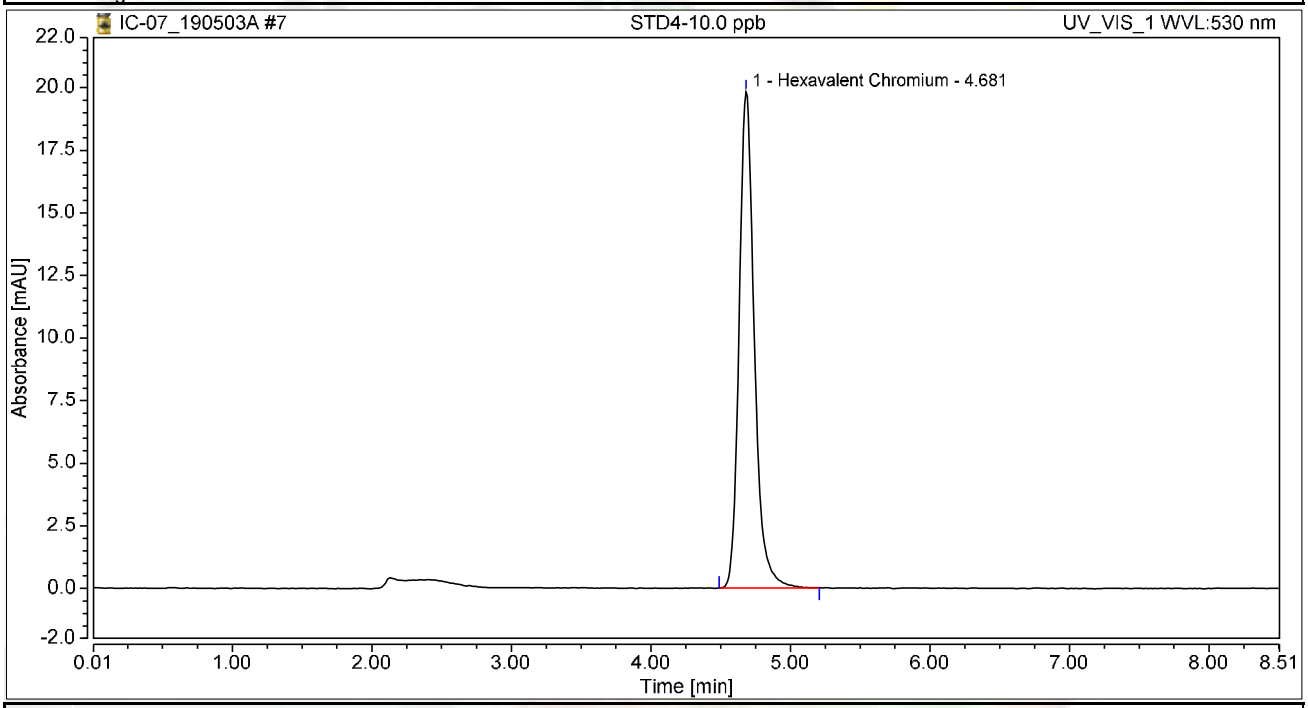
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.261	9.919	100.00	100.00	5.0034
Total:			**1.261**	**9.919**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

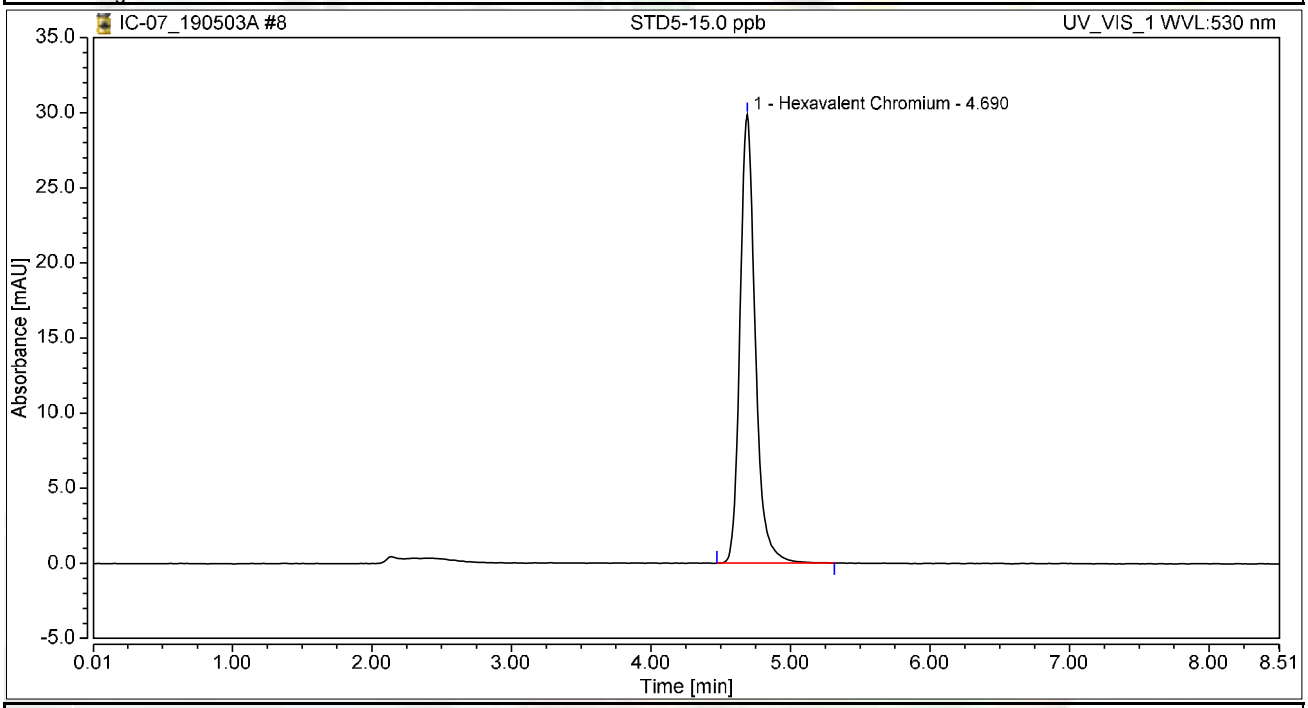
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	2.519	19.825	100.00	100.00	9.9901
Total:			**2.519**	**19.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

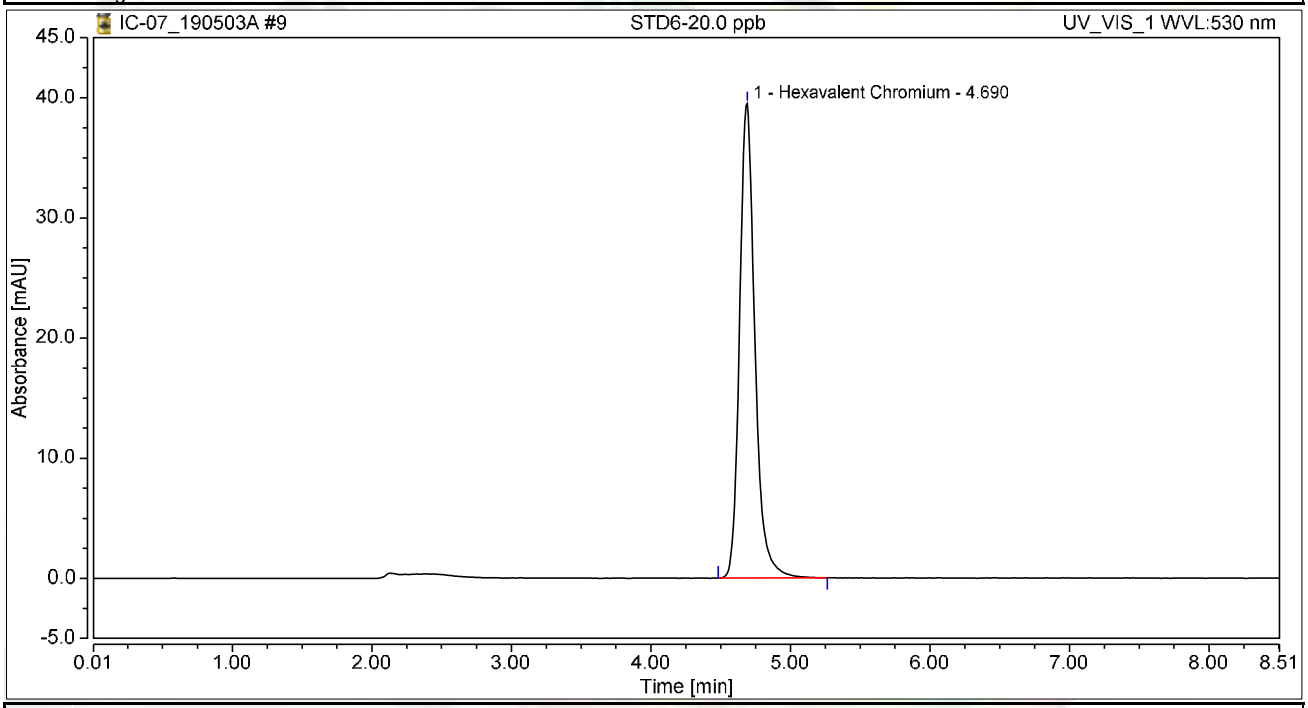
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.799	29.868	100.00	100.00	15.0660
Total:			**3.799**	**29.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



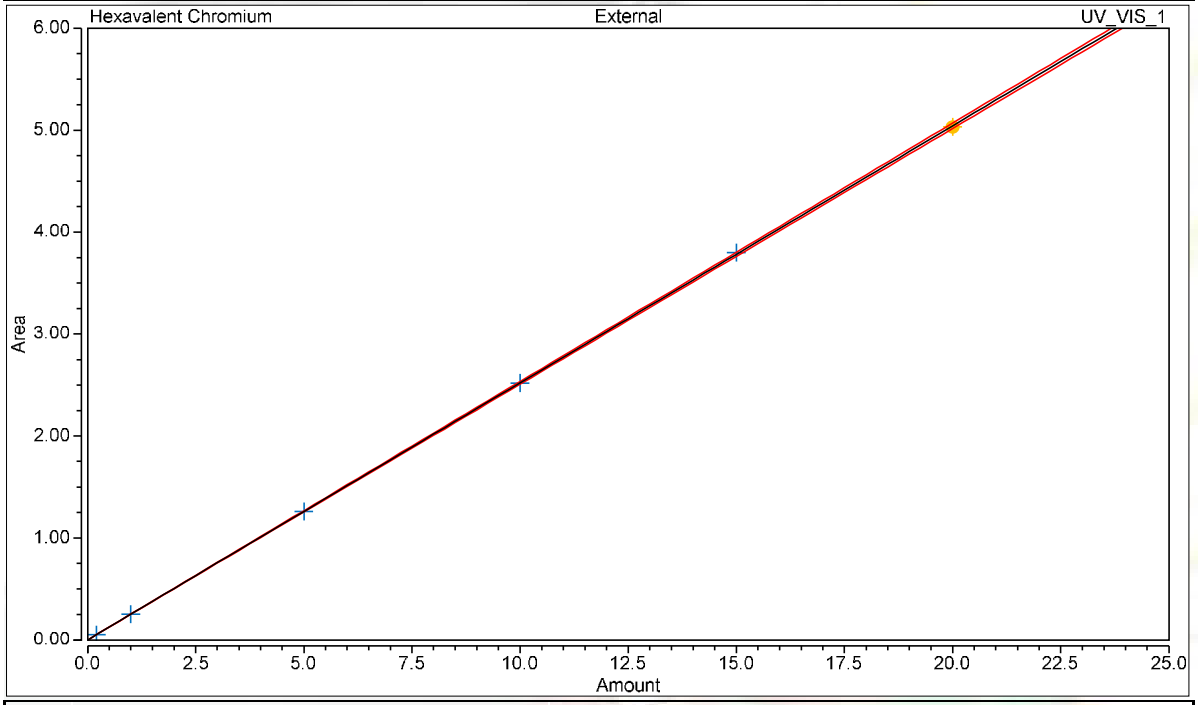
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	5.031	39.475	100.00	100.00	19.9546
Total:			**5.031**	**39.475**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2521
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

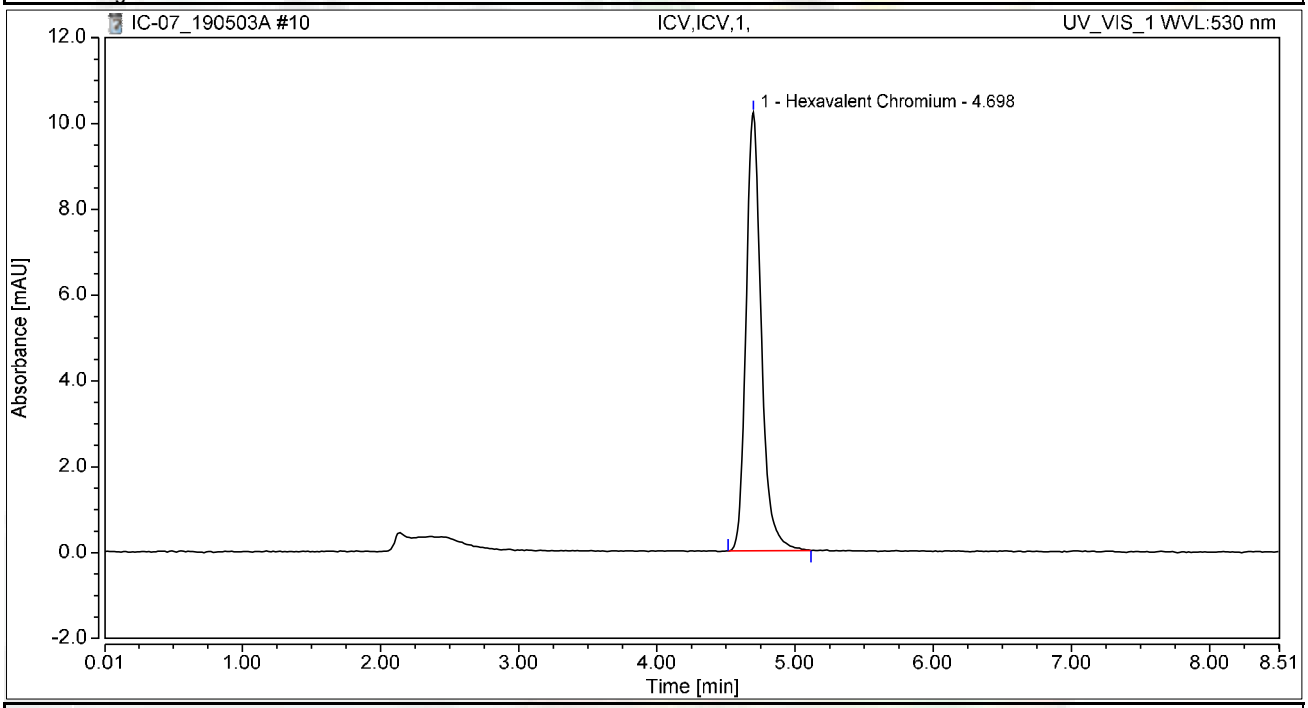
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.417
5	STD2-1.0 ppb	02	1.0000	0.2514	0.251	1.997
6	STD3-5.0 ppb	03	5.0000	1.2615	1.261	9.919
7	STD4-10.0 ppb	04	10.0000	2.5188	2.519	19.825
8	STD5-15.0 ppb	05	15.0000	3.7985	3.799	29.868
9	STD6-20.0 ppb	06	20.0000	5.0310	5.031	39.475

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

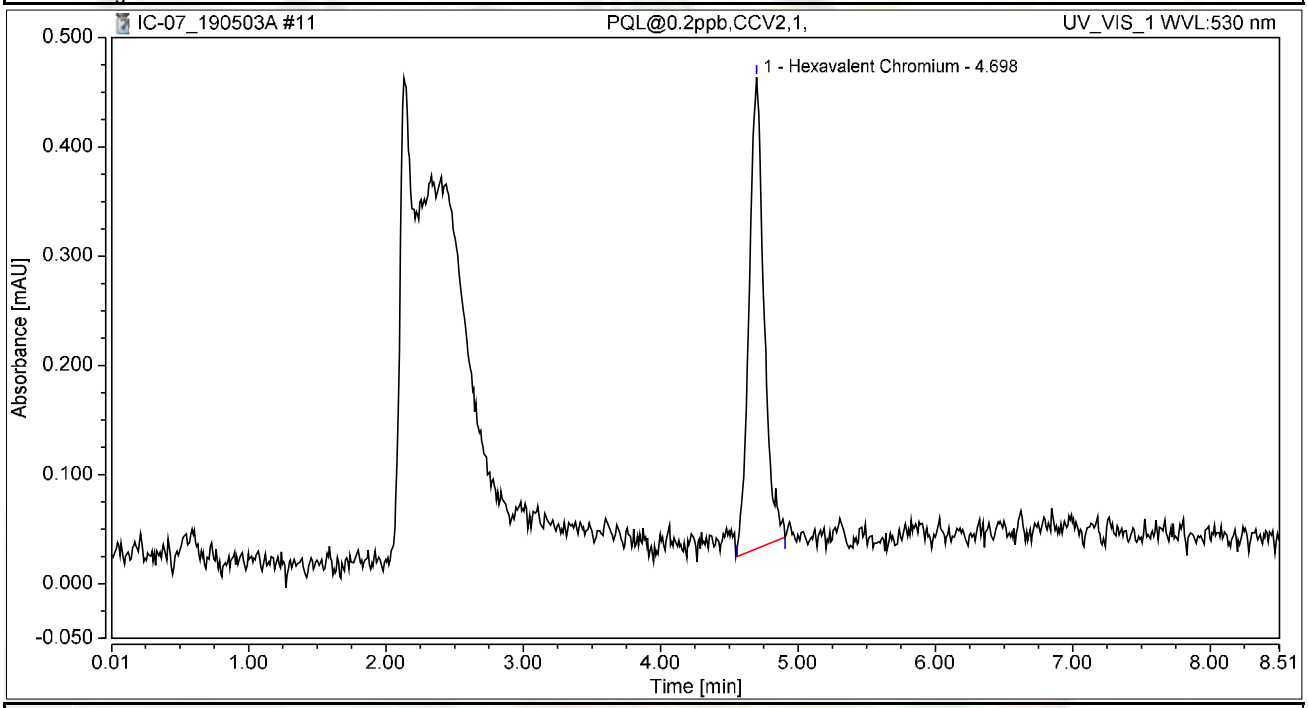
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.305	10.217	100.00	100.00	5.1753
Total:			**1.305**	**10.217**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

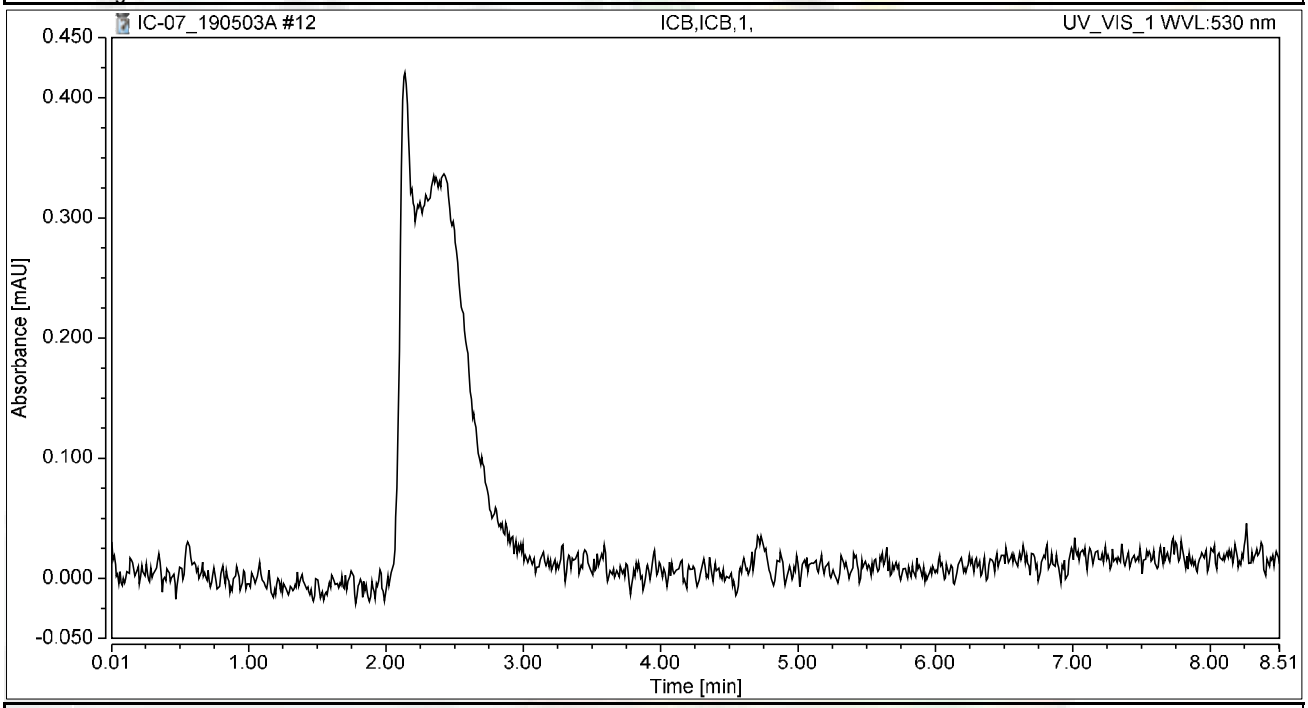
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.431	100.00	100.00	0.2143
Total:			**0.054**	**0.431**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190522A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/22/19 9:21 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/22/19 9:32 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/22/19 9:41 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/22/19 9:51 AM	Reported
14	MB-R134128	MBLK	1	Hexavalent Chromium	05/22/19 10:00 AM	Reported
15	LCS-R134128	LCS	1	Hexavalent Chromium	05/22/19 10:10 AM	Reported
16	N035712-001A	SAMP	1	Hexavalent Chromium	05/22/19 10:19 AM	Reported
17	N035712-002A	SAMP	1	Hexavalent Chromium	05/22/19 10:28 AM	Reported
18	N035712-003A	SAMP	1	Hexavalent Chromium	05/22/19 10:38 AM	Reported
19	N035712-004A	SAMP	1	Hexavalent Chromium	05/22/19 10:47 AM	Reported
20	N035712-002AMS	MS	1	Hexavalent Chromium	05/22/19 10:57 AM	Reported
21	N035712-004AMS	MS	1	Hexavalent Chromium	05/22/19 11:06 AM	Reported
22	N035712-006A	SAMP	1	Hexavalent Chromium	05/22/19 11:16 AM	Reported
23	N035712-007A	SAMP	1	Hexavalent Chromium	05/22/19 11:25 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	05/22/19 11:35 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/22/19 11:44 AM	Reported
26	N035712-020A	SAMP	1	Hexavalent Chromium	05/22/19 11:54 AM	Reported
27	N035712-008A	SAMP	20	Hexavalent Chromium	05/22/19 12:03 PM	Reported
28	N035712-009A	SAMP	200	Hexavalent Chromium	05/22/19 12:13 PM	Reported
29	N035712-018A	SAMP	100	Hexavalent Chromium	05/22/19 12:22 PM	Reported
30	N035712-016A	SAMP	5	Hexavalent Chromium	05/22/19 12:32 PM	Reported
31	N035712-020ADUP	DUP	1	Hexavalent Chromium	05/22/19 12:41 PM	Reported
32	N035712-010A	SAMP	5	Hexavalent Chromium	05/22/19 12:50 PM	Reported
33	N035712-010AMS	MS	5	Hexavalent Chromium	05/22/19 1:00 PM	Reported
34	N035712-011A	SAMP	5	Hexavalent Chromium	05/22/19 1:09 PM	Reported
35	N035712-011AMS	MS	5	Hexavalent Chromium	05/22/19 1:19 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	05/22/19 1:28 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/22/19 1:38 PM	Reported
38	N035712-012A	SAMP	5	Hexavalent Chromium	05/22/19 1:47 PM	Reported
39	N035712-012AMS	MS	5	Hexavalent Chromium	05/22/19 1:57 PM	Reported
40	N035712-013A	SAMP	5	Hexavalent Chromium	05/22/19 2:06 PM	Reported
41	N035712-013AMS	MS	5	Hexavalent Chromium	05/22/19 2:16 PM	Reported
42	N035712-017A	SAMP	5	Hexavalent Chromium	05/22/19 2:25 PM	Reported

6/06/2019

IC7 RBA 5/24/2019 10:27 AM

rba 5/27/2019

INJECTION LOG: 190522A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035712-017AMS	MS	5	Hexavalent Chromium	05/22/19 2:34 PM	Reported
44	N035712-009AMS	MS	200	Hexavalent Chromium	05/22/19 2:44 PM	Reported
45	N035712-009AMSD	MSD	200	Hexavalent Chromium	05/22/19 2:53 PM	Reported
46	N035457-003A	SAMP	1	Hexavalent Chromium	05/22/19 3:03 PM	Not Reported
47	N035457-003AMS	MS	1	Hexavalent Chromium	05/22/19 3:12 PM	Not Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	05/22/19 3:22 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	05/22/19 3:31 PM	Reported
50	N035712-008AMS	MS	20	Hexavalent Chromium	05/22/19 3:44 PM	Reported
51	N035712-018AMS	MS	100	Hexavalent Chromium	05/22/19 3:55 PM	Reported
52	N035712-007AMS	MS	1	Hexavalent Chromium	05/22/19 4:04 PM	Reported
53	N035712-016AMS	MS	5	Hexavalent Chromium	05/22/19 4:14 PM	Reported
54	N035712-006AMS	MS	1	Hexavalent Chromium	05/22/19 4:23 PM	Reported
55	N035712-020AMS	MS	1	Hexavalent Chromium	05/22/19 4:33 PM	Reported
56	N035712-001AMS	MS	1	Hexavalent Chromium	05/22/19 4:42 PM	Reported
57	N035712-003AMS	MS	1	Hexavalent Chromium	05/22/19 4:52 PM	Reported
58	N035712-005A	SAMP	1	Hexavalent Chromium	05/22/19 5:01 PM	Reported
59	N035712-005AMS	MS	1	Hexavalent Chromium	05/22/19 5:11 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	05/22/19 5:20 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	05/22/19 5:30 PM	Reported
62	N035712-014A	SAMP	1	Hexavalent Chromium	05/22/19 5:39 PM	Reported
63	N035712-014AMS	MS	1	Hexavalent Chromium	05/22/19 5:48 PM	Reported
64	N035712-015A	SAMP	1	Hexavalent Chromium	05/22/19 5:58 PM	Reported
65	N035712-015AMS	MS	1	Hexavalent Chromium	05/22/19 6:07 PM	Reported
66	N035712-019A	SAMP	1	Hexavalent Chromium	05/22/19 6:17 PM	Reported
67	N035712-019AMS	MS	1	Hexavalent Chromium	05/22/19 6:26 PM	Reported
68	N035712-010A	SAMP	1	Hexavalent Chromium	05/22/19 6:36 PM	Not Reported
69	N035712-010AMS	MS	1	Hexavalent Chromium	05/22/19 6:45 PM	Not Reported
70	N035712-011A	SAMP	1	Hexavalent Chromium	05/22/19 6:55 PM	Not Reported
71	N035712-011AMS	MS	1	Hexavalent Chromium	05/22/19 7:04 PM	Not Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	05/22/19 7:14 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	05/22/19 7:23 PM	Reported
74	N035712-012A	SAMP	1	Hexavalent Chromium	05/22/19 7:32 PM	Not Reported
75	N035712-012AMS	MS	1	Hexavalent Chromium	05/22/19 7:42 PM	Not Reported
76	N035712-013A	SAMP	1	Hexavalent Chromium	05/22/19 7:51 PM	Not Reported
77	N035712-013AMS	MS	1	Hexavalent Chromium	05/22/19 8:01 PM	Not Reported
78	N035712-017A	SAMP	1	Hexavalent Chromium	05/22/19 8:10 PM	Not Reported
79	N035712-017AMS	MS	1	Hexavalent Chromium	05/22/19 8:20 PM	Not Reported
80	CCV-7	CCV	1	Hexavalent Chromium	05/22/19 8:29 PM	Reported
81	CCB-7	CCB	1	Hexavalent Chromium	05/22/19 8:39 PM	Reported
82	BLANK	BLANK	1	Hexavalent Chromium	05/22/19 8:48 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190522A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**23/May/19 17:42:51**
No. of Injections:	**85**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/22/2019 09:21	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/22/2019 09:32	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/22/2019 09:41	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/22/2019 09:51	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/22/2019 10:00	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/22/2019 10:10	Finished	LCS @5ppb, IWST-190423B
16	N035712-001A,SAMF	7	1000	Unknown		05/22/2019 10:19	Finished	SAMP,10mL
17	N035712-002A,SAMF	8	1000	Unknown		05/22/2019 10:28	Finished	SAMP,10mL
18	N035712-003A,SAMF	9	1000	Unknown		05/22/2019 10:38	Finished	SAMP,10mL
19	N035712-004A,SAMF	10	1000	Unknown		05/22/2019 10:47	Finished	SAMP,10mL
20	N035712-002AMS,MS	11	1000	Unknown		05/22/2019 10:57	Finished	MS (1ppb), IWST-190423B,10
21	N035712-004AMS,MS	12	1000	Unknown		05/22/2019 11:06	Finished	MS (1ppb), IWST-190423B,10
22	N035712-006A,SAMF	13	1000	Unknown		05/22/2019 11:16	Finished	SAMP,10mL
23	N035712-007A,SAMF	14	1000	Unknown		05/22/2019 11:25	Finished	SAMP,10mL
24	CCV-2,CCV1,1,	15	1000	Unknown		05/22/2019 11:35	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	16	1000	Unknown		05/22/2019 11:44	Finished	CCB R190508A
26	N035712-020A,SAMF	17	1000	Unknown		05/22/2019 11:54	Finished	SAMP,10mL
27	N035712-008A,SAMF	18	1000	Unknown		05/22/2019 12:03	Finished	SAMP,0.5> 10mL
28	N035712-009A,SAMF	19	1000	Unknown		05/22/2019 12:13	Finished	SAMP,0.05> 10mL
29	N035712-018A,SAMF	20	1000	Unknown		05/22/2019 12:22	Finished	SAMP,0.1> 10mL
30	N035712-016A,SAMF	21	1000	Unknown		05/22/2019 12:32	Finished	SAMP,2> 10mL
31	N035712-020ADUP,D	22	1000	Unknown		05/22/2019 12:41	Finished	DUP,10mL
32	N035712-010A,SAMF	23	1000	Unknown		05/22/2019 12:50	Finished	SAMP,2> 10mL
33	N035712-010AMS,MS	24	1000	Unknown		05/22/2019 13:00	Finished	MS (1ppb), IWST-190423B,2>1
34	N035712-011A,SAMF	25	1000	Unknown		05/22/2019 13:09	Finished	SAMP,2> 10mL
35	N035712-011AMS,MS	26	1000	Unknown		05/22/2019 13:19	Finished	MS (1ppb), IWST-190423B,2>1
36	CCV-3,CCV,1,	27	1000	Unknown		05/22/2019 13:28	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	28	1000	Unknown		05/22/2019 13:38	Finished	CCB R190508A
38	N035712-012A,SAMF	29	1000	Unknown		05/22/2019 13:47	Finished	SAMP,2> 10mL
39	N035712-012AMS,MS	30	1000	Unknown		05/22/2019 13:57	Finished	MS (1ppb), IWST-190423B,2>1
40	N035712-013A,SAMF	31	1000	Unknown		05/22/2019 14:06	Finished	SAMP,2> 10mL
41	N035712-013AMS,MS	32	1000	Unknown		05/22/2019 14:16	Finished	MS (1ppb), IWST-190423B,2>1
42	N035712-017A,SAMF	33	1000	Unknown		05/22/2019 14:25	Finished	SAMP,2> 10mL
43	N035712-017AMS,MS	34	1000	Unknown		05/22/2019 14:34	Finished	MS (1ppb), IWST-190423B,2>1
44	N035712-009AMS,MS	35	1000	Unknown		05/22/2019 14:44	Finished	MS (5ppb), IWST-190423B,0.0
45	N035712-009AMSD,M	36	1000	Unknown		05/22/2019 14:53	Finished	MSD (5ppb), IWST-190423B,0.
46	N035457-003A,SAMF	37	1000	Unknown		05/22/2019 15:03	Finished	SAMP, 10mL
47	N035457-003AMS,MS	38	1000	Unknown		05/22/2019 15:12	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	39	1000	Unknown		05/22/2019 15:22	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	40	1000	Unknown		05/22/2019 15:31	Finished	CCB R190508A
50	N035712-008AMS,MS	1	1000	Unknown		05/22/2019 15:44	Finished	MS (5ppb), IWST-190423B,0.5
51	N035712-018AMS,MS	2	1000	Unknown		05/22/2019 15:55	Finished	MS (5ppb), IWST-190423B,0.1
52	N035712-007AMS,MS	3	1000	Unknown		05/22/2019 16:04	Finished	MS (5ppb), IWST-190423B,10
53	N035712-016AMS,MS	4	1000	Unknown		05/22/2019 16:14	Finished	MS (5ppb), IWST-190423B,10
54	N035712-006AMS,MS	5	1000	Unknown		05/22/2019 16:23	Finished	MS (1ppb), IWST-190423B,10
55	N035712-020AMS,MS	6	1000	Unknown		05/22/2019 16:33	Finished	MS (1ppb), IWST-190423B,10
56	N035712-001AMS,MS	7	1000	Unknown		05/22/2019 16:42	Finished	MS (1ppb), IWST-190423B,10
57	N035712-003AMS,MS	8	1000	Unknown		05/22/2019 16:52	Finished	MS (1ppb), IWST-190423B,10
58	N035712-005A,SAMF	9	1000	Unknown		05/22/2019 17:01	Finished	SAMP, 10mL
59	N035712-005AMS,MS	10	1000	Unknown		05/22/2019 17:11	Finished	MS (1ppb), IWST-190423B,10
60	CCV-5,CCV,1,	11	1000	Unknown		05/22/2019 17:20	Finished	CCV @5ppb, IWST-190423A

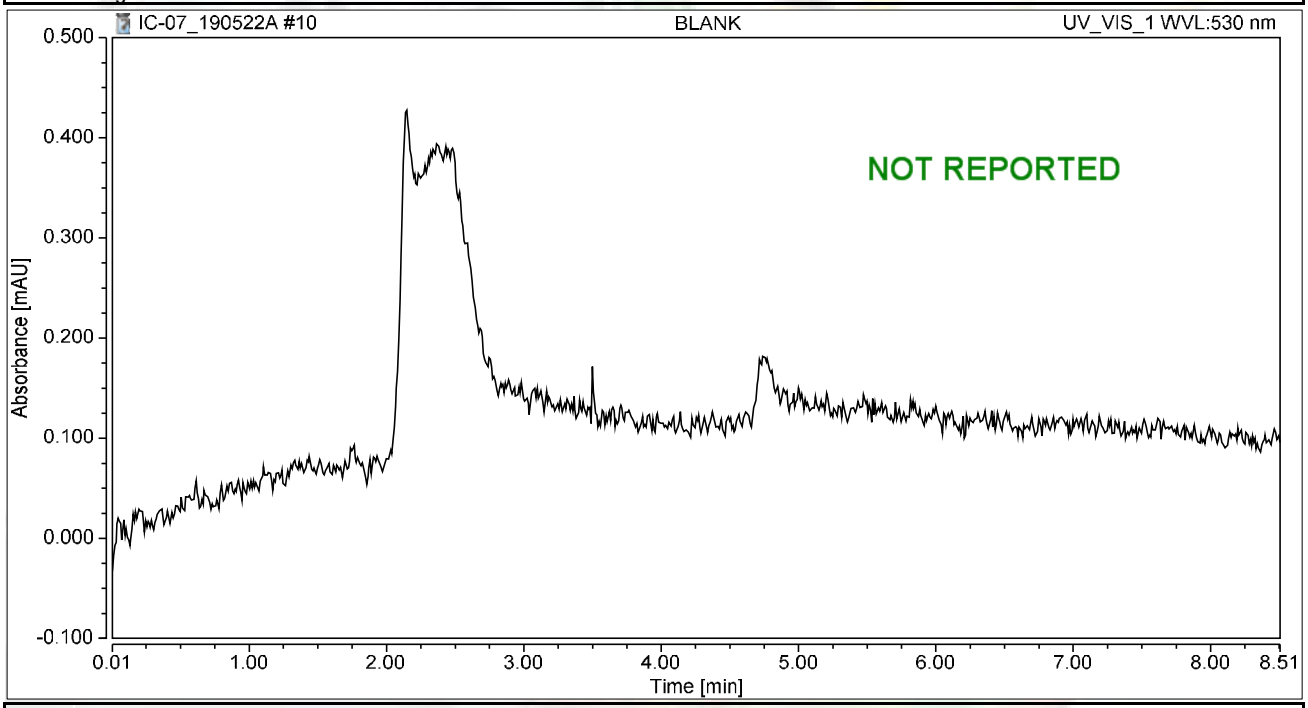
61	CCB-5,CCB,1,	12	1000	Unknown		05/22/2019 17:30	Finished	CCB R190508A
62	N035712-014A,SAMF	13	1000	Unknown		05/22/2019 17:39	Finished	SAMP, 10mL
63	N035712-014AMS,MS	14	1000	Unknown		05/22/2019 17:48	Finished	MS (1ppb), IWST-190423B,10
64	N035712-015A,SAMF	15	1000	Unknown		05/22/2019 17:58	Finished	SAMP, 10mL
65	N035712-015AMS,MS	16	1000	Unknown		05/22/2019 18:07	Finished	MS (1ppb), IWST-190423B,10
66	N035712-019A,SAMF	17	1000	Unknown		05/22/2019 18:17	Finished	SAMP, 10mL
67	N035712-019AMS,MS	18	1000	Unknown		05/22/2019 18:26	Finished	MS (1ppb), IWST-190423B,10
68	N035712-010A,SAMF	19	1000	Unknown		05/22/2019 18:36	Finished	SAMP, 10mL
69	N035712-010AMS,MS	20	1000	Unknown		05/22/2019 18:45	Finished	MS (5ppb), IWST-190423B,10
70	N035712-011A,SAMF	21	1000	Unknown		05/22/2019 18:55	Finished	SAMP, 10mL
71	N035712-011AMS,MS	22	1000	Unknown		05/22/2019 19:04	Finished	MS (5ppb), IWST-190423B,10
72	CCV-6,CCV1,1,	23	1000	Unknown		05/22/2019 19:14	Finished	CCV @10ppb, IWST-190423A
73	CCB-6,CCB,1,	24	1000	Unknown		05/22/2019 19:23	Finished	CCB R190508A
74	N035712-012A,SAMF	25	1000	Unknown		05/22/2019 19:32	Finished	SAMP, 10mL
75	N035712-012AMS,MS	26	1000	Unknown		05/22/2019 19:42	Finished	MS (1ppb), IWST-190423B,10
76	N035712-013A,SAMF	27	1000	Unknown		05/22/2019 19:51	Finished	SAMP, 10mL
77	N035712-013AMS,MS	28	1000	Unknown		05/22/2019 20:01	Finished	MS (1ppb), IWST-190423B,10
78	N035712-017A,SAMF	29	1000	Unknown		05/22/2019 20:10	Finished	SAMP, 10mL
79	N035712-017AMS,MS	30	1000	Unknown		05/22/2019 20:20	Finished	MS (1ppb), IWST-190423B,10
80	CCV-7,CCV,1,	31	1000	Unknown		05/22/2019 20:29	Finished	CCV @5ppb, IWST-190423A
81	CCB-7,CCB,1,	32	1000	Unknown		05/22/2019 20:39	Finished	CCB R190508A
82	BLANK	33	1000	Unknown		05/22/2019 20:48	Finished	BLANK
83	SHUTDOWN	34	1000	Unknown		05/22/2019 20:58	Finished	
84	Eluent: R190522A	35	1000	Unknown		n.a.	Finished	Eluent
85	PCR: R190522B	36	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 09:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

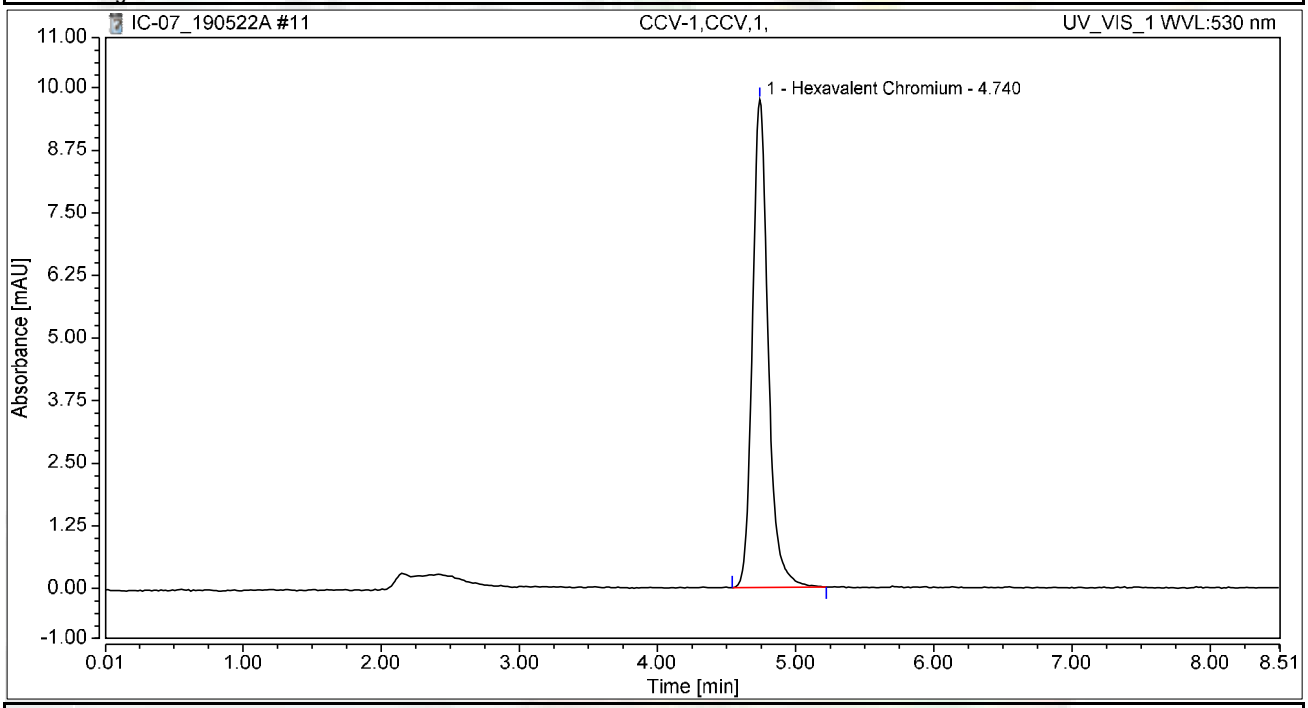
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 09:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

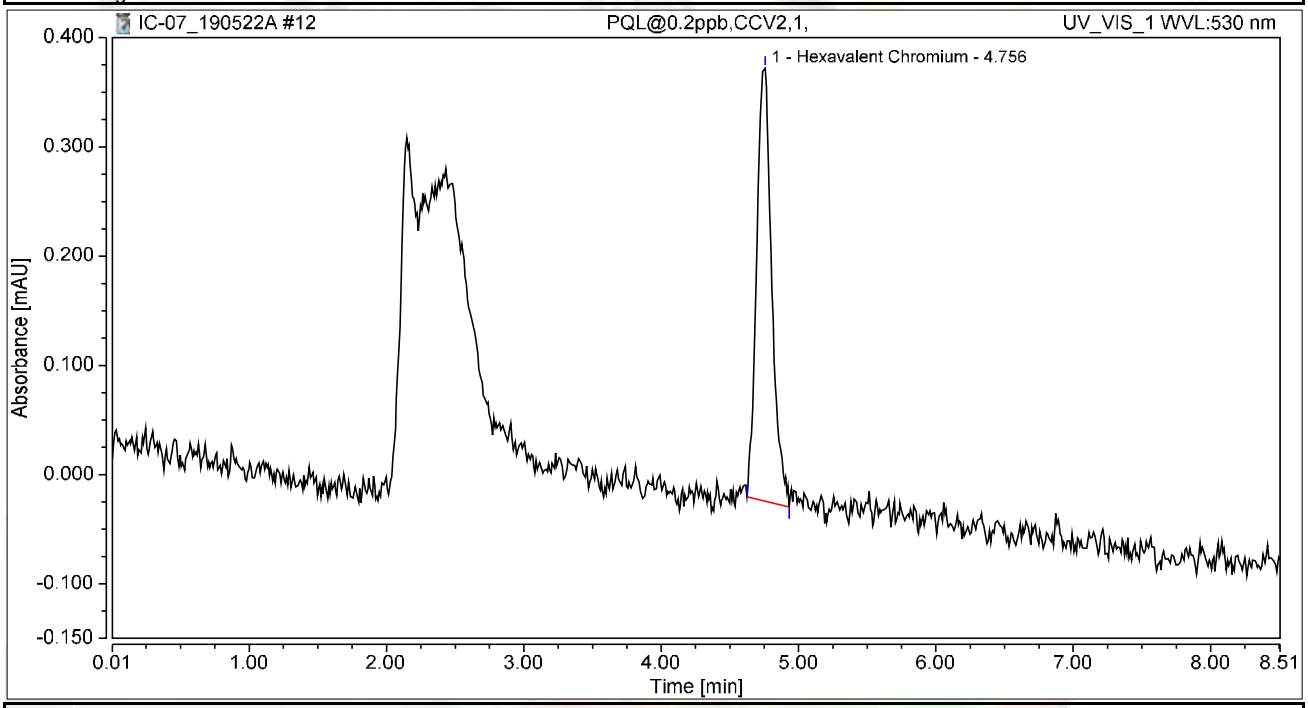
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.285	9.745	100.00	100.00	5.0958
Total:			**1.285**	**9.745**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 09:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

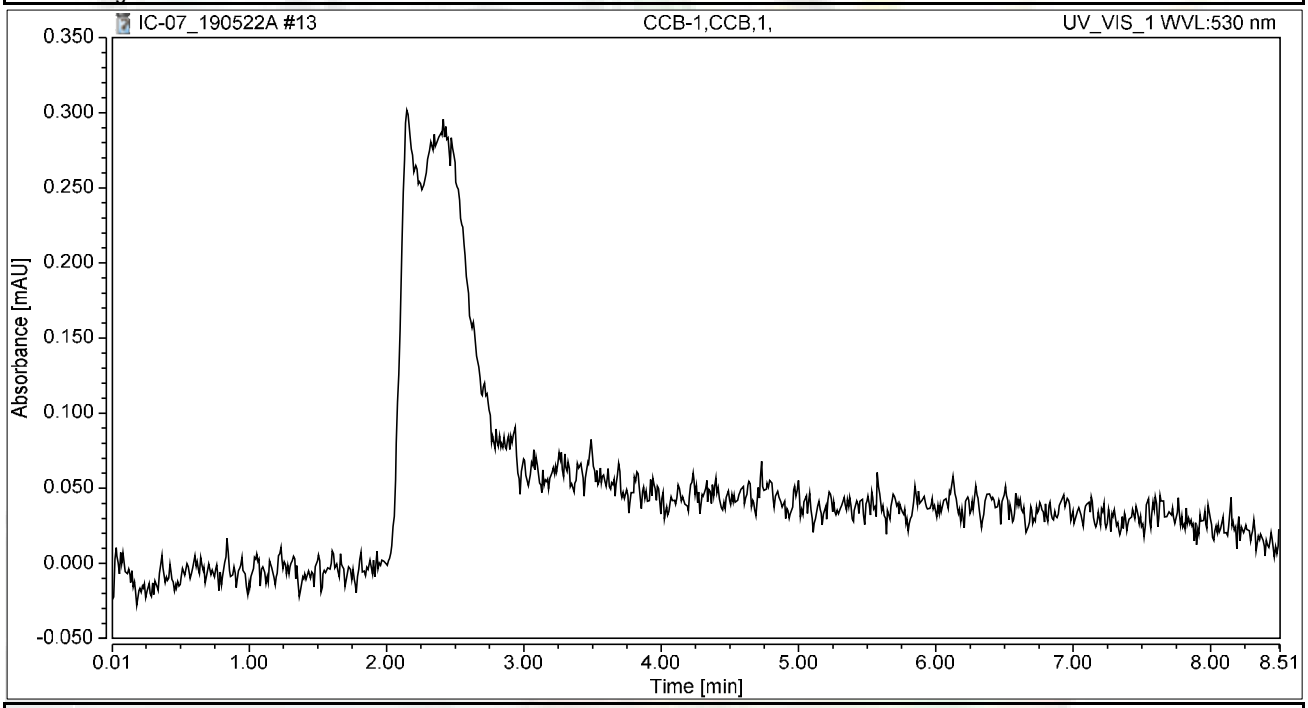
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.051	0.397	100.00	100.00	0.2006
Total:			**0.051**	**0.397**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 09:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

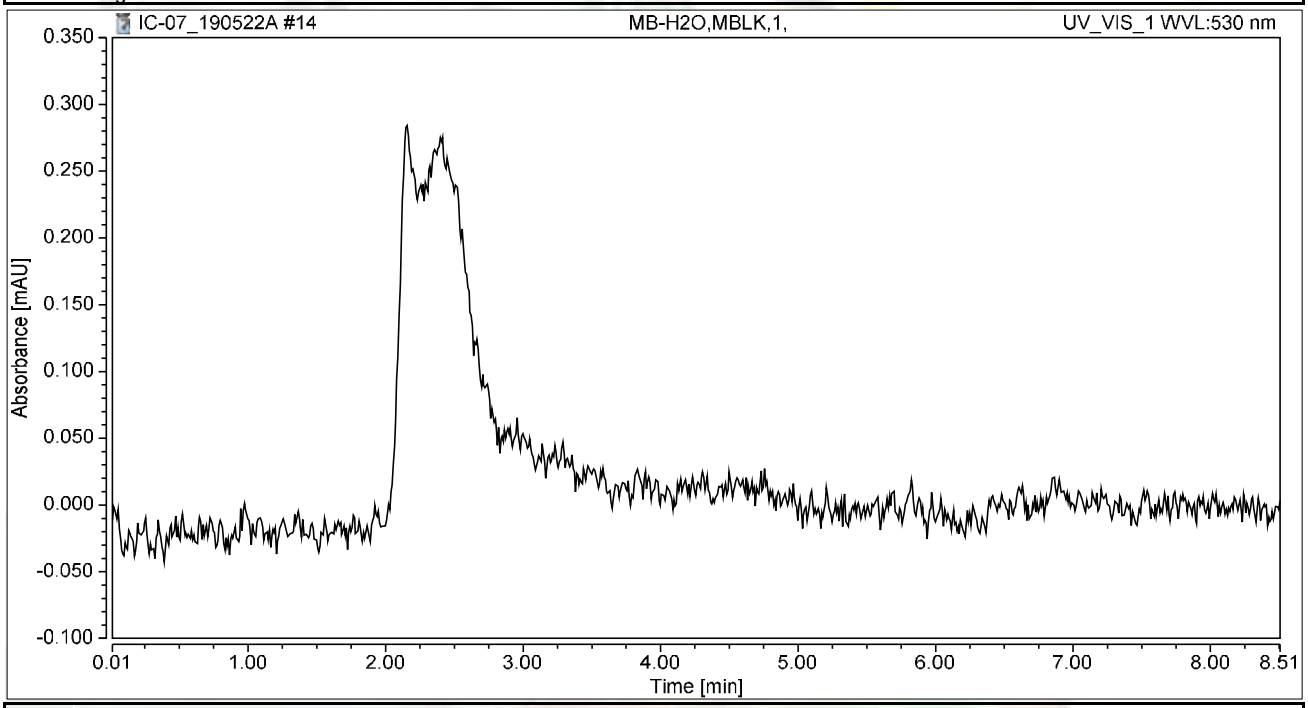
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 10:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

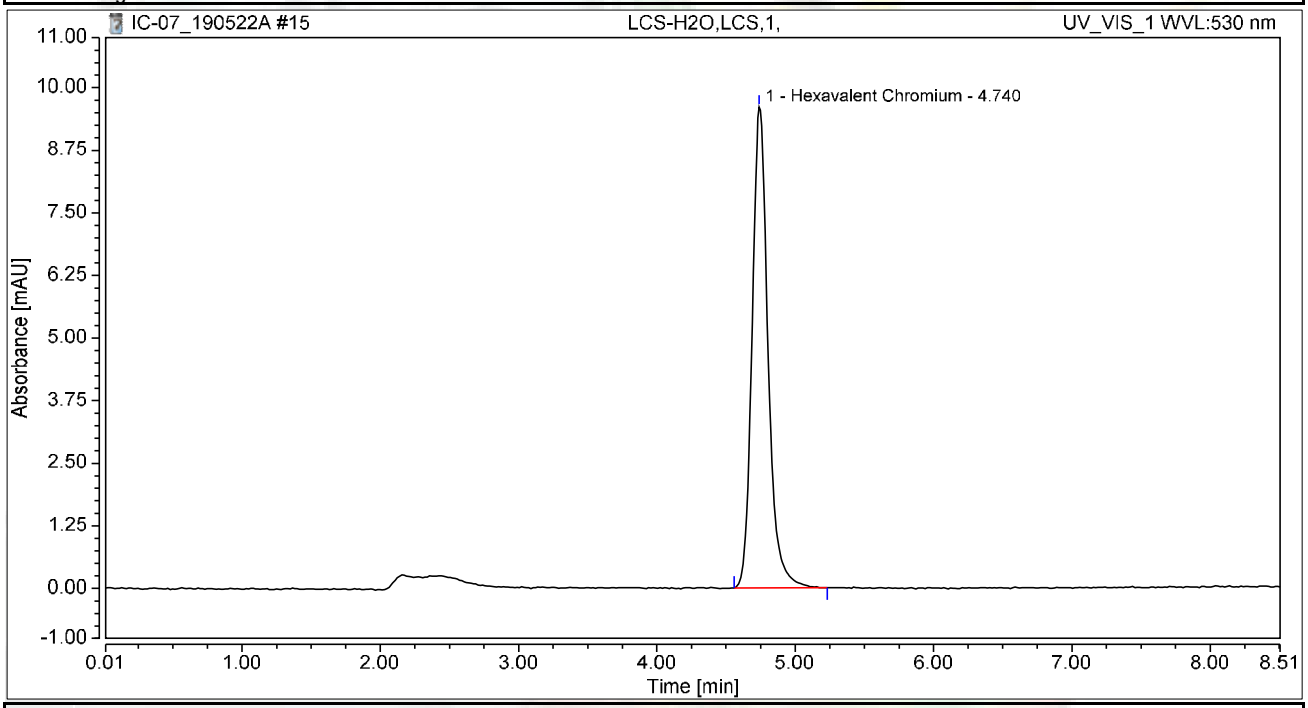
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 10:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

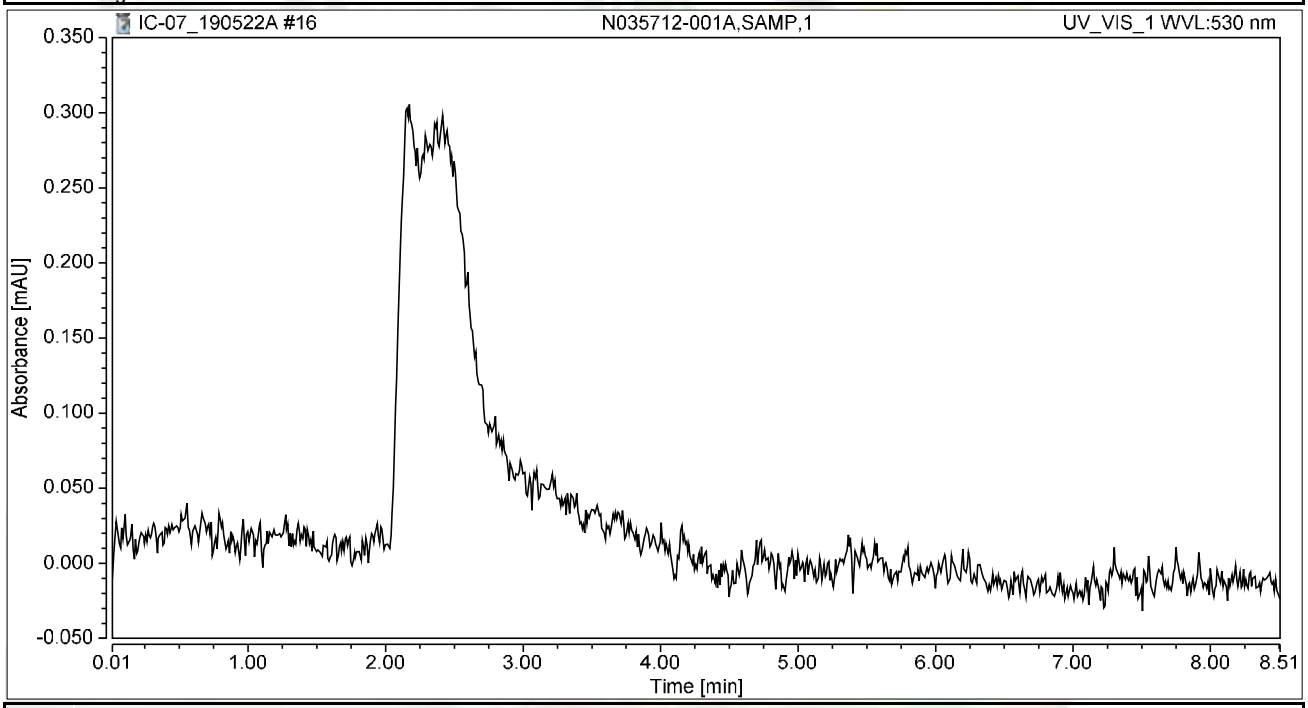
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.280	9.602	100.00	100.00	5.0754
Total:			**1.280**	**9.602**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 10:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

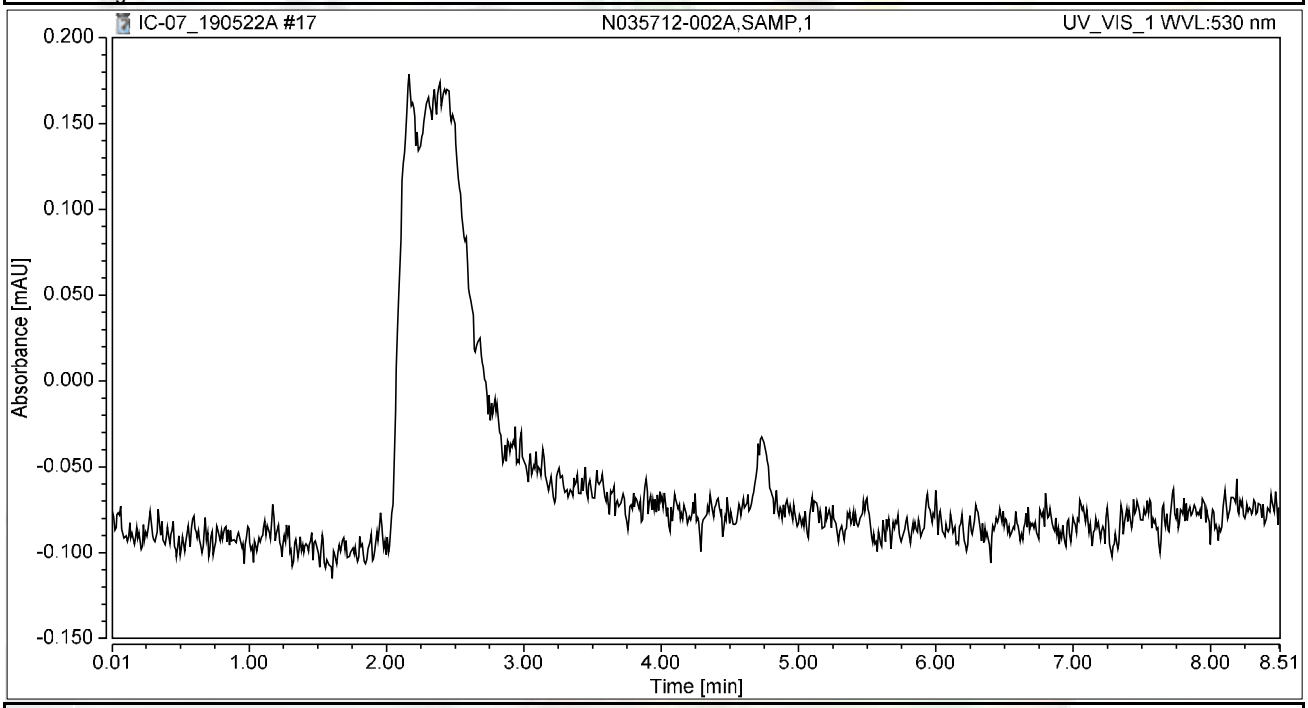
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 10:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

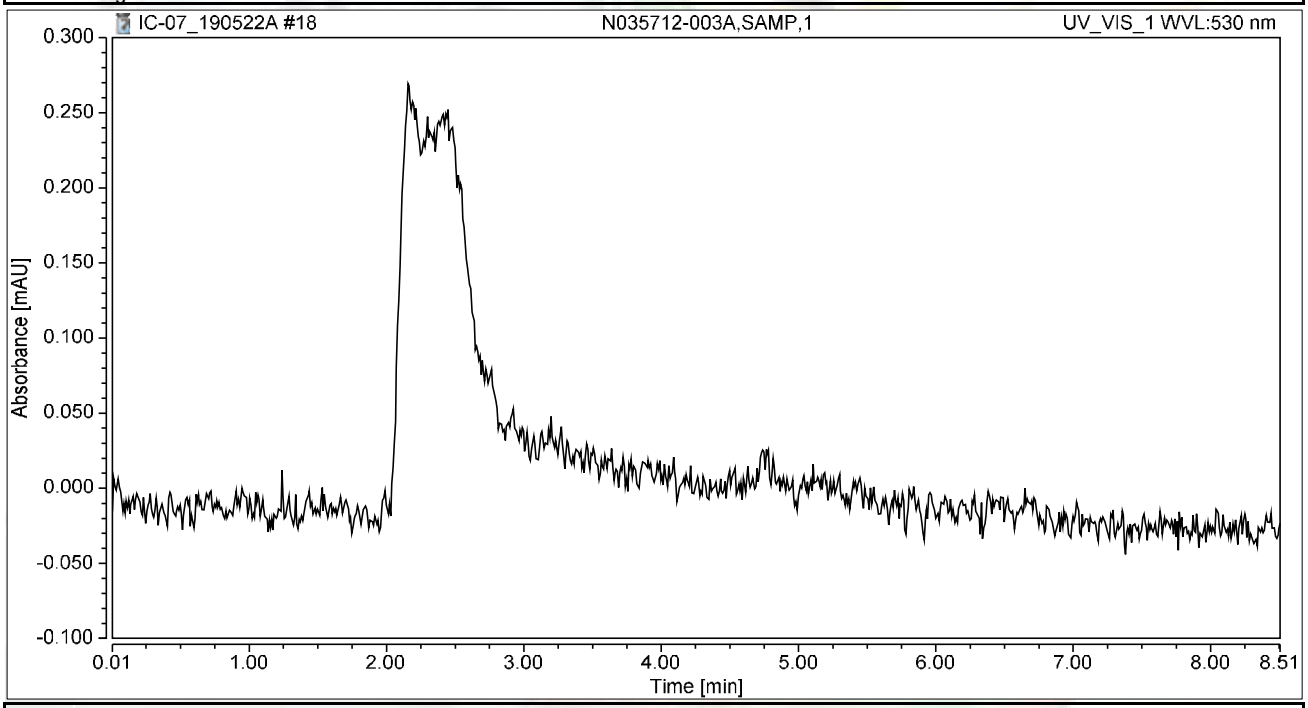
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 10:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

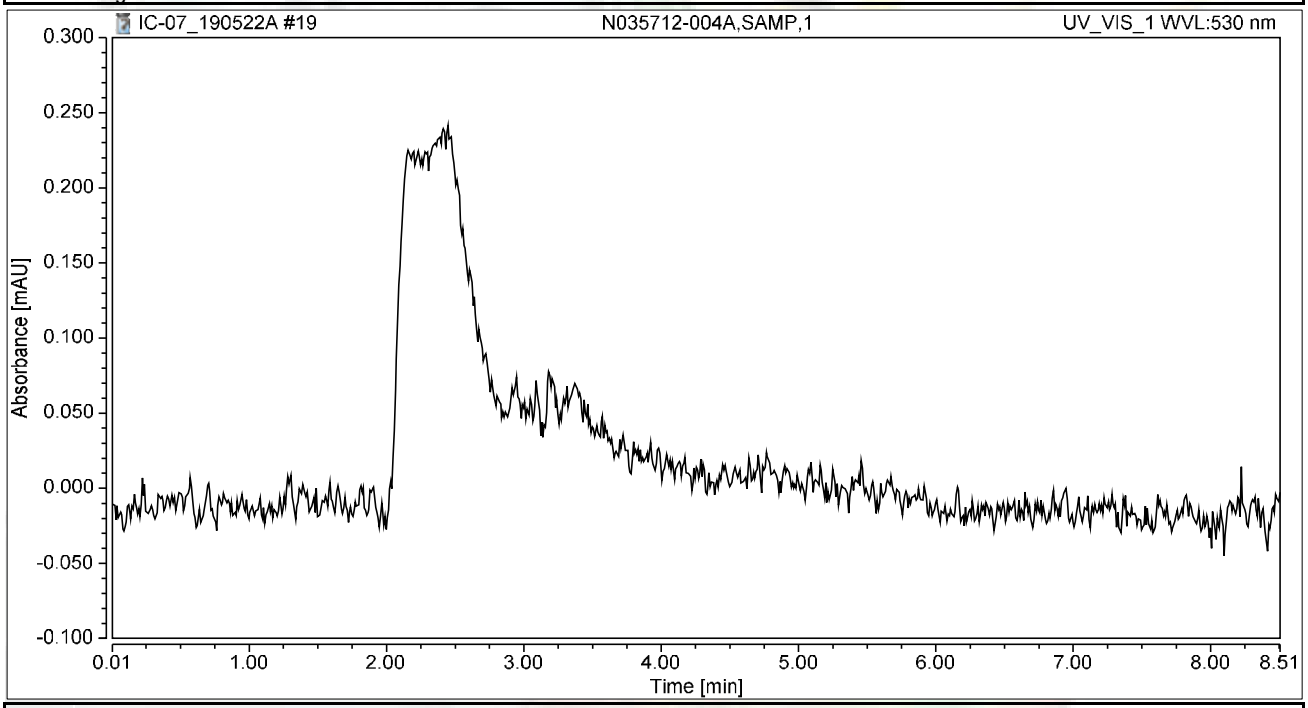
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

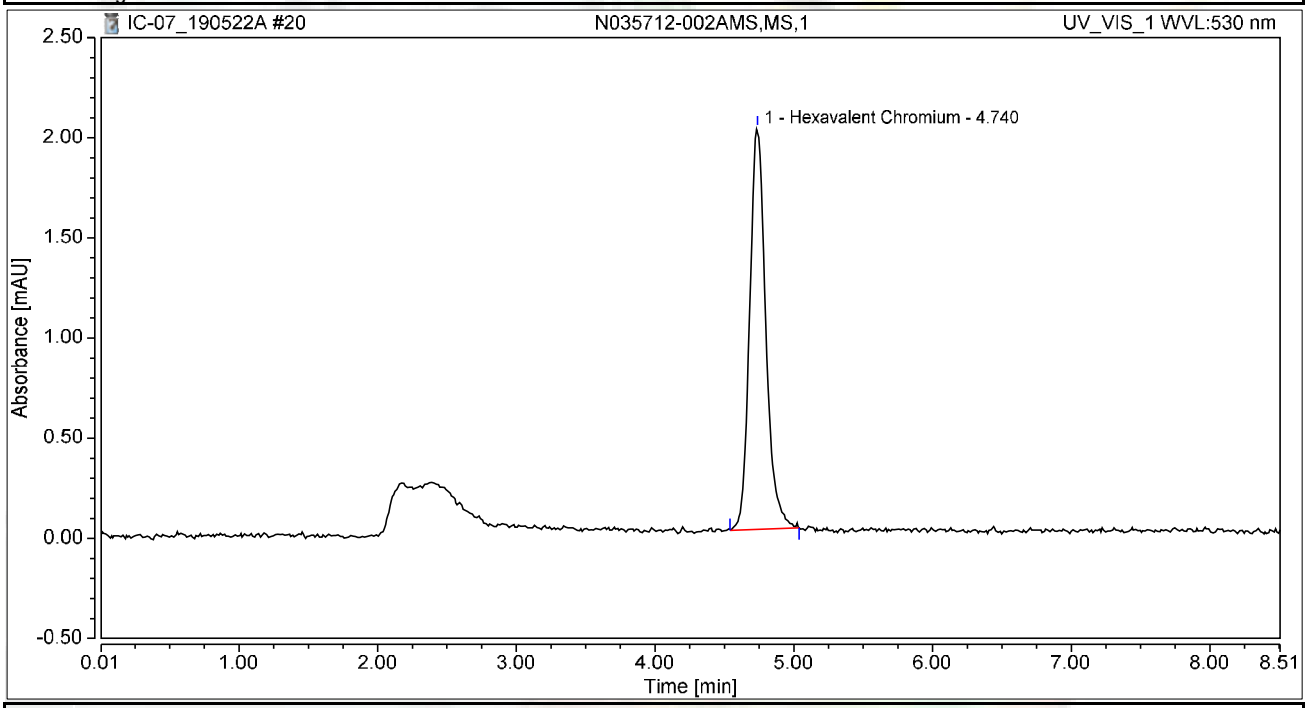
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

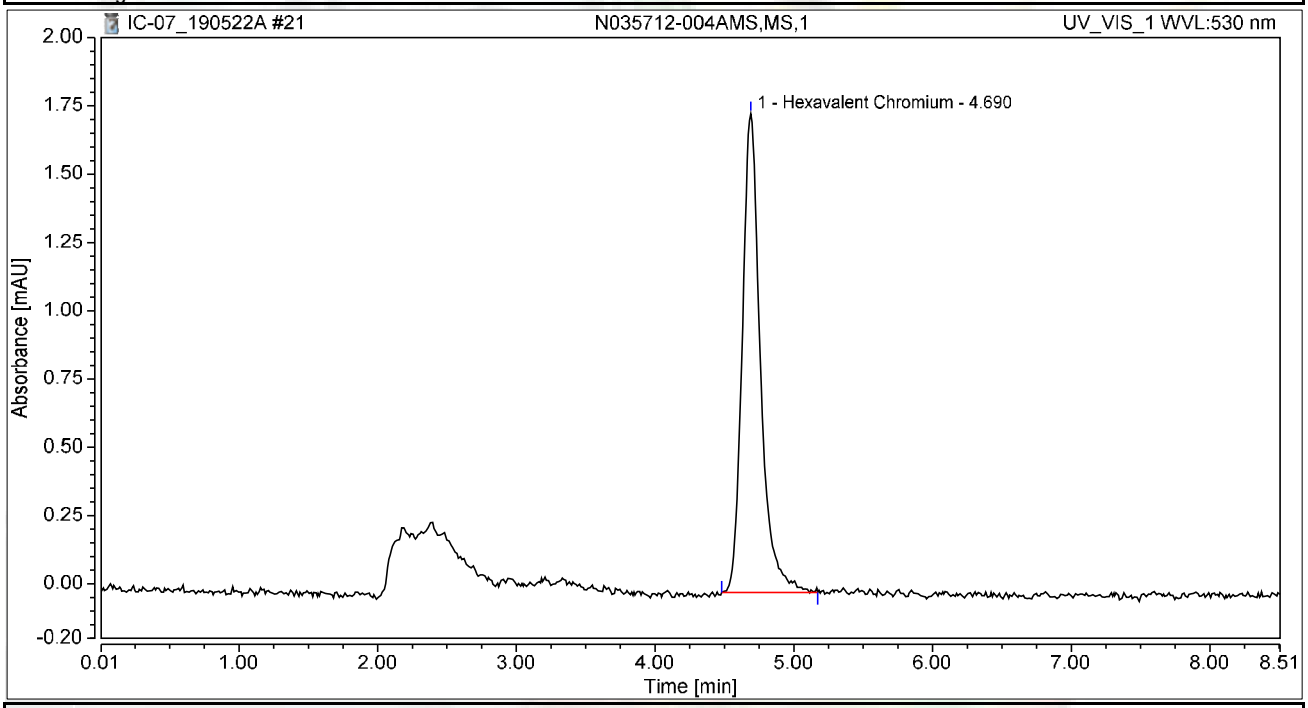
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.270	2.003	100.00	100.00	1.0718
Total:			**0.270**	**2.003**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

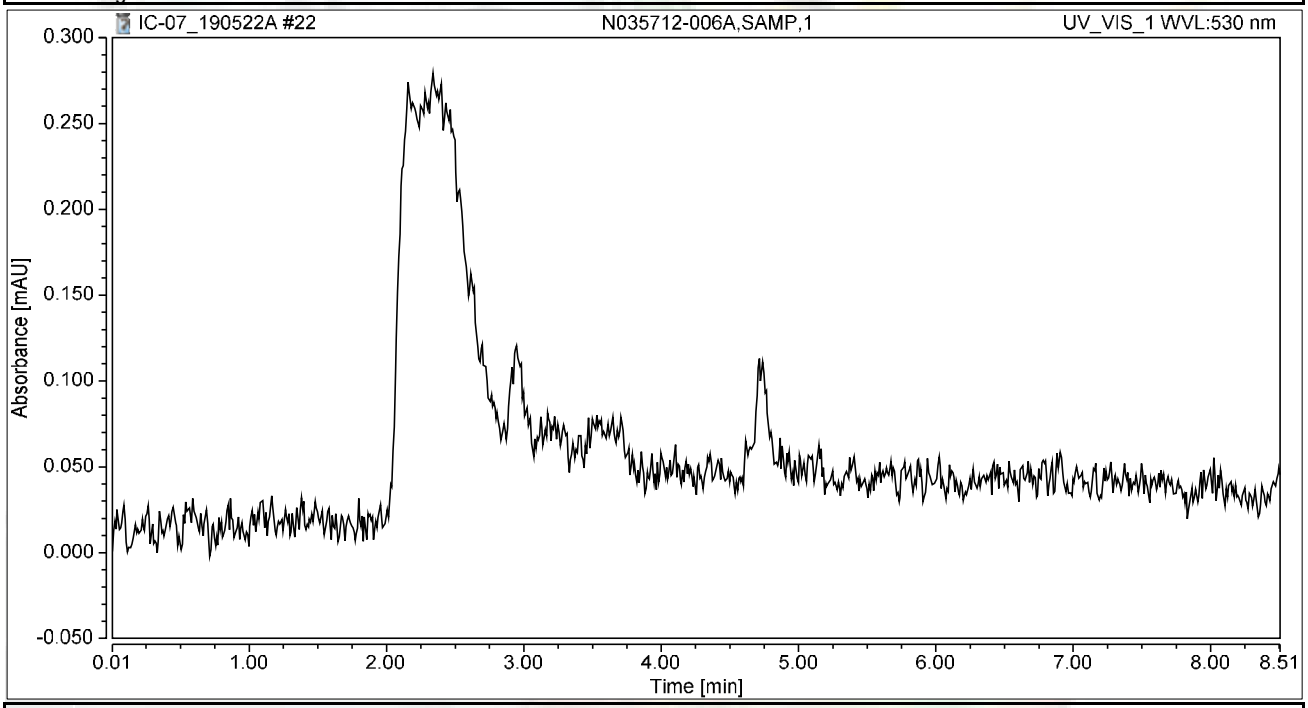
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.267	1.755	100.00	100.00	1.0574
Total:			**0.267**	**1.755**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 11:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

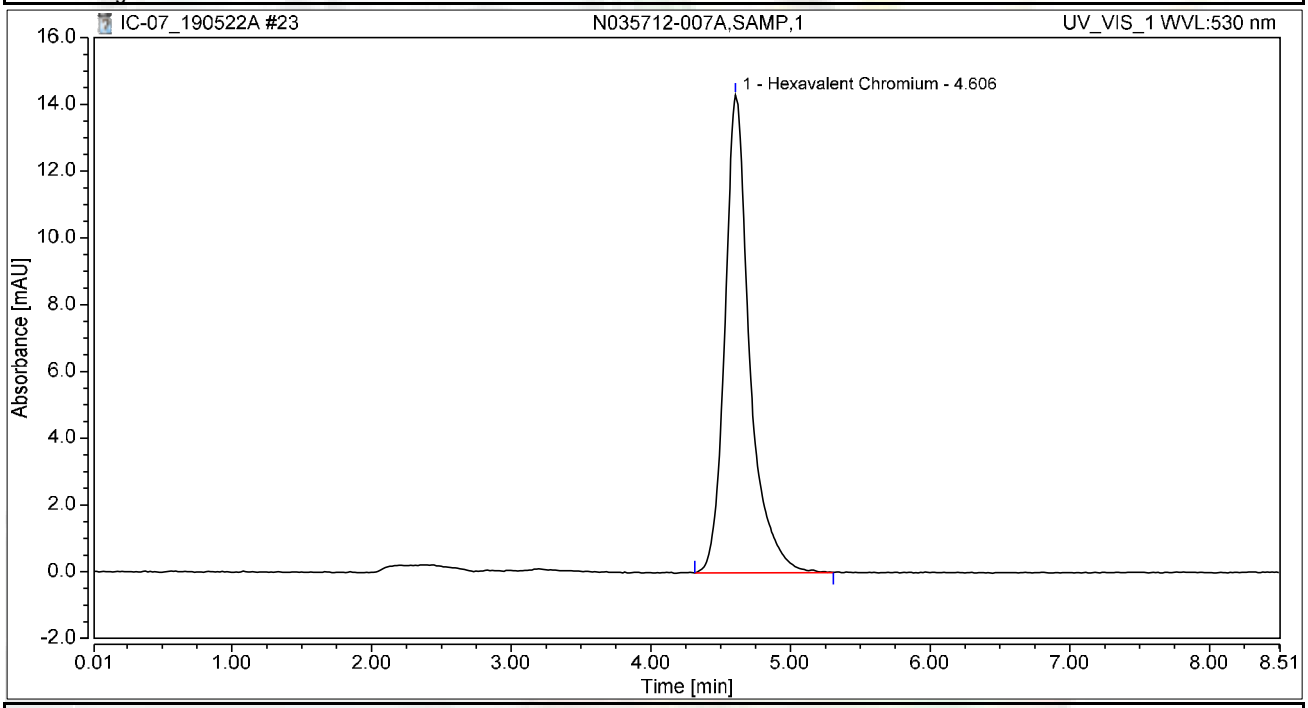
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-007A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 11:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

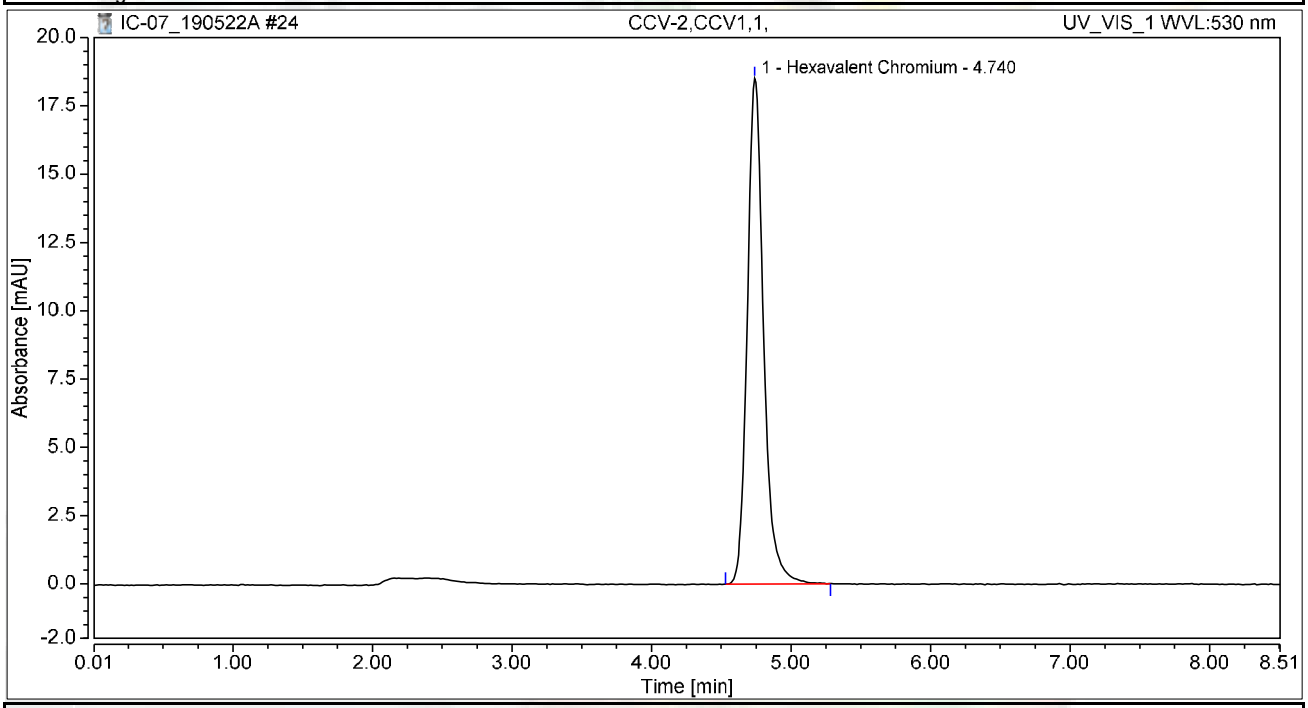
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	2.934	14.309	100.00	100.00	11.6380
Total:			**2.934**	**14.309**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 11:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

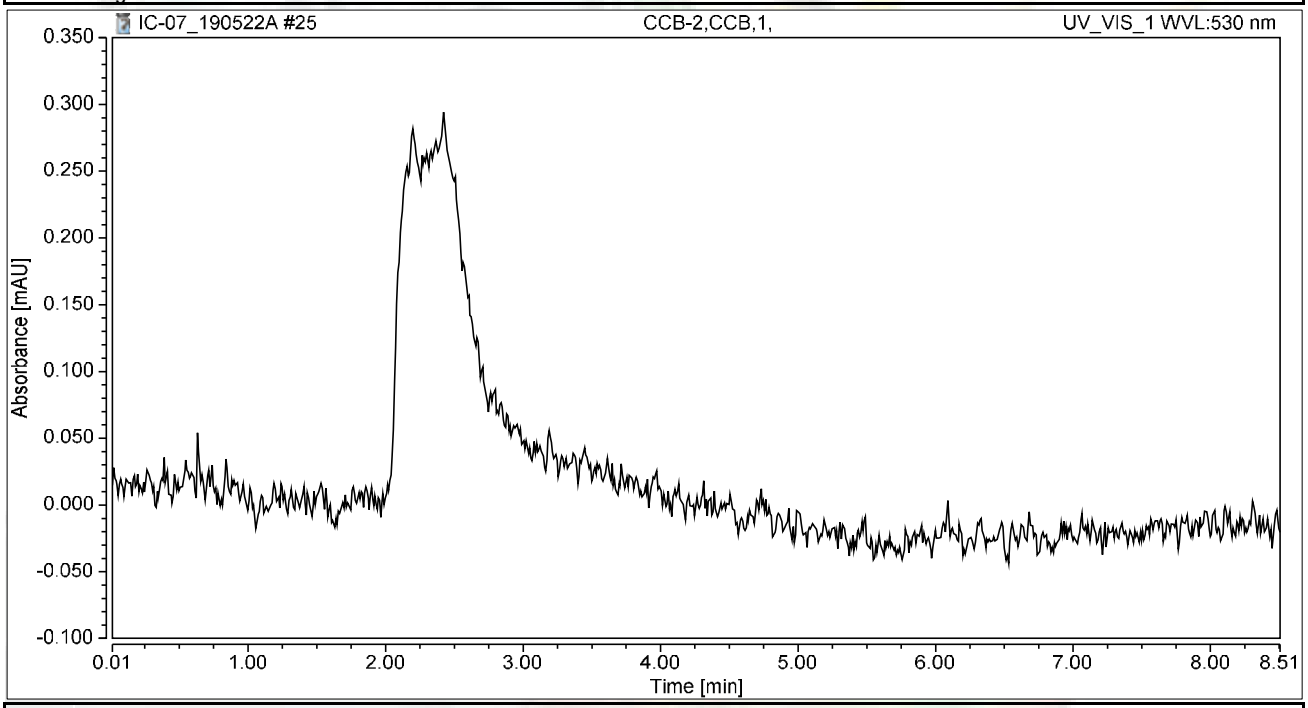
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.515	18.506	100.00	100.00	9.9758
Total:			**2.515**	**18.506**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 11:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

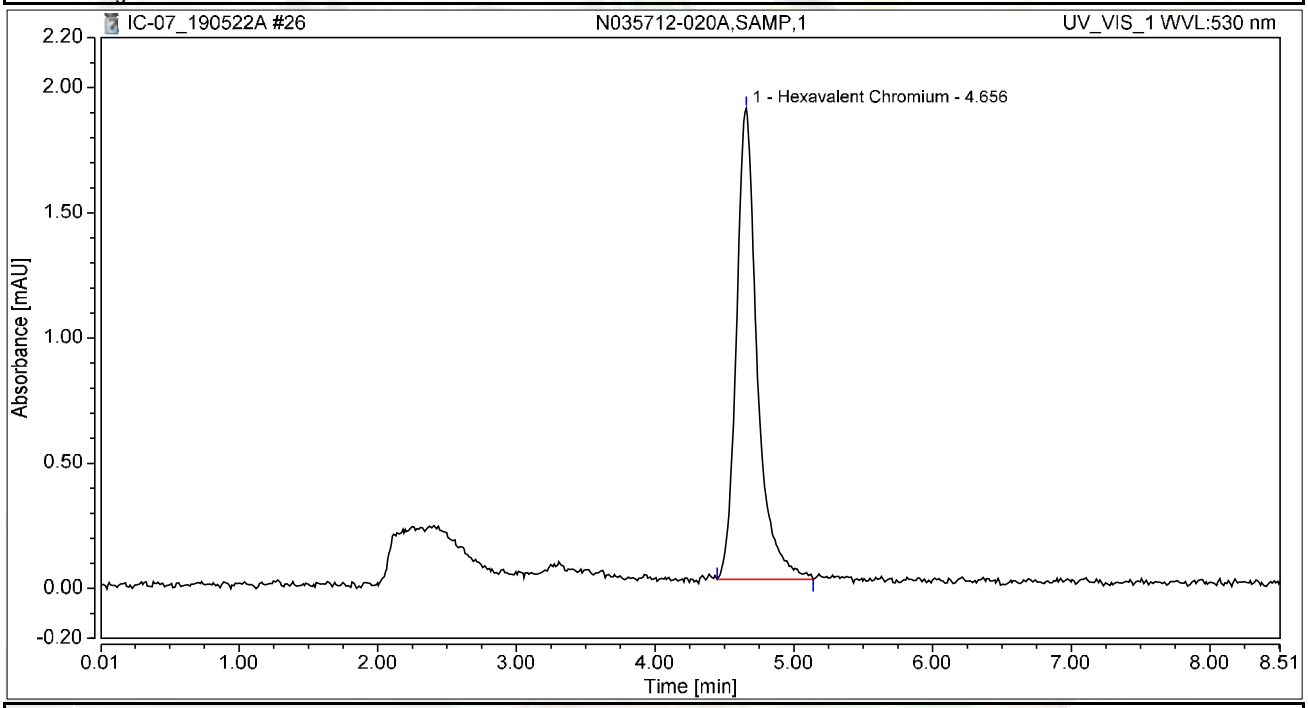
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-020A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 11:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

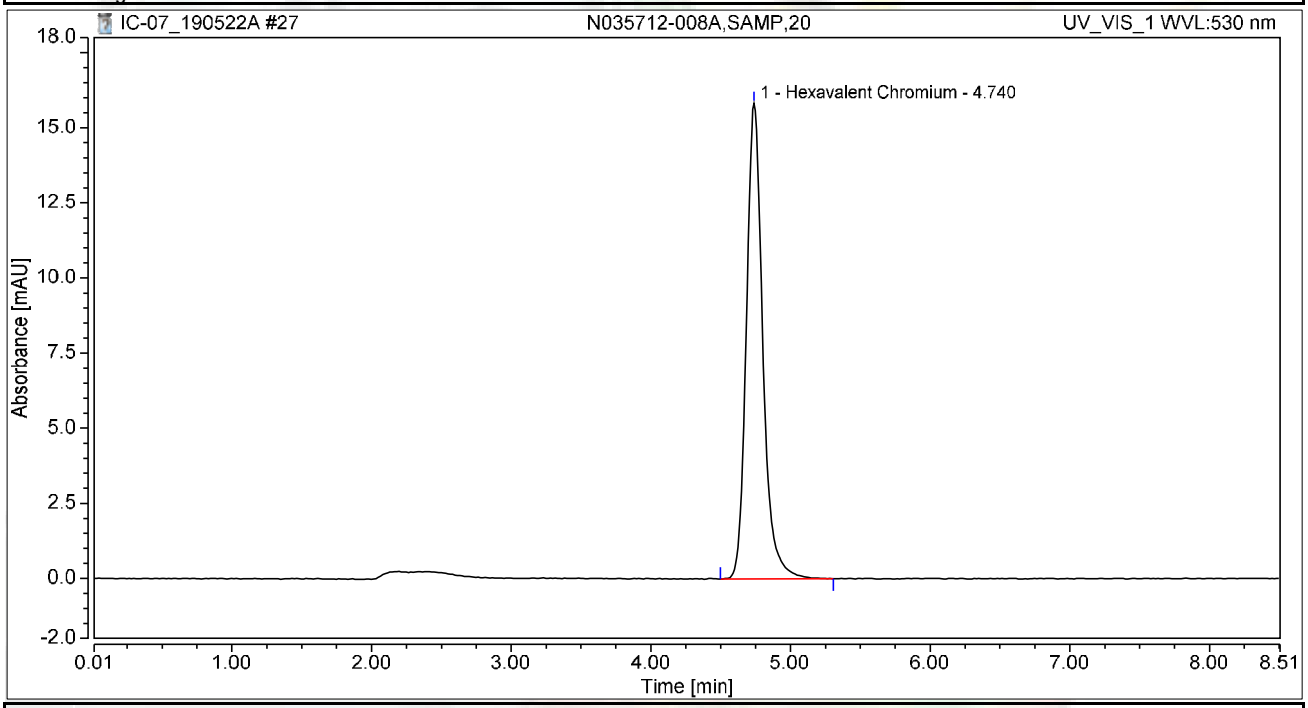
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.327	1.883	100.00	100.00	1.2983
Total:			**0.327**	**1.883**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-008A,SAMP,20**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 12:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

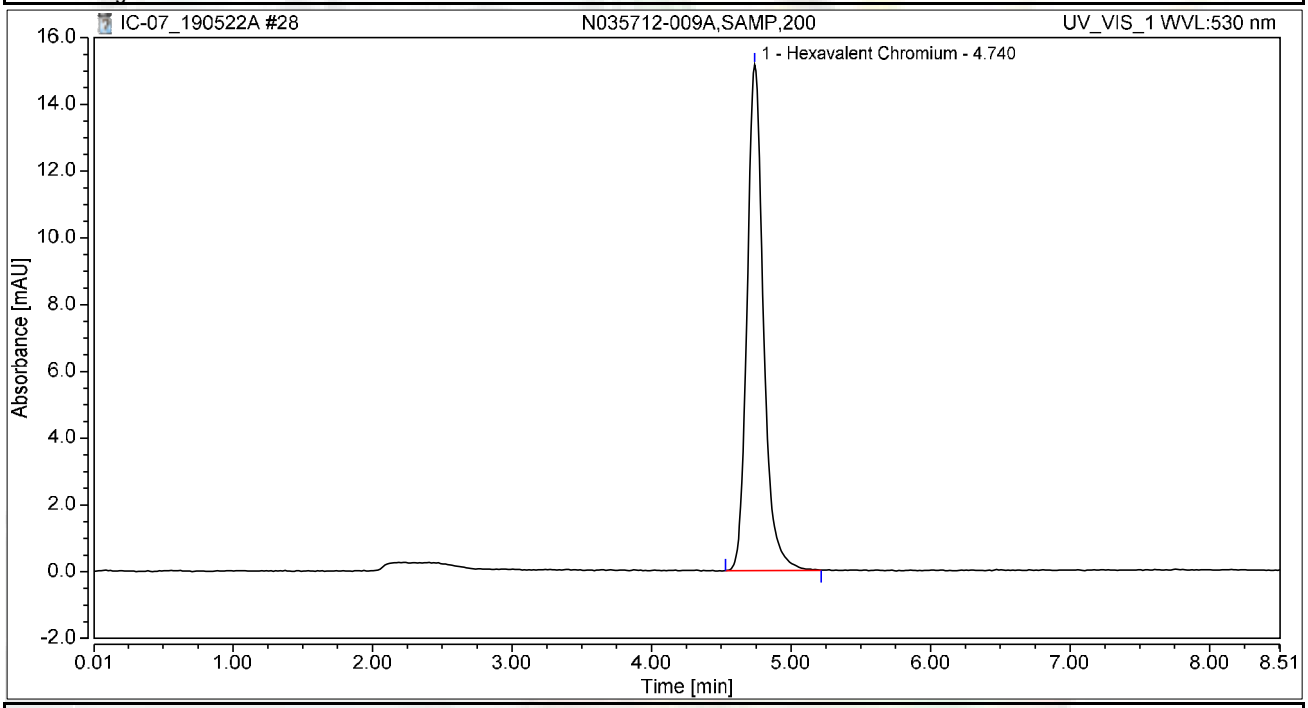
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.165	15.833	100.00	100.00	8.5881
Total:			**2.165**	**15.833**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-009A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 12:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

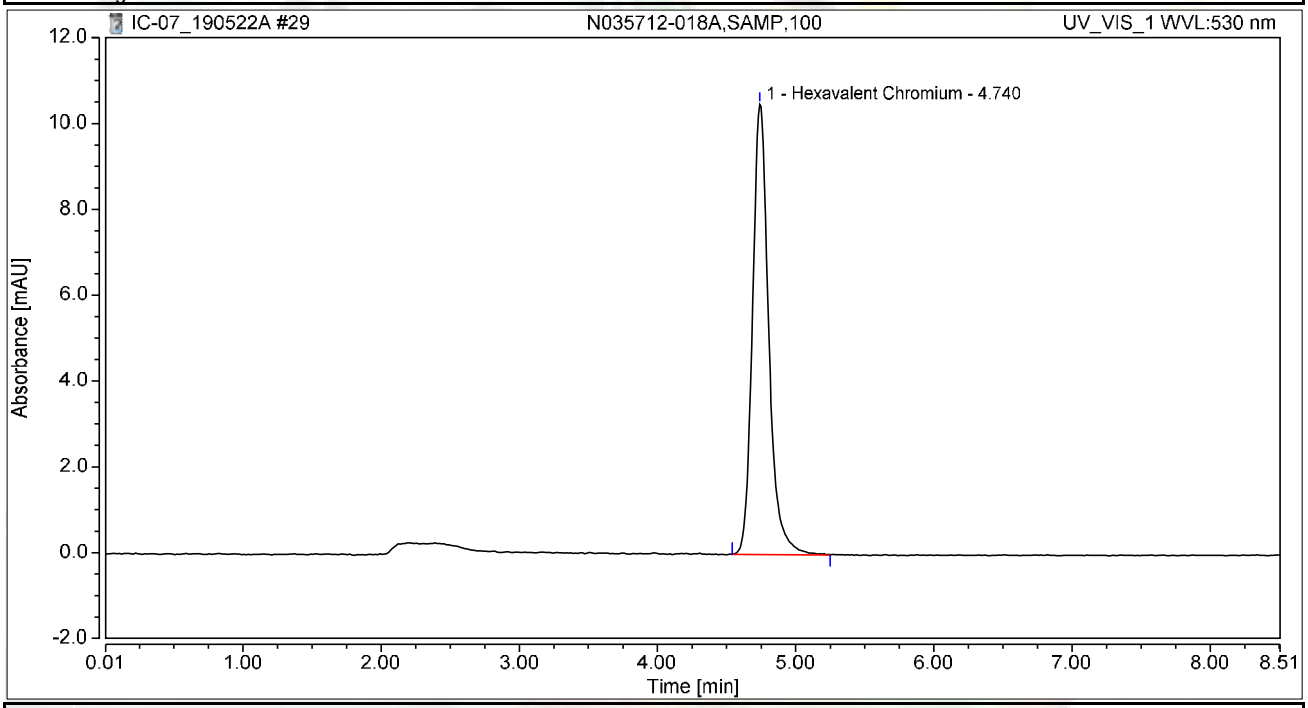
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.060	15.150	100.00	100.00	8.1698
Total:			**2.060**	**15.150**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-018A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 12:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

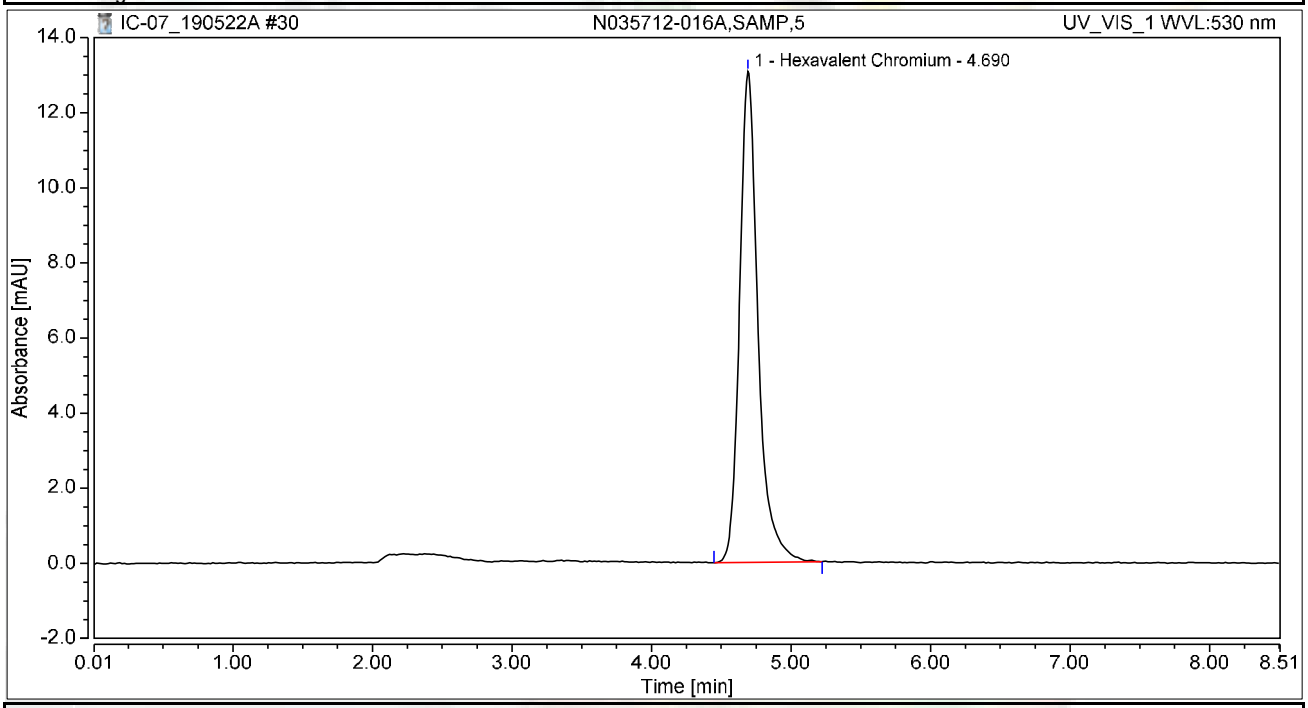
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.428	10.487	100.00	100.00	5.6643
Total:			**1.428**	**10.487**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-016A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 12:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

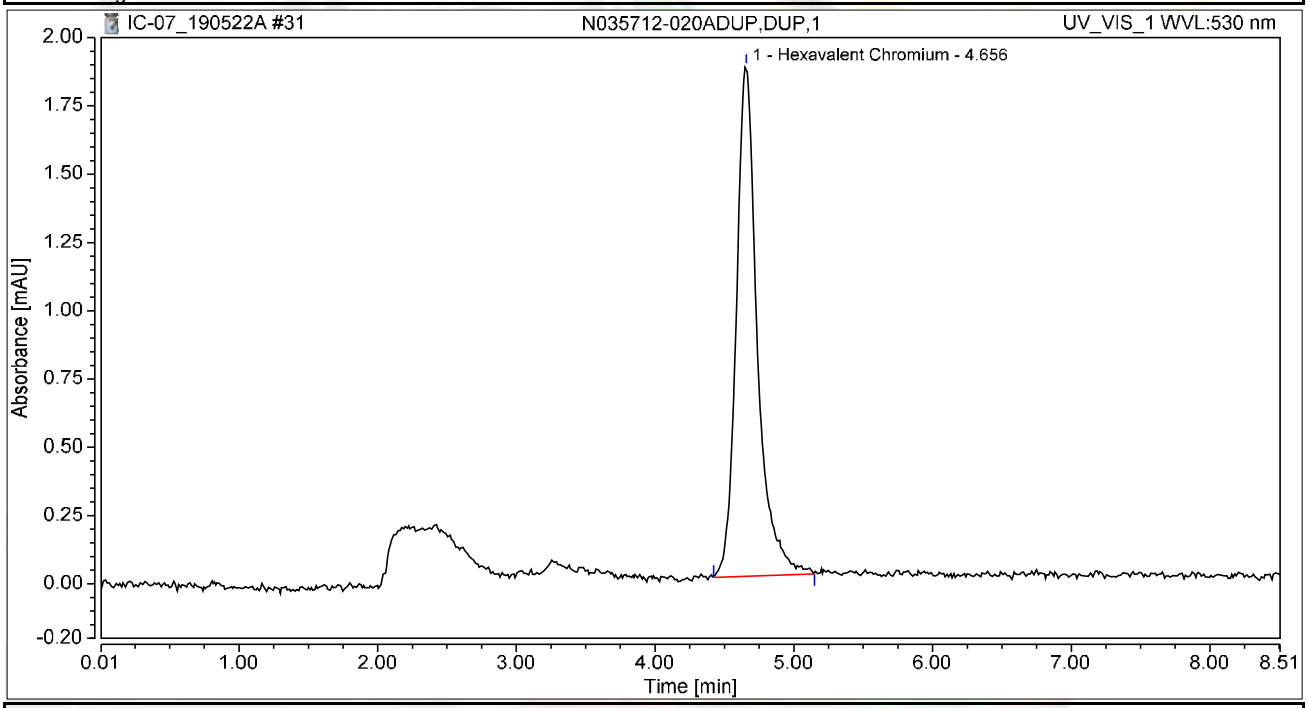
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	2.007	13.069	100.00	100.00	7.9603
Total:			**2.007**	**13.069**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-020ADUP,DUP,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 12:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

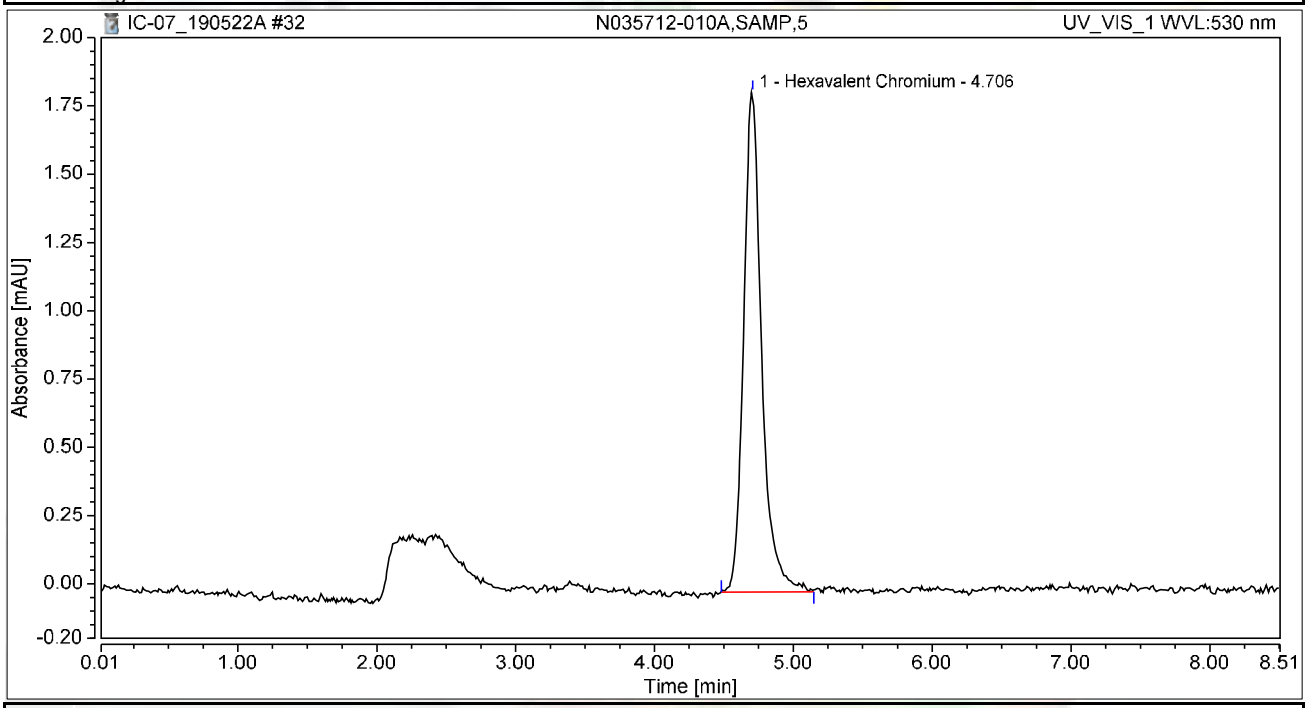
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.328	1.867	100.00	100.00	1.3011
Total:			**0.328**	**1.867**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-010A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 12:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

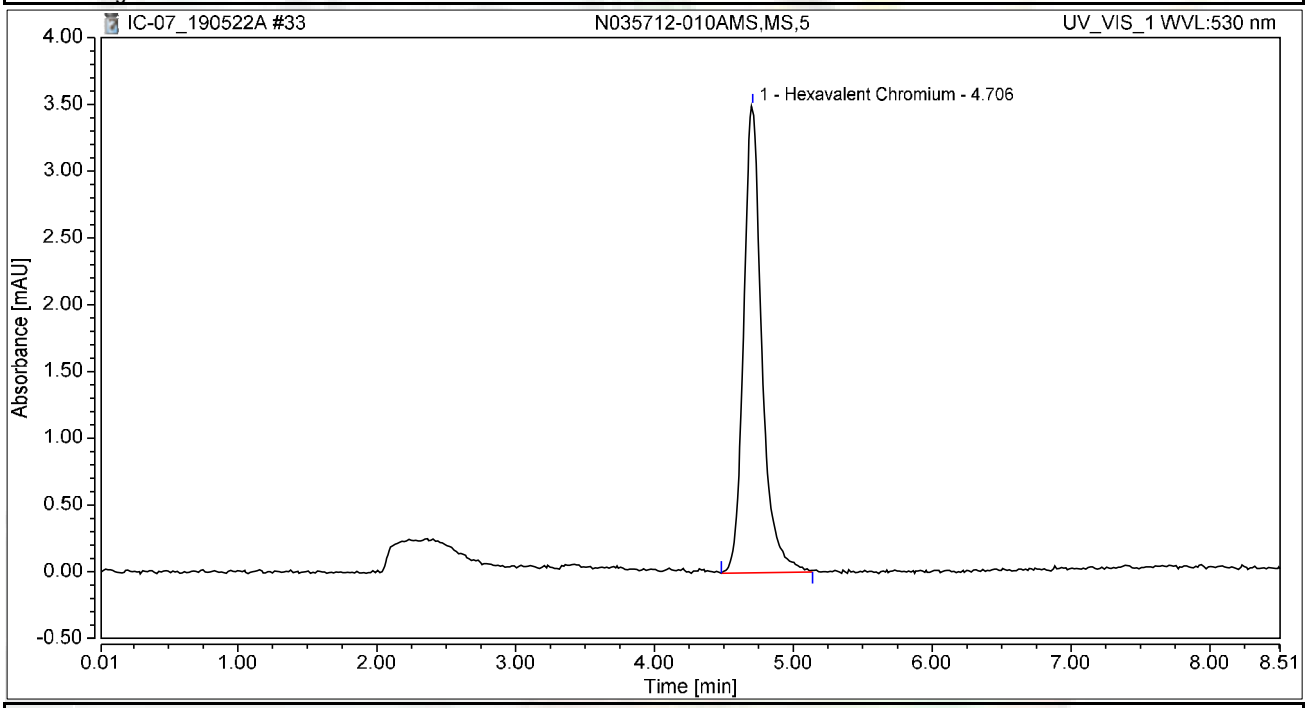
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.275	1.829	100.00	100.00	1.0924
Total:			**0.275**	**1.829**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-010AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 13:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

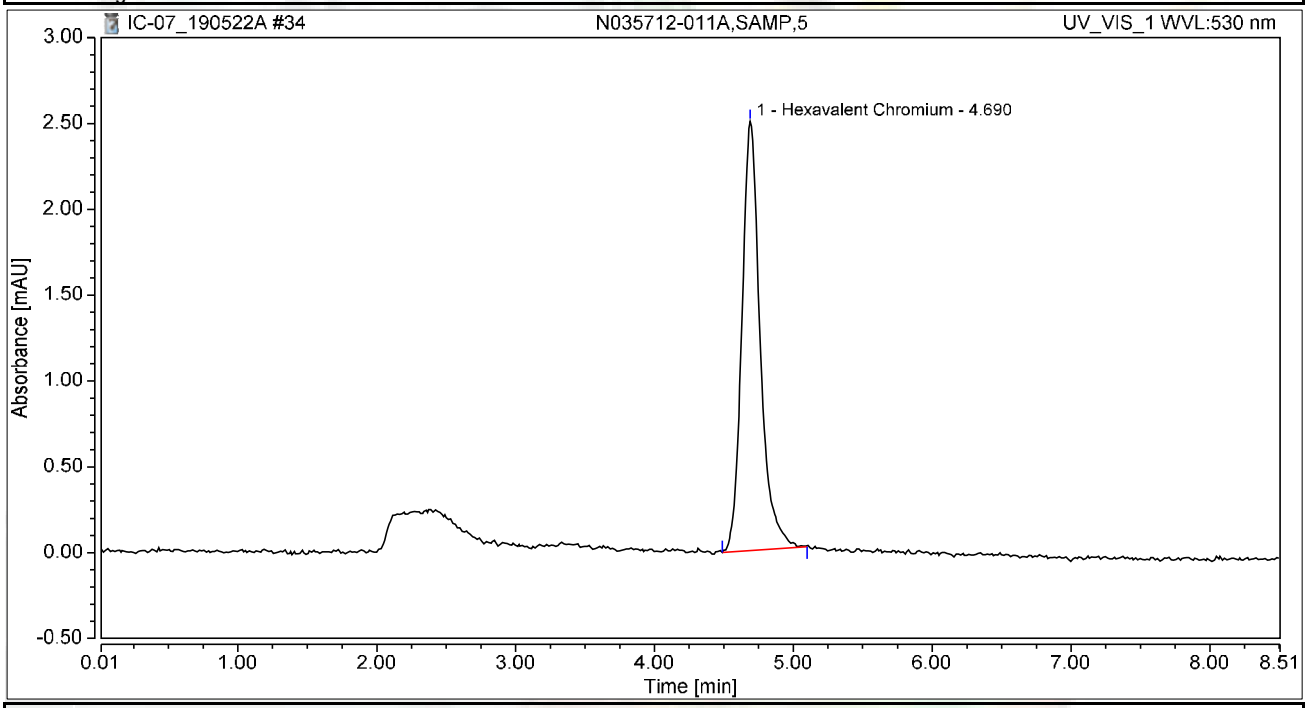
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.532	3.496	100.00	100.00	2.1088
Total:			**0.532**	**3.496**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-011A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 13:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

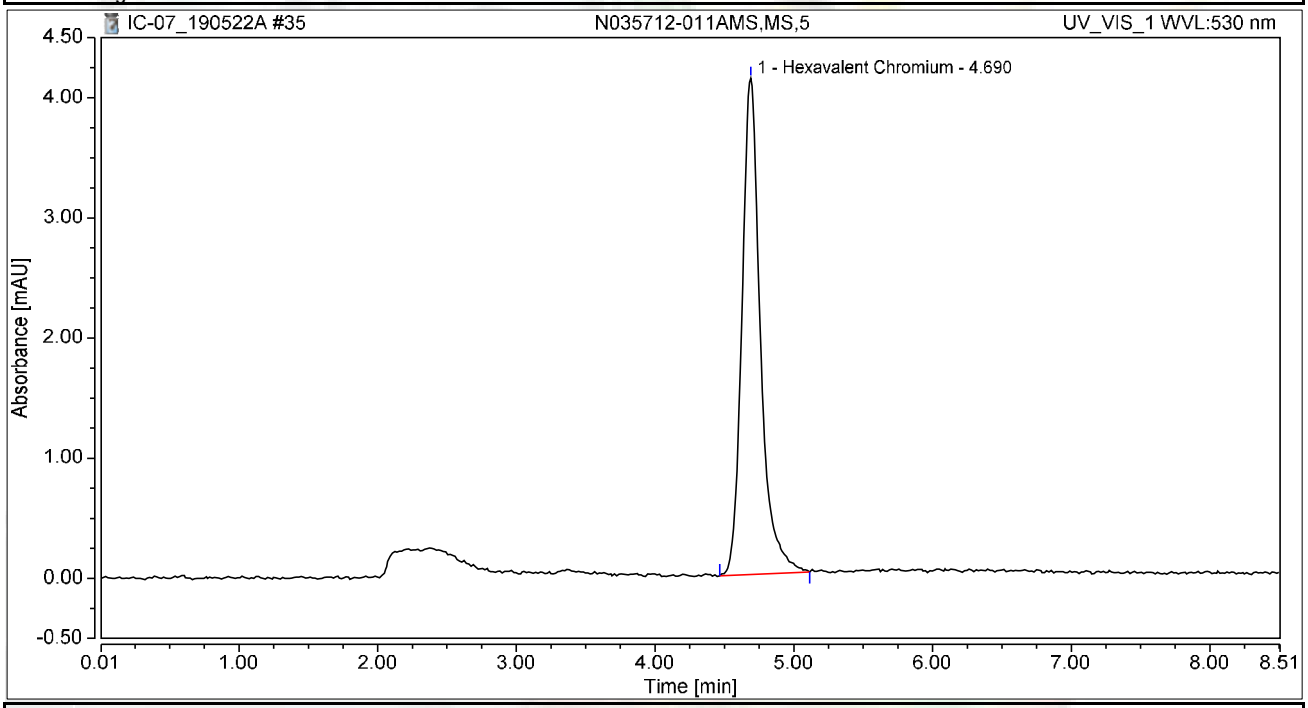
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.382	2.501	100.00	100.00	1.5144
Total:			**0.382**	**2.501**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-011AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 13:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

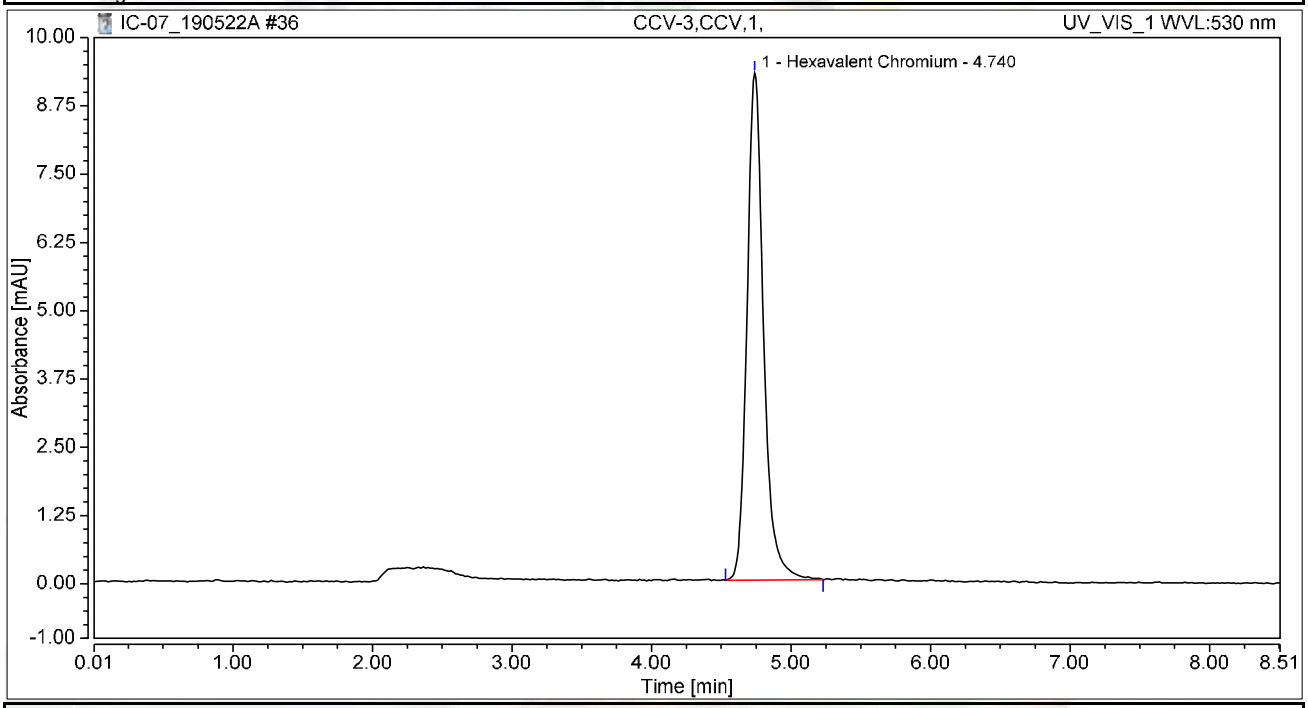
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.638	4.127	100.00	100.00	2.5290
Total:			**0.638**	**4.127**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 13:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

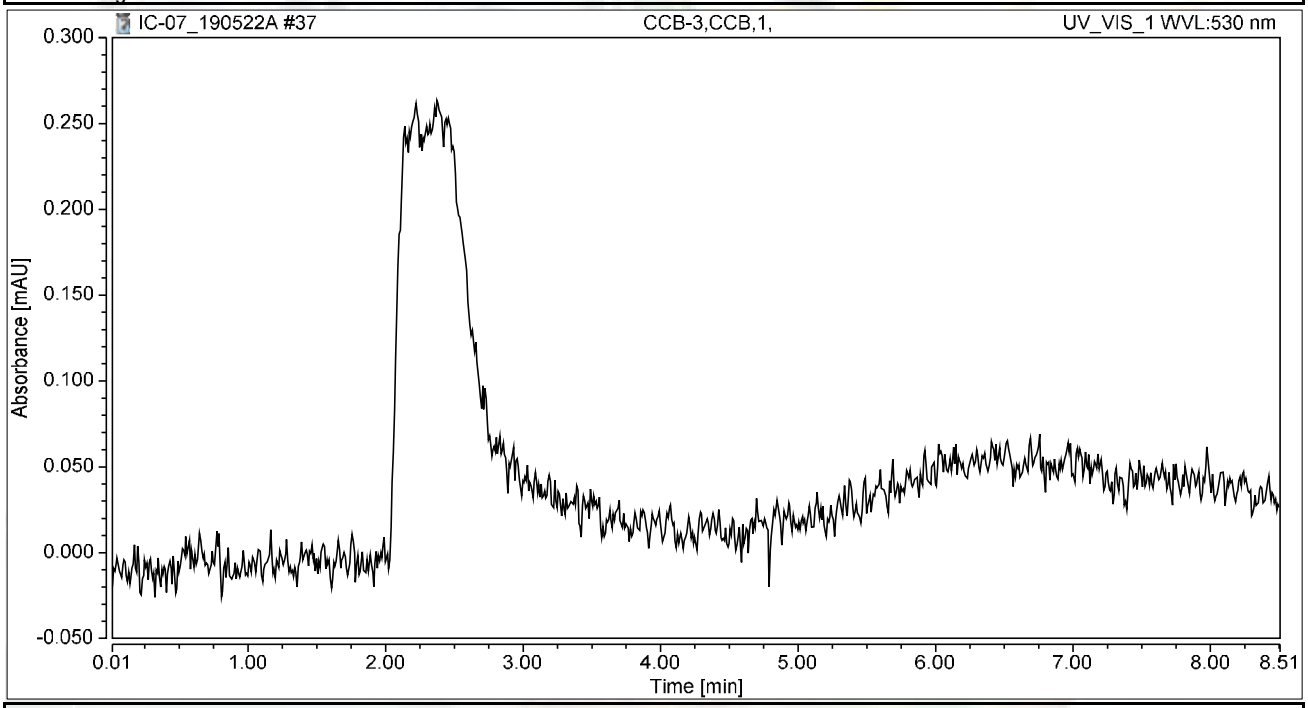
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.279	9.284	100.00	100.00	5.0719
Total:			**1.279**	**9.284**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 13:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

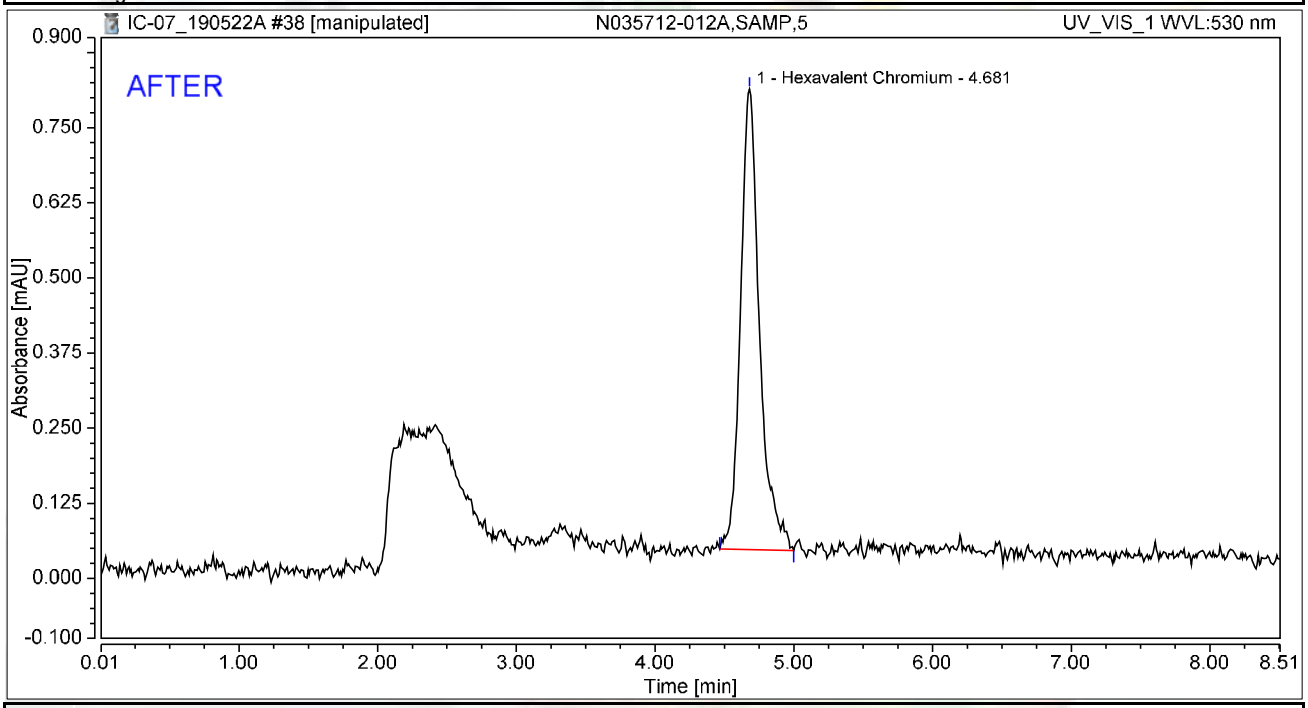
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-012A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 13:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.122	0.766	100.00	100.00	0.4822
Total:			**0.122**	**0.766**	**100.00**	**100.00**	

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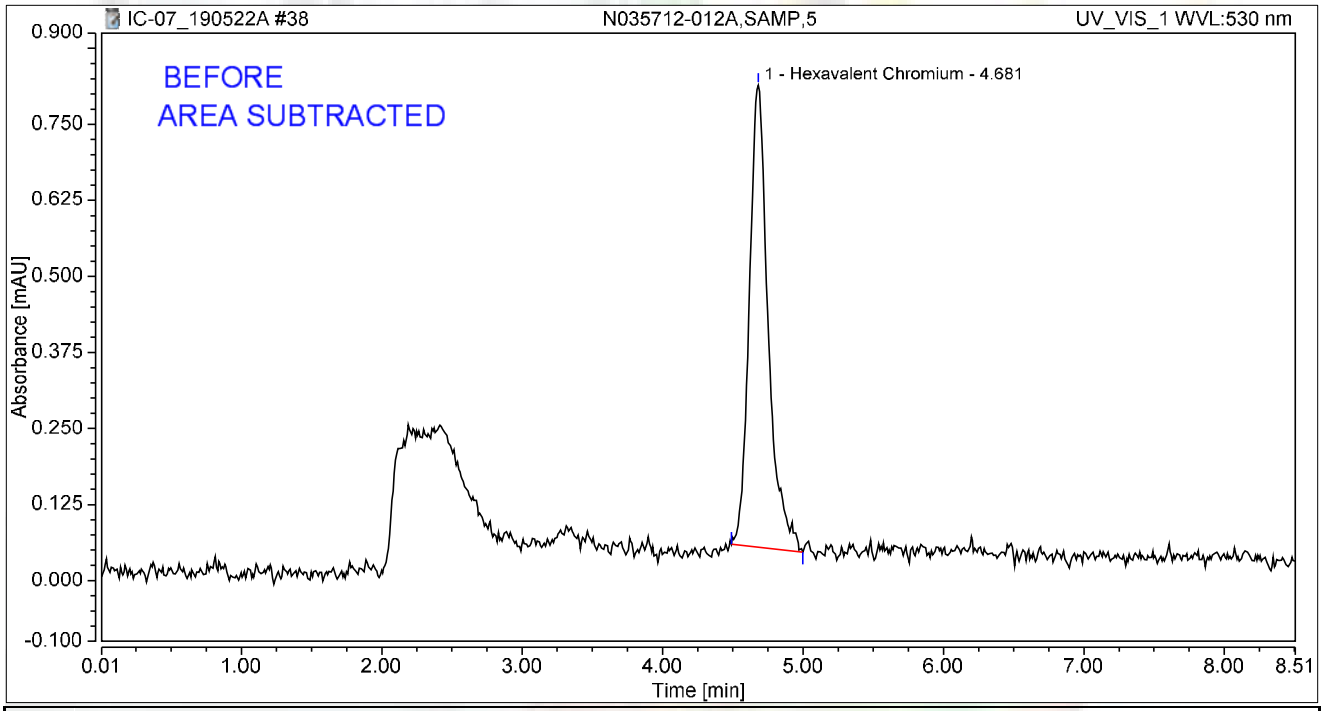
Chromatogram and Results

Injection Details

Injection Name:	**N035712-012A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 13:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.118	0.759	100.00	100.00	0.4700
Total:			**0.118**	**0.759**	**100.00**	**100.00**	

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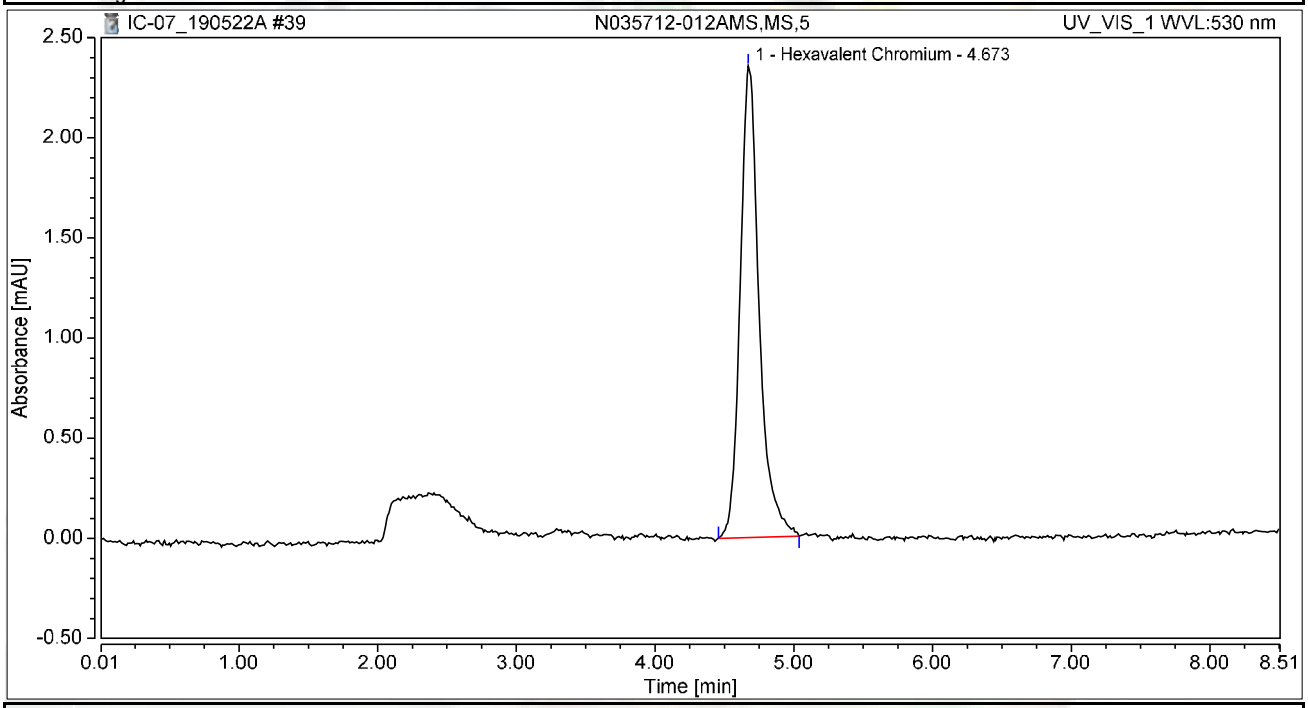
Chromatogram and Results

Injection Details

Injection Name:	**N035712-012AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 13:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

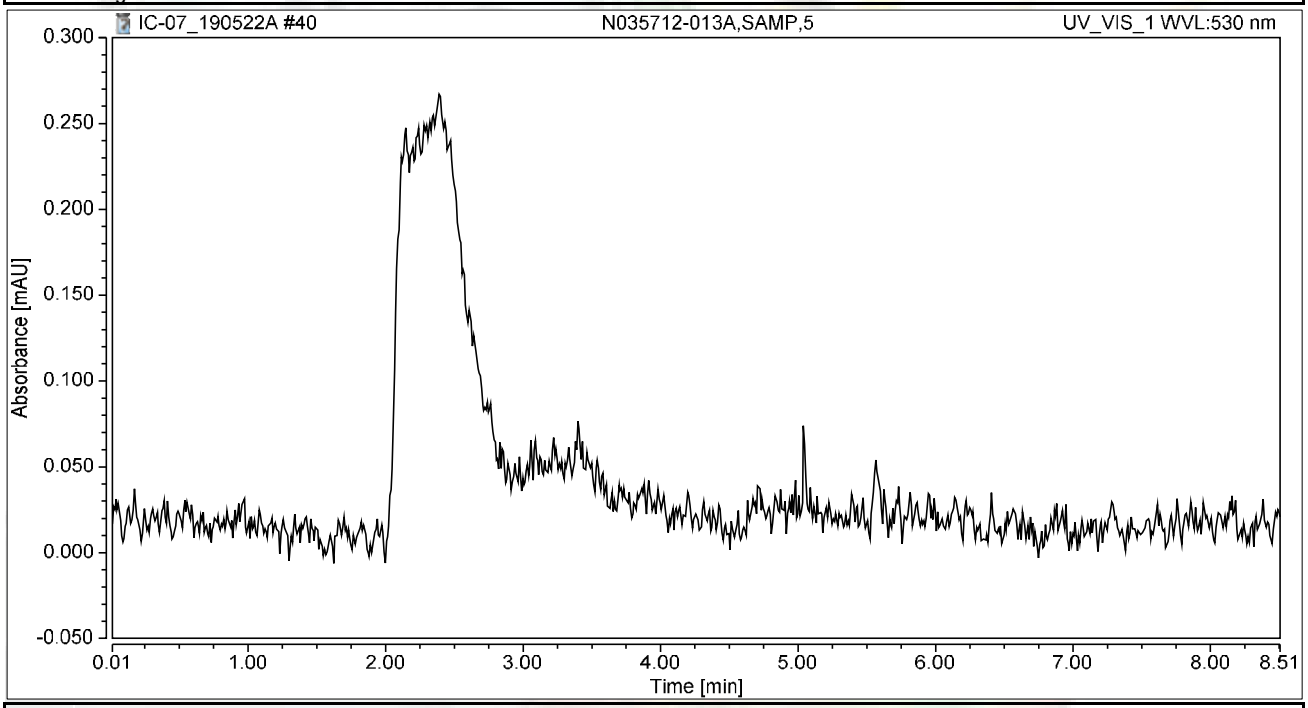
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.374	2.355	100.00	100.00	1.4837
Total:			**0.374**	**2.355**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-013A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 14:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

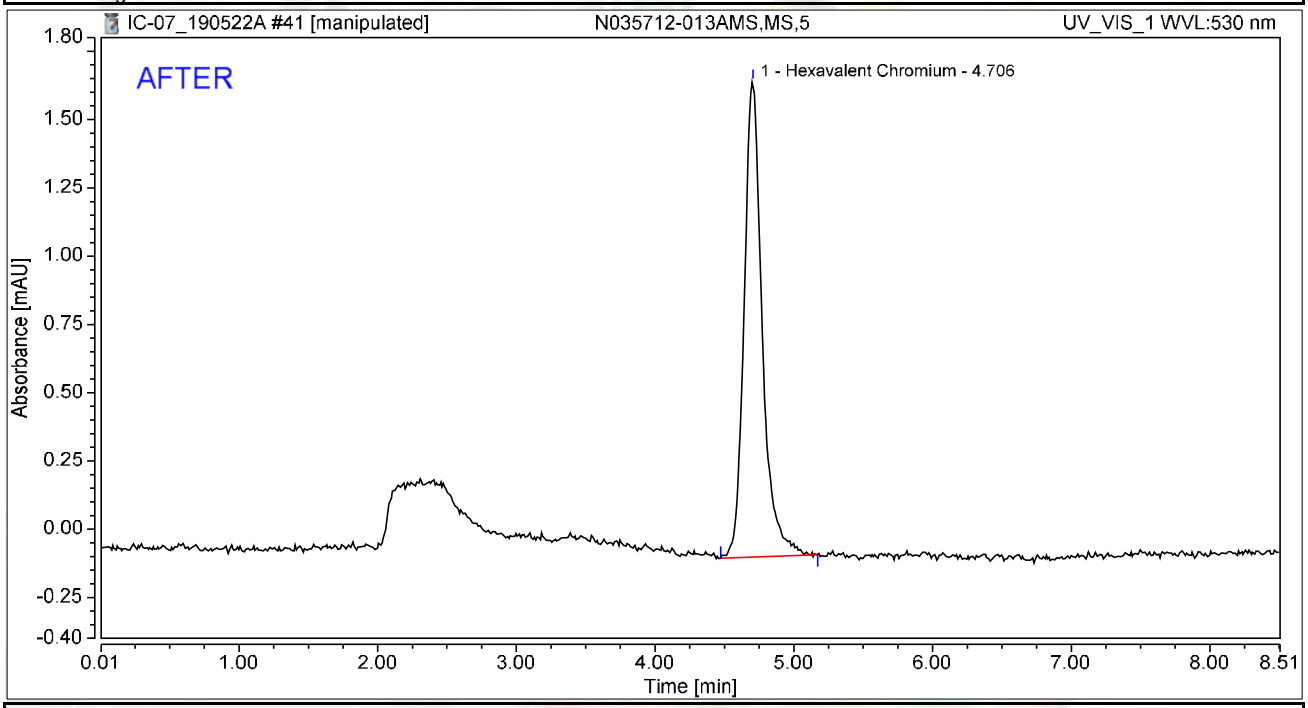
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-013AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 14:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.263	1.741	100.00	100.00	1.0444
Total:			**0.263**	**1.741**	**100.00**	**100.00**	

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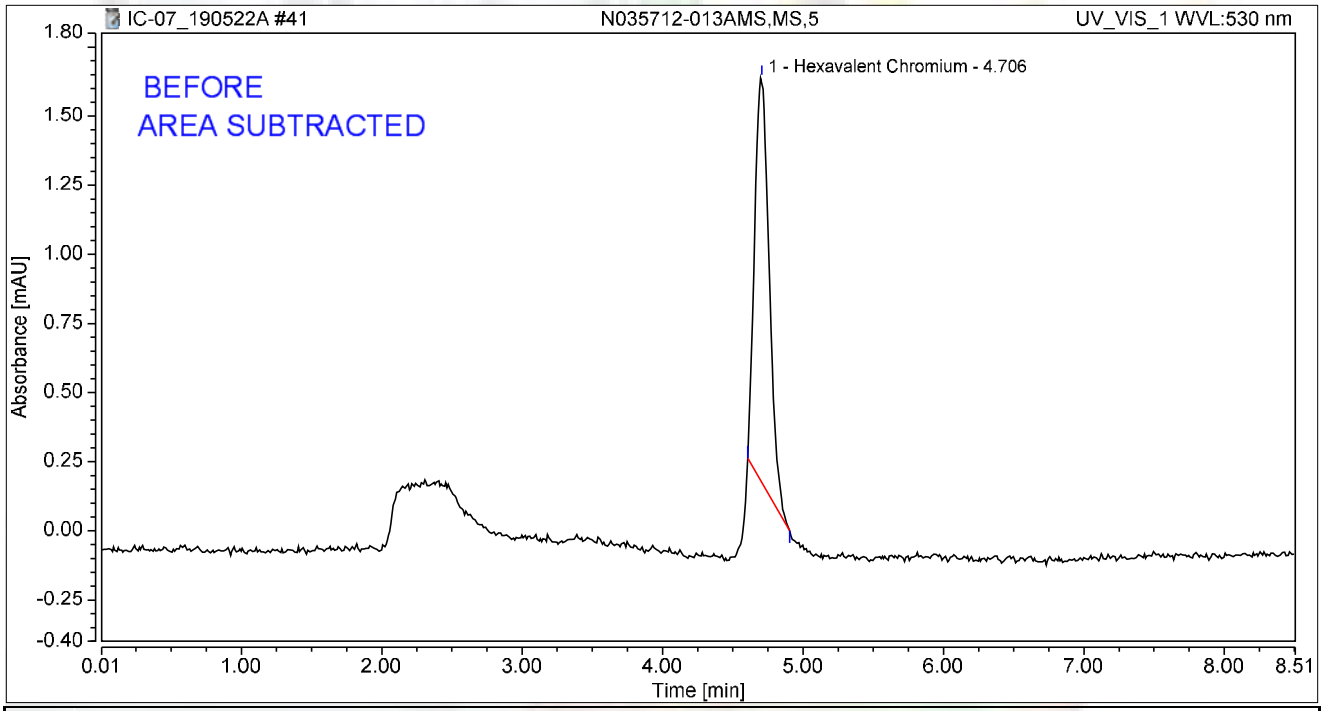
Chromatogram and Results

Injection Details

Injection Name:	**N035712-013AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 14:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.176	1.463	100.00	100.00	0.6986
Total:			**0.176**	**1.463**	**100.00**	**100.00**	

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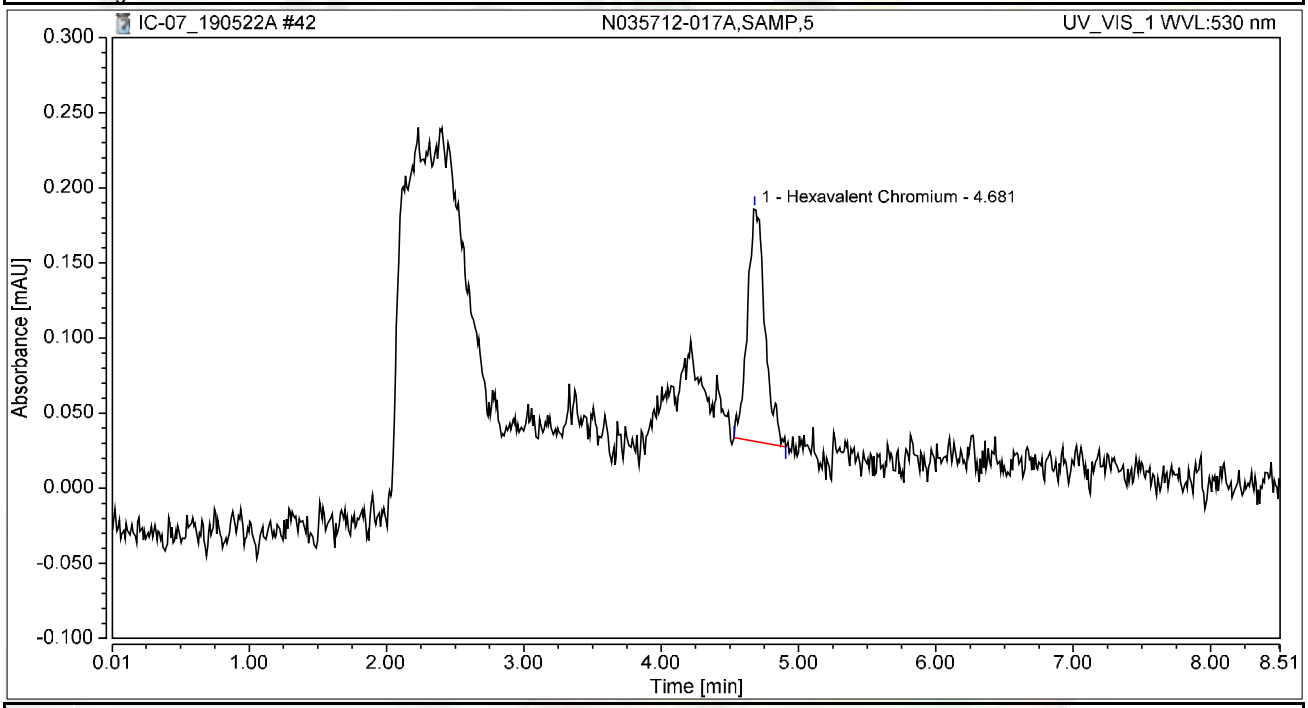
Chromatogram and Results

Injection Details

Injection Name:	**N035712-017A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 14:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

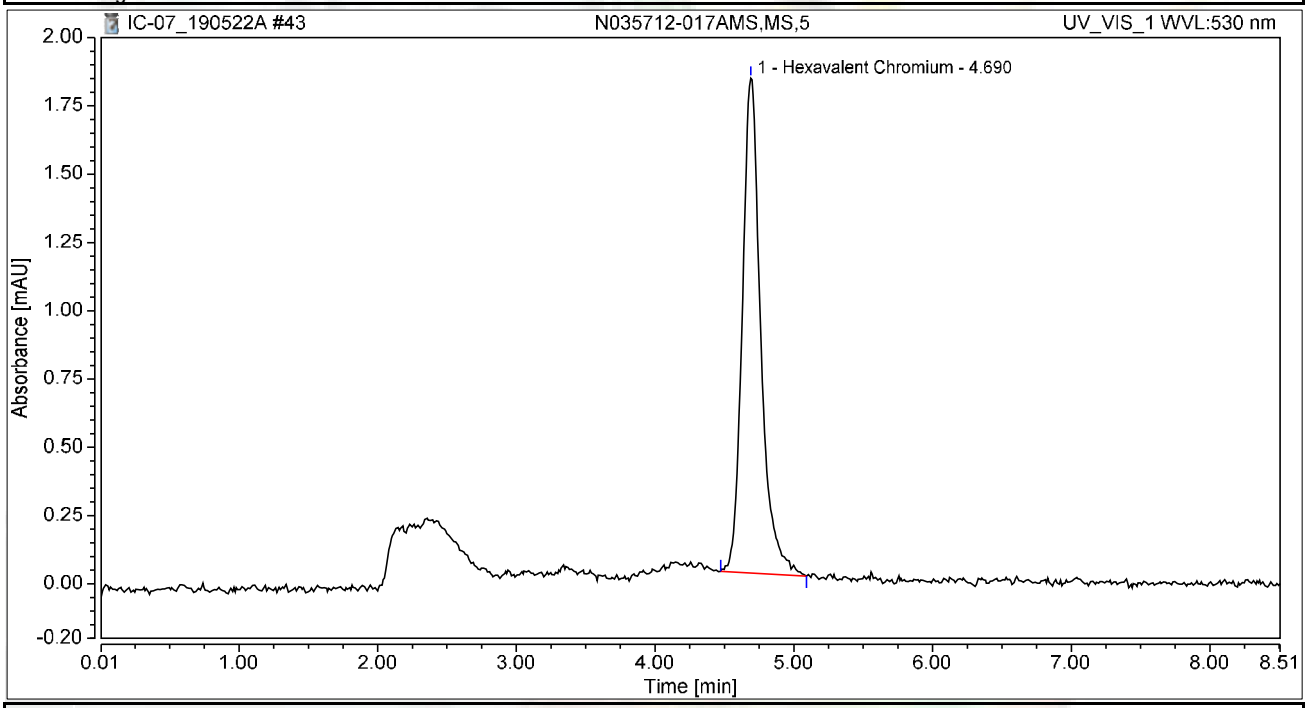
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.023	0.155	100.00	100.00	0.0908
Total:			**0.023**	**0.155**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-017AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 14:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

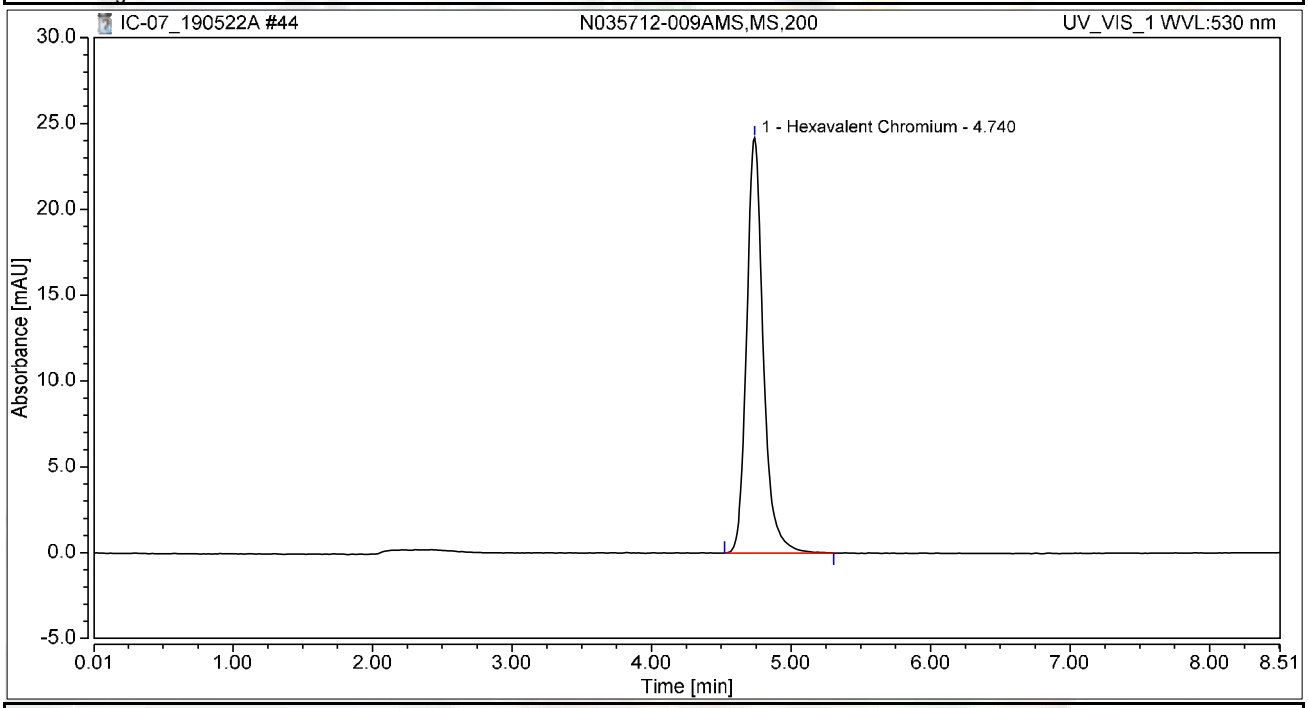
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.280	1.812	100.00	100.00	1.1114
Total:			**0.280**	**1.812**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-009AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 14:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

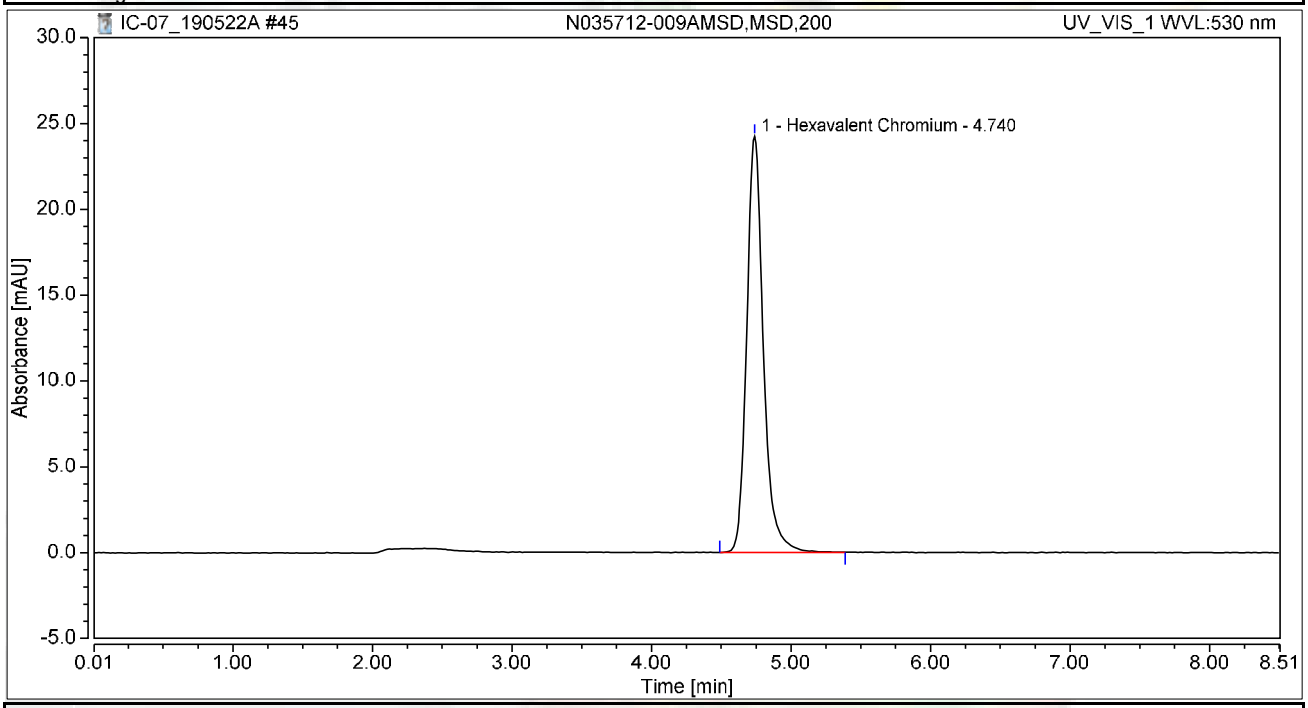
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.350	24.187	100.00	100.00	13.2890
Total:			**3.350**	**24.187**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-009AMSD,MSD,200**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 14:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

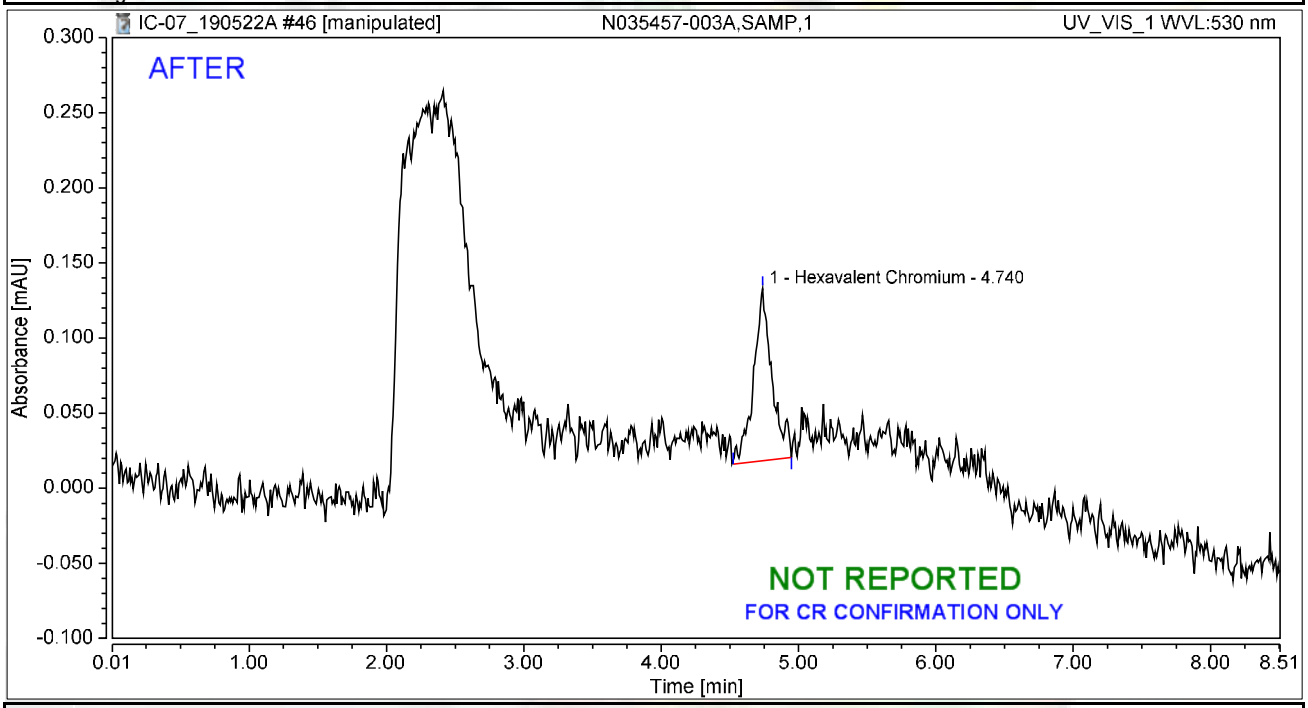
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.359	24.243	100.00	100.00	13.3213
Total:			**3.359**	**24.243**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035457-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 15:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.018	0.115	100.00	100.00	0.0709
Total:			**0.018**	**0.115**	**100.00**	**100.00**	

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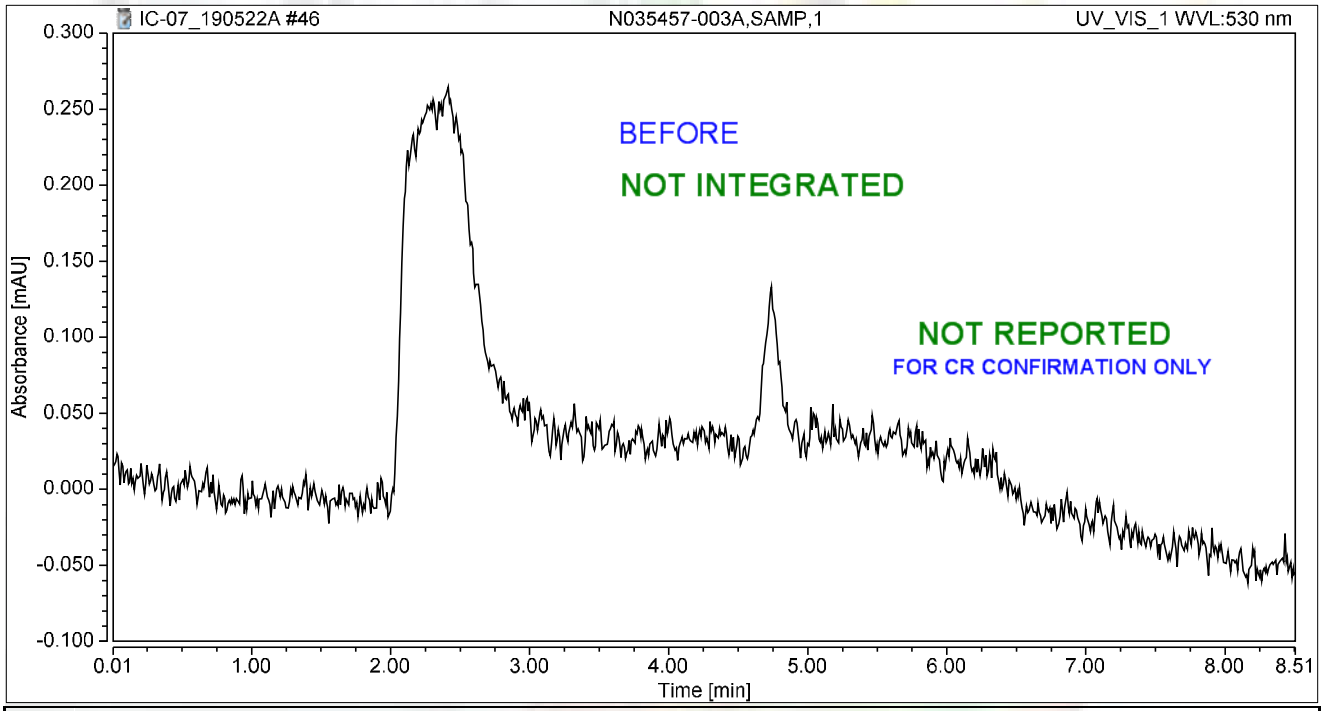
Chromatogram and Results

Injection Details

Injection Name:	**N035457-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 15:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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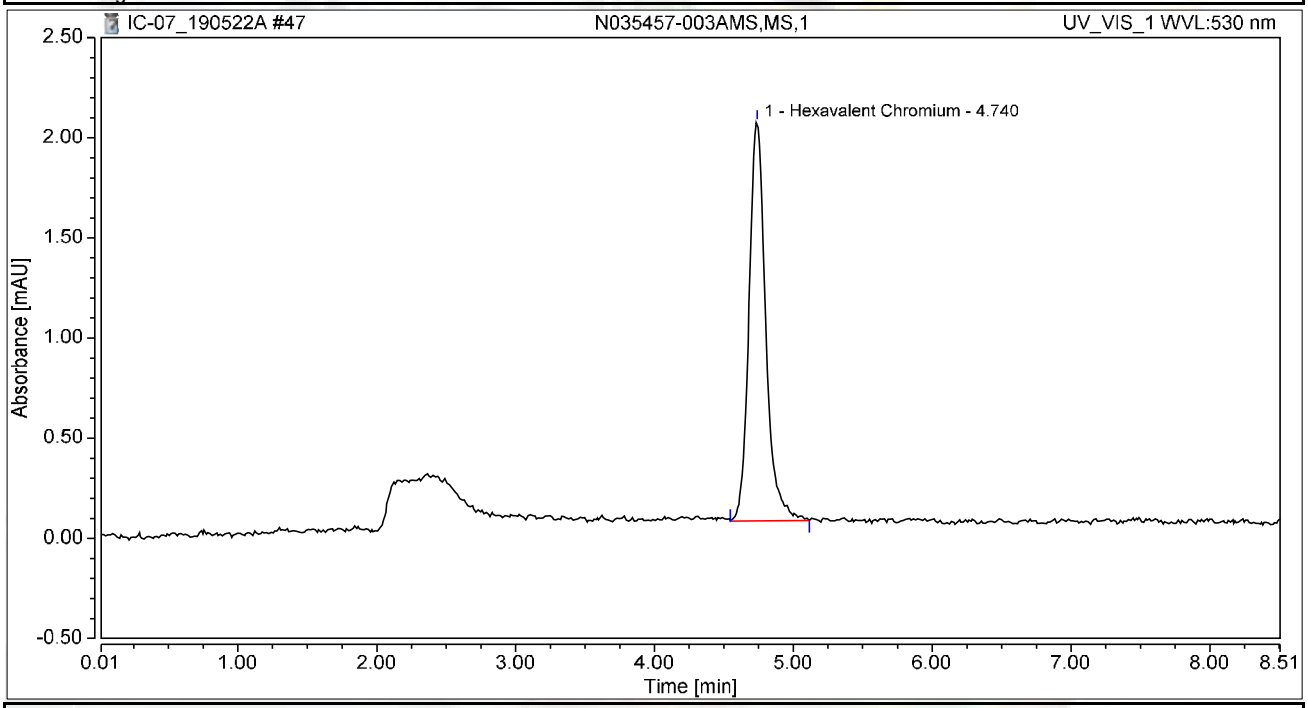
Chromatogram and Results

Injection Details

Injection Name:	**N035457-003AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 15:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

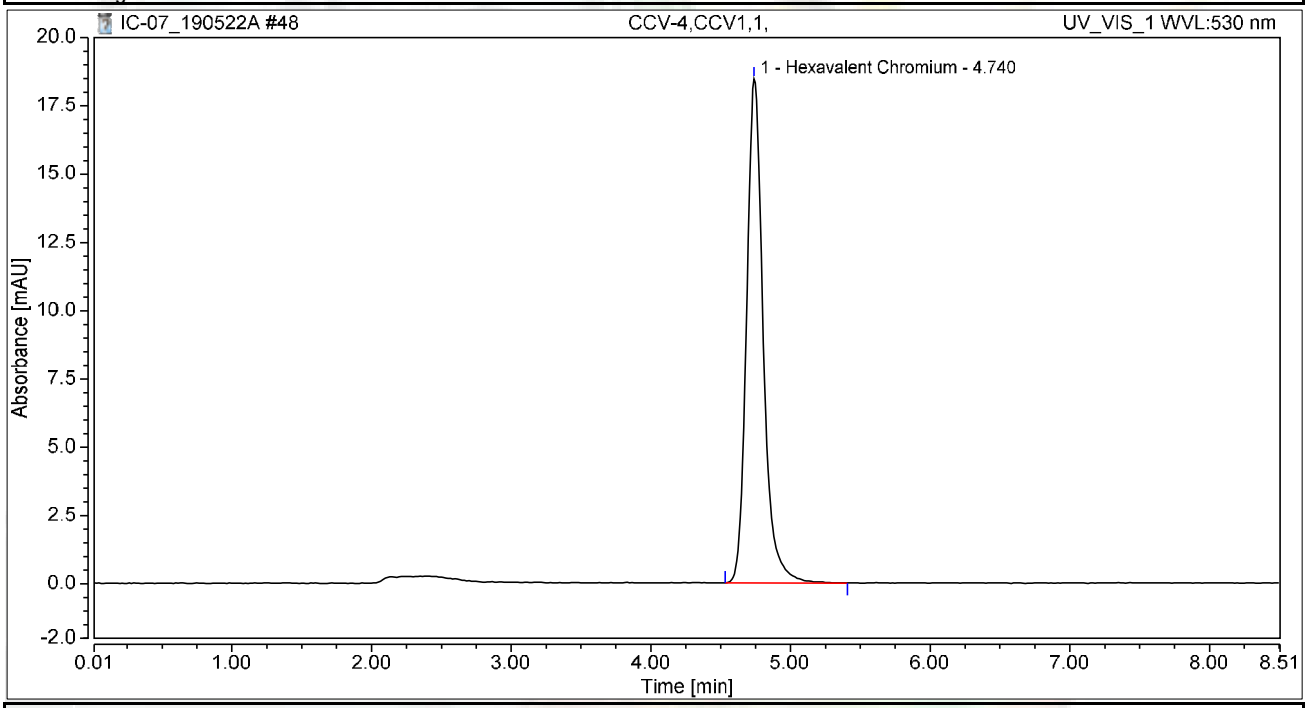
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.279	1.991	100.00	100.00	1.1052
Total:			**0.279**	**1.991**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**39**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 15:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

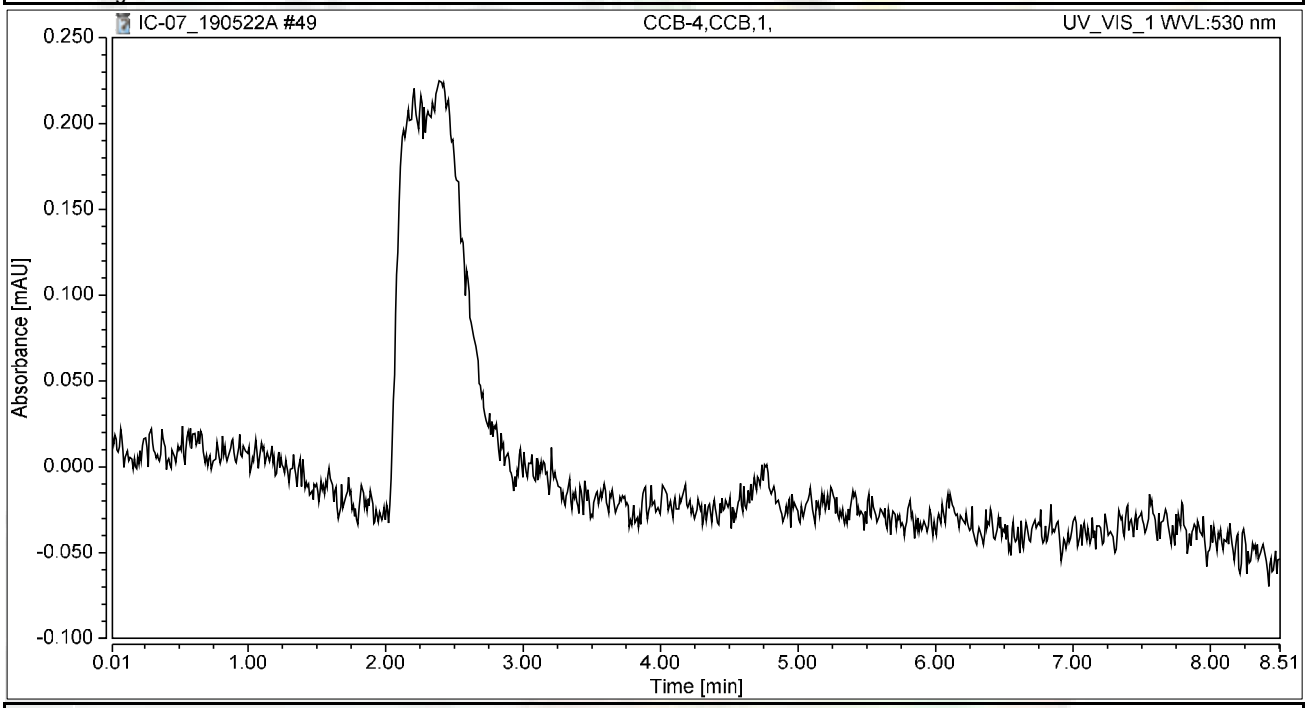
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.554	18.462	100.00	100.00	10.1319
Total:			**2.554**	**18.462**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**40**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 15:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

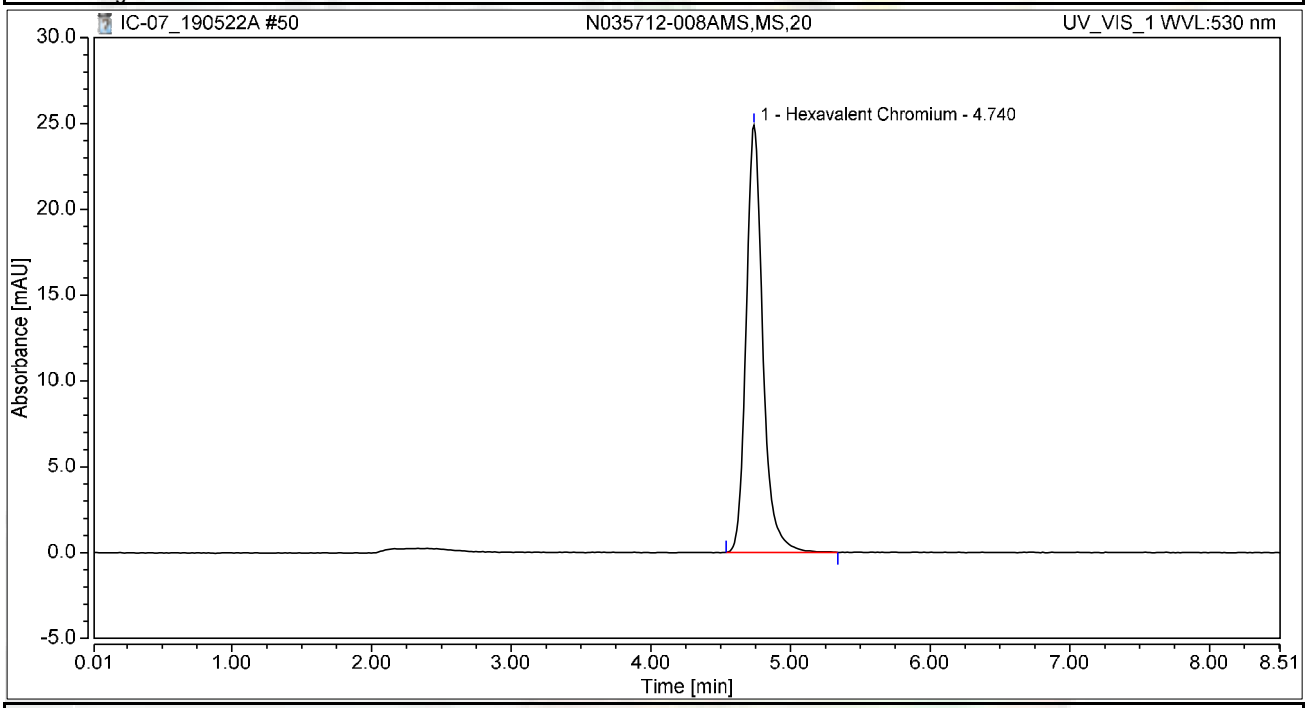
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-008AMS,MS,20**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 15:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

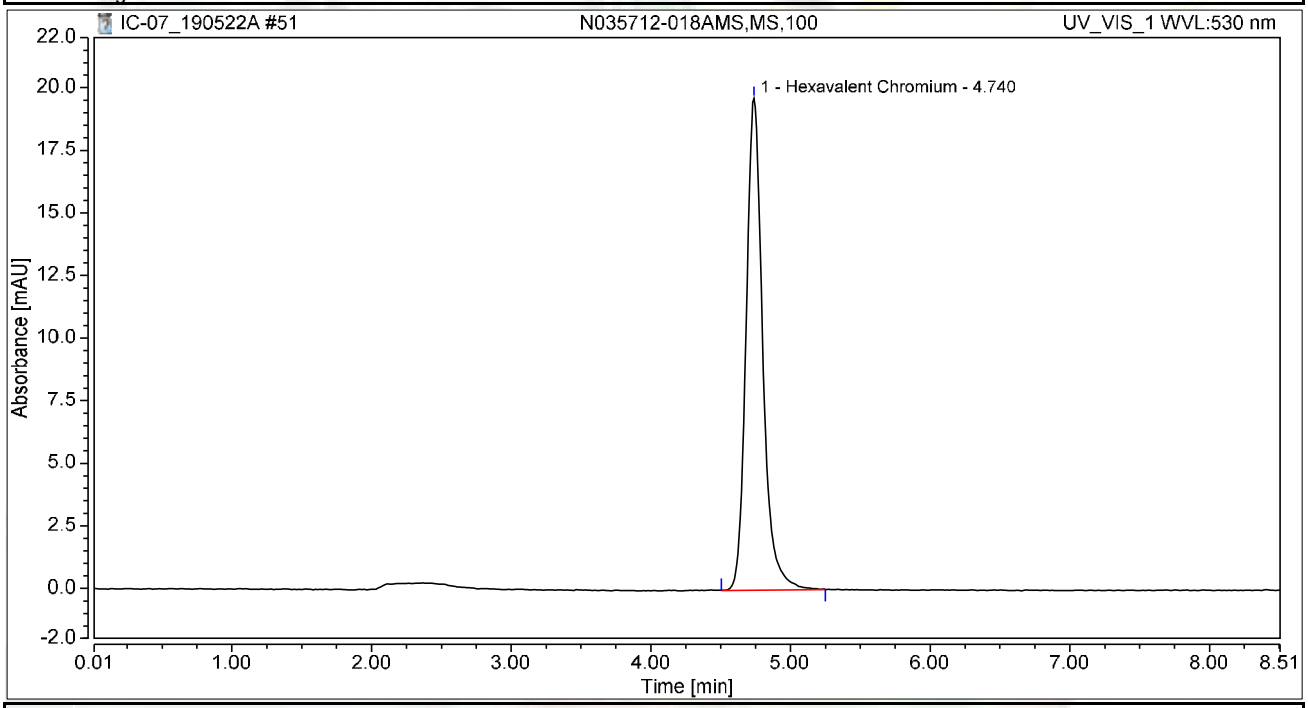
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.452	24.885	100.00	100.00	13.6918
Total:			**3.452**	**24.885**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-018AMS,MS,100**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 15:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

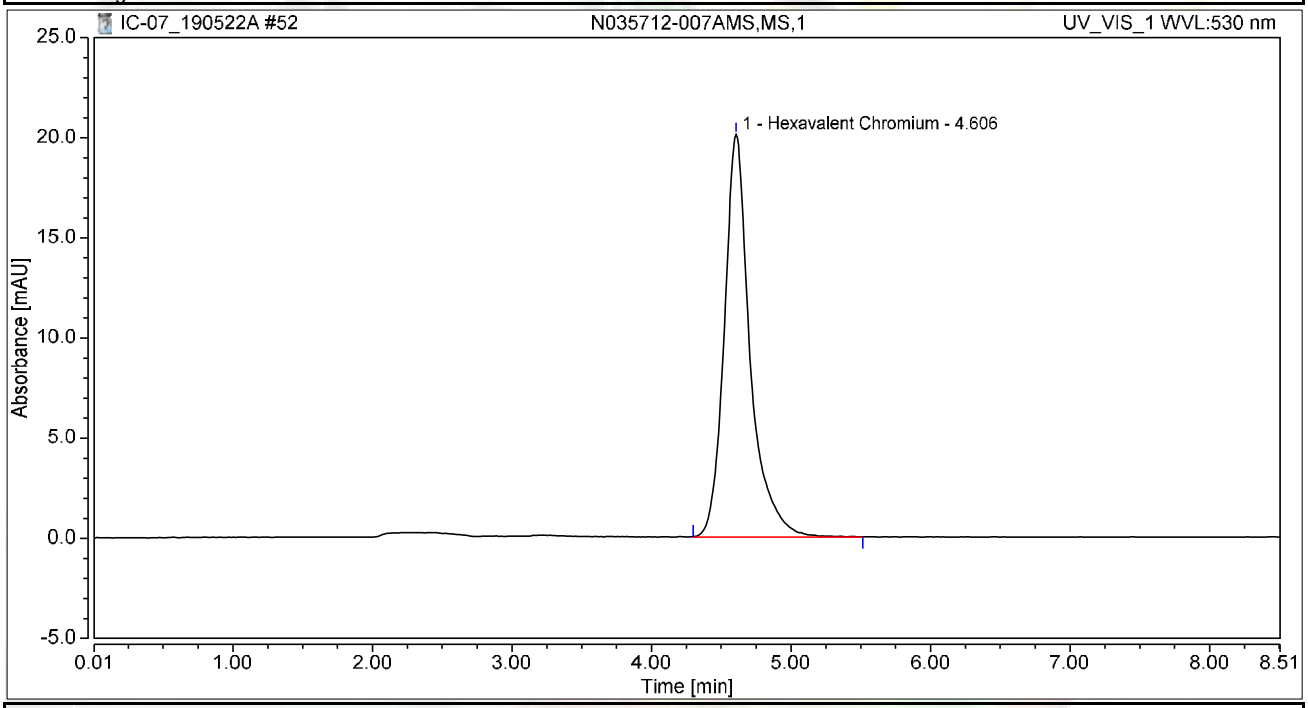
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.711	19.646	100.00	100.00	10.7542
Total:			**2.711**	**19.646**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 16:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

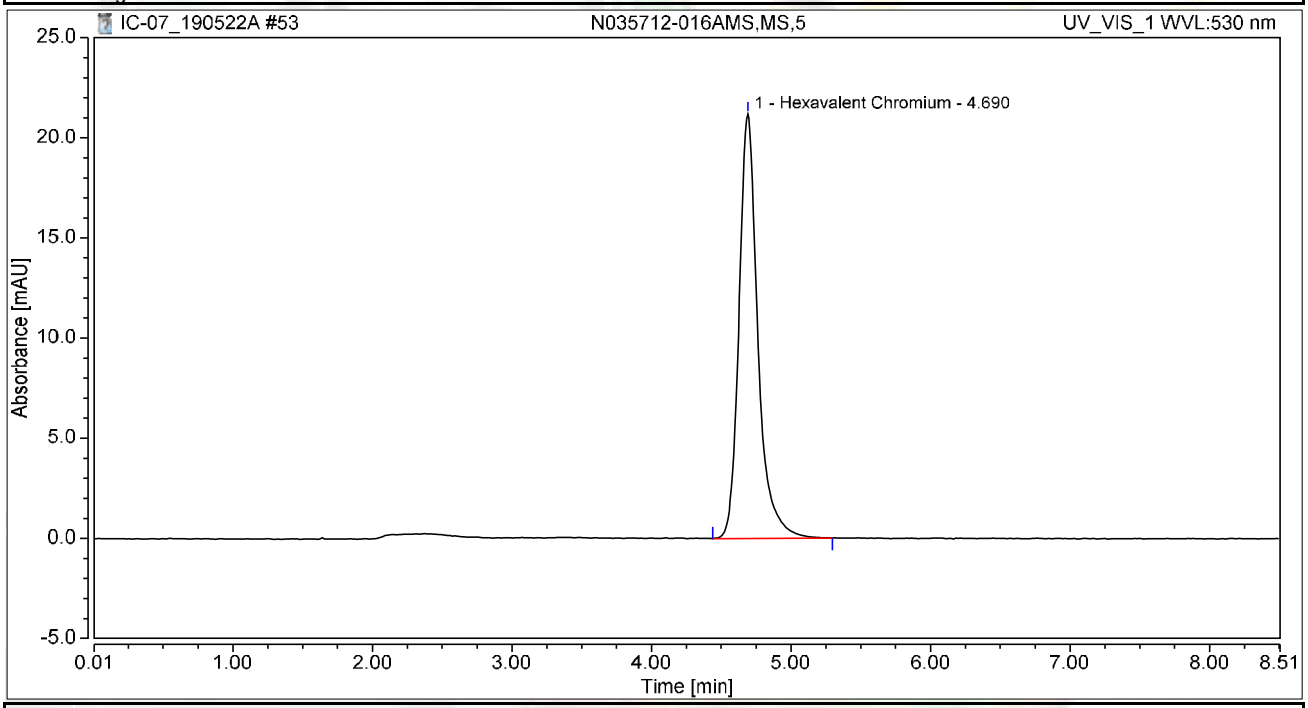
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.606	4.296	20.080	100.00	100.00	17.0390
Total:			**4.296**	**20.080**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-016AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 16:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

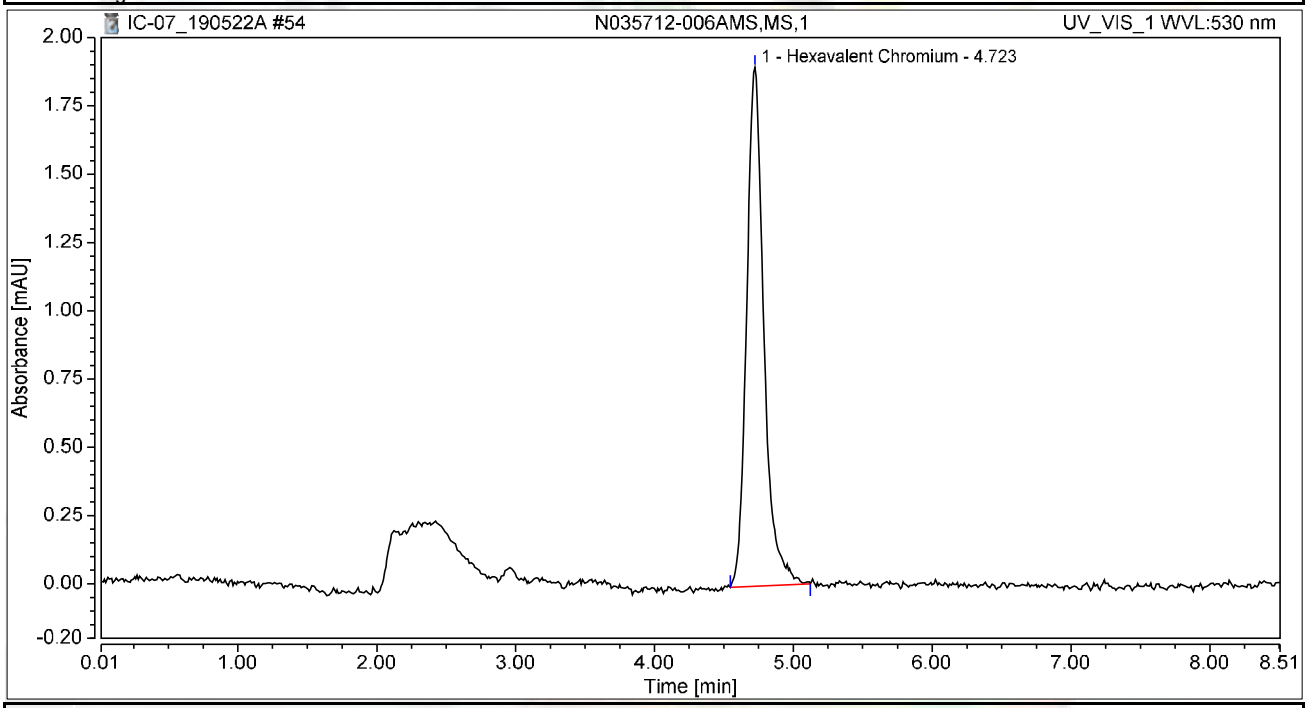
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.316	21.196	100.00	100.00	13.1520
Total:			**3.316**	**21.196**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-006AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 16:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

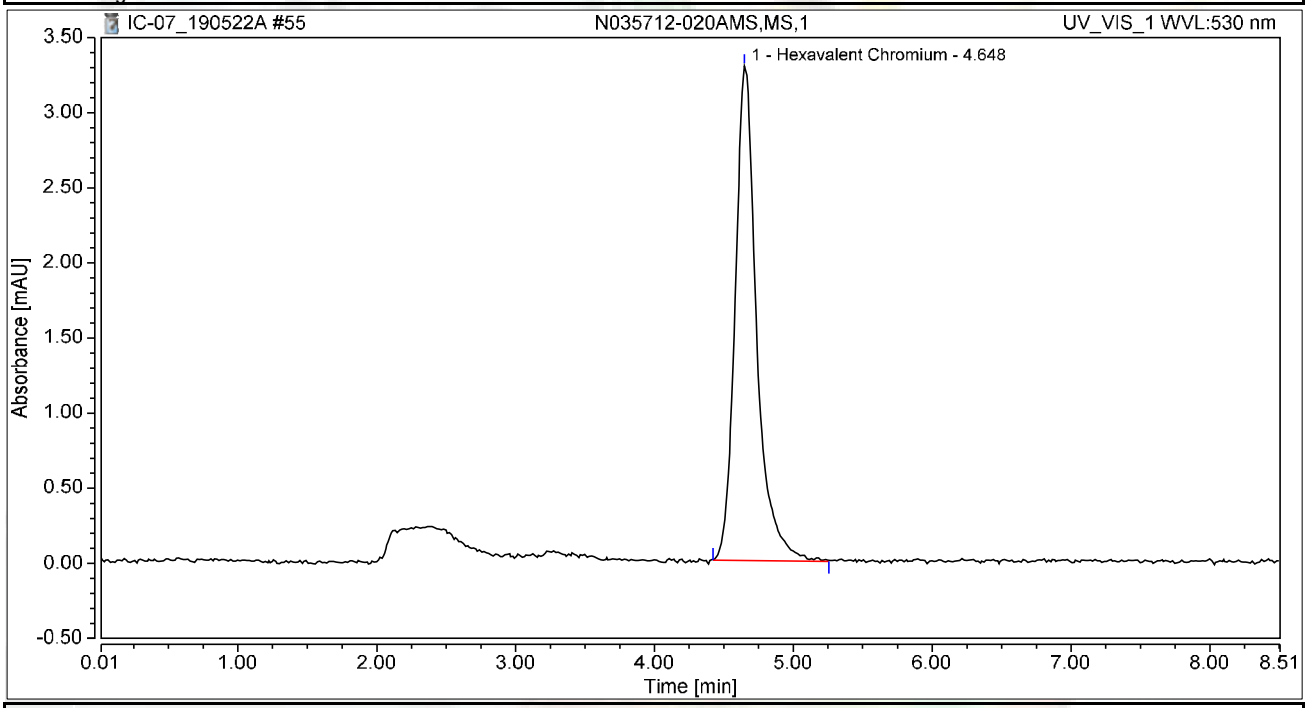
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.273	1.900	100.00	100.00	1.0846
Total:			**0.273**	**1.900**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-020AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 16:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

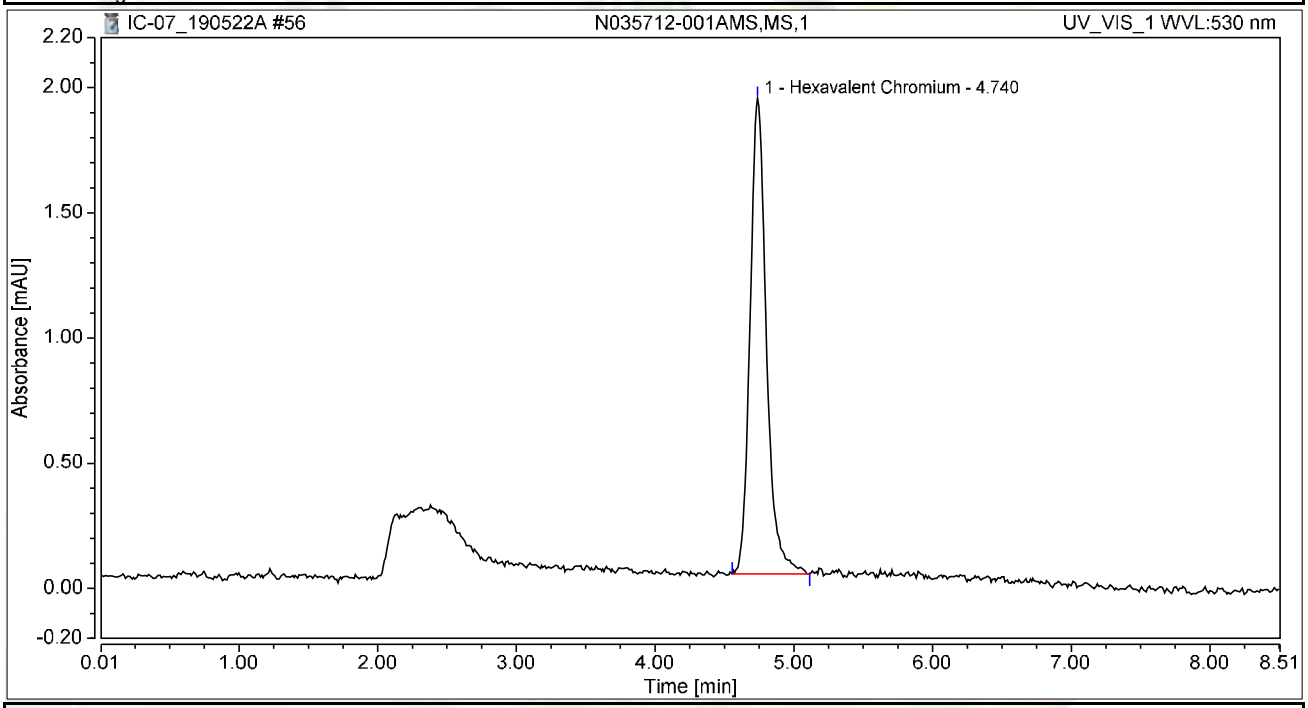
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.590	3.290	100.00	100.00	2.3399
Total:			**0.590**	**3.290**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 16:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

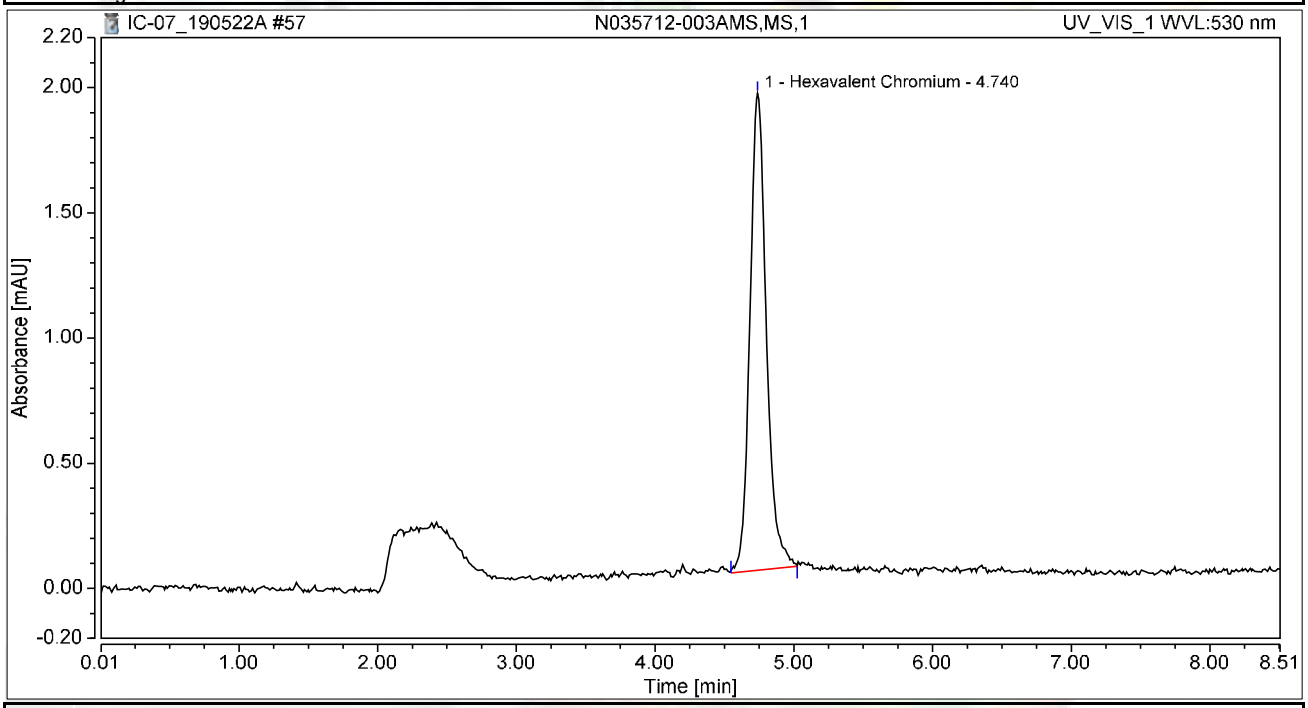
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.260	1.900	100.00	100.00	1.0316
Total:			**0.260**	**1.900**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 16:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

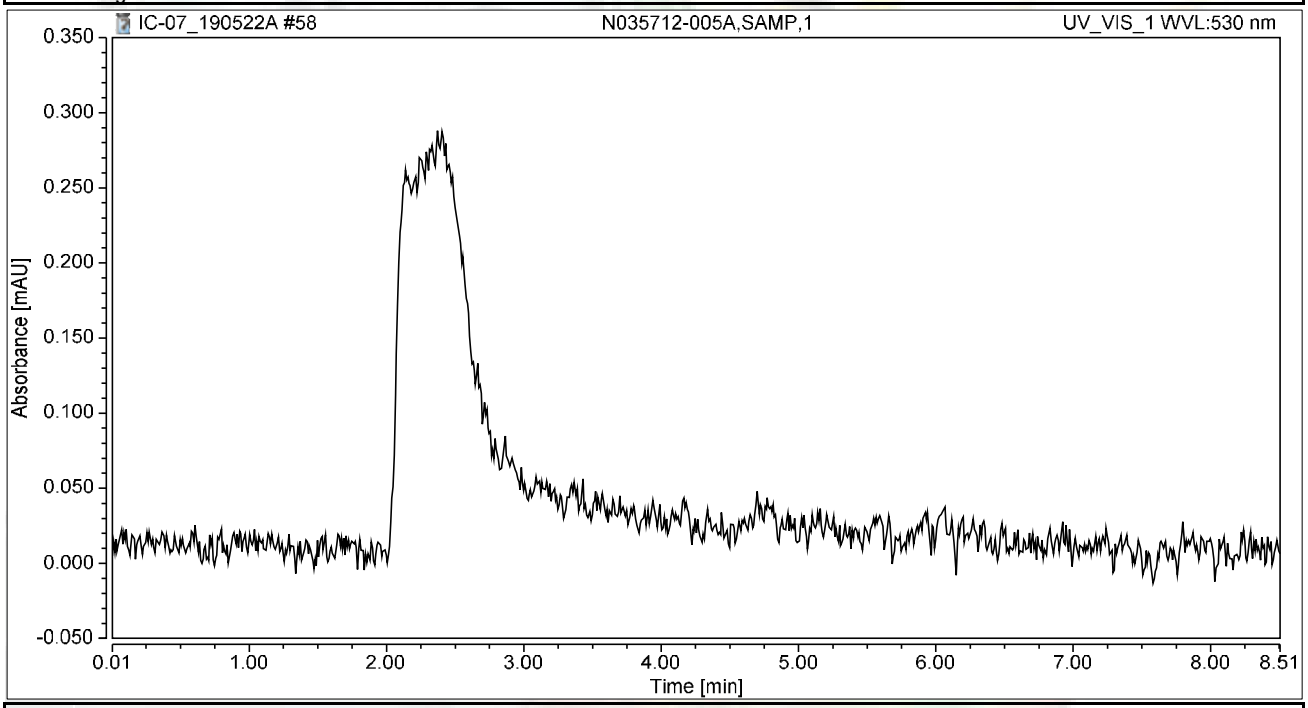
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.261	1.904	100.00	100.00	1.0362
Total:			**0.261**	**1.904**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 17:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

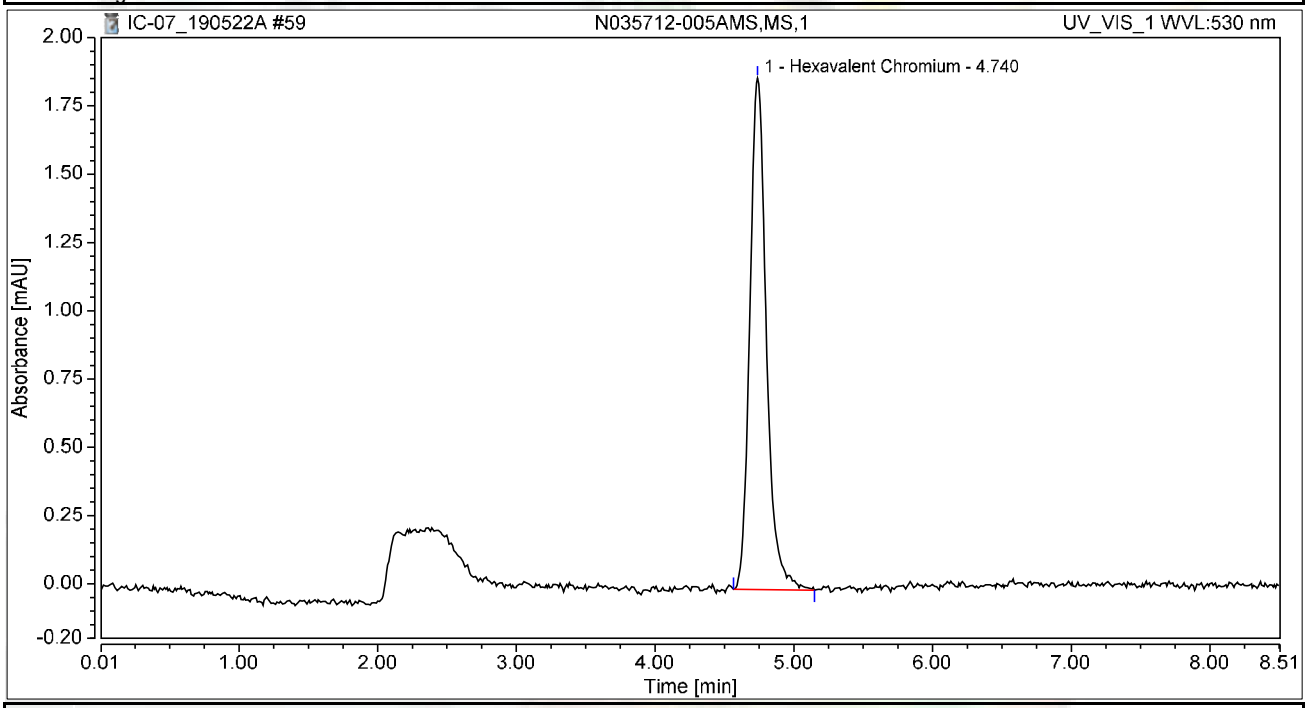
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-005AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 17:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

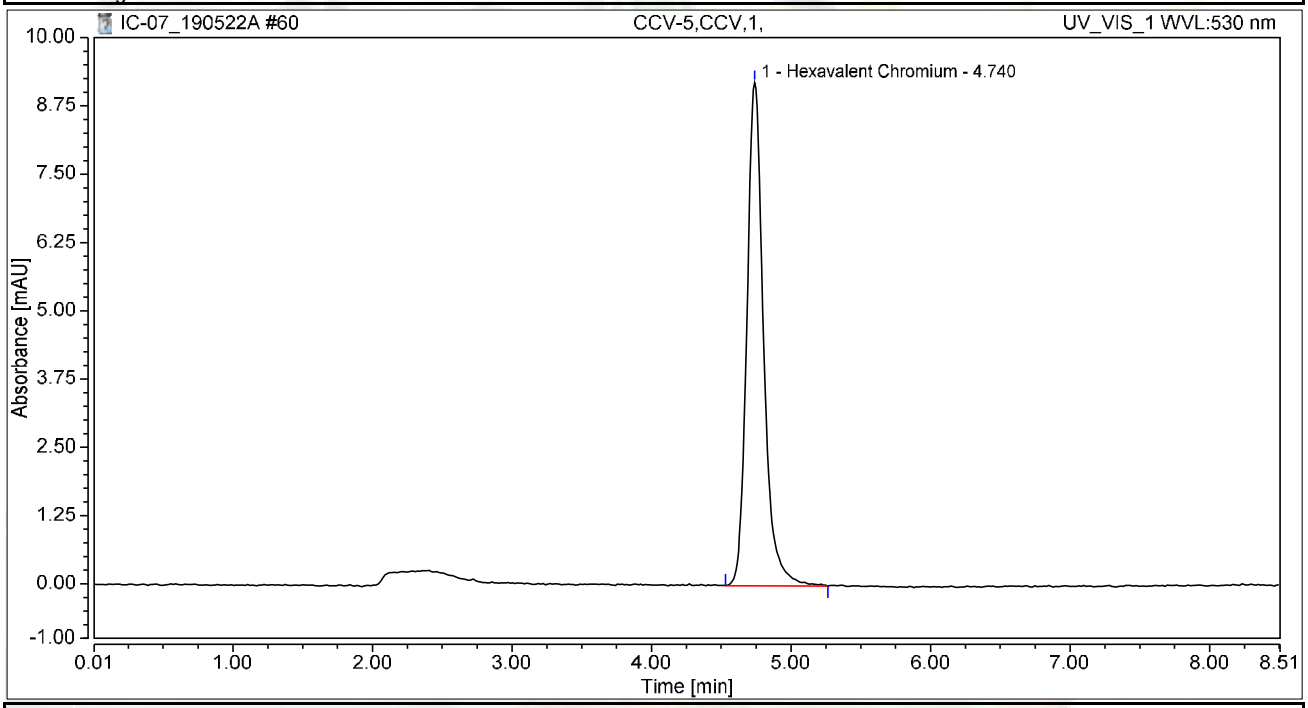
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.259	1.873	100.00	100.00	1.0288
Total:			**0.259**	**1.873**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 17:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

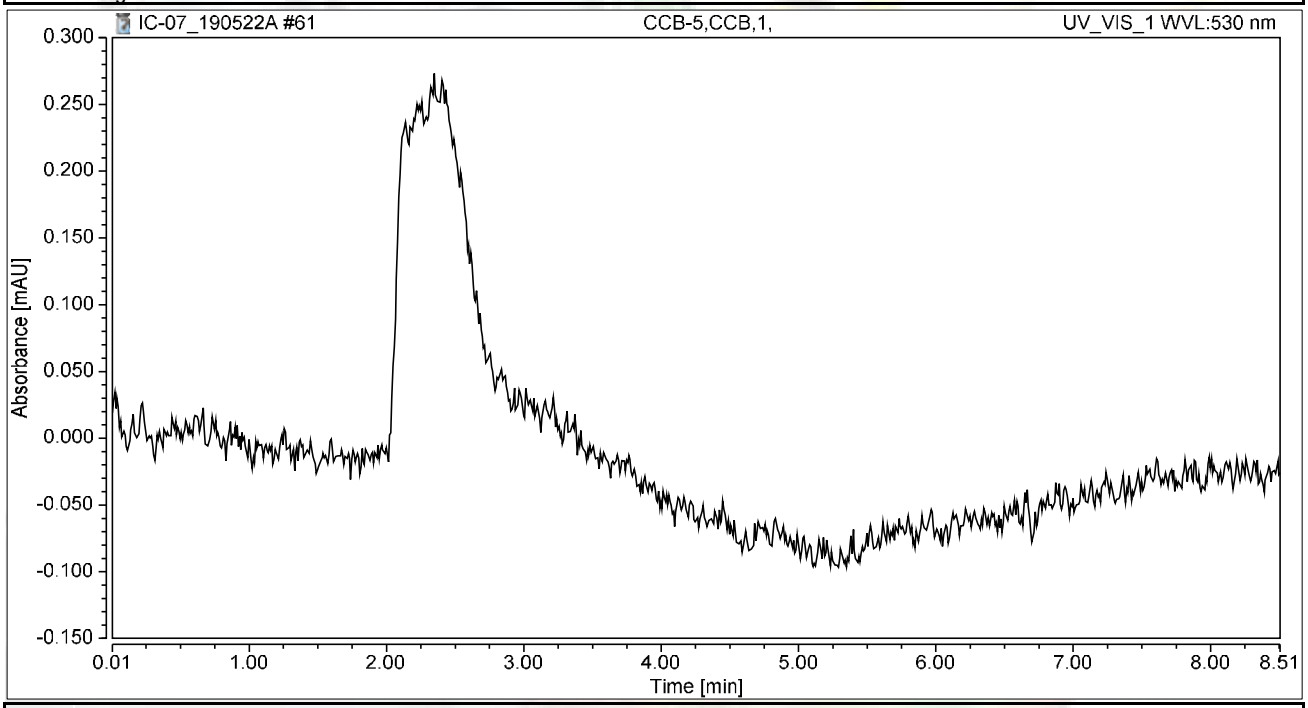
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.277	9.212	100.00	100.00	5.0644
Total:			**1.277**	**9.212**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 17:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

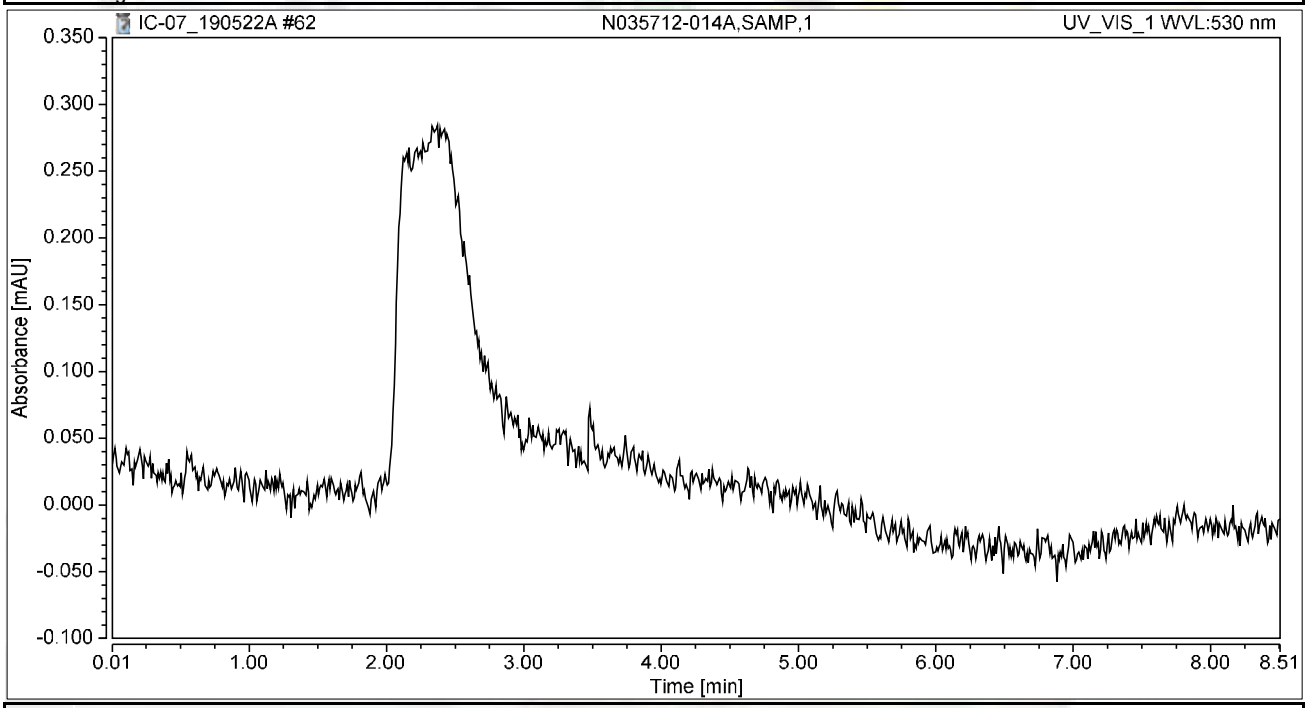
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-014A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 17:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

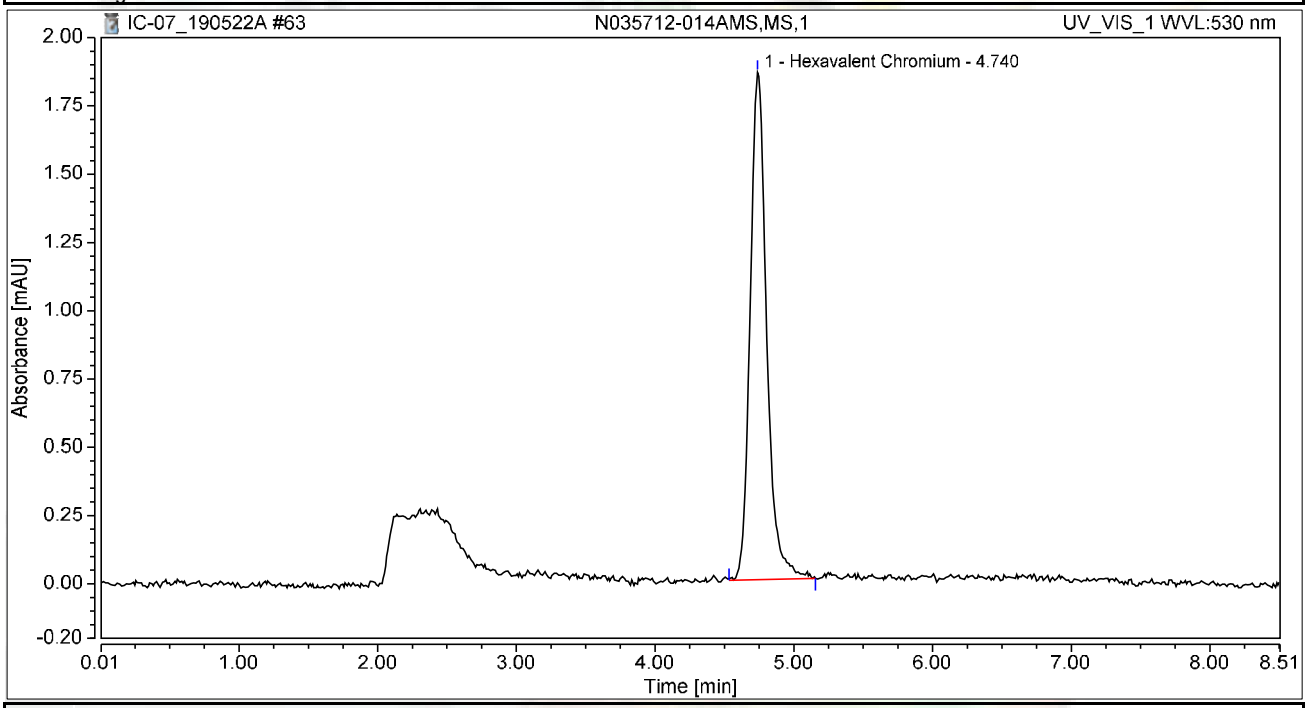
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-014AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 17:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

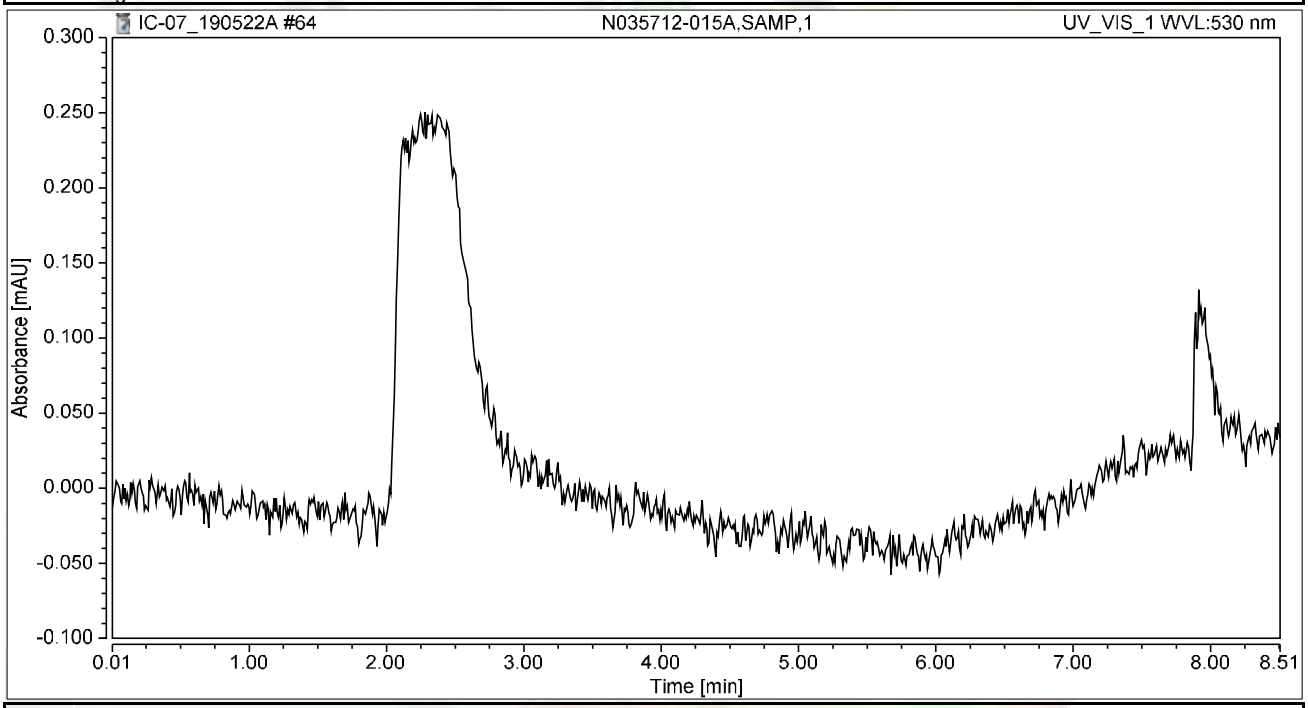
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.256	1.857	100.00	100.00	1.0163
Total:			**0.256**	**1.857**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-015A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 17:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

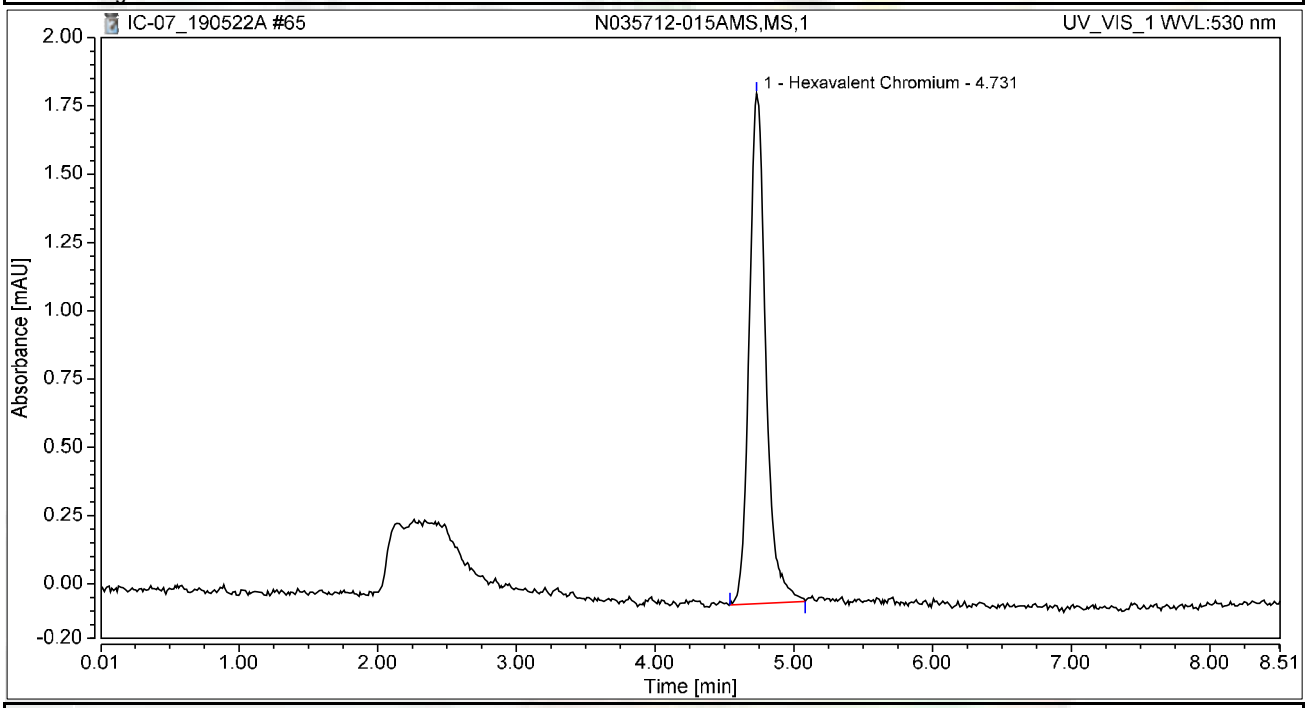
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-015AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 18:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

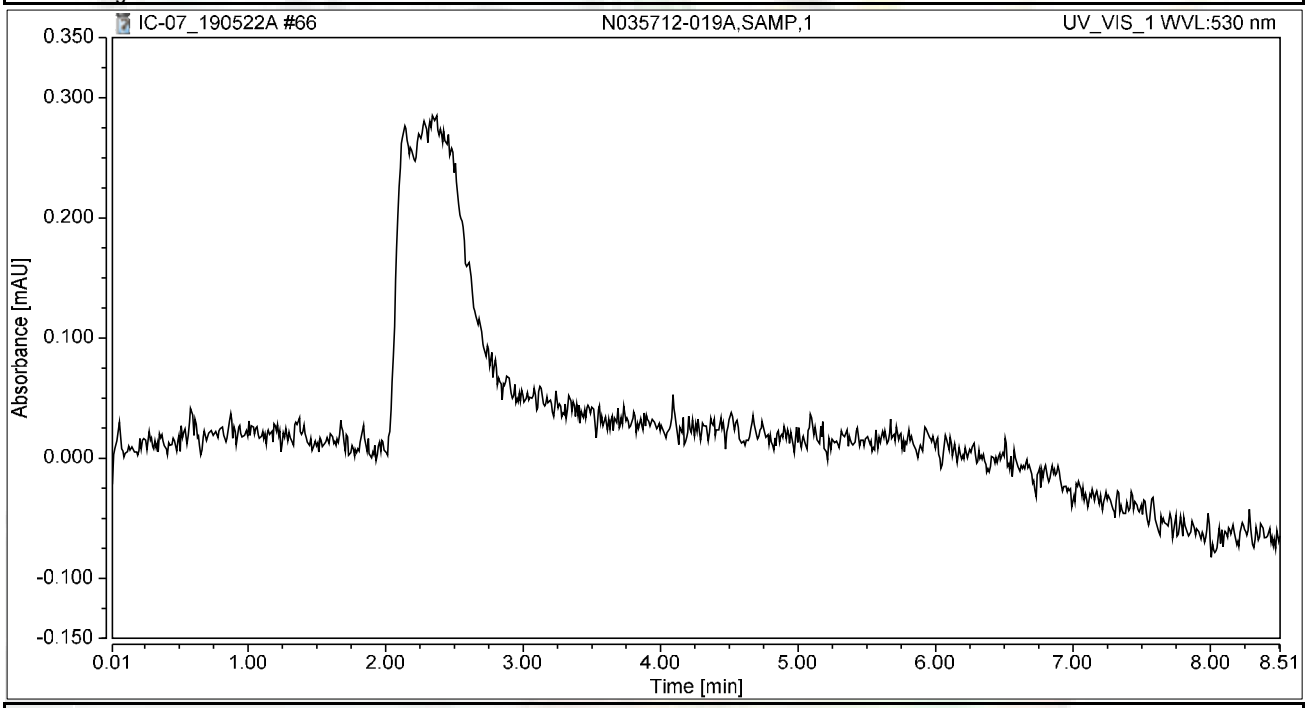
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.258	1.867	100.00	100.00	1.0226
Total:			**0.258**	**1.867**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-019A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 18:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

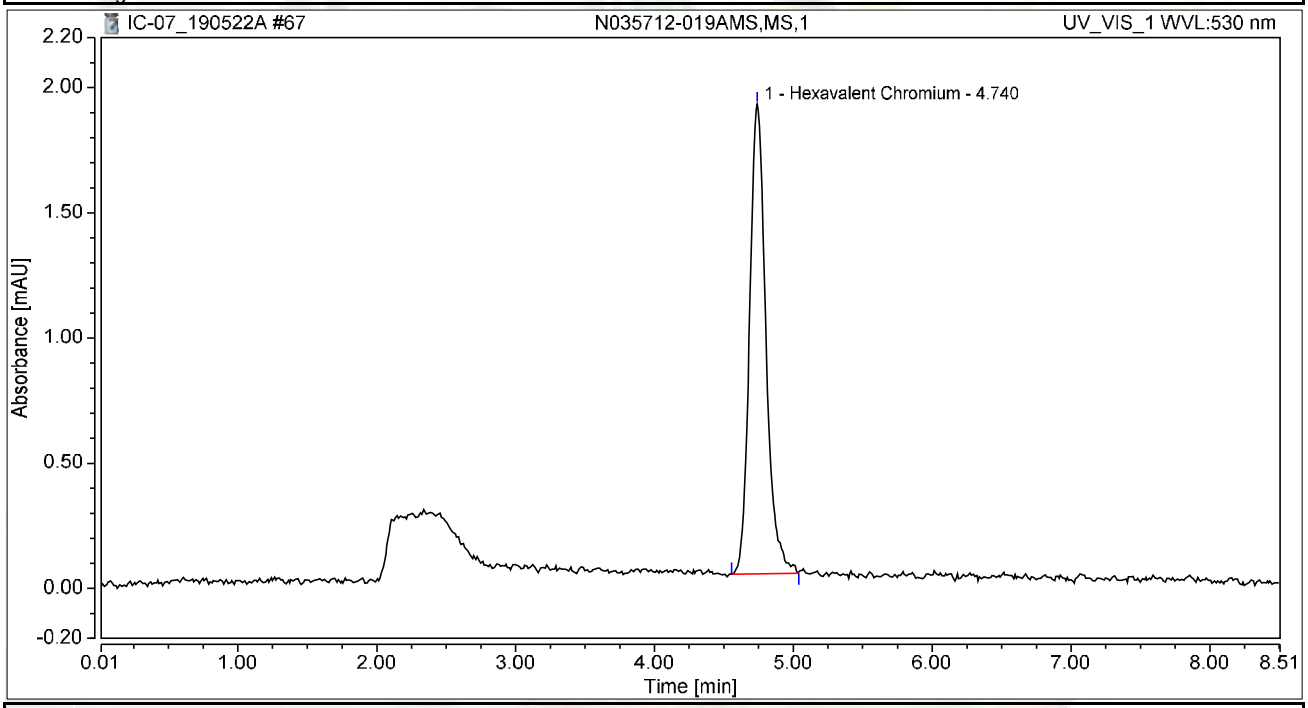
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-019AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 18:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

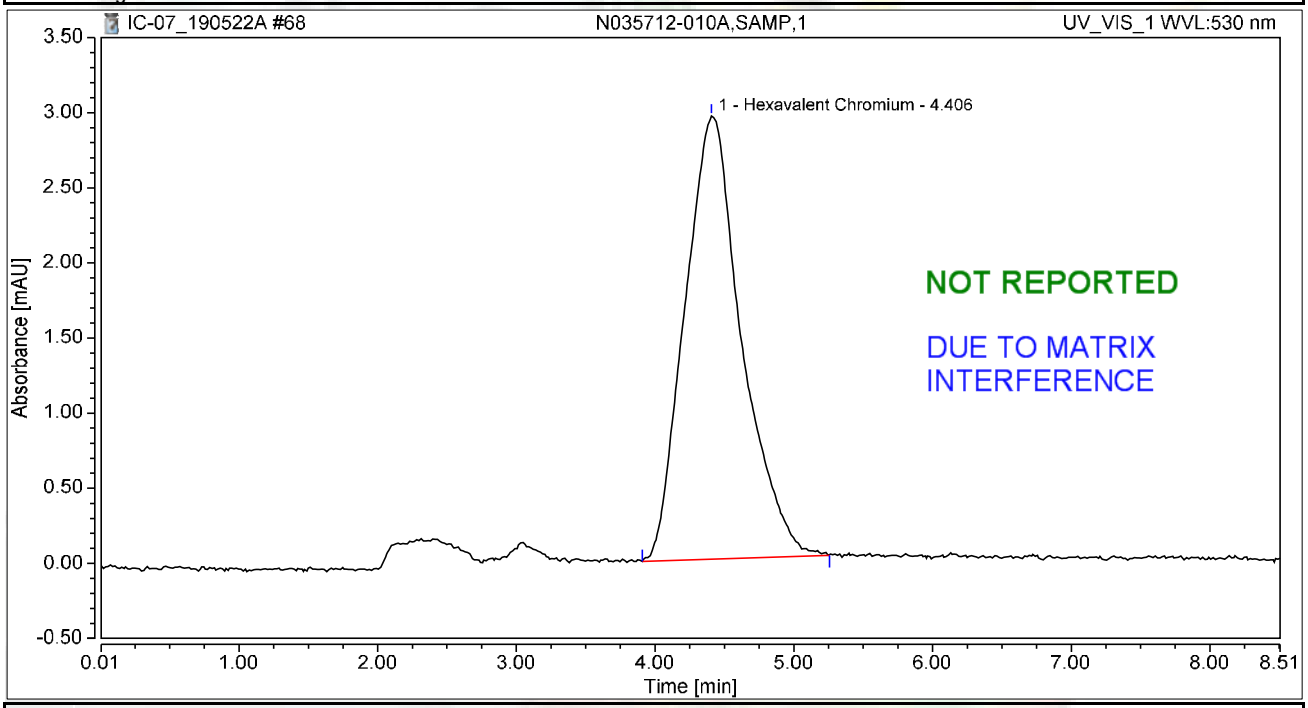
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.256	1.876	100.00	100.00	1.0152
Total:			**0.256**	**1.876**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 18:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

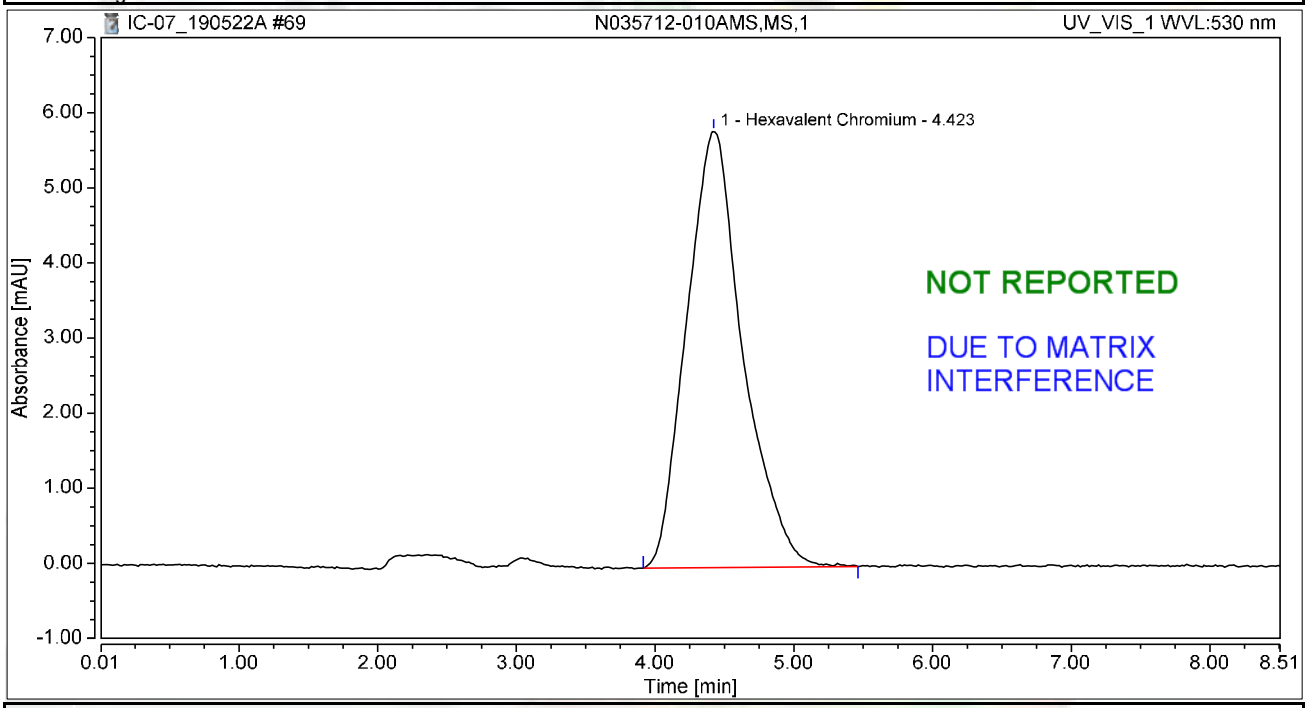
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.406	1.399	2.950	100.00	100.00	5.5484
Total:			**1.399**	**2.950**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 18:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

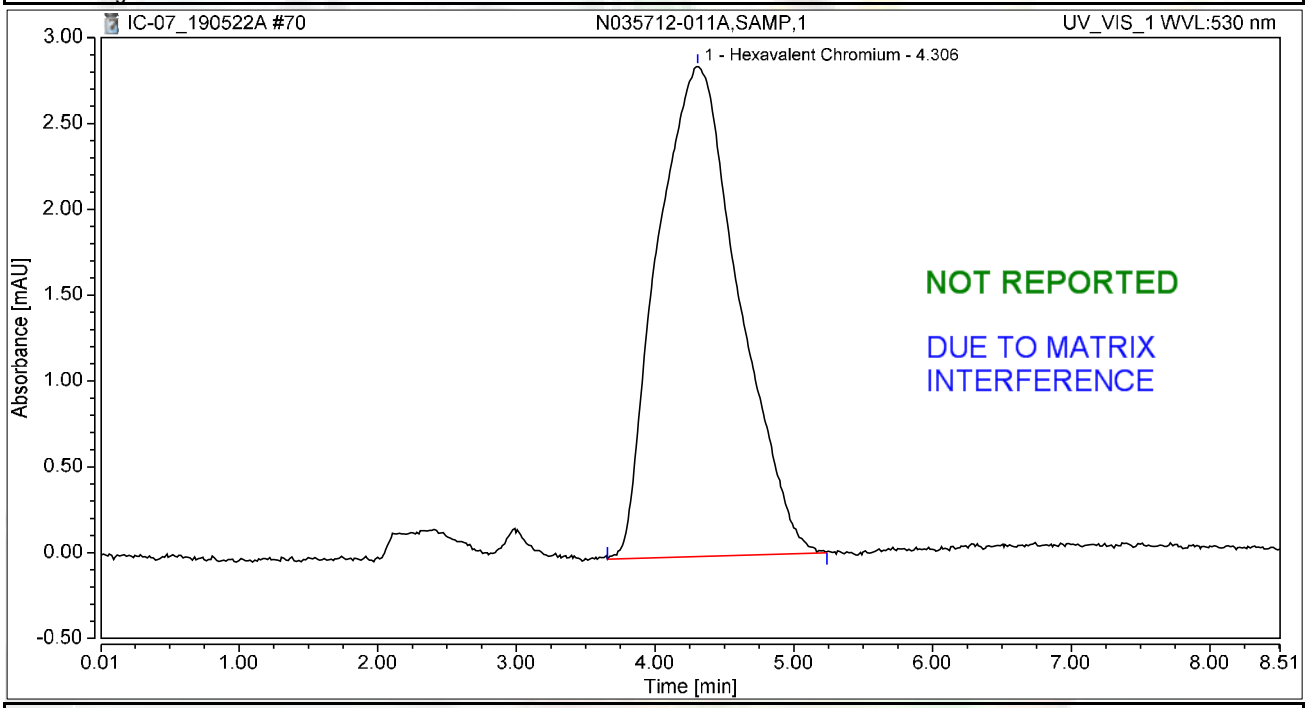
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.423	2.725	5.811	100.00	100.00	10.8086
Total:			**2.725**	**5.811**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-011A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 18:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

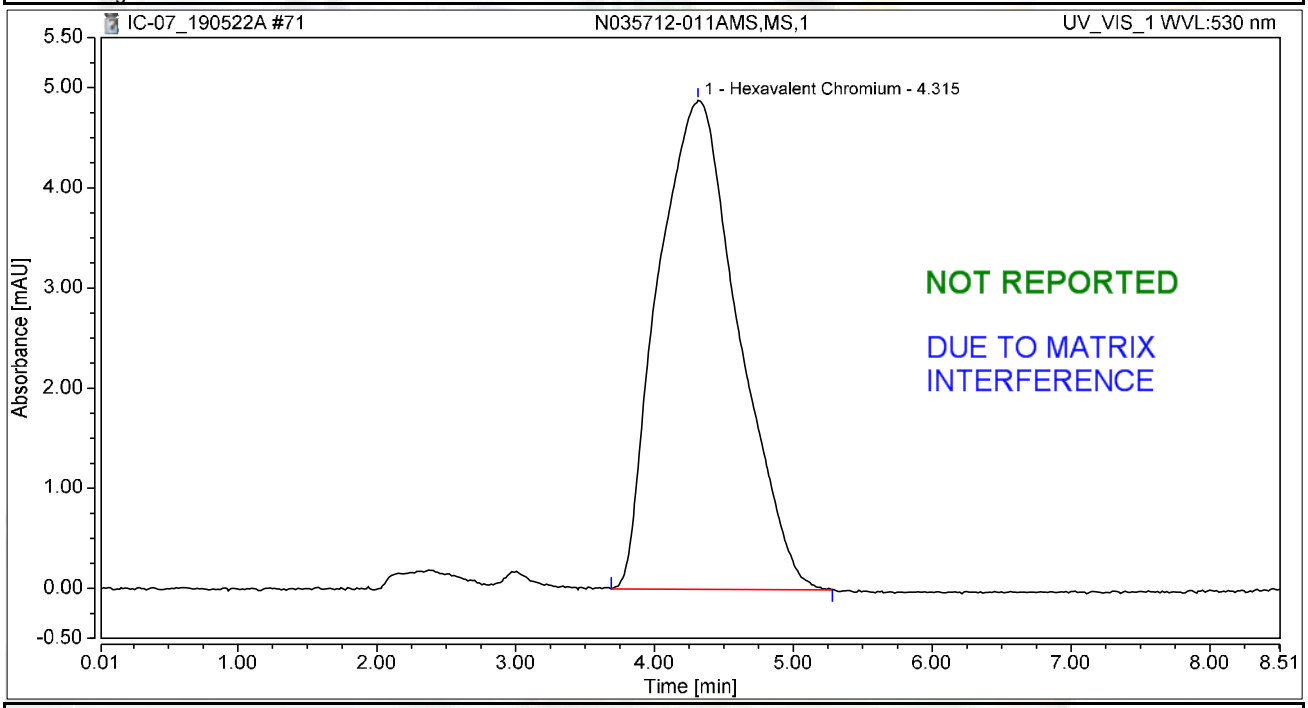
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.306	1.935	2.857	100.00	100.00	7.6739
Total:			**1.935**	**2.857**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-011AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 19:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

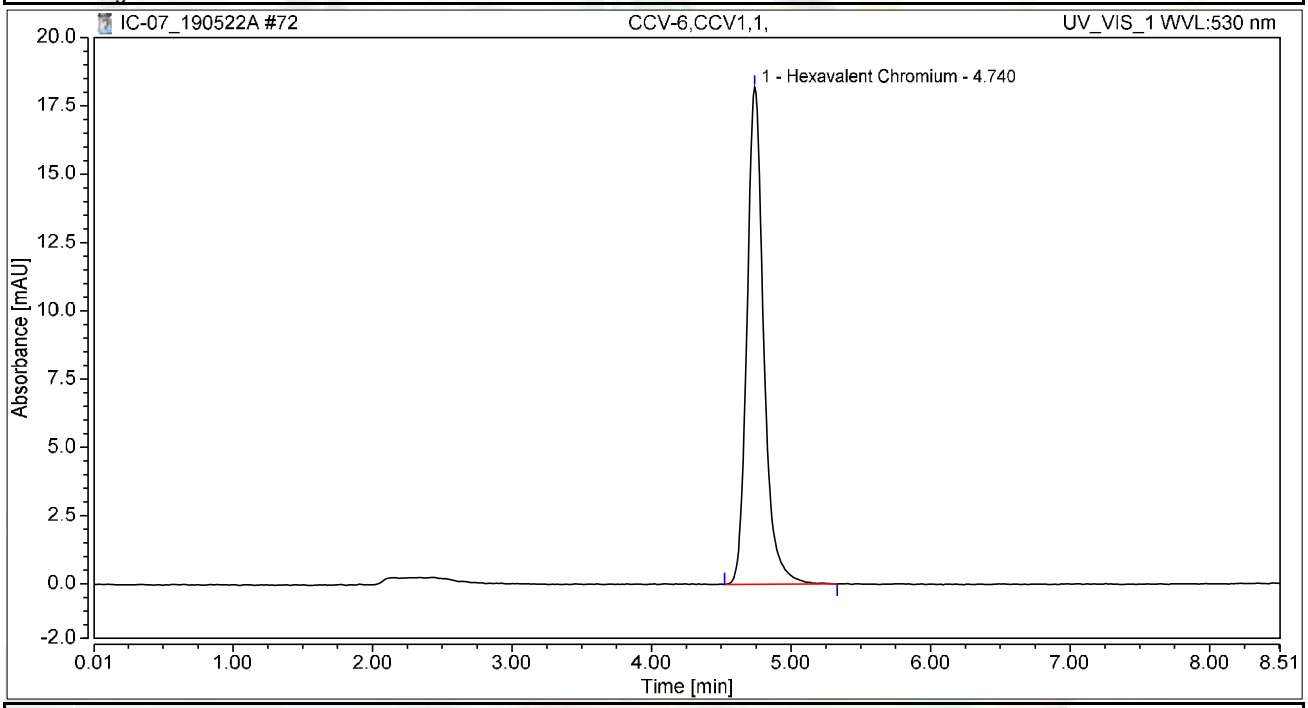
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.315	3.272	4.885	100.00	100.00	12.9795
Total:			**3.272**	**4.885**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 19:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

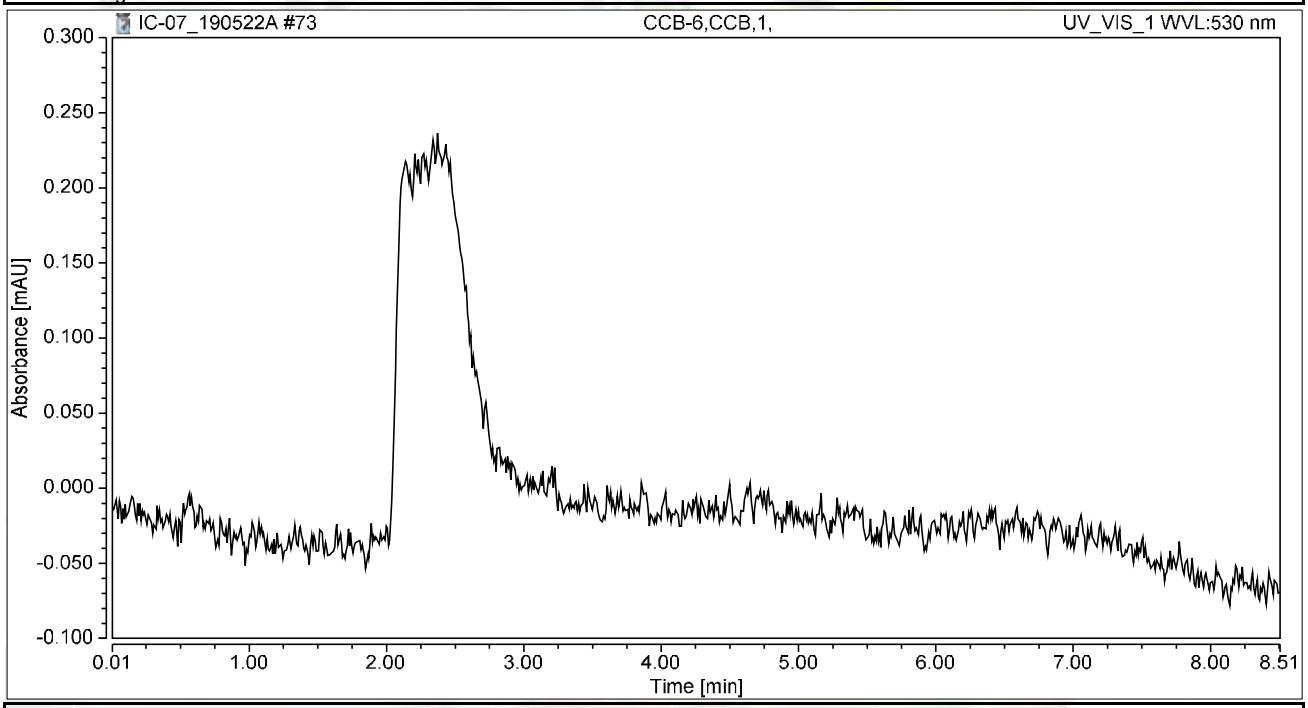
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.533	18.199	100.00	100.00	10.0483
Total:			**2.533**	**18.199**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 19:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

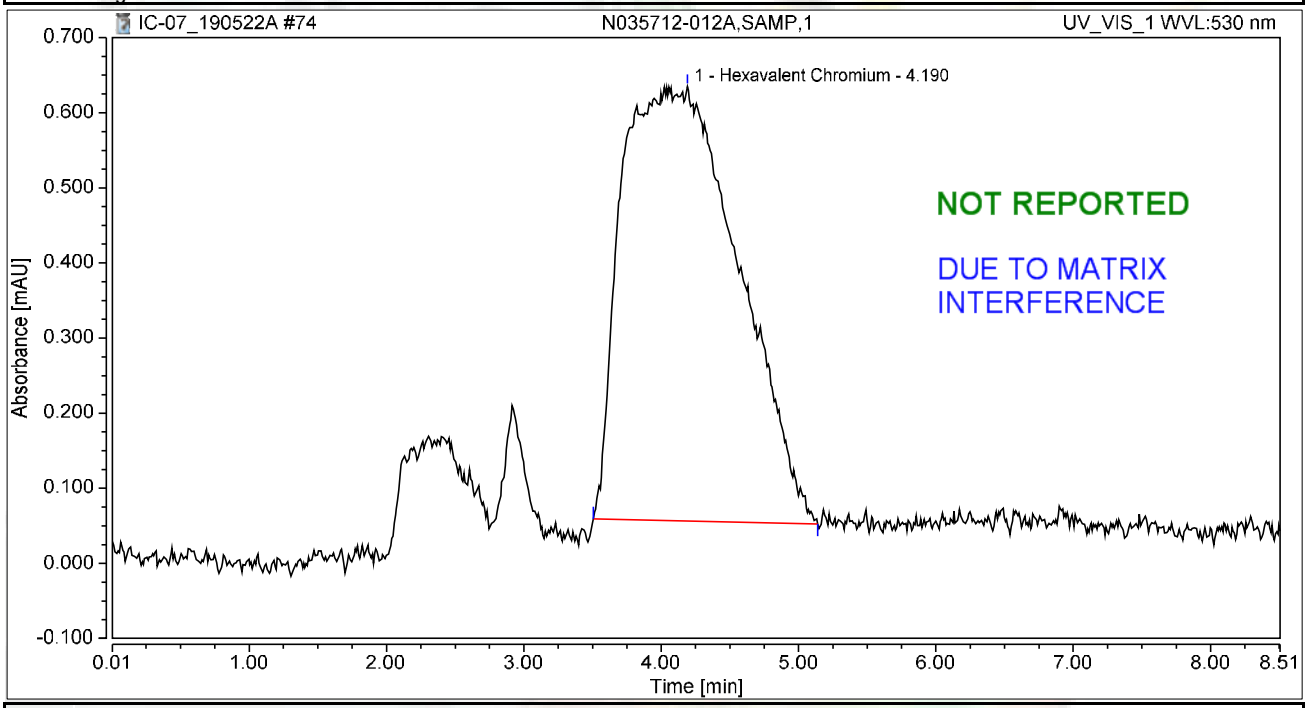
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 19:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

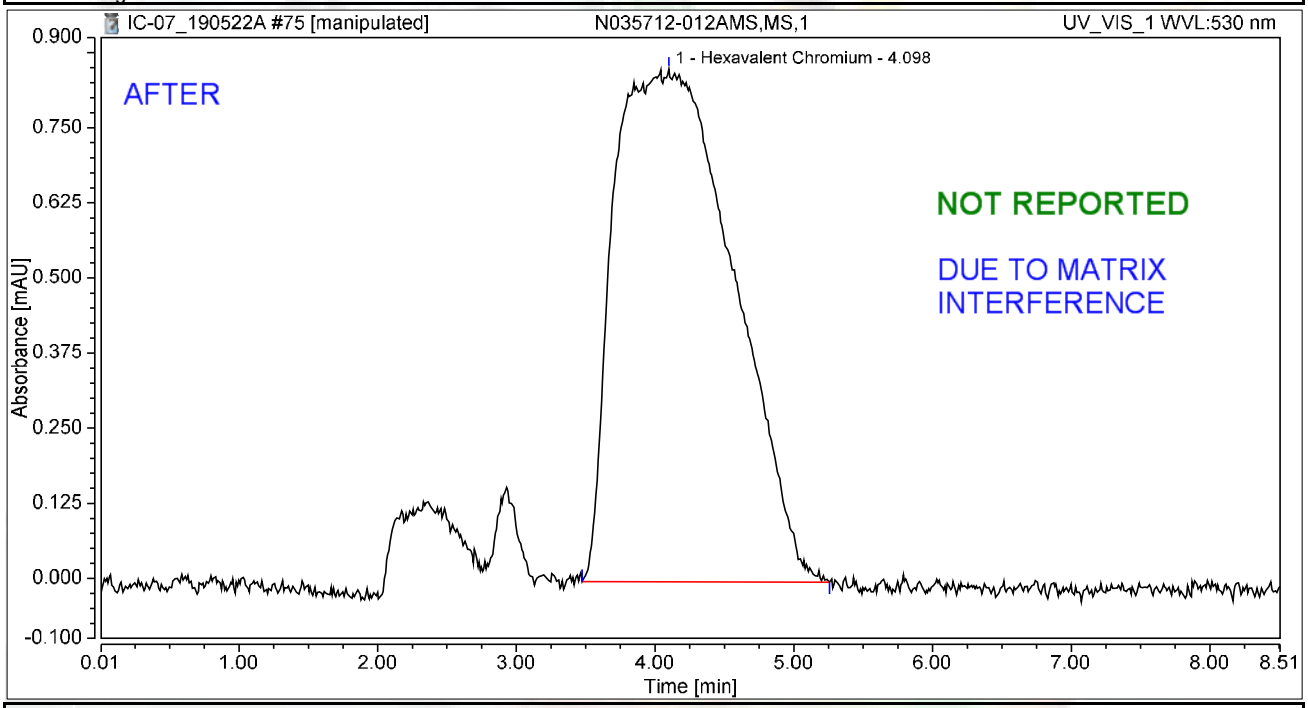
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.190	0.567	0.579	100.00	100.00	2.2506
Total:			**0.567**	**0.579**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 19:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.098	0.849	0.854	100.00	100.00	3.3688
Total:			**0.849**	**0.854**	**100.00**	**100.00**	

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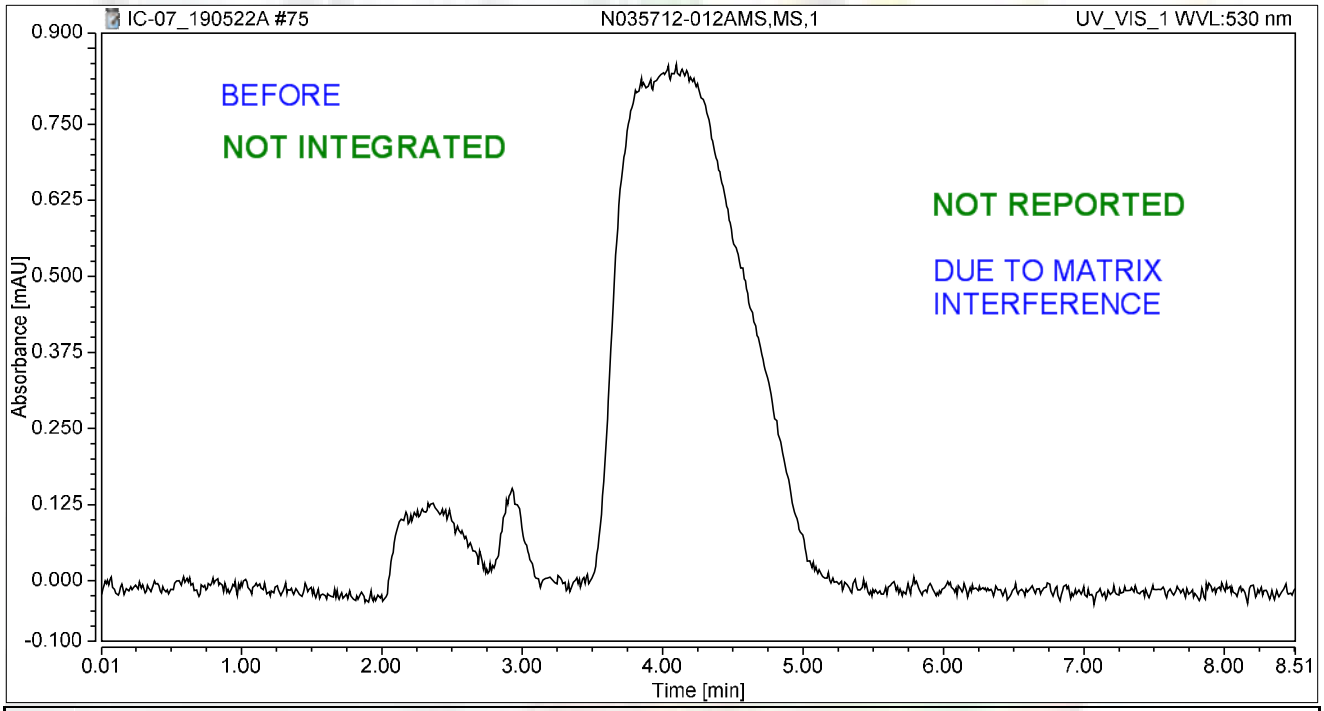
Chromatogram and Results

Injection Details

Injection Name:	**N035712-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 19:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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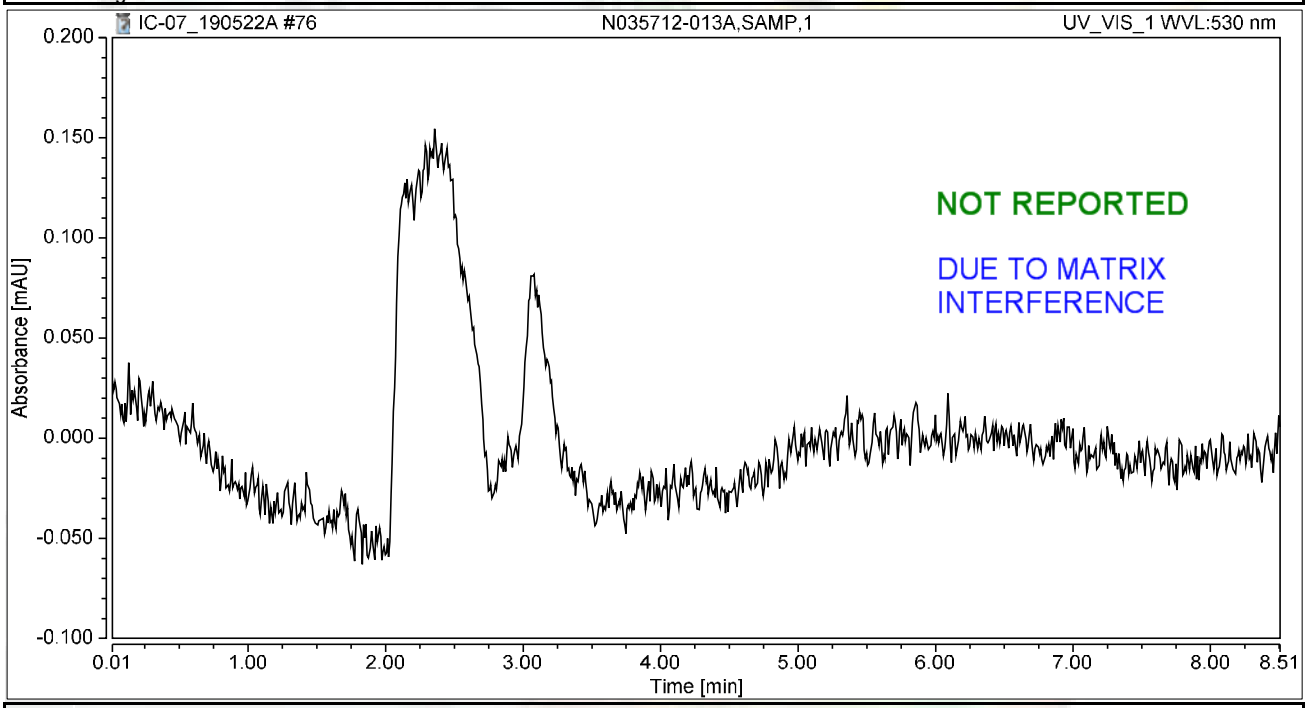
Chromatogram and Results

Injection Details

Injection Name:	**N035712-013A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 19:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

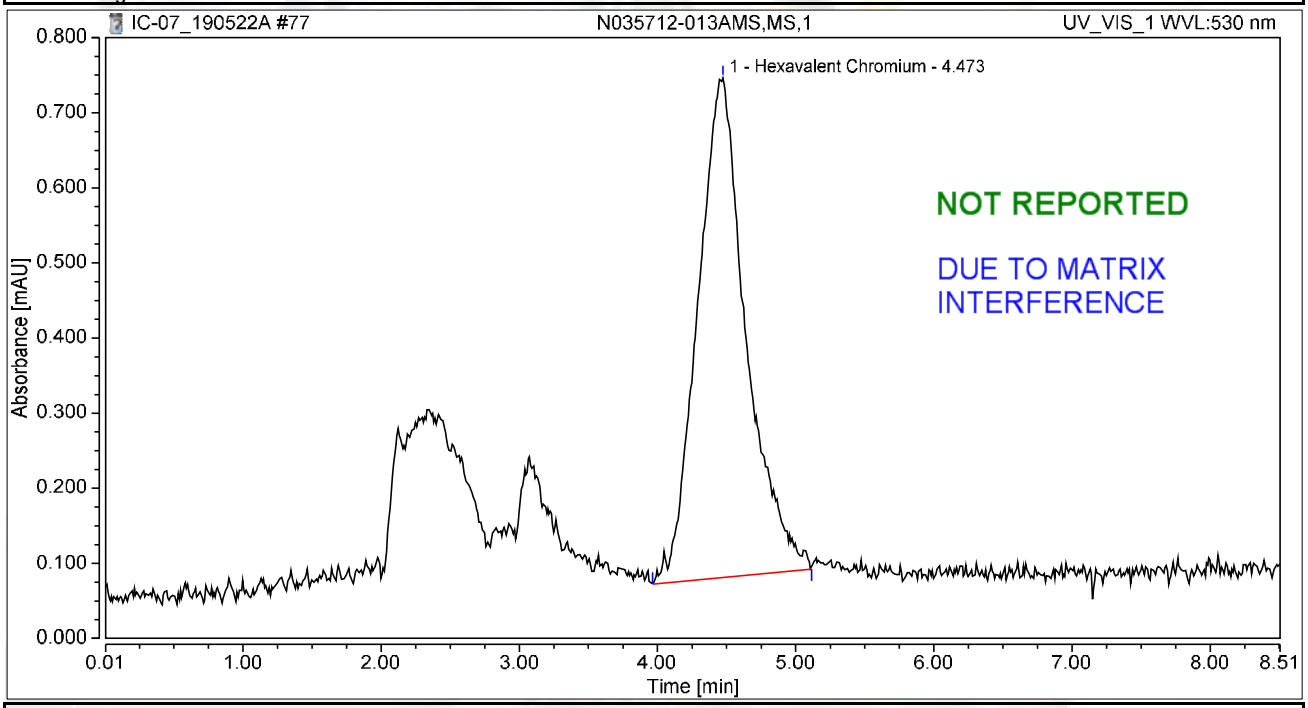
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 20:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

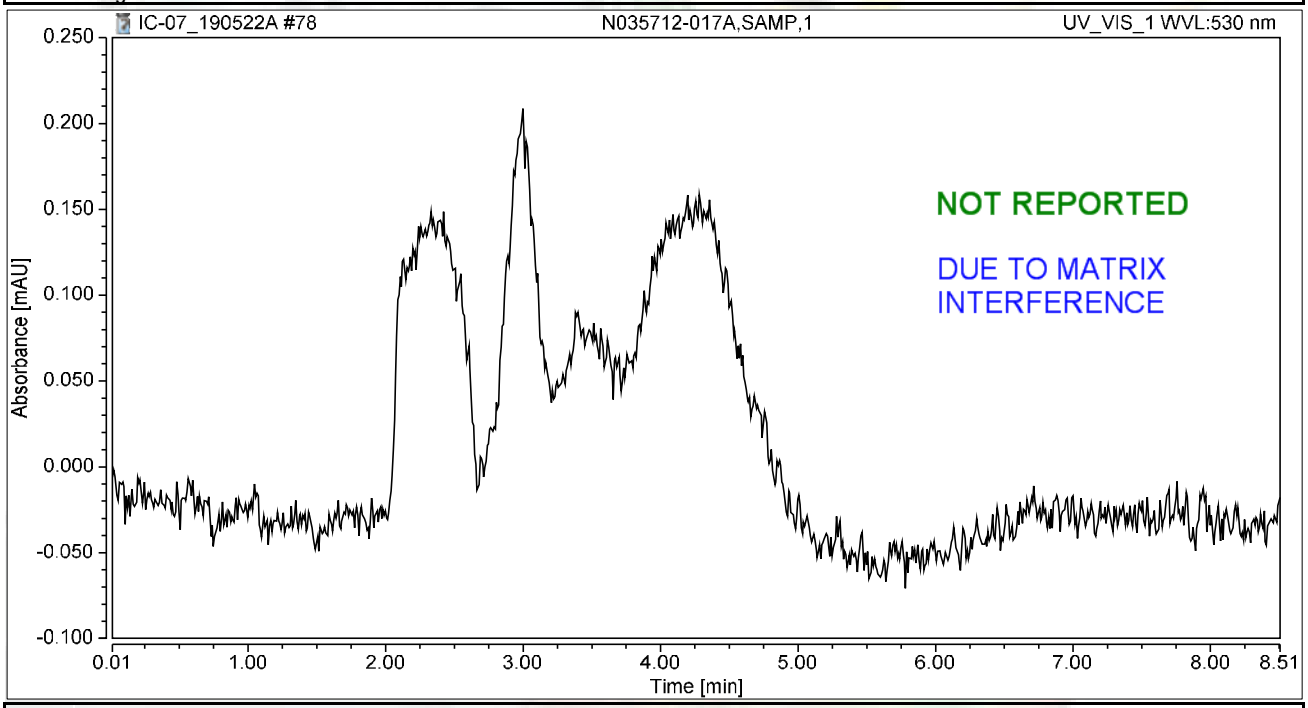
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.473	0.270	0.665	100.00	100.00	1.0716
Total:			**0.270**	**0.665**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-017A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 20:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

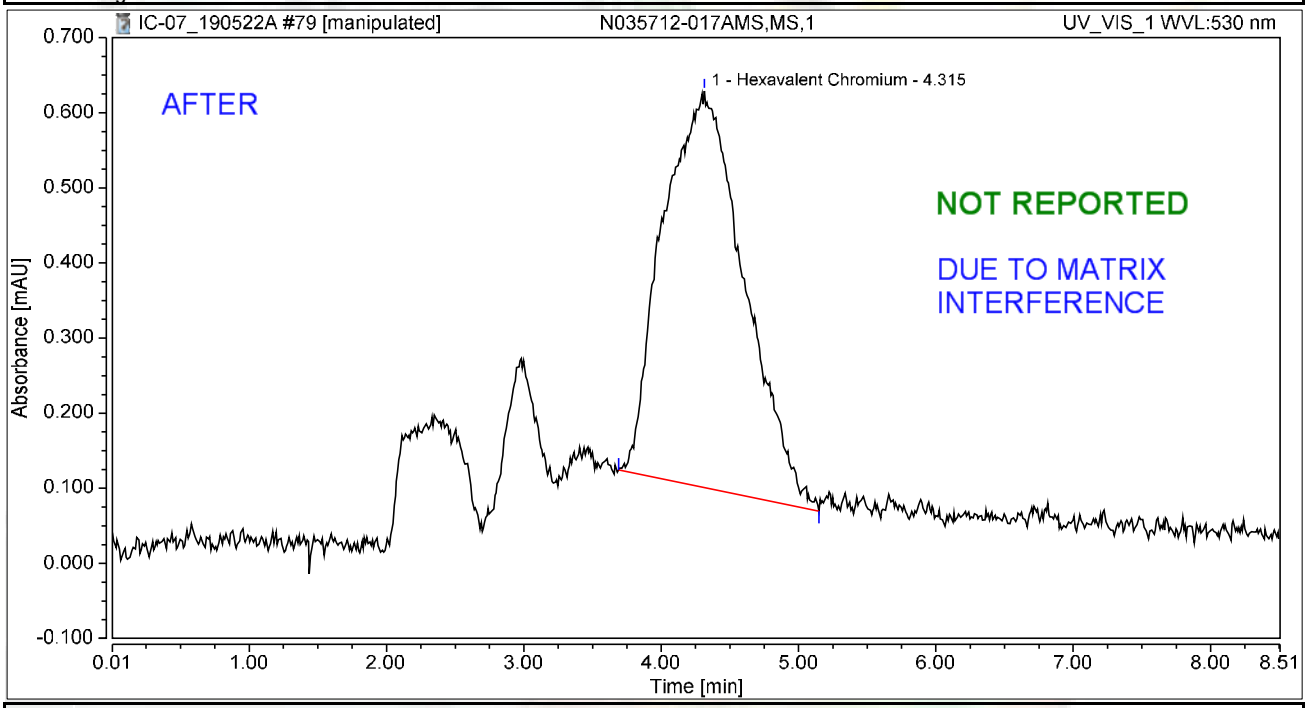
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035712-017AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 20:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.315	0.361	0.528	100.00	100.00	1.4313
Total:			**0.361**	**0.528**	**100.00**	**100.00**	

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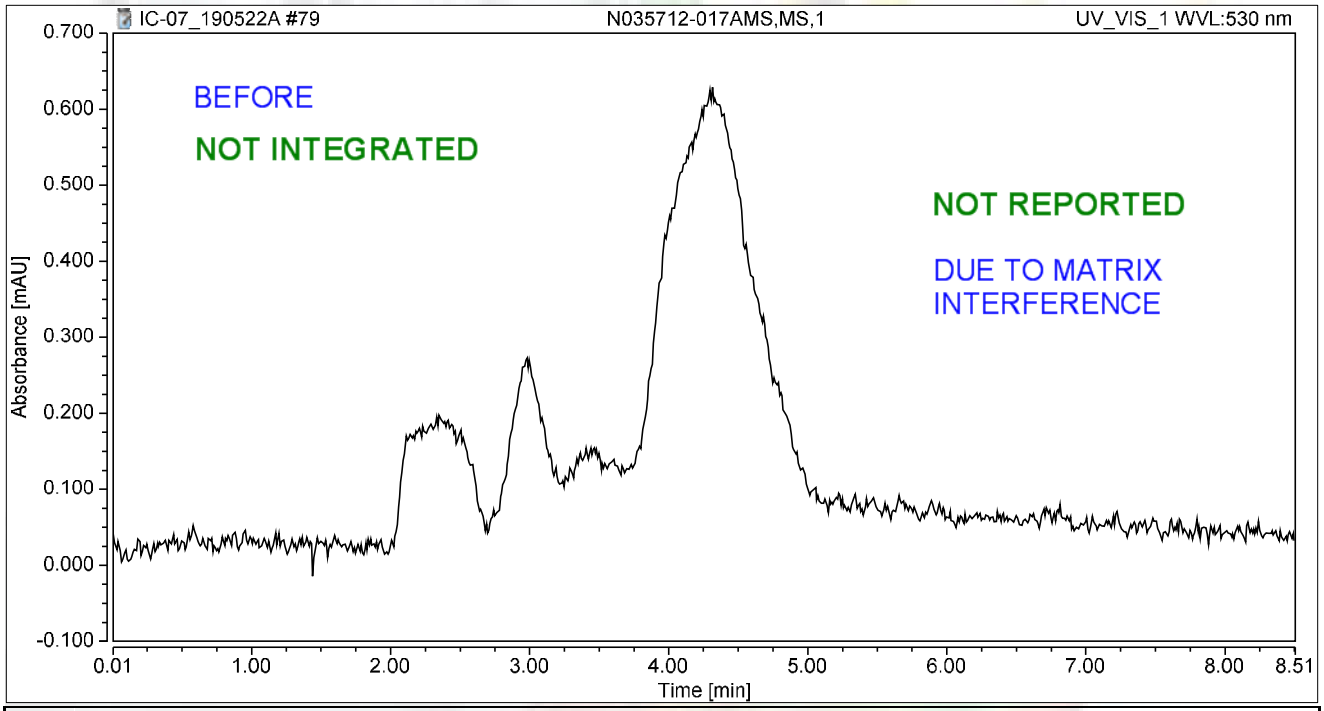
Chromatogram and Results

Injection Details

Injection Name:	**N035712-017AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 20:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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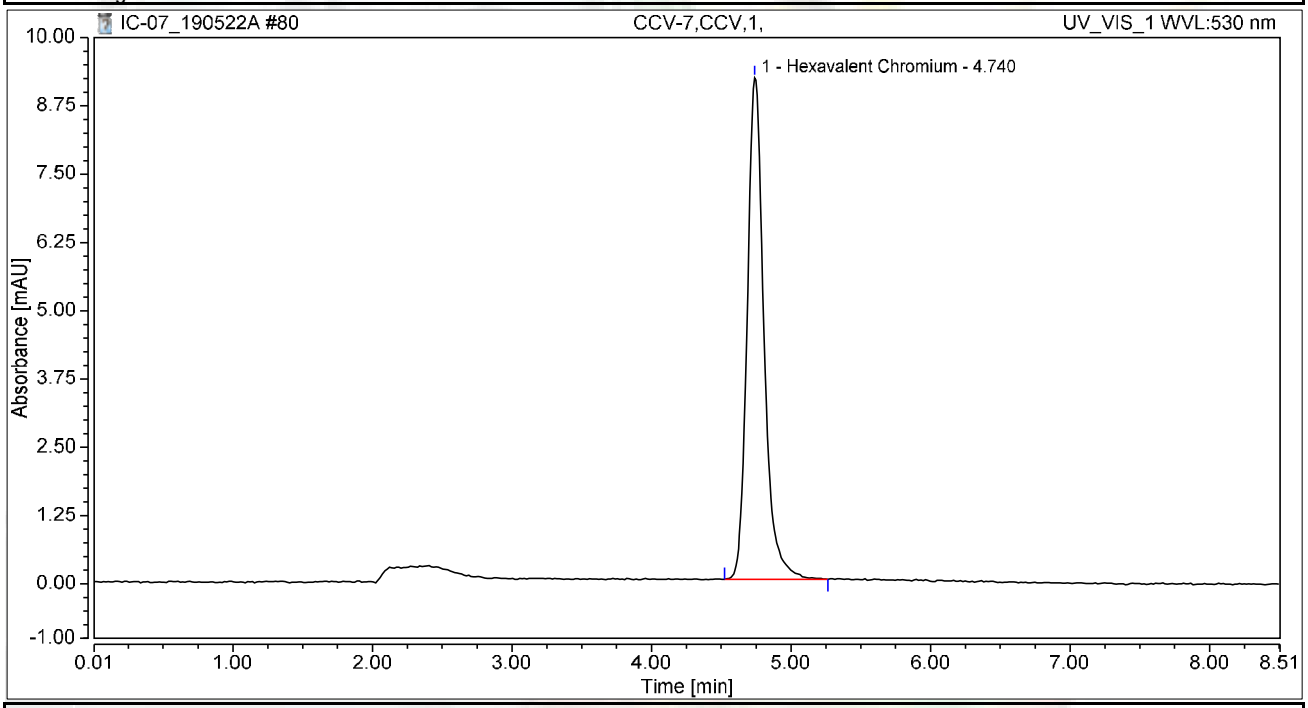
Chromatogram and Results

Injection Details

Injection Name:	**CCV-7,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 20:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

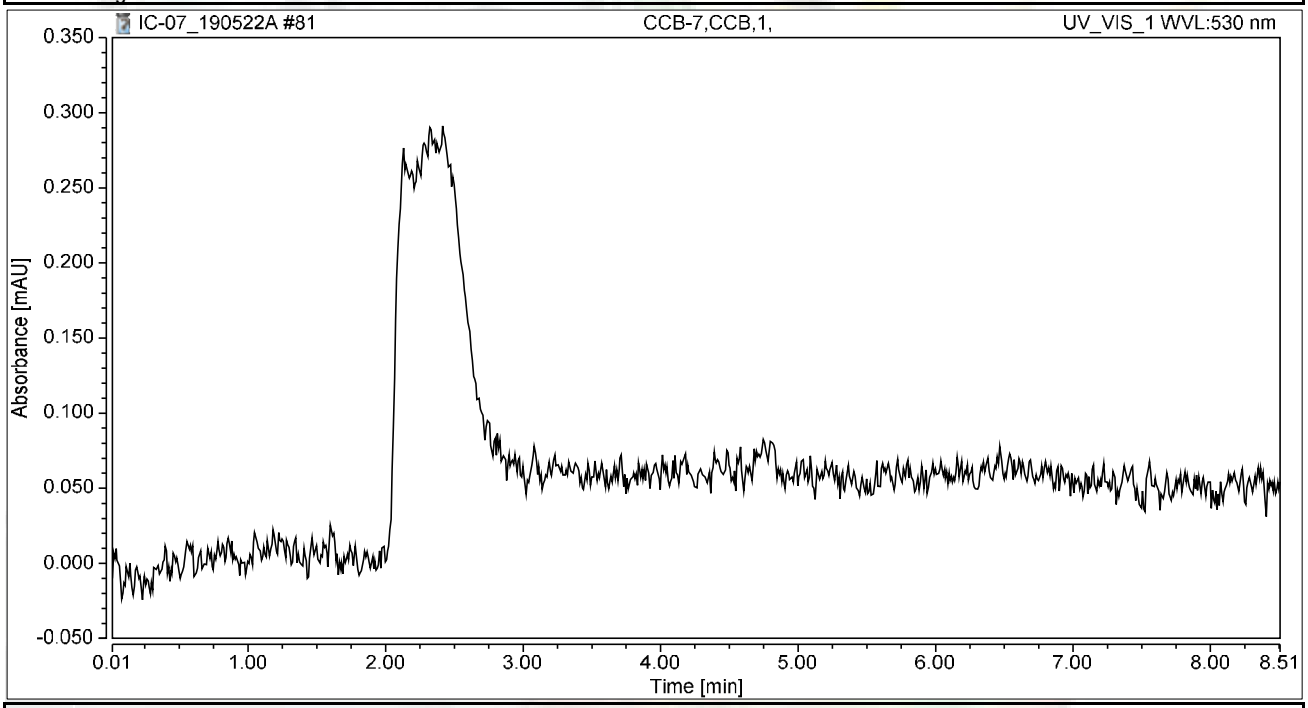
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.279	9.187	100.00	100.00	5.0746
Total:			**1.279**	**9.187**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-7,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 20:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

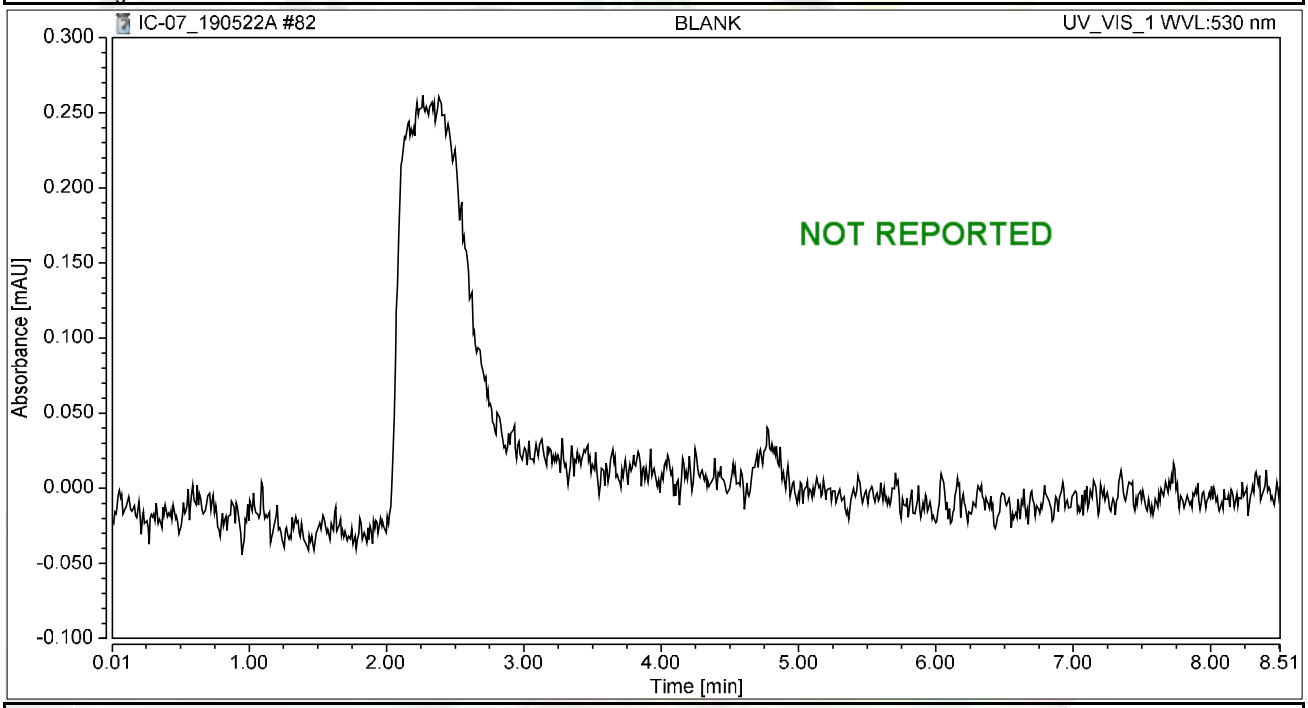
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**22/May/19 20:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134192 **Analyst:** QBM

ASSET #: N035663, N035712 **Date Analyzed:** 5/28/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer QBM Date:

2nd Level Reviewer 06/10/19 Date:

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134212 **Analyst:** QBM

ASSET #: N035712 **Date Analyzed:** 5/29/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer QBM Date:

2nd Level Reviewer 06/10/19 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N035712-007C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.6803	*	1
	=	0.6803	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 0.68 mg/L

06/10/19

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

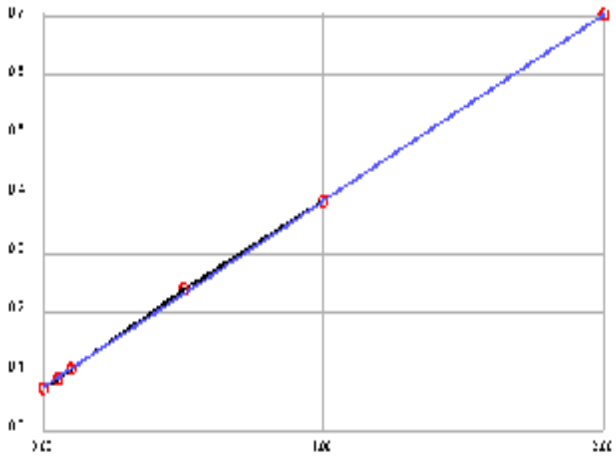
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3153x + 0.0738
Correlation	.999904

Calibrant	Energy	Set	Conc
1	0.0717	0.0000	-0.0067
2	0.0881	0.0500	0.0454
3	0.1037	0.1000	0.0948
4	0.2383	0.5000	0.5217
5	0.3890	1.0000	0.9996
6	0.7029	2.0000	1.9951

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **ICV**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.502	0.050	0.5000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **CCV**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398385**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.492	0.050	0.5000	0	98.4	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **CCV**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398396**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.470	0.050	0.5000	0	94.1	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **ICV**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.525	0.050	0.5000	0	105	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **CCV**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.515	0.050	0.5000	0	103	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **CCV**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.488	0.050	0.5000	0	97.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **ICB**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **CCB**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398386**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134192**
Client ID: **CCB**	Batch ID: **R134192**	TestNo: **SM4500-NO3**		Analysis Date: **5/28/2019**	SeqNo: **3398397**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **ICB**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399164**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **CCB**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134212**
Client ID: **CCB**	Batch ID: **R134212**	TestNo: **SM4500-NO3**		Analysis Date: **5/29/2019**	SeqNo: **3399185**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
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Time start: 05-28-2019 16:29
Time end: 05-28-2019 19:20

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	18:40:39	0.0108		0.0776
2	<BLANK>	18:41:38	0.0032		0.0750
3	<CAL1>	18:42:34	0.0062	[0]	0.0760
4	<CAL2>	18:43:29	0.0569	[0.05]	0.0934
5	<CAL3>	18:44:31	0.1158	[0.1]	0.1136
6	<CAL4>	18:45:25	0.4780	[0.5]	0.2378
7	<CAL5>	18:46:20	0.9772	[1]	0.4090
8	<CAL6>	18:47:16	2.0159	[2]	0.7652
9	,BLANK,BLANK,1, NOT REPORTED	18:48:16	0.0269		0.0831
10	,ICV,ICV,1,	18:49:12	0.5022		0.2461
11	,ICB,ICB,1,	18:50:07	0.0065		0.0761
12	,MB-H2O,MBLK,1,	18:51:09	0.0003		0.0740
13	,LCS-H2O,LCS,1,	18:52:03	0.5025		0.2462
14	,N035663-001C,SAMP,20,	18:52:58	0.6098		0.2830
15	,N035663-002C,SAMP,20,	18:53:54	0.5835		0.2740
16	,N035663-003C,SAMP,20,	18:54:54	0.5777		0.2720
17	,N035663-003CDUP,DUP,20,	18:55:50	0.5681		0.2687
18	,N035663-004C,SAMP,10,	18:56:45	0.5115		0.2493
19	,N035663-004CMS,MS,10,	18:57:47	0.9816		0.4105
20	,N035663-004CMSD,MSD,10,	18:58:41	0.9772		0.4090
21	,BLANK, NOT REPORTED	18:59:37	0.0085		0.0768
22	,CCV-1,CCV,1,	19:00:32	0.4920		0.2426
23	,CCB-1,CCB,1,	19:01:32	-0.0005		0.0737
24	,N035663-005C,SAMP,1,	19:02:28	0.0388		0.0872
25	,N035663-007C,SAMP,1,	19:03:29	0.0508		0.0913
26	,N035712-002C,SAMP,1,	19:04:25	0.0333		0.0853

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035712-004C,SAMP,1,	19:05:07	0.0091		0.0770
28	,N035712-006C,SAMP,1,	19:05:56	0.0499		0.0910
29	,N035712-013C,SAMP,1,	19:06:38	0.0067		0.0762
30	,N035663-008C,SAMP,1,	19:07:22	0.7104		0.3175
31	,N035663-009C,SAMP,1,	19:08:10	0.7098		0.3173
32	,N035663-006C,SAMP,5,	19:08:53	1.0355		0.4290
33	,BLANK, NOT REPORTED	19:09:35	0.0003		0.0740
34	,CCV-2,CCV,1,	19:10:25	0.4704		0.2352
35	,CCB-2,CCB,1,	19:11:08	-0.0040		0.0725
36	,N035712-007C,SAMP,1,	19:11:50	0.6702		0.3037
37	,N035712-011C,SAMP,1,	19:12:39	1.0055		0.4187
38	,N035712-020C,SAMP,1,	19:13:22	0.8410		0.3623
39	,N035712-008C,SAMP,5,	19:14:05	0.9775		0.4091
40	,N035712-009C,SAMP,5,	19:14:53	0.7174		0.3199
41	,N035712-018C,SAMP,5,	19:15:36	0.9320		0.3935
42	,N035712-010C,SAMP,~~1~~, 2	19:16:20	0.7413		0.3281
43	,BLANK, NOT REPORTED	19:17:02	-0.0067		0.0716
44	,CCV-3,CCV,1,	19:17:51	0.4348		0.2230
45	,CCB-3,CCB,1,	19:18:33	-0.0081		0.0711

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 5/28/2019
Time Analyzed: 4:29 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035663-001C		7.85							
N035663-002C		8.61							
N035663-003C		8.25							
N035663-004C		8.23							
N035663-005C		7.66							
N035663-006C		8.35							
N035663-007C		8.03							
N035663-008C		7.29							
N035663-009C		7.57							
N035712-002C		7.81							
N035712-004C		8.34							
N035712-006C		7.50							
N035712-007C		7.65							
N035712-008C		8.56							
N035712-009C		8.41							
N035712-010C		7.56							
N035712-011C		8.40							
N035712-013C		7.58							
N035712-018C		8.54							
N035712-020C		8.03							

Advanced Technology Laboratories, Inc.
Book # 1

Advanced Technology Laboratories, Inc.

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Time start: 05-29-2019 17:54
Time end: 05-29-2019 20:07

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	19:37:48	-0.0073		0.0715
2	<BLANK>	19:38:48	-0.0089		0.0710
3	<CAL1>	19:39:42	-0.0067	[0]	0.0717
4	<CAL2>	19:40:38	0.0454	[0.05]	0.0881
5	<CAL3>	19:41:39	0.0948	[0.1]	0.1037
6	<CAL4>	19:42:33	0.5217	[0.5]	0.2383
7	<CAL5>	19:43:29	0.9996	[1]	0.3890
8	<CAL6>	19:44:24	1.9951	[2]	0.7029
9	,BLANK,BLANK,1, NOT REPORTED	19:45:26	0.0285		0.0828
10	,ICV,ICV,1,	19:46:20	0.5249		0.2393
11	,ICB,ICB,1,	19:47:15	0.0013		0.0742
12	,MB-H2O,MBLK,1,	19:48:17	-0.0063		0.0718
13	,MB-2,MBLK,1,	19:49:11	-0.0060		0.0719
14	,MB-3,MBLK,1,	19:50:06	-0.0060		0.0719
15	,LCS-H2O,LCS,1,	19:51:08	0.4903		0.2284
16	,MDL-1,SAMP,1,	19:51:50	0.0473		0.0887
17	,MDL-2,SAMP,1,	19:52:39	0.0365		0.0853
18	,MDL-3,SAMP,1,	19:53:23	0.0447		0.0879
19	,N035712-007C,SAMP,1,	19:54:05	0.6803		0.2883
20	,N035712-011C,SAMP,1,	19:54:54	1.0894		0.4173
21	,BLANK, NOT REPORTED	19:55:36	-0.0003		0.0737
22	,CCV-1,CCV,1,	19:56:19	0.5150		0.2362
23	,CCB-1,CCB,1,	19:57:07	-0.0070		0.0716
24	,N035712-020C,SAMP,1,	19:57:51	0.9302		0.3671
25	,N035712-008C,SAMP,5,	19:58:34	0.9835		0.3839
26	,N035712-009C,SAMP,5,	19:59:22	0.6939		0.2926

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035712-018C,SAMP,5,	20:00:05	0.9628		0.3774
28	,N035712-018CDUP,DUP,5,	20:00:47	0.9292		0.3668
29	,N035712-010C,SAMP,2,	20:01:31	0.7513		0.3107
30	,N035712-010CMS,MS,2,	20:02:19	1.2248		0.4600
31	,N035712-010CMSD,MSD,2,	20:03:02	1.2372		0.4639
32	,BLANK, NOT REPORTED	20:03:44	-0.0022		0.0731
33	,CCV-2,CCV,1,	20:04:33	0.4884		0.2278
34	,CCB-2,CCB,1,	20:05:17	-0.0095		0.0708

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 5/29/2019
Time Analyzed: 5:54 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035712-007C		7.52							
N035712-008C		8.48							
N035712-009C		7.95							
N035712-010C		8.41							
N035712-011C		8.26							
N035712-018C		8.34							
N035712-020C		7.59							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73997
ASSET #: N035712

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/14/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X			X	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?	X			X		
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented	X			X		X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of Se in N035712-010B / 011B / 020B failed. For rerun.
N035712-010B (1st run) = 21 ug/L ; confirmation : 20 ug/L ; N035712-010A (218.6) = 5.5 ug/L ; confirmation: 14 ug/L
N035712-020B (1st run) = 2.8 ug/L ; confirmation : 2.5 ug/L ; N035712-020A (218.6) = 1.3 ug/L ; confirmation: 1.2 ug/L
N035712-017B (1st run) = 1.1 ug/L ; confirmation: 0.92 ug/L ; N035712-017A (218.6) = ND ; confirmation: 0.85 ug/L

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HSG Date: 6/27/2019

2nd Level Reviewer NS 6/27/2019 Date: -

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73997
ASSET #: N035712
Instrument ID: ICPMS-02
Analyst: CEI
Method:
Date Analyzed: 6/17/2019

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X			X	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		X
24. LCS compounds within control limits.	X			X		X
25. MS/MSD, RPD's are within control limits	X			X		X
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented	X			X		X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of Se in N035712-010B / 020B failed. For rerun.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HSG Date: 6/27/2019

2nd Level Reviewer NS 6/27/2019 Date: —

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74311
ASSET #: N035712

Instrument ID: ICPMS-02
Analyst: ~~CEI~~ HSG

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Date Analyzed: 6/24/2019

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Se run

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HSG Date: 6/27/2019

2nd Level Reviewer NS 6/27/2019 Date: ——

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035712-004B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 56.3099 * 5 *(25 / 25)

Manganese , ug/L = 281.5495

Reporting results in two significant figures,

Manganese , ug/L = 280

NS 6/30/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	1.92	15	PASS	0.095	3.86	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.5	6.57	15	PASS	0.54	1.66	15	PASS
Std3-5/50 ppb	ICAL	1	5.11	1.075	15	PASS	5.49	1.36	15	PASS
Std4-10/100 ppb	ICAL	1	10.11	1.86	15	PASS	10.79	2.029	15	PASS
Std5-20/200 ppb	ICAL	1	20.076	1.65	15	PASS	21.58	2.52	15	PASS
Std6-40/400 ppb	ICAL	1	39.47	2.38	15	PASS	42.37	2.28	15	PASS
Std7-100/1000 ppb	ICAL	1	96.34	1.57	15	PASS	102.52	1.29	15	PASS
Std8-200/2000 ppb	ICAL	1	201.92	3.14	15	PASS	198.057	2.47	15	PASS
ICV	ICV	1	10.48	2.33	15	PASS	108.42	2.012	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	1.029	1.87	20	PASS	0.55	6.44	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.46	2.053	15	PASS	17.82	2.9	15	PASS
LLICV	CCV1	1	1.037	2.71	20	PASS	0.57	1.16	20	PASS
CCV1	CCV	1	20.28	2.49	15	PASS	21.56	2.6	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.19	2.41	15	PASS	21.6	2.2	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035705-004B	SAMP	1	10.65	1.18	15	PASS	<0.000	N/A	15	<PQL
N035705-005B	SAMP	1	10.29	0.41	15	PASS	0.053	53.063	15	<PQL
MB-73997	MBLK	1	<0.000	N/A	15	<PQL	0.0073	25.46	15	<PQL
LCS-73997	LCS	1	9.87	2.94	15	PASS	103.89	2.35	15	PASS
N035705-014B	SAMP	1	5254.26	1.51	15	PASS	<0.000	N/A	15	<PQL
N035705-014B	SAMP	5	1204.31	2.43	15	PASS	0.79	2.62	15	PASS
CCV3	CCV	1	20.52	2.33	15	PASS	21.3	2.63	15	PASS
CCB3	CCB	1	0.21	6.016	15	PASS	<0.000	N/A	15	<PQL
N035705-014B	SAMP	50	123.28	2.069	15	PASS	0.11	7.43	15	PASS
N035705-015B	SAMP	1	5.98	1.063	15	PASS	<0.000	N/A	15	<PQL
N035705-015B	SAMP	5	1.31	1.43	15	PASS	0.87	4.35	15	PASS
N035705-015B-PS	PS	1	14.72	1.1	15	PASS	92.17	0.96	15	PASS
N035705-015B-MS	MS	1	14.53	1.7	15	PASS	91.72	1.028	15	PASS
N035705-015B-MSD	MSD	1	14.53	1.64	15	PASS	92.54	1.53	15	PASS
N035705-015B	SAMP	25	0.28	8.11	15	PASS	0.22	1.051	15	PASS
N035705-015B-PS	PS	5	3.21	3.98	15	PASS	21.87	1.97	15	PASS
N035705-015B-MS	MS	5	3.19	3.33	15	PASS	21.64	1.97	15	PASS
N035705-015B-MSD	MSD	5	3.23	3.8	15	PASS	21.7	3.044	15	PASS
CCV4	CCV	1	19.97	2.29	15	PASS	21.6	2.31	15	PASS
CCB4	CCB	1	0.02	32.71	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.0049	292.06	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.41	2.052	15	PASS	17.72	3.33	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035712-002B	SAMP	1	0.1	12.62	15	PASS	0.47	16.0052	15	<PQL
N035712-004B	SAMP	1	0.85	1.56	15	PASS	298.34	1.74	15	PASS
N035712-004B	SAMP	5	0.18	4.15	15	PASS	56.31	1.23	15	PASS
N035712-006B	SAMP	1	0.41	3.61	15	PASS	310.032	1.11	15	PASS
N035712-006B	SAMP	5	0.084	15.37	15	<PQL	60.11	1.32	15	PASS
N035712-007B	SAMP	1	14.048	0.62	15	PASS	268.75	1.4	15	PASS
N035712-007B	SAMP	5	3.087	2.16	15	PASS	53.28	1.33	15	PASS
N035712-008B	SAMP	1	165.92	1.96	15	PASS	6.026	3.22	15	PASS
N035712-008B	SAMP	5	32.09	2.77	15	PASS	1.33	2.19	15	PASS
N035712-009B	SAMP	1	1504.075	1.039	15	PASS	1.063	6.42	15	PASS
CCV5	CCV	1	19.86	1.77	15	PASS	20.89	1.48	15	PASS
CCB5	CCB	1	0.09	16.56	15	<PQL	<0.000	N/A	15	<PQL
N035712-009B	SAMP	5	337.42	2.34	15	PASS	0.89	3.9	15	PASS
N035712-009B	SAMP	10	169.94	2.64	15	PASS	0.54	3.45	15	PASS
N035712-010B	SAMP	1	21.32	1.96	15	PASS	74.056	1.92	15	PASS
N035712-010B	SAMP	5	4.6	2.6	15	PASS	16.79	2.58	15	PASS
N035712-011B	SAMP	1	9.053	0.78	15	PASS	11.14	1.43	15	PASS
N035712-011B	SAMP	5	1.88	1.38	15	PASS	3.68	1.22	15	PASS
N035712-012B	SAMP	1	2.66	1.95	15	PASS	29.073	0.44	15	PASS
N035712-012B	SAMP	5	0.41	4.92	15	PASS	7.91	2.93	15	PASS
N035712-013B	SAMP	1	0.16	6.26	15	PASS	922.19	1.56	15	PASS
N035712-013B	SAMP	5	<0.000	N/A	15	<PQL	211.57	3.37	15	PASS
CCV6	CCV	1	19.96	2.33	15	PASS	21.23	2.097	15	PASS
CCB6	CCB	1	0.015	12.35	15	PASS	<0.000	N/A	15	<PQL
N035712-013B	SAMP	10	<0.000	N/A	15	<PQL	95.69	2.12	15	PASS
N035712-016B	SAMP	1	34.68	0.65	15	PASS	0.37	3.23	15	PASS
N035712-016B	SAMP	5	7.69	2.54	15	PASS	0.98	2.96	15	PASS
N035712-017B	SAMP	1	1.068	4.32	15	PASS	0.36	1.91	15	PASS
N035712-017B	SAMP	5	0.099	12.64	15	PASS	1.011	1.87	15	PASS
N035712-018B	SAMP	1	572.22	1.51	15	PASS	0.89	3.74	15	PASS
N035712-018B	SAMP	5	111.21	1.22	15	PASS	0.14	4.63	15	PASS
N035712-020B	SAMP	1	2.83	3.38	15	PASS	2.5	1.57	15	PASS
N035712-020B	SAMP	5	0.65	1.82	15	PASS	0.57	2.33	15	PASS
CCV7	CCV	1	19.82	2.2	15	PASS	21.36	2.99	15	PASS
CCB7	CCB	1	0.016	24.41	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	0.0048	180.61	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.47	2.68	15	PASS	17.73	3.46	15	PASS
CCV8	CCV	1	20.017	2.46	15	PASS	20.99	1.66	15	PASS
CCB8	CCB	1	0.018	14.53	15	PASS	<0.000	N/A	15	<PQL
CCV9	CCV	1	19.97	2.47	15	PASS	21.11	1.16	15	PASS
CCB9	CCB	1	0.05	2.74	15	PASS	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSA4	ICSA	1	0.028	35.63	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	19.15	2.31	15	PASS	18.013	2.32	15	PASS
CCV10	CCV	1	19.78	1.72	15	PASS	21.38	1.26	15	PASS
CCB10	CCB	1	0.066	15.47	15	<PQL	<0.000	N/A	15	<PQL
CCV11	CCV	1	20.47	1.69	15	PASS	21.56	1.48	15	PASS
CCB11	CCB	1	0.21	2.73	15	PASS	<0.000	N/A	15	<PQL
CCV12	CCV	1	20.044	2.33	15	PASS	21.5	2.16	15	PASS
CCB12	CCB	1	0.12	5.36	15	PASS	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	0.067	5.88	15	PASS	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	19.29	1.63	15	PASS	18.12	2.085	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	23.18	15	NR!	0.083	49.022	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.53	2.82	15	PASS	0.53	24.29	15	NR!
Std3-5/50 ppb	ICAL	1	5.16	1.55	15	PASS	5.13	3.53	15	PASS
Std4-10/100 ppb	ICAL	1	10.15	2.21	15	PASS	10.053	5.14	15	PASS
Std5-20/200 ppb	ICAL	1	20.35	0.84	15	PASS	20.11	2.36	15	PASS
Std6-40/400 ppb	ICAL	1	40.3	0.69	15	PASS	40.27	2.39	15	PASS
Std7-100/1000 ppb	ICAL	1	100.7	0.14	15	PASS	101.64	0.4	15	PASS
Std8-200/2000 ppb	ICAL	1	199.54	0.98	15	PASS	199.11	1.44	15	PASS
ICV	ICV	1	10.08	1.93	15	PASS	9.41	4.66	15	PASS
ICB	ICB	1	0.02	62.39	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	0.1	19.15	20	PASS	0.52	29.45	20	NR!
ICSA1	ICSA	1	0.042	22.97	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.82	0.72	15	PASS	19.59	2.62	15	PASS
LLICV	CCV1	1	0.12	4.85	20	PASS	0.52	5.78	20	PASS
CCV1	CCV	1	20.22	0.22	15	PASS	19.99	2.32	15	PASS
CCB1	CCB	1	0.017	69.8	15	<PQL	<0.000	N/A	15	<PQL
CCV2	CCV	1	20.58	0.42	15	PASS	19.64	0.86	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.0091	97.37	15	<PQL
N035705-004B	SAMP	1	3.39	4.88	15	PASS	0.61	21.1	15	NR!
N035705-005B	SAMP	1	3.46	3.7	15	PASS	0.84	20.73	15	NR!
MB-73997	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-73997	LCS	1	10.21	1.11	15	PASS	9.7	1.46	15	PASS
N035705-014B	SAMP	1	4.0029	0.56	15	PASS	3.99	8.16	15	PASS
N035705-014B	SAMP	5	0.75	3.46	15	PASS	0.77	12.85	15	PASS
CCV3	CCV	1	20.25	0.41	15	PASS	19.48	2.91	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035705-014B	SAMP	50	0.056	37.091	15	<PQL	0.026	55.42	15	<PQL
N035705-015B	SAMP	1	3.79	2.59	15	PASS	0.39	43.97	15	<PQL
N035705-015B	SAMP	5	0.79	2.86	15	PASS	0.086	45.32	15	<PQL
N035705-015B-PS	PS	1	14.49	1.59	15	PASS	11.41	3.95	15	PASS
N035705-015B-MS	MS	1	14.5	0.83	15	PASS	11.42	0.35	15	PASS
N035705-015B-MSD	MSD	1	14.49	0.58	15	PASS	11.33	1.95	15	PASS
N035705-015B	SAMP	25	0.15	14.74	15	PASS	0.0025	1925.7	15	<PQL
N035705-015B-PS	PS	5	3.019	1.45	15	PASS	2.23	6.72	15	PASS
N035705-015B-MS	MS	5	2.97	0.27	15	PASS	2.3	5.12	15	PASS
N035705-015B-MSD	MSD	5	2.98	1.84	15	PASS	2.23	5.37	15	PASS
CCV4	CCV	1	19.97	1.57	15	PASS	19.88	2.3	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.035	10.38	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.78	0.58	15	PASS	20.09	1.66	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035712-002B	SAMP	1	0.81	2.37	15	PASS	0.4	34.18	15	<PQL
N035712-004B	SAMP	1	2.17	4.45	15	PASS	0.052	58.49	15	<PQL
N035712-004B	SAMP	5	0.45	8.0086	15	PASS	<0.000	N/A	15	<PQL
N035712-006B	SAMP	1	14.58	0.42	15	PASS	0.34	14.11	15	PASS
N035712-006B	SAMP	5	3.039	2.96	15	PASS	0.067	97.22	15	<PQL
N035712-007B	SAMP	1	1.89	1.17	15	PASS	1.92	8.76	15	PASS
N035712-007B	SAMP	5	0.38	11.36	15	PASS	0.45	19.97	15	<PQL
N035712-008B	SAMP	1	3.66	4.47	15	PASS	4.58	10.22	15	PASS
N035712-008B	SAMP	5	0.7	4.94	15	PASS	0.92	15.27	15	NR!
N035712-009B	SAMP	1	1.97	1.42	15	PASS	2.82	7	15	PASS
CCV5	CCV	1	20.47	1.099	15	PASS	19.88	2.7	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.01	137.5	15	<PQL
N035712-009B	SAMP	5	0.39	7.0026	15	PASS	0.45	12.3	15	PASS
N035712-009B	SAMP	10	0.18	12.33	15	PASS	0.23	8.12	15	PASS
N035712-010B	SAMP	1	1.68	2.02	15	PASS	0.7	29.31	15	NR!
N035712-010B	SAMP	5	0.34	2.2	15	PASS	0.18	56.046	15	<PQL
N035712-011B	SAMP	1	2.084	2.25	15	PASS	0.67	17.31	15	NR!
N035712-011B	SAMP	5	0.38	2.91	15	PASS	0.12	70.02	15	<PQL
N035712-012B	SAMP	1	2.43	0.82	15	PASS	0.75	21.75	15	NR!
N035712-012B	SAMP	5	0.5	4.75	15	PASS	0.093	37.52	15	<PQL
N035712-013B	SAMP	1	3.97	2.081	15	PASS	<0.000	N/A	15	<PQL
N035712-013B	SAMP	5	0.8	6.34	15	PASS	<0.000	N/A	15	<PQL
CCV6	CCV	1	20.19	0.92	15	PASS	20.15	1.46	15	PASS
CCB6	CCB	1	<0.000	N/A	15	<PQL	0.0045	637.084	15	<PQL
N035712-013B	SAMP	10	0.34	16.007	15	NR!	<0.000	N/A	15	<PQL
N035712-016B	SAMP	1	5.67	1.22	15	PASS	5.31	10.99	15	PASS
N035712-016B	SAMP	5	1.13	6.66	15	PASS	1.04	6.061	15	PASS
N035712-017B	SAMP	1	5.61	1.055	15	PASS	5.12	9.41	15	PASS
N035712-017B	SAMP	5	1.061	4.52	15	PASS	0.97	19.34	15	NR!
N035712-018B	SAMP	1	1.62	4.12	15	PASS	4.31	6.52	15	PASS
N035712-018B	SAMP	5	0.26	5.46	15	PASS	0.81	11.49	15	PASS
N035712-020B	SAMP	1	1.49	8.044	15	PASS	0.87	22.87	15	NR!
N035712-020B	SAMP	5	0.3	4.99	15	PASS	0.22	14.33	15	PASS
CCV7	CCV	1	20.23	0.63	15	PASS	20.65	2.29	15	PASS
CCB7	CCB	1	0.0033	453.21	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	0.024	62.077	15	<PQL	0.0024	706.68	15	<PQL
ICSAB3	ICSAB	1	20.46	1.38	15	PASS	19.68	3.89	15	PASS
CCV8	CCV	1	20.014	0.96	15	PASS	20.26	3.49	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV9	CCV	1	20.15	0.61	15	PASS	19.39	3.14	15	PASS
CCB9	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
ICSA4	ICSA	1	0.031	36.9	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	20.23	1.24	15	PASS	19.84	1.34	15	PASS
CCV10	CCV	1	19.95	1.25	15	PASS	19.35	3.29	15	PASS
CCB10	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV11	CCV	1	20.11	0.48	15	PASS	19.81	3.83	15	PASS
CCB11	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV12	CCV	1	20.067	0.48	15	PASS	20.026	0.57	15	PASS
CCB12	CCB	1	<0.000	N/A	15	<PQL	0.0062	352.59	15	<PQL
ICSA5	ICSA	1	0.022	94.5	15	<PQL	<0.000	N/A	15	<PQL
ICSAB5	ICSAB	1	20.26	1.58	15	PASS	19.6	1.83	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.084	20.16	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	1.25	15	PASS
Std3-5/50 ppb	ICAL	1	4.86	4.16	15	PASS
Std4-10/100 ppb	ICAL	1	9.91	1.36	15	PASS
Std5-20/200 ppb	ICAL	1	20.082	1.47	15	PASS
Std6-40/400 ppb	ICAL	1	40.17	0.28	15	PASS
Std7-100/1000 ppb	ICAL	1	100.45	1.42	15	PASS
Std8-200/2000 ppb	ICAL	1	199.74	0.3	15	PASS
ICV	ICV	1	9.69	1.98	15	PASS
ICB	ICB	1	0.13	18.15	15	<PQL
LLICV	CCV1	1	0.52	2.65	20	PASS
ICSA1	ICSA	1	0.046	28.087	15	<PQL
ICSAB1	ICSAB	1	21.44	1.069	15	PASS
LLICV	CCV1	1	0.57	3.62	20	PASS
CCV1	CCV	1	19.92	0.7	15	PASS
CCB1	CCB	1	0.035	52.58	15	<PQL
CCV2	CCV	1	19.78	1.73	15	PASS
CCB2	CCB	1	0.036	26.65	15	<PQL
N035705-004B	SAMP	1	31.58	0.1	15	PASS
N035705-005B	SAMP	1	31.33	1.057	15	PASS
MB-73997	MBLK	1	0.0095	82.86	15	<PQL
LCS-73997	LCS	1	10.12	1.18	15	PASS
N035705-014B	SAMP	1	45.17	0.83	15	PASS
N035705-014B	SAMP	5	8.59	1.004	15	PASS
CCV3	CCV	1	19.88	0.94	15	PASS
CCB3	CCB	1	0.02	85.78	15	<PQL
N035705-014B	SAMP	50	0.73	2.36	15	PASS
N035705-015B	SAMP	1	59.86	1.34	15	PASS
N035705-015B	SAMP	5	11.59	0.24	15	PASS
N035705-015B-PS	PS	1	70.33	0.87	15	PASS
N035705-015B-MS	MS	1	70.092	1.022	15	PASS
N035705-015B-MSD	MSD	1	70.66	1.12	15	PASS
N035705-015B	SAMP	25	2.32	3.092	15	PASS
N035705-015B-PS	PS	5	13.57	1.62	15	PASS
N035705-015B-MS	MS	5	13.43	1.43	15	PASS
N035705-015B-MSD	MSD	5	13.52	1.25	15	PASS
CCV4	CCV	1	20.16	0.6	15	PASS
CCB4	CCB	1	0.048	27.14	15	<PQL
ICSA2	ICSA	1	0.026	55.71	15	<PQL
ICSAB2	ICSAB	1	21.52	0.94	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035712-002B	SAMP	1	4.44	2.71	15	PASS
N035712-004B	SAMP	1	23.034	1.27	15	PASS
N035712-004B	SAMP	5	4.48	2.083	15	PASS
N035712-006B	SAMP	1	29.95	0.88	15	PASS
N035712-006B	SAMP	5	5.98	0.69	15	PASS
N035712-007B	SAMP	1	26.15	0.3	15	PASS
N035712-007B	SAMP	5	5.052	1.61	15	PASS
N035712-008B	SAMP	1	65.51	0.059	15	PASS
N035712-008B	SAMP	5	12.82	2.3	15	PASS
N035712-009B	SAMP	1	20.22	1.47	15	PASS
CCV5	CCV	1	20.065	0.91	15	PASS
CCB5	CCB	1	0.021	85.88	15	<PQL
N035712-009B	SAMP	5	3.76	1.7	15	PASS
N035712-009B	SAMP	10	1.82	1.99	15	PASS
N035712-010B	SAMP	1	47.8	0.75	15	PASS
N035712-010B	SAMP	5	9.045	1.81	15	PASS
N035712-011B	SAMP	1	205.13	0.37	15	PASS
N035712-011B	SAMP	5	38.87	0.97	15	PASS
N035712-012B	SAMP	1	389.64	0.83	15	PASS
N035712-012B	SAMP	5	67.49	1.15	15	PASS
N035712-013B	SAMP	1	65.44	1.34	15	PASS
N035712-013B	SAMP	5	12.93	1.16	15	PASS
CCV6	CCV	1	20.11	0.51	15	PASS
CCB6	CCB	1	0.05	34.67	15	<PQL
N035712-013B	SAMP	10	6.094	1.94	15	PASS
N035712-016B	SAMP	1	24.82	0.67	15	PASS
N035712-016B	SAMP	5	4.82	1.43	15	PASS
N035712-017B	SAMP	1	49.34	0.41	15	PASS
N035712-017B	SAMP	5	9.26	0.76	15	PASS
N035712-018B	SAMP	1	13.17	0.33	15	PASS
N035712-018B	SAMP	5	2.29	0.9	15	PASS
N035712-020B	SAMP	1	19.0048	1.12	15	PASS
N035712-020B	SAMP	5	3.84	1.68	15	PASS
CCV7	CCV	1	20.15	1.87	15	PASS
CCB7	CCB	1	0.017	59.97	15	<PQL
ICSA3	ICSA	1	0.022	84.35	15	<PQL
ICSAB3	ICSAB	1	21.72	1.22	15	PASS
CCV8	CCV	1	19.67	1.25	15	PASS
CCB8	CCB	1	0.046	52.94	15	<PQL
CCV9	CCV	1	19.67	2.46	15	PASS
CCB9	CCB	1	0.031	42.39	15	<PQL

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
ICSA4	ICSA	1	0.03	48.26	15	<PQL
ICSAB4	ICSAB	1	21.5	0.48	15	PASS
CCV10	CCV	1	20.058	0.84	15	PASS
CCB10	CCB	1	0.023	42.19	15	<PQL
CCV11	CCV	1	20.1	0.35	15	PASS
CCB11	CCB	1	0.042	31.22	15	<PQL
CCV12	CCV	1	19.9	1.34	15	PASS
CCB12	CCB	1	0.031	83.77	15	<PQL
ICSA5	ICSA	1	0.015	8.06	15	PASS
ICSAB5	ICSAB	1	21.39	1.59	15	PASS

PERCENT RSD SUMMARY: 190617B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.16	23.2	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.59	13.28	15	PASS
Std3-5/50 ppb	ICAL	1	4.92	1.22	15	PASS
Std4-10/100 ppb	ICAL	1	10.91	9.33	15	PASS
Std5-20/200 ppb	ICAL	1	20.069	1.62	15	PASS
Std6-40/400 ppb	ICAL	1	39.65	4.13	15	PASS
Std7-100/1000 ppb	ICAL	1	99.48	1.55	15	PASS
Std8-200/2000 ppb	ICAL	1	200.28	1.73	15	PASS
ICV	ICV	1	10.47	6.2	15	PASS
ICB	ICB	1	0.055	112.15	15	<PQL
LLICV	CCV1	1	0.42	19.49	20	PASS
ICSA1	ICSA	1	<0.000	0	15	PASS
ICSAB1	ICSAB	1	20.43	3.18	15	PASS
LLICV	CCV1	1	0.5	34.26	20	NR!
CCV1	CCV	1	20.15	5.0057	15	PASS
CCB1	CCB	1	0.038	109.04	15	<PQL
N035712-010B	SAMP	1	0.85	29.6	15	NR!
N035712-011B	SAMP	1	0.78	7.87	15	PASS
N035712-020B	SAMP	1	0.74	20.079	15	NR!
CCV2	CCV	1	20.22	4.029	15	PASS
CCB2	CCB	1	0.039	60.99	15	<PQL
CCV3	CCV	1	20.029	1.62	15	PASS
CCB3	CCB	1	0.013	248.06	15	<PQL
CCV4	CCV	1	19.66	2.96	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.0016	907.66	15	<PQL
ICSAB2	ICSAB	1	20.36	3.99	15	PASS
CCV5	CCV	1	19.69	2.91	15	PASS
CCB5	CCB	1	0.036	94.3	15	<PQL
CCV6	CCV	1	19.5	2.7	15	PASS
CCB6	CCB	1	0.022	156.66	15	<PQL
ICSA3	ICSA	1	<0.000	0	15	PASS
ICSAB3	ICSAB	1	20.44	4.12	15	PASS

PERCENT RSD SUMMARY: 190624B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	4.86	15	PASS	0.077	60.31	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.52	3.5	15	PASS	0.43	25.3	15	<PQL
Std3-5/50 ppb	ICAL	1	4.98	1.82	15	PASS	4.81	7.45	15	PASS
Std4-10/100 ppb	ICAL	1	9.98	2.35	15	PASS	10.13	9.53	15	PASS
Std5-20/200 ppb	ICAL	1	19.75	1.59	15	PASS	18.71	2.87	15	PASS
Std6-40/400 ppb	ICAL	1	39.052	1.36	15	PASS	39.71	1.23	15	PASS
Std7-100/1000 ppb	ICAL	1	96.11	0.66	15	PASS	97.12	0.59	15	PASS
Std8-200/2000 ppb	ICAL	1	202.16	2.58	15	PASS	201.63	0.86	15	PASS
ICV	ICV	1	10.36	2.19	15	PASS	10.65	4.21	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.024	59.68	15	<PQL
ICV	ICV	1	10.38	2.77	15	PASS	10.48	1.93	15	PASS
ICV	ICV	1	10.46	1.96	15	PASS	9.77	4.41	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.015	116.2	15	<PQL
LLICV	CCV1	1	1.047	2.0059	20	PASS	0.52	20.16	20	NR!
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.073	11.83	15	PASS
ICSAB1	ICSAB	1	19.1	2.86	15	PASS	18.55	2.83	15	PASS
MB-74311	MBLK	1	0.0063	43.43	15	<PQL	0.015	124.012	15	<PQL
LCS-74311	LCS	1	9.12	1.2	15	PASS	8.92	2.19	15	PASS
N035705-005B	SAMP	1	10.083	0.94	15	PASS	0.52	14.16	15	PASS
N035705-005B	SAMP	5	2.16	2.66	15	PASS	0.14	16.63	15	<PQL
N035705-005B-PS	PS	1	19.036	0.36	15	PASS	10.53	2.051	15	PASS
N035705-005B-MS	MS	1	18.37	1.67	15	PASS	10.54	4.8	15	PASS
N035705-005B-MSD	MSD	1	19.39	1.54	15	PASS	11.44	2.48	15	PASS
N035712-010B	SAMP	1	21.39	1.93	15	PASS	0.93	3.36	15	PASS
N035712-011B	SAMP	1	8.42	0.92	15	PASS	0.67	4.52	15	PASS
N035712-020B	SAMP	1	2.81	2.83	15	PASS	1.047	10.071	15	PASS
CCV1	CCV	1	20.55	4.2	15	PASS	20.76	3.48	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.025	159.067	15	<PQL
N035779-008B	SAMP	1	24.041	1.4	15	PASS	1.27	23.76	15	NR!
N035915-012B	SAMP	1	2.79	0.55	15	PASS	0.32	31.97	15	<PQL
N035915-013B	SAMP	1	8.052	2.039	15	PASS	0.14	41.88	15	<PQL
N035738-004B	SAMP	25	<0.000	N/A	15	<PQL	<0.000	0	15	PASS
N035779-008B	SAMP	1	23.6	1.46	15	PASS	1.22	19.77	15	NR!
CCV2	CCV	1	19.66	1.75	15	PASS	20.5	0.89	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.013	140.1	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.042	72.16	15	<PQL
ICSAB2	ICSAB	1	19.13	3.12	15	PASS	20.54	2.57	15	PASS
CCV3	CCV	1	19.29	0.98	15	PASS	20.49	1.63	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.0066	306.079	15	<PQL
CCV4	CCV	1	19.18	0.36	15	PASS	20.16	2.043	15	PASS

PERCENT RSD SUMMARY: 190624B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.014	0.92	15	PASS
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	0.042	120.13	15	<PQL
ICSAB3	ICSAB	1	19.096	1.74	15	PASS	20.87	4.25	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614001.D	RINSE	RINSE	1	06/14/19 6:06 PM
B0614002.D	Cal Blank	IBLK	1	06/14/19 6:11 PM
B0614003.D	Std1-0.1/1 ppb	ICAL	1	06/14/19 6:16 PM
B0614004.D	Std2-0.5/5 ppb	ICAL	1	06/14/19 6:21 PM
B0614005.D	Std3-5/50 ppb	ICAL	1	06/14/19 6:26 PM
B0614006.D	Std4-10/100 ppb	ICAL	1	06/14/19 6:31 PM
B0614007.D	Std5-20/200 ppb	ICAL	1	06/14/19 6:36 PM
B0614008.D	Std6-40/400 ppb	ICAL	1	06/14/19 6:41 PM
B0614009.D	Std7-100/1000 ppb	ICAL	1	06/14/19 6:46 PM
B0614010.D	Std8-200/2000 ppb	ICAL	1	06/14/19 6:51 PM
B0614011.D	ICV	ICV	1	06/14/19 6:55 PM
B0614012.D	ICB	ICB	1	06/14/19 7:01 PM
B0614013.D	LLICV	CCV1	1	06/14/19 7:06 PM
B0614014.D	ICSA1	ICSA	1	06/14/19 7:11 PM
B0614015.D	ICSAB1	ICSAB	1	06/14/19 7:16 PM
B0614016.D	LLICV	CCV1	1	06/14/19 7:21 PM
B0614017.D	N035737-001E	SAMP	1	06/14/19 7:26 PM
B0614018.D	N035737-001E	SAMP	1	06/14/19 7:31 PM
B0614019.D	N035760-001E	SAMP	5	06/14/19 7:35 PM
B0614020.D	N035598-002D	SAMP	1	06/14/19 7:40 PM
B0614021.D	N035598-002D	SAMP	1	06/14/19 7:45 PM
B0614022.D	MB-73998	MBLK	1	06/14/19 7:49 PM
B0614023.D	LCS-73998	LCS	1	06/14/19 7:54 PM
B0614024.D	N036001-002A	SAMP	1	06/14/19 7:59 PM
B0614025.D	N036001-002A	SAMP	5	06/14/19 8:04 PM
B0614026.D	N036001-002A-PS	PS	1	06/14/19 8:09 PM
B0614027.D	CCV1	CCV	1	06/14/19 8:14 PM
B0614028.D	CCB1	CCB	1	06/14/19 8:19 PM
B0614029.D	N036001-002A-MS	MS	1	06/14/19 8:24 PM
B0614030.D	N036001-002A-MSD	MSD	1	06/14/19 8:29 PM
B0614031.D	N036001-002A	SAMP	25	06/14/19 8:34 PM
B0614032.D	N036001-002A-PS	PS	5	06/14/19 8:39 PM
B0614033.D	N036001-002A-MS	MS	5	06/14/19 8:44 PM
B0614034.D	N036001-002A-MSD	MSD	5	06/14/19 8:49 PM
B0614035.D	N035662-001D	SAMP	1	06/14/19 8:54 PM
B0614036.D	N035662-001D	SAMP	5	06/14/19 8:59 PM
B0614037.D	N035737-001D	SAMP	1	06/14/19 9:04 PM
B0614038.D	N035737-001D	SAMP	5	06/14/19 9:09 PM
B0614039.D	CCV2	CCV	1	06/14/19 9:13 PM
B0614040.D	CCB2	CCB	1	06/14/19 9:18 PM
B0614041.D	N035737-002D	SAMP	1	06/14/19 9:23 PM
B0614042.D	N035737-002D	SAMP	5	06/14/19 9:28 PM

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614043.D	N035760-001D	SAMP	5	06/14/19 9:33 PM
B0614044.D	N035760-001D	SAMP	25	06/14/19 9:38 PM
B0614045.D	N035705-004B	SAMP	1	06/14/19 9:43 PM
B0614046.D	N035705-005B	SAMP	1	06/14/19 9:48 PM
B0614047.D	MB-73997	MBLK	1	06/14/19 9:53 PM
B0614048.D	LCS-73997	LCS	1	06/14/19 9:58 PM
B0614049.D	N035705-014B	SAMP	1	06/14/19 10:03 PM
B0614050.D	N035705-014B	SAMP	5	06/14/19 10:08 PM
B0614051.D	CCV3	CCV	1	06/14/19 10:13 PM
B0614052.D	CCB3	CCB	1	06/14/19 10:18 PM
B0614053.D	N035705-014B	SAMP	50	06/14/19 10:23 PM
B0614054.D	N035705-015B	SAMP	1	06/14/19 10:28 PM
B0614055.D	N035705-015B	SAMP	5	06/14/19 10:32 PM
B0614056.D	N035705-015B-PS	PS	1	06/14/19 10:37 PM
B0614057.D	N035705-015B-MS	MS	1	06/14/19 10:42 PM
B0614058.D	N035705-015B-MSD	MSD	1	06/14/19 10:47 PM
B0614059.D	N035705-015B	SAMP	25	06/14/19 10:52 PM
B0614060.D	N035705-015B-PS	PS	5	06/14/19 10:57 PM
B0614061.D	N035705-015B-MS	MS	5	06/14/19 11:02 PM
B0614062.D	N035705-015B-MSD	MSD	5	06/14/19 11:07 PM
B0614063.D	CCV4	CCV	1	06/14/19 11:12 PM
B0614064.D	CCB4	CCB	1	06/14/19 11:17 PM
B0614065.D	ICSA2	ICSA	1	06/14/19 11:22 PM
B0614066.D	ICSAB2	ICSAB	1	06/14/19 11:27 PM
B0614067.D	N035712-002B	SAMP	1	06/14/19 11:32 PM
B0614068.D	N035712-004B	SAMP	1	06/14/19 11:37 PM
B0614069.D	N035712-004B	SAMP	5	06/14/19 11:42 PM
B0614070.D	N035712-006B	SAMP	1	06/14/19 11:47 PM
B0614071.D	N035712-006B	SAMP	5	06/14/19 11:51 PM
B0614072.D	N035712-007B	SAMP	1	06/14/19 11:56 PM
B0614073.D	N035712-007B	SAMP	5	06/15/19 12:01 AM
B0614074.D	N035712-008B	SAMP	1	06/15/19 12:06 AM
B0614075.D	N035712-008B	SAMP	5	06/15/19 12:11 AM
B0614076.D	N035712-009B	SAMP	1	06/15/19 12:16 AM
B0614077.D	CCV5	CCV	1	06/15/19 12:21 AM
B0614078.D	CCB5	CCB	1	06/15/19 12:26 AM
B0614079.D	N035712-009B	SAMP	5	06/15/19 12:31 AM
B0614080.D	N035712-009B	SAMP	10	06/15/19 12:36 AM
B0614081.D	N035712-010B	SAMP	1	06/15/19 12:41 AM
B0614082.D	N035712-010B	SAMP	5	06/15/19 12:46 AM
B0614083.D	N035712-011B	SAMP	1	06/15/19 12:51 AM
B0614084.D	N035712-011B	SAMP	5	06/15/19 12:56 AM

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614085.D	N035712-012B	SAMP	1	06/15/19 1:01 AM
B0614086.D	N035712-012B	SAMP	5	06/15/19 1:06 AM
B0614087.D	N035712-013B	SAMP	1	06/15/19 1:11 AM
B0614088.D	N035712-013B	SAMP	5	06/15/19 1:16 AM
B0614089.D	CCV6	CCV	1	06/15/19 1:20 AM
B0614090.D	CCB6	CCB	1	06/15/19 1:25 AM
B0614091.D	N035712-013B	SAMP	10	06/15/19 1:30 AM
B0614092.D	N035712-016B	SAMP	1	06/15/19 1:35 AM
B0614093.D	N035712-016B	SAMP	5	06/15/19 1:40 AM
B0614094.D	N035712-017B	SAMP	1	06/15/19 1:45 AM
B0614095.D	N035712-017B	SAMP	5	06/15/19 1:50 AM
B0614096.D	N035712-018B	SAMP	1	06/15/19 1:55 AM
B0614097.D	N035712-018B	SAMP	5	06/15/19 2:00 AM
B0614098.D	N035712-020B	SAMP	1	06/15/19 2:05 AM
B0614099.D	N035712-020B	SAMP	5	06/15/19 2:10 AM
B0614100.D	CCV7	CCV	1	06/15/19 2:15 AM
B0614101.D	CCB7	CCB	1	06/15/19 2:20 AM
B0614102.D	ICSA3	ICSA	1	06/15/19 2:25 AM
B0614103.D	ICSAB3	ICSAB	1	06/15/19 2:30 AM
B0614104.D	MB-73999	MBLK	1	06/15/19 2:35 AM
B0614105.D	LCS-73999	LCS	1	06/15/19 2:40 AM
B0614106.D	N035738-001B	SAMP	1	06/15/19 2:45 AM
B0614107.D	N035738-001B	SAMP	5	06/15/19 2:50 AM
B0614108.D	N035738-001B	SAMP	25	06/15/19 2:55 AM
B0614109.D	N035738-001B-PS	PS	1	06/15/19 3:00 AM
B0614110.D	N035738-001B-PS	PS	5	06/15/19 3:05 AM
B0614111.D	N035738-001B-MS	MS	1	06/15/19 3:10 AM
B0614112.D	N035738-001B-MS	MS	5	06/15/19 3:15 AM
B0614113.D	N035738-001B-MSD	MSD	1	06/15/19 3:19 AM
B0614114.D	CCV8	CCV	1	06/15/19 3:24 AM
B0614115.D	CCB8	CCB	1	06/15/19 3:29 AM
B0614116.D	N035738-001B-MSD	MSD	5	06/15/19 3:34 AM
B0614117.D	N035738-002B	SAMP	1	06/15/19 3:39 AM
B0614118.D	N035738-002B	SAMP	5	06/15/19 3:44 AM
B0614119.D	N035738-002B	SAMP	10	06/15/19 3:49 AM
B0614120.D	N035738-004B	SAMP	1	06/15/19 3:54 AM
B0614121.D	N035738-004B	SAMP	5	06/15/19 3:59 AM
B0614122.D	N035738-005B	SAMP	1	06/15/19 4:04 AM
B0614123.D	N035738-005B	SAMP	5	06/15/19 4:09 AM
B0614124.D	N035738-005B	SAMP	25	06/15/19 4:14 AM
B0614125.D	N035738-006B	SAMP	1	06/15/19 4:19 AM
B0614126.D	CCV9	CCV	1	06/15/19 4:24 AM

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614127.D	CCB9	CCB	1	06/15/19 4:29 AM
B0614128.D	ICSA4	ICSA	1	06/15/19 4:34 AM
B0614129.D	ICSAB4	ICSAB	1	06/15/19 4:39 AM
B0614130.D	N035738-006B	SAMP	5	06/15/19 4:44 AM
B0614131.D	N035738-007B	SAMP	1	06/15/19 4:48 AM
B0614132.D	N035738-007B	SAMP	5	06/15/19 4:53 AM
B0614133.D	N035738-008B	SAMP	1	06/15/19 4:58 AM
B0614134.D	N035738-008B	SAMP	5	06/15/19 5:03 AM
B0614135.D	N035738-009B	SAMP	1	06/15/19 5:08 AM
B0614136.D	N035738-009B	SAMP	5	06/15/19 5:13 AM
B0614137.D	N035738-009B	SAMP	50	06/15/19 5:18 AM
B0614138.D	N035738-010B	SAMP	1	06/15/19 5:23 AM
B0614139.D	N035738-010B	SAMP	5	06/15/19 5:28 AM
B0614140.D	CCV10	CCV	1	06/15/19 5:33 AM
B0614141.D	CCB10	CCB	1	06/15/19 5:38 AM
B0614142.D	N035738-011B	SAMP	1	06/15/19 5:43 AM
B0614143.D	N035738-011B	SAMP	5	06/15/19 5:47 AM
B0614144.D	N035738-012B	SAMP	1	06/15/19 5:52 AM
B0614145.D	N035738-012B	SAMP	5	06/15/19 5:57 AM
B0614146.D	N035738-013B	SAMP	1	06/15/19 6:02 AM
B0614147.D	N035738-013B	SAMP	5	06/15/19 6:07 AM
B0614148.D	N035738-014B	SAMP	1	06/15/19 6:12 AM
B0614149.D	N035738-014B	SAMP	5	06/15/19 6:17 AM
B0614150.D	N035738-014B	SAMP	25	06/15/19 6:22 AM
B0614151.D	N035738-015B	SAMP	1	06/15/19 6:27 AM
B0614152.D	CCV11	CCV	1	06/15/19 6:32 AM
B0614153.D	CCB11	CCB	1	06/15/19 6:37 AM
B0614154.D	N035738-015B	SAMP	5	06/15/19 6:42 AM
B0614155.D	N035738-015B	SAMP	25	06/15/19 6:47 AM
B0614156.D	CCV12	CCV	1	06/15/19 6:52 AM
B0614157.D	CCB12	CCB	1	06/15/19 6:57 AM
B0614158.D	ICSA5	ICSA	1	06/15/19 7:02 AM
B0614159.D	ICSAB5	ICSAB	1	06/15/19 7:07 AM

INJECTION LOG: 190617B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0617001.D	RINSE	RINSE	1	06/17/19 5:13 PM
B0617002.D	Cal Blank	IBLK	1	06/17/19 5:18 PM
B0617003.D	Std1-0.1/1 ppb	ICAL	1	06/17/19 5:23 PM
B0617004.D	Std2-0.5/5 ppb	ICAL	1	06/17/19 5:28 PM
B0617005.D	Std3-5/50 ppb	ICAL	1	06/17/19 5:33 PM
B0617006.D	Std4-10/100 ppb	ICAL	1	06/17/19 5:38 PM
B0617007.D	Std5-20/200 ppb	ICAL	1	06/17/19 5:43 PM
B0617008.D	Std6-40/400 ppb	ICAL	1	06/17/19 5:48 PM
B0617009.D	Std7-100/1000 ppb	ICAL	1	06/17/19 5:53 PM
B0617010.D	Std8-200/2000 ppb	ICAL	1	06/17/19 5:58 PM
B0617011.D	ICV	ICV	1	06/17/19 6:43 PM
B0617012.D	ICB	ICB	1	06/17/19 6:48 PM
B0617013.D	LLICV	CCV1	1	06/17/19 6:53 PM
B0617014.D	ICSA1	ICSA	1	06/17/19 6:58 PM
B0617015.D	ICSAB1	ICSAB	1	06/17/19 7:03 PM
B0617016.D	LLICV	CCV1	1	06/17/19 7:08 PM
B0617017.D	MB-74224	MBLK	1	06/17/19 7:13 PM
B0617018.D	LCS-74224	LCS	1	06/17/19 7:18 PM
B0617019.D	N036071-001A	SAMP	1	06/17/19 7:23 PM
B0617020.D	N036071-001A	SAMP	5	06/17/19 7:28 PM
B0617021.D	N036071-001A-DUP	DUP	1	06/17/19 7:33 PM
B0617022.D	N036071-001A-PS	PS	1	06/17/19 7:38 PM
B0617023.D	N036071-001A-MS	MS	1	06/17/19 7:43 PM
B0617024.D	N036071-001A-MSD	MSD	1	06/17/19 7:48 PM
B0617025.D	N035705-004B	SAMP	1	06/17/19 7:53 PM
B0617026.D	N035705-005B	SAMP	1	06/17/19 7:58 PM
B0617027.D	CCV1	CCV	1	06/17/19 8:03 PM
B0617028.D	CCB1	CCB	1	06/17/19 8:08 PM
B0617029.D	N035712-010B	SAMP	1	06/17/19 8:13 PM
B0617030.D	N035712-011B	SAMP	1	06/17/19 8:18 PM
B0617031.D	N035712-020B	SAMP	1	06/17/19 8:23 PM
B0617032.D	N035738-004B	SAMP	10	06/17/19 8:28 PM
B0617033.D	N035761-003B	SAMP	1	06/17/19 8:33 PM
B0617034.D	N035779-007B	SAMP	1	06/17/19 8:38 PM
B0617035.D	N035779-008B	SAMP	1	06/17/19 8:43 PM
B0617036.D	MB-74214	MBLK	1	06/17/19 8:48 PM
B0617037.D	LCS-74214	LCS	1	06/17/19 8:53 PM
B0617038.D	N035917-001A	SAMP	5	06/17/19 8:58 PM
B0617039.D	CCV2	CCV	1	06/17/19 9:03 PM
B0617040.D	CCB2	CCB	1	06/17/19 9:08 PM
B0617041.D	N035917-001A	SAMP	25	06/17/19 9:13 PM
B0617042.D	N035917-001A-PS	PS	5	06/17/19 9:18 PM

INJECTION LOG: 190617B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0617043.D	N035917-001A-MS	MS	5	06/17/19 9:23 PM
B0617044.D	N035917-001A-MSD	MSD	5	06/17/19 9:28 PM
B0617045.D	N035917-002A	SAMP	5	06/17/19 9:33 PM
B0617046.D	N035917-003A	SAMP	5	06/17/19 9:38 PM
B0617047.D	N035917-004A	SAMP	5	06/17/19 9:43 PM
B0617048.D	N035917-005A	SAMP	5	06/17/19 9:48 PM
B0617049.D	N035917-006A	SAMP	5	06/17/19 9:53 PM
B0617050.D	N035917-007A	SAMP	5	06/17/19 9:58 PM
B0617051.D	CCV3	CCV	1	06/17/19 10:03 PM
B0617052.D	CCB3	CCB	1	06/17/19 10:08 PM
B0617053.D	N035917-008B	SAMP	1	06/17/19 10:13 PM
B0617054.D	N035918-001A	SAMP	5	06/17/19 10:18 PM
B0617055.D	N035918-002A	SAMP	5	06/17/19 10:23 PM
B0617056.D	N035918-003A	SAMP	5	06/17/19 10:28 PM
B0617057.D	N035918-004A	SAMP	5	06/17/19 10:33 PM
B0617058.D	N035919-001A	SAMP	5	06/17/19 10:38 PM
B0617059.D	N035919-002A	SAMP	5	06/17/19 10:43 PM
B0617060.D	N035919-003A	SAMP	5	06/17/19 10:48 PM
B0617061.D	N035919-004A	SAMP	5	06/17/19 10:53 PM
B0617062.D	N035919-005A	SAMP	5	06/17/19 10:58 PM
B0617063.D	CCV4	CCV	1	06/17/19 11:03 PM
B0617064.D	CCB4	CCB	1	06/17/19 11:08 PM
B0617065.D	ICSA2	ICSA	1	06/17/19 11:13 PM
B0617066.D	ICSAB2	ICSAB	1	06/17/19 11:18 PM
B0617067.D	N035919-006A	SAMP	5	06/17/19 11:23 PM
B0617068.D	N035919-007A	SAMP	5	06/17/19 11:28 PM
B0617069.D	MB-74235	MBLK	1	06/17/19 11:33 PM
B0617070.D	LCS-74235	LCS	1	06/17/19 11:38 PM
B0617071.D	N036084-001A	SAMP	5	06/17/19 11:43 PM
B0617072.D	N036084-001A	SAMP	25	06/17/19 11:48 PM
B0617073.D	N036084-001A-PS	PS	5	06/17/19 11:53 PM
B0617074.D	N036084-001A-MS	MS	5	06/17/19 11:58 PM
B0617075.D	N036084-001A-MSD	MSD	5	06/18/19 12:03 AM
B0617076.D	N035978-001A	SAMP	5	06/18/19 12:08 AM
B0617077.D	CCV5	CCV	1	06/18/19 12:13 AM
B0617078.D	CCB5	CCB	1	06/18/19 12:18 AM
B0617079.D	N035978-004A	SAMP	5	06/18/19 12:23 AM
B0617080.D	N035978-007A	SAMP	5	06/18/19 12:28 AM
B0617081.D	CCV6	CCV	1	06/18/19 12:33 AM
B0617082.D	CCB6	CCB	1	06/18/19 12:38 AM
B0617083.D	ICSA3	ICSA	1	06/18/19 12:43 AM
B0617084.D	ICSAB3	ICSAB	1	06/18/19 12:48 AM

INJECTION LOG: 190624B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0524001.D	RINSE	RINSE	1	06/24/19 2:15 PM
B0524002.D	RINSE	RINSE	1	06/24/19 2:20 PM
B0524003.D	Cal Blank	IBLK	1	06/24/19 2:25 PM
B0524004.D	Std1-0.1/1 ppb	ICAL	1	06/24/19 2:30 PM
B0524005.D	Std2-0.5/5 ppb	ICAL	1	06/24/19 2:35 PM
B0524006.D	Std3-5/50 ppb	ICAL	1	06/24/19 2:40 PM
B0524007.D	Std4-10/100 ppb	ICAL	1	06/24/19 2:45 PM
B0524008.D	Std5-20/200 ppb	ICAL	1	06/24/19 2:50 PM
B0524009.D	Std6-40/400 ppb	ICAL	1	06/24/19 2:55 PM
B0524010.D	Std7-100/1000 ppb	ICAL	1	06/24/19 3:00 PM
B0524011.D	Std8-200/2000 ppb	ICAL	1	06/24/19 3:04 PM
B0524012.D	ICV	ICV	1	06/24/19 3:09 PM
B0524013.D	ICB	ICB	1	06/24/19 3:14 PM
B0524014.D	ICV	ICV	1	06/24/19 3:19 PM
B0524015.D	ICV	ICV	1	06/24/19 3:24 PM
B0524016.D	ICB	ICB	1	06/24/19 3:29 PM
B0524017.D	LLICV	CCV1	1	06/24/19 3:34 PM
B0524018.D	ICSA1	ICSA	1	06/24/19 3:39 PM
B0524019.D	ICSAB1	ICSAB	1	06/24/19 3:44 PM
B0524020.D	MB-74311	MBLK	1	06/24/19 3:49 PM
B0524021.D	LCS-74311	LCS	1	06/24/19 3:54 PM
B0524022.D	N035705-005B	SAMP	1	06/24/19 4:01 PM
B0524023.D	N035705-005B	SAMP	5	06/24/19 4:06 PM
B0524024.D	N035705-005B-PS	PS	1	06/24/19 4:11 PM
B0524025.D	N035705-005B-MS	MS	1	06/24/19 4:16 PM
B0524026.D	N035705-005B-MSD	MSD	1	06/24/19 4:21 PM
B0524027.D	N035712-010B	SAMP	1	06/24/19 4:26 PM
B0524028.D	N035712-011B	SAMP	1	06/24/19 4:30 PM
B0524029.D	N035712-020B	SAMP	1	06/24/19 4:35 PM
B0524030.D	CCV1	CCV	1	06/24/19 4:40 PM
B0524031.D	CCB1	CCB	1	06/24/19 4:45 PM
B0524032.D	N035779-008B	SAMP	1	06/24/19 4:50 PM
B0524033.D	N035915-012B	SAMP	1	06/24/19 4:55 PM
B0524034.D	N035915-013B	SAMP	1	06/24/19 5:00 PM
B0524035.D	N035738-004B	SAMP	25	06/24/19 5:05 PM
B0524036.D	N035779-008B	SAMP	1	06/24/19 5:10 PM
B0524037.D	MB-74319	MBLK	1	06/24/19 5:15 PM
B0524038.D	LCS-74319	LCS	1	06/24/19 5:20 PM
B0524039.D	N036174-001A	SAMP	1	06/24/19 5:25 PM
B0524040.D	N036174-001A	SAMP	5	06/24/19 5:30 PM
B0524041.D	N036174-001A-PS	PS	5	06/24/19 5:35 PM
B0524042.D	CCV2	CCV	1	06/24/19 5:40 PM

INJECTION LOG: 190624B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0524043.D	CCB2	CCB	1	06/24/19 5:45 PM
B0524044.D	ICSA2	ICSA	1	06/24/19 5:50 PM
B0524045.D	ICSAB2	ICSAB	1	06/24/19 5:55 PM
B0524046.D	N036174-001A-MS	MS	5	06/24/19 6:00 PM
B0524047.D	N036174-001A-MS	MS	5	06/24/19 6:05 PM
B0524048.D	N036174-001A-MSD	MSD	5	06/24/19 6:10 PM
B0524049.D	N036174-002A	SAMP	1	06/24/19 6:15 PM
B0524050.D	N036174-003A	SAMP	1	06/24/19 6:20 PM
B0524051.D	N036174-004A	SAMP	1	06/24/19 6:25 PM
B0524052.D	N036174-005A	SAMP	1	06/24/19 6:30 PM
B0524053.D	N036174-006A	SAMP	1	06/24/19 6:35 PM
B0524054.D	N036174-007A	SAMP	1	06/24/19 6:40 PM
B0524055.D	N036174-008A	SAMP	1	06/24/19 6:45 PM
B0524056.D	CCV3	CCV	1	06/24/19 6:49 PM
B0524057.D	CCB3	CCB	1	06/24/19 6:54 PM
B0524058.D	N036174-009A	SAMP	1	06/24/19 6:59 PM
B0524059.D	N036174-010A	SAMP	1	06/24/19 7:04 PM
B0524060.D	N036174-011A	SAMP	1	06/24/19 7:09 PM
B0524061.D	N036174-012A	SAMP	1	06/24/19 7:14 PM
B0524062.D	N036174-013A	SAMP	1	06/24/19 7:19 PM
B0524063.D	N036174-014A	SAMP	1	06/24/19 7:24 PM
B0524064.D	N036174-015A	SAMP	1	06/24/19 7:29 PM
B0524065.D	N036174-016A	SAMP	1	06/24/19 7:34 PM
B0524066.D	N036174-017A	SAMP	1	06/24/19 7:39 PM
B0524067.D	CCV4	CCV	1	06/24/19 7:44 PM
B0524068.D	CCB4	CCB	1	06/24/19 7:49 PM
B0524069.D	ICSA3	ICSA	1	06/24/19 7:54 PM
B0524070.D	ICSAB3	ICSAB	1	06/24/19 7:59 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/24/2019 7:14:47**
Prep End Date: **5/24/2019 12:00:00**
Reviewed/ Date: NS 6/26/2019
Initials/ Date: for

Prep Batch **73997** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**01-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73997	Aqueous		25	☐	0	0	25	1.000		
MB-73997	Aqueous		25	☐	0	0	25	1.000		
N035705-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-015B	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-015B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035705-015B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-011B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/24/2019 7:14:47**
Prep End Date: **5/24/2019 12:00:00**
Reviewed/ Date: NS 6/26/2019
Initials/ Date: for
Prep Batch **73997** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**01-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035712-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-016B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-017B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-018B	Groundwater	<2	25	☐	0	0	25	1.000		
N035712-020B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/22/2019 7:58:39**
Prep End Date: **6/22/2019 12:00:00**
Prep Batch **74311** Prep Code: **3010_W_MS**

Reviewed/ Date: NS 6/26/2019
Initials/ Date: for
Technician **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74311	Aqueous		25	☐	0	0	25	1.000		
MB-74311	Aqueous		25	☐	0	0	25	1.000		
N035705-005B	Water	<2	25	☐	0	0	25	1.000		
N035705-005B-MS	Water	<2	25	☐	0	0	25	1.000		
N035705-005B-MS	Water	<2	25	☐	0	0	25	1.000		
N035712-010B	Water	<2	25	☐	0	0	25	1.000		
N035712-011B	Water	<2	25	☐	0	0	25	1.000		
N035712-020B	Water	<2	25	☐	0	0	25	1.000		
N035779-008B	Water	<2	25	☐	0	0	25	1.000		
N035915-012B	Water	<2	25	☐	0	0	25	1.000		
N035915-013B	Water	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Jun 2019 11:23:08 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	213841.00	0.00	
24 Mg	563643.00	0.00	
25 Mg	73874.10	0.00	
26 Mg	85617.90	0.00	
59 Co	664188.00	0.00	
115 In	969237.00	0.00	
206 Pb	292392.00	0.00	
207 Pb	252987.00	0.00	
208 Pb	627226.00	0.00	

RSD (%)

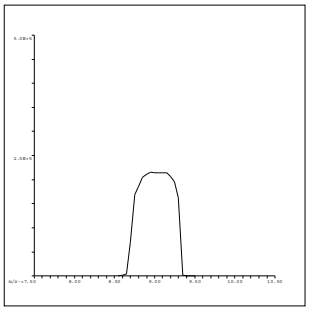
Element	Actual	Required	Flag
9 Be	0.78	5.00	
24 Mg	0.59	5.00	
25 Mg	0.18	5.00	
26 Mg	0.94	5.00	
59 Co	0.72	5.00	
115 In	0.53	5.00	
206 Pb	0.92	5.00	
207 Pb	0.65	5.00	
208 Pb	1.36	5.00	

Ion Ratio

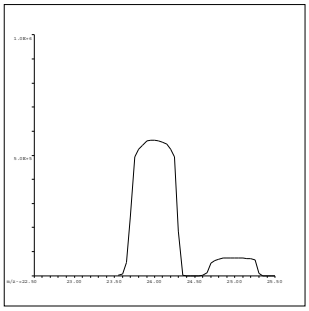
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

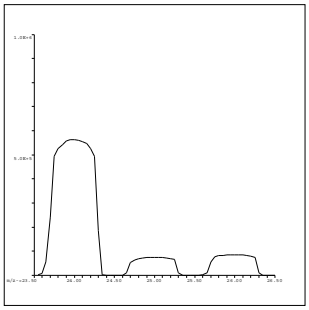
Element	Actual	Required	Flag



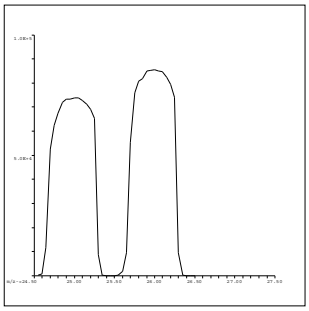
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



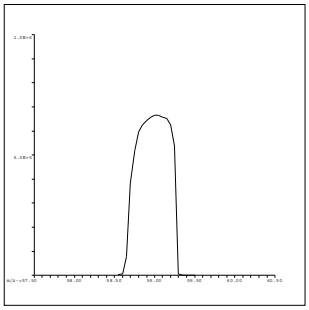
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



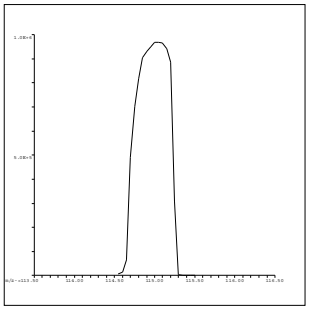
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



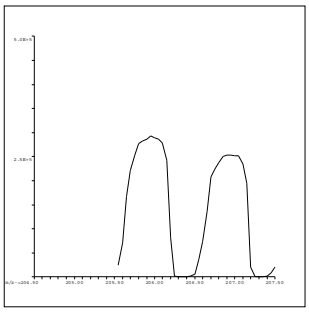
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



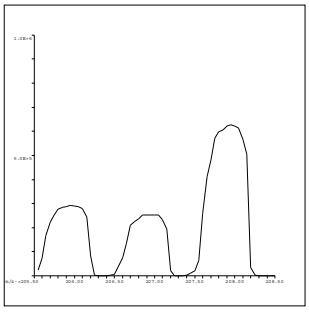
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



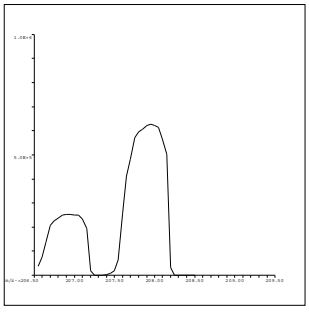
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 17 Jun 2019 08:21:02 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	88402.10	0.00	
24 Mg	450740.00	0.00	
25 Mg	59046.80	0.00	
26 Mg	67694.60	0.00	
59 Co	459728.00	0.00	
115 In	882603.00	0.00	
206 Pb	278857.00	0.00	
207 Pb	242545.00	0.00	
208 Pb	599319.00	0.00	

RSD (%)

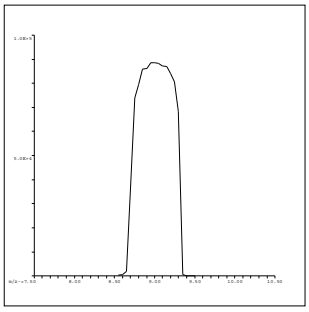
Element	Actual	Required	Flag
9 Be	0.87	5.00	
24 Mg	1.08	5.00	
25 Mg	0.48	5.00	
26 Mg	1.02	5.00	
59 Co	1.25	5.00	
115 In	0.72	5.00	
206 Pb	0.83	5.00	
207 Pb	1.18	5.00	
208 Pb	1.07	5.00	

Ion Ratio

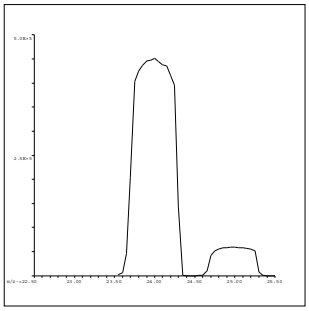
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

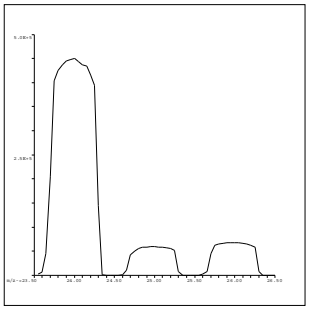
Element	Actual	Required	Flag



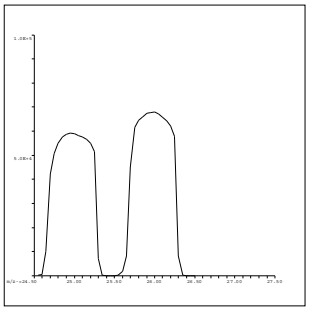
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



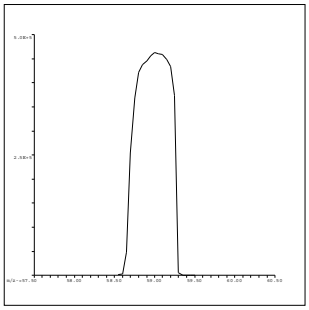
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



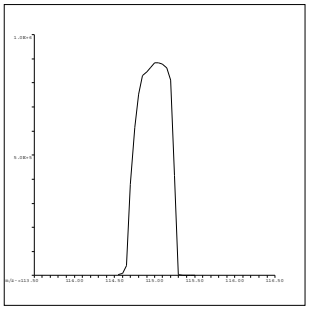
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



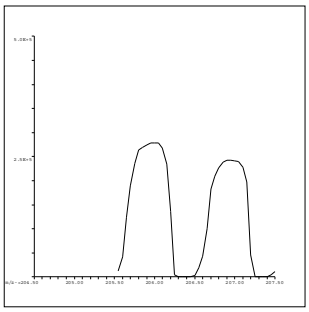
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



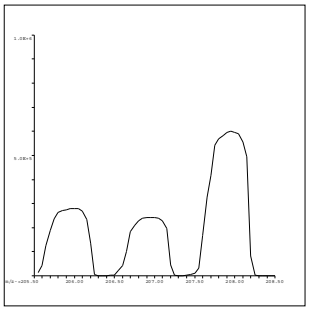
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



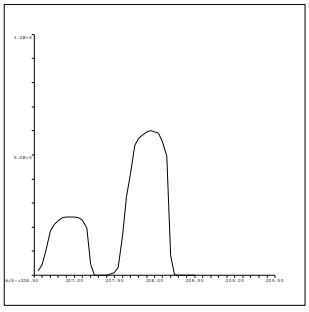
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 24 Jun 2019 02:04:01 pm
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	238148.00	0.00	
24	Mg	613011.00	0.00	
25	Mg	81112.00	0.00	
26	Mg	93657.00	0.00	
59	Co	1436430.00	0.00	
115	In	1085800.00	0.00	
206	Pb	322671.00	0.00	
207	Pb	281324.00	0.00	
208	Pb	688401.00	0.00	

RSD (%)

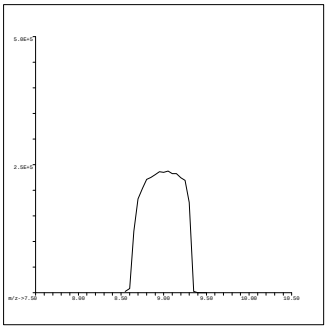
Element		Actual	Required	Flag
9	Be	0.95	5.00	
24	Mg	0.87	5.00	
25	Mg	1.02	5.00	
26	Mg	1.32	5.00	
59	Co	1.19	5.00	
115	In	1.54	5.00	
206	Pb	1.08	5.00	
207	Pb	1.68	5.00	
208	Pb	1.31	5.00	

Ion Ratio

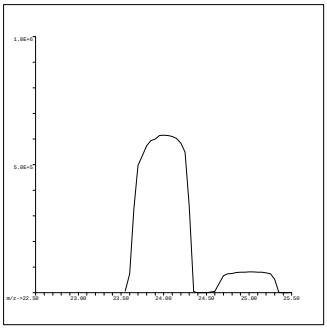
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

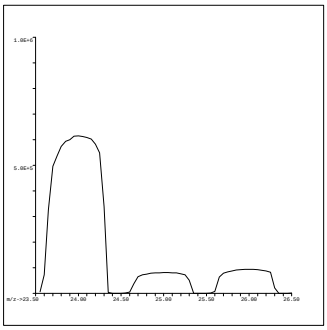
Element	Actual	Required	Flag



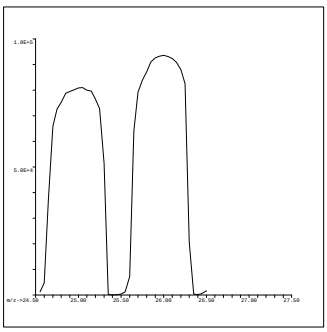
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



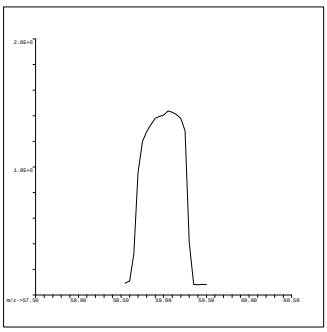
24 Mg
Mass Calib.
Actual: 24.05
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



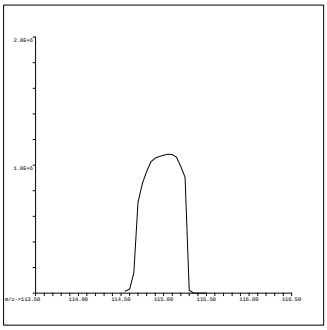
25 Mg
Mass Calib.
Actual: 25.05
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



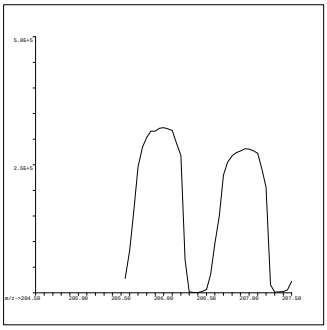
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



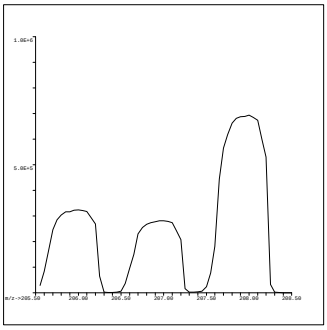
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



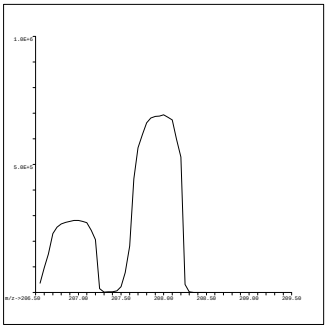
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190614B

Instrument ID: ICPMS-02

Analyte	Data File	B0614002.D	B0614003.D	B0614004.D	B0614005.D	B0614006.D	B0614007.D	B0614008.D	B0614009.D	B0614010.D	
	Acq. Date-Time	06/14/2019 06:11 PM	06/14/2019 06:16 PM	06/14/2019 06:21 PM	06/14/2019 06:26 PM	06/14/2019 06:31 PM	06/14/2019 06:36 PM	06/14/2019 06:41 PM	06/14/2019 06:46 PM	06/14/2019 06:51 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	138450.6		139281	140698.7	140059.2	141567.2	142028	142929	142399.1	
55 Mn [2]	CPS	118.7		3057.2	30103	58822.3	118743.7	233811.1	569282.5	1095207.8	0.9998
52 Cr [2]	CPS	428.7		5707.7	54695.5	107311.4	215067.6	423638.1	1040404.5	2170888.5	0.9998
72 Ge (ISTD) [1]	CPS	59802.7		59480.4	59760.5	59799.4	59876.4	59312	58353	57369.6	
78 Se [1]	CPS	6.7		117.8	1083.4	2118	4236.3	8392.5	20835.3	40117.3	1.0000
72 Ge (ISTD) [2]	CPS	100089.4	100231.7	100312.8	99723.9	99784	101369.6	100890.6	98839.5	96944.5	
75 As [2]	CPS	65.3	193.3	718.3	6399.6	12551.2	25473.8	50160.7	122689.5	238399.6	1.0000
103 Rh (ISTD) [2]	CPS	2810378.2		2794918.4	2819697.6	2807864.9	2797987.8	2774758.3	2735620.2	2679139.9	
95 Mo [2]	CPS	381.1		3284.9	30893	62272.9	125388.5	248363.8	611761.8	1190925.3	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190617B

Instrument ID: ICPMS-02

Analyte	Data File	B0617002.D	B0617004.D	B0617005.D	B0617006.D	B0617007.D	B0617008.D	B0617009.D	B0617010.D	
	Acq. Date-Time	06/17/2019 05:18 PM	06/17/2019 05:28 PM	06/17/2019 05:33 PM	06/17/2019 05:38 PM	06/17/2019 05:43 PM	06/17/2019 05:48 PM	06/17/2019 05:53 PM	06/17/2019 05:58 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [1]	CPS	45220.5	45574.8	45749.7	45608.2	45923.5	45811	45767.6	45063.2	
78 Se [1]	CPS	2.2	90	732.3	1617.9	2992.6	5896.9	14777.3	29287.5	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190624B

Instrument ID: ICPMS-02

Analyte	Data File	B0524003.D	B0524005.D	B0524006.D	B0524007.D	B0524008.D	B0524009.D	B0524010.D	B0524011.D	
	Acq. Date-Time	06/24/2019 02:25 PM	06/24/2019 02:35 PM	06/24/2019 02:40 PM	06/24/2019 02:45 PM	06/24/2019 02:50 PM	06/24/2019 02:55 PM	06/24/2019 03:00 PM	06/24/2019 03:04 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	127945.7	134081.6	135424.9	135024.7	136400.7	138686.4	137706.3	136614.9	
52 Cr [2]	CPS	348.9	5563.3	50244.2	100085.1	199818.1	401342.3	980356.6	2044316.7	0.9997
72 Ge (ISTD) [1]	CPS	67244.8	69125.5	69387.2	69650.5	75198.4	70155.1	67603.1	66084.6	
78 Se [1]	CPS	1.1	98.9	1106.8	2338.1	4662	9229.7	21748.7	44141.3	0.9998

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **ICV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/14/2019** SeqNo: **3413012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.080	0.10	10.00	0	101	90	110				
Chromium	10.483	1.0	10.00	0	105	90	110				
Manganese	108.417	0.50	100.0	0	108	90	110				
Molybdenum	9.689	0.50	10.00	0	96.9	90	110				
Selenium	9.408	0.50	10.00	0	94.1	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/14/2019** SeqNo: **3413014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.102	0.10	0.1000	0	102	80	120				
Chromium	1.029	1.0	1.000	0	103	80	120				
Manganese	0.551	0.50	0.5000	0	110	80	120				
Molybdenum	0.524	0.50	0.5000	0	105	80	120				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/14/2019** SeqNo: **3413017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.516	0.50	0.5000	0	103	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/14/2019** SeqNo: **3413028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.215	0.10	20.00	0	101	90	110				
Chromium	20.284	1.0	20.00	0	101	90	110				
Manganese	21.561	0.50	20.00	0	108	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	19.922	0.50	20.00	0	99.6	90	110				
Selenium	19.993	0.50	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.580	0.10	20.00	0	103	90	110				
Chromium	20.187	1.0	20.00	0	101	90	110				
Manganese	21.598	0.50	20.00	0	108	90	110				
Molybdenum	19.782	0.50	20.00	0	98.9	90	110				
Selenium	19.637	0.50	20.00	0	98.2	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.253	0.10	20.00	0	101	90	110				
Chromium	20.523	1.0	20.00	0	103	90	110				
Manganese	21.297	0.50	20.00	0	106	90	110				
Molybdenum	19.881	0.50	20.00	0	99.4	90	110				
Selenium	19.476	0.50	20.00	0	97.4	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.974	0.10	20.00	0	99.9	90	110				
Chromium	19.968	1.0	20.00	0	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.603	0.50	20.00	0	108	90	110				
Molybdenum	20.162	0.50	20.00	0	101	90	110				
Selenium	19.882	0.50	20.00	0	99.4	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.472	0.10	20.00	0	102	90	110				
Chromium	19.860	1.0	20.00	0	99.3	90	110				
Manganese	20.887	0.50	20.00	0	104	90	110				
Molybdenum	20.065	0.50	20.00	0	100	90	110				
Selenium	19.877	0.50	20.00	0	99.4	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413090**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.189	0.10	20.00	0	101	90	110				
Chromium	19.958	1.0	20.00	0	99.8	90	110				
Manganese	21.227	0.50	20.00	0	106	90	110				
Molybdenum	20.107	0.50	20.00	0	101	90	110				
Selenium	20.149	0.50	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.234	0.10	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV7** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.818	1.0	20.00	0	99.1	90	110				
Manganese	21.361	0.50	20.00	0	107	90	110				
Molybdenum	20.146	0.50	20.00	0	101	90	110				
Selenium	20.651	0.50	20.00	0	103	90	110				

Sample ID **CCV8** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.014	0.10	20.00	0	100	90	110				
Chromium	20.017	1.0	20.00	0	100	90	110				
Manganese	20.986	0.50	20.00	0	105	90	110				
Molybdenum	19.674	0.50	20.00	0	98.4	90	110				
Selenium	20.258	0.50	20.00	0	101	90	110				

Sample ID **CCV9** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413127**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.146	0.10	20.00	0	101	90	110				
Chromium	19.969	1.0	20.00	0	99.8	90	110				
Manganese	21.109	0.50	20.00	0	106	90	110				
Molybdenum	19.669	0.50	20.00	0	98.3	90	110				
Selenium	19.394	0.50	20.00	0	97.0	90	110				

Sample ID **CCV10** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV10** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.953	0.10	20.00	0	99.8	90	110				
Chromium	19.775	1.0	20.00	0	98.9	90	110				
Manganese	21.376	0.50	20.00	0	107	90	110				
Molybdenum	20.058	0.50	20.00	0	100	90	110				
Selenium	19.351	0.50	20.00	0	96.8	90	110				

Sample ID **CCV11** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.107	0.10	20.00	0	101	90	110				
Chromium	20.472	1.0	20.00	0	102	90	110				
Manganese	21.561	0.50	20.00	0	108	90	110				
Molybdenum	20.100	0.50	20.00	0	101	90	110				
Selenium	19.812	0.50	20.00	0	99.1	90	110				

Sample ID **CCV12** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCV** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.067	0.10	20.00	0	100	90	110				
Chromium	20.044	1.0	20.00	0	100	90	110				
Manganese	21.499	0.50	20.00	0	107	90	110				
Molybdenum	19.896	0.50	20.00	0	99.5	90	110				
Selenium	20.026	0.50	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134609**
Client ID: **ICV** Batch ID: **R134609** TestNo: **EPA 6020** Analysis Date: **6/17/2019** SeqNo: **3415768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	115.339	0.50	100.0	0	115	90	110				S
Selenium	10.468	0.50	10.00	0	105	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134609**
Client ID: **ZZZZZZ** Batch ID: **R134609** TestNo: **EPA 6020** Analysis Date: **6/17/2019** SeqNo: **3415770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.565	0.50	0.5000	0	113	80	120				
Selenium	0.416	0.50	0.5000	0	83.2	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134609**
Client ID: **CCV** Batch ID: **R134609** TestNo: **EPA 6020** Analysis Date: **6/17/2019** SeqNo: **3415784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.233	0.50	20.00	0	106	90	110				
Selenium	20.146	0.50	20.00	0	101	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134609**
Client ID: **CCV** Batch ID: **R134609** TestNo: **EPA 6020** Analysis Date: **6/17/2019** SeqNo: **3415796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.484	0.50	20.00	0	97.4	90	110				
Selenium	20.221	0.50	20.00	0	101	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134609**
Client ID: **CCV** Batch ID: **R134609** TestNo: **EPA 6020** Analysis Date: **6/17/2019** SeqNo: **3415808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.254	0.50	20.00	0	96.3	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

%Rec of Mn in ICV failed, biased high. Mn not reported on this run.

NS 6/30/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.029	0.50	20.00	0	100	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.070	0.50	20.00	0	95.4	90	110				
Selenium	19.656	0.50	20.00	0	98.3	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICV**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419547**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.648	0.50	10.00	0	106	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ZZZZZZ**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419552**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.516	0.50	0.5000	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **CCV**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419565**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.756	0.50	20.00	0	104	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **CCV**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419577**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.497	0.50	20.00	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.483	1.0	10.00	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ZZZZZZ**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.029	1.0	1.000	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.284	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412891**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.187	1.0	20.00	0	101	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.523	1.0	20.00	0	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.968	1.0	20.00	0	99.8	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.860	1.0	20.00	0	99.3	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412941**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.958	1.0	20.00	0	99.8	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.818	1.0	20.00	0	99.1	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412966**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.017	1.0	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412978**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.969	1.0	20.00	0	99.8	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.775	1.0	20.00	0	98.9	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413004**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.472	1.0	20.00	0	102	90	110				

Sample ID **CCV12**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413008**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.044	1.0	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413013**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	0.212	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	0.213	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB12** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCB** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415785**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415821**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415821**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICB**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419548**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **CCB**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419566**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **CCB**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419578**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.212	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412930**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412967**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.213	1.0									

Sample ID **CCB12**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413009**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.824	0.10	20.00	0	104	80	120				
Chromium	19.461	1.0	20.00	0	97.3	80	120				
Manganese	17.819	0.50	20.00	0	89.1	80	120				
Molybdenum	21.445	0.50	20.00	0	107	80	120				
Selenium	19.587	0.50	20.00	0	97.9	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.783	0.10	20.00	0	104	80	120				
Chromium	19.415	1.0	20.00	0	97.1	80	120				
Manganese	17.715	0.50	20.00	0	88.6	80	120				
Molybdenum	21.517	0.50	20.00	0	108	80	120				
Selenium	20.090	0.50	20.00	0	100	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.464	0.10	20.00	0	102	80	120				
Chromium	19.473	1.0	20.00	0	97.4	80	120				
Manganese	17.732	0.50	20.00	0	88.7	80	120				
Molybdenum	21.715	0.50	20.00	0	109	80	120				
Selenium	19.675	0.50	20.00	0	98.4	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.230	0.10	20.00	0	101	80	120				
Chromium	19.154	1.0	20.00	0	95.8	80	120				
Manganese	18.013	0.50	20.00	0	90.1	80	120				
Molybdenum	21.495	0.50	20.00	0	107	80	120				
Selenium	19.840	0.50	20.00	0	99.2	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413159**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413160**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.259	0.10	20.00	0	101	80	120				
Chromium	19.288	1.0	20.00	0	96.4	80	120				
Manganese	18.121	0.50	20.00	0	90.6	80	120				
Molybdenum	21.392	0.50	20.00	0	107	80	120				
Selenium	19.603	0.50	20.00	0	98.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSA**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415771**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSAB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.967	0.50	20.00	0	99.8	80	120				
Selenium	20.431	0.50	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSA**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSAB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.695	0.50	20.00	0	98.5	80	120				
Selenium	20.364	0.50	20.00	0	102	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICSA**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419553**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICSAB**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419554**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.550	0.50	20.00	0	92.7	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICSA**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419579**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134703**
Client ID: **ICSAB**	Batch ID: **R134703**	TestNo: **EPA 6020**		Analysis Date: **6/24/2019**	SeqNo: **3419580**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.544	0.50	20.00	0	103	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.461	1.0	20.00	0	97.3	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.415	1.0	20.00	0	97.1	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.473	1.0	20.00	0	97.4	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.154	1.0	20.00	0	95.8	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413010**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413011**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.288	1.0	20.00	0	96.4	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	138450.6	138450.6	100	PASS	70-125	100089.4	100089.4	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	139737.6	138450.6	100.93	PASS	70-125	100231.7	100089.4	100.14	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	139281	138450.6	100.6	PASS	70-125	100312.8	100089.4	100.22	PASS	70-125
Std3-5/50 ppb	ICAL	1	140698.7	138450.6	101.62	PASS	70-125	99723.9	100089.4	99.63	PASS	70-125
Std4-10/100 ppb	ICAL	1	140059.2	138450.6	101.16	PASS	70-125	99784	100089.4	99.69	PASS	70-125
Std5-20/200 ppb	ICAL	1	141567.2	138450.6	102.25	PASS	70-125	101369.6	100089.4	101.28	PASS	70-125
Std6-40/400 ppb	ICAL	1	142028	138450.6	102.58	PASS	70-125	100890.6	100089.4	100.8	PASS	70-125
Std7-100/1000 ppb	ICAL	1	142929	138450.6	103.23	PASS	70-125	98839.5	100089.4	98.75	PASS	70-125
Std8-200/2000 ppb	ICAL	1	142399.1	138450.6	102.85	PASS	70-125	96944.5	100089.4	96.86	PASS	70-125
ICV	ICV	1	139075.9	138450.6	100.45	PASS	70-125	104224	100089.4	104.13	PASS	70-125
ICB	ICB	1	132427.2	138450.6	95.65	PASS	70-125	95470	100089.4	95.38	PASS	70-125
LLICV	CCV1	1	141196.4	138450.6	101.98	PASS	70-125	101588.8	100089.4	101.5	PASS	70-125
ICSA1	ICSA	1	146642.8	138450.6	105.92	PASS	70-125	102172.1	100089.4	102.08	PASS	70-125
ICSAB1	ICSAB	1	151415.6	138450.6	109.36	PASS	70-125	103722.7	100089.4	103.63	PASS	70-125
LLICV	CCV1	1	166183.8	138450.6	120.03	PASS	70-125	116707.9	100089.4	116.6	PASS	70-125
CCV1	CCV	1	145774.4	138450.6	105.29	PASS	70-125	103415	100089.4	103.32	PASS	70-125
CCB1	CCB	1	139281.4	138450.6	100.6	PASS	70-125	100683.1	100089.4	100.59	PASS	70-125
CCV2	CCV	1	155012.9	138450.6	111.96	PASS	70-125	109701	100089.4	109.6	PASS	70-125
CCB2	CCB	1	147043.6	138450.6	106.21	PASS	70-125	105571.7	100089.4	105.48	PASS	70-125
N035705-004B	SAMP	1	158183.4	138450.6	114.25	PASS	70-125	97528.8	100089.4	97.44	PASS	70-125
N035705-005B	SAMP	1	161235.5	138450.6	116.46	PASS	70-125	98152.1	100089.4	98.064	PASS	70-125
MB-73997	MBLK	1	169294.3	138450.6	122.28	PASS	70-125	119729.4	100089.4	119.62	PASS	70-125
LCS-73997	LCS	1	171718.6	138450.6	124.03	PASS	70-125	119814.1	100089.4	119.71	PASS	70-125
N035705-014B	SAMP	1	147975.7	138450.6	106.88	PASS	70-125	87436.4	100089.4	87.36	PASS	70-125
N035705-014B	SAMP	5	163661.2	138450.6	118.21	PASS	70-125	108141.4	100089.4	108.05	PASS	70-125
CCV3	CCV	1	168712.9	138450.6	121.86	PASS	70-125	118984.1	100089.4	118.88	PASS	70-125
CCB3	CCB	1	161311.5	138450.6	116.51	PASS	70-125	114756.4	100089.4	114.65	PASS	70-125
N035705-014B	SAMP	50	161045.8	138450.6	116.32	PASS	70-125	114246.7	100089.4	114.14	PASS	70-125
N035705-015B	SAMP	1	156714.5	138450.6	113.19	PASS	70-125	96069.2	100089.4	95.98	PASS	70-125
N035705-015B	SAMP	5	165168.6	138450.6	119.3	PASS	70-125	111236.7	100089.4	111.14	PASS	70-125
N035705-015B-PS	PS	1	167378.8	138450.6	120.89	PASS	70-125	102511.8	100089.4	102.42	PASS	70-125
N035705-015B-MS	MS	1	166197.9	138450.6	120.04	PASS	70-125	100925.5	100089.4	100.84	PASS	70-125
N035705-015B-MSD	MSD	1	168457.9	138450.6	121.67	PASS	70-125	104166.5	100089.4	104.07	PASS	70-125
N035705-015B	SAMP	25	171167.6	138450.6	123.63	PASS	70-125	120582	100089.4	120.47	PASS	70-125
N035705-015B-PS	PS	5	164732.6	138450.6	118.98	PASS	70-125	110891.9	100089.4	110.79	PASS	70-125
N035705-015B-MS	MS	5	161987.4	138450.6	117	PASS	70-125	111008.3	100089.4	110.91	PASS	70-125
N035705-015B-MSD	MSD	5	163864.5	138450.6	118.36	PASS	70-125	111748.1	100089.4	111.65	PASS	70-125
CCV4	CCV	1	167841.9	138450.6	121.23	PASS	70-125	119025.4	100089.4	118.92	PASS	70-125
CCB4	CCB	1	160553	138450.6	115.96	PASS	70-125	113991.9	100089.4	113.89	PASS	70-125
ICSA2	ICSA	1	161591.2	138450.6	116.71	PASS	70-125	112913.1	100089.4	112.81	PASS	70-125
ICSAB2	ICSAB	1	162533.5	138450.6	117.39	PASS	70-125	112663.6	100089.4	112.56	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035712-002B	SAMP	1	156823.8	138450.6	113.27	PASS	70-125	106024	100089.4	105.93	PASS	70-125
N035712-004B	SAMP	1	153467.5	138450.6	110.85	PASS	70-125	101045.1	100089.4	100.95	PASS	70-125
N035712-004B	SAMP	5	166959.4	138450.6	120.59	PASS	70-125	113549.6	100089.4	113.45	PASS	70-125
N035712-006B	SAMP	1	160279.7	138450.6	115.77	PASS	70-125	105840	100089.4	105.75	PASS	70-125
N035712-006B	SAMP	5	164407.9	138450.6	118.75	PASS	70-125	112312	100089.4	112.21	PASS	70-125
N035712-007B	SAMP	1	156733.5	138450.6	113.21	PASS	70-125	98966.5	100089.4	98.88	PASS	70-125
N035712-007B	SAMP	5	161682.8	138450.6	116.78	PASS	70-125	109516.5	100089.4	109.42	PASS	70-125
N035712-008B	SAMP	1	156808.7	138450.6	113.26	PASS	70-125	103128.2	100089.4	103.04	PASS	70-125
N035712-008B	SAMP	5	164005.8	138450.6	118.46	PASS	70-125	113340.2	100089.4	113.24	PASS	70-125
N035712-009B	SAMP	1	155002.2	138450.6	111.95	PASS	70-125	96277.5	100089.4	96.19	PASS	70-125
CCV5	CCV	1	169686.1	138450.6	122.56	PASS	70-125	117788	100089.4	117.68	PASS	70-125
CCB5	CCB	1	158834.8	138450.6	114.72	PASS	70-125	113812.6	100089.4	113.71	PASS	70-125
N035712-009B	SAMP	5	152067.6	138450.6	109.84	PASS	70-125	104888.8	100089.4	104.8	PASS	70-125
N035712-009B	SAMP	10	155051	138450.6	111.99	PASS	70-125	109187.1	100089.4	109.09	PASS	70-125
N035712-010B	SAMP	1	153795	138450.6	111.08	PASS	70-125	95380.7	100089.4	95.3	PASS	70-125
N035712-010B	SAMP	5	166878.3	138450.6	120.53	PASS	70-125	112678.5	100089.4	112.58	PASS	70-125
N035712-011B	SAMP	1	156412.7	138450.6	112.97	PASS	70-125	94796.1	100089.4	94.71	PASS	70-125
N035712-011B	SAMP	5	167001.8	138450.6	120.62	PASS	70-125	112950.1	100089.4	112.85	PASS	70-125
N035712-012B	SAMP	1	159355.9	138450.6	115.1	PASS	70-125	97159.9	100089.4	97.073	PASS	70-125
N035712-012B	SAMP	5	166745.6	138450.6	120.44	PASS	70-125	112543	100089.4	112.44	PASS	70-125
N035712-013B	SAMP	1	163448.5	138450.6	118.06	PASS	70-125	101634.5	100089.4	101.54	PASS	70-125
N035712-013B	SAMP	5	165273.2	138450.6	119.37	PASS	70-125	114056.4	100089.4	113.95	PASS	70-125
CCV6	CCV	1	169729.1	138450.6	122.59	PASS	70-125	120279.1	100089.4	120.17	PASS	70-125
CCB6	CCB	1	160515.2	138450.6	115.94	PASS	70-125	115754.8	100089.4	115.65	PASS	70-125
N035712-013B	SAMP	10	157688.3	138450.6	113.89	PASS	70-125	111067.5	100089.4	110.97	PASS	70-125
N035712-016B	SAMP	1	152607.4	138450.6	110.23	PASS	70-125	91964.7	100089.4	91.88	PASS	70-125
N035712-016B	SAMP	5	161700.3	138450.6	116.79	PASS	70-125	109227.1	100089.4	109.13	PASS	70-125
N035712-017B	SAMP	1	150870	138450.6	108.97	PASS	70-125	91714.3	100089.4	91.63	PASS	70-125
N035712-017B	SAMP	5	160922.2	138450.6	116.23	PASS	70-125	109788.8	100089.4	109.69	PASS	70-125
N035712-018B	SAMP	1	142773.7	138450.6	103.12	PASS	70-125	94083.3	100089.4	94	PASS	70-125
N035712-018B	SAMP	5	163331.7	138450.6	117.97	PASS	70-125	115524.7	100089.4	115.42	PASS	70-125
N035712-020B	SAMP	1	163888.5	138450.6	118.37	PASS	70-125	106496.3	100089.4	106.4	PASS	70-125
N035712-020B	SAMP	5	166497	138450.6	120.26	PASS	70-125	116563.3	100089.4	116.46	PASS	70-125
CCV7	CCV	1	167680	138450.6	121.11	PASS	70-125	120095.1	100089.4	119.99	PASS	70-125
CCB7	CCB	1	156867.8	138450.6	113.3	PASS	70-125	114403.6	100089.4	114.3	PASS	70-125
ICSA3	ICSA	1	157262.6	138450.6	113.59	PASS	70-125	109908.5	100089.4	109.81	PASS	70-125
ICSAB3	ICSAB	1	155045.9	138450.6	111.99	PASS	70-125	109009.1	100089.4	108.91	PASS	70-125
CCV8	CCV	1	142542.2	138450.6	102.96	PASS	70-125	102784.7	100089.4	102.69	PASS	70-125
CCB8	CCB	1	160924.2	138450.6	116.23	PASS	70-125	117585.1	100089.4	117.48	PASS	70-125
CCV9	CCV	1	139442.8	138450.6	100.72	PASS	70-125	100665.6	100089.4	100.58	PASS	70-125
CCB9	CCB	1	160279.2	138450.6	115.77	PASS	70-125	116873.2	100089.4	116.77	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSA4	ICSA	1	151926.7	138450.6	109.73	PASS	70-125	109489.2	100089.4	109.39	PASS	70-125
ICSAB4	ICSAB	1	152222.6	138450.6	109.95	PASS	70-125	107613.4	100089.4	107.52	PASS	70-125
CCV10	CCV	1	166807.4	138450.6	120.48	PASS	70-125	118677.3	100089.4	118.57	PASS	70-125
CCB10	CCB	1	156271.9	138450.6	112.87	PASS	70-125	113818.2	100089.4	113.72	PASS	70-125
CCV11	CCV	1	166620.9	138450.6	120.35	PASS	70-125	119808.3	100089.4	119.7	PASS	70-125
CCB11	CCB	1	155413.1	138450.6	112.25	PASS	70-125	113253.5	100089.4	113.15	PASS	70-125
CCV12	CCV	1	152920.4	138450.6	110.45	PASS	70-125	110820	100089.4	110.72	PASS	70-125
CCB12	CCB	1	144513.1	138450.6	104.38	PASS	70-125	107406.3	100089.4	107.31	PASS	70-125
ICSA5	ICSA	1	141891.1	138450.6	102.49	PASS	70-125	102789.2	100089.4	102.7	PASS	70-125
ICSAB5	ICSAB	1	143194.2	138450.6	103.43	PASS	70-125	102275.4	100089.4	102.18	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	59802.7	59802.7	100	PASS	70-125	2810378.2	2810378.2	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	60700.5	59802.7	101.5	PASS	70-125	2833740.4	2810378.2	100.83	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	59480.4	59802.7	99.46	PASS	70-125	2794918.4	2810378.2	99.45	PASS	70-125
Std3-5/50 ppb	ICAL	1	59760.5	59802.7	99.93	PASS	70-125	2819697.6	2810378.2	100.33	PASS	70-125
Std4-10/100 ppb	ICAL	1	59799.4	59802.7	99.99	PASS	70-125	2807864.9	2810378.2	99.91	PASS	70-125
Std5-20/200 ppb	ICAL	1	59876.4	59802.7	100.12	PASS	70-125	2797987.8	2810378.2	99.56	PASS	70-125
Std6-40/400 ppb	ICAL	1	59312	59802.7	99.18	PASS	70-125	2774758.3	2810378.2	98.73	PASS	70-125
Std7-100/1000 ppb	ICAL	1	58353	59802.7	97.58	PASS	70-125	2735620.2	2810378.2	97.34	PASS	70-125
Std8-200/2000 ppb	ICAL	1	57369.6	59802.7	95.93	PASS	70-125	2679139.9	2810378.2	95.33	PASS	70-125
ICV	ICV	1	62428	59802.7	104.39	PASS	70-125	2936622.3	2810378.2	104.49	PASS	70-125
ICB	ICB	1	57017.3	59802.7	95.34	PASS	70-125	2715865.4	2810378.2	96.64	PASS	70-125
LLICV	CCV1	1	59898.5	59802.7	100.16	PASS	70-125	2883616.8	2810378.2	102.61	PASS	70-125
ICSA1	ICSA	1	57395.4	59802.7	95.97	PASS	70-125	2621897.4	2810378.2	93.29	PASS	70-125
ICSAB1	ICSAB	1	59298.7	59802.7	99.16	PASS	70-125	2638459.6	2810378.2	93.88	PASS	70-125
LLICV	CCV1	1	69272.1	59802.7	115.83	PASS	70-125	3202857.3	2810378.2	113.97	PASS	70-125
CCV1	CCV	1	60437.5	59802.7	101.06	PASS	70-125	2841939.5	2810378.2	101.12	PASS	70-125
CCB1	CCB	1	58158.1	59802.7	97.25	PASS	70-125	2814913.1	2810378.2	100.16	PASS	70-125
CCV2	CCV	1	64999.3	59802.7	108.69	PASS	70-125	2995397	2810378.2	106.58	PASS	70-125
CCB2	CCB	1	61705.6	59802.7	103.18	PASS	70-125	2877053.5	2810378.2	102.37	PASS	70-125
N035705-004B	SAMP	1	50327.7	59802.7	84.16	PASS	70-125	2305943.3	2810378.2	82.051	PASS	70-125
N035705-005B	SAMP	1	49934.3	59802.7	83.5	PASS	70-125	2289403	2810378.2	81.46	PASS	70-125
MB-73997	MBLK	1	69109.7	59802.7	115.56	PASS	70-125	3178778.3	2810378.2	113.11	PASS	70-125
LCS-73997	LCS	1	70641.9	59802.7	118.12	PASS	70-125	3193153.5	2810378.2	113.62	PASS	70-125
N035705-014B	SAMP	1	42513.2	59802.7	71.089	PASS	70-125	1988720.7	2810378.2	70.76	PASS	70-125
N035705-014B	SAMP	5	58683.1	59802.7	98.13	PASS	70-125	2678411.5	2810378.2	95.3	PASS	70-125
CCV3	CCV	1	68790.1	59802.7	115.03	PASS	70-125	3156407.1	2810378.2	112.31	PASS	70-125
CCB3	CCB	1	66441.6	59802.7	111.1	PASS	70-125	3055434.5	2810378.2	108.72	PASS	70-125
N035705-014B	SAMP	50	65988.7	59802.7	110.34	PASS	70-125	2926007.1	2810378.2	104.11	PASS	70-125
N035705-015B	SAMP	1	47524.6	59802.7	79.47	PASS	70-125	2237423.7	2810378.2	79.61	PASS	70-125
N035705-015B	SAMP	5	61579.5	59802.7	102.97	PASS	70-125	2761328.4	2810378.2	98.25	PASS	70-125
N035705-015B-PS	PS	1	50729.8	59802.7	84.83	PASS	70-125	2348867.4	2810378.2	83.58	PASS	70-125
N035705-015B-MS	MS	1	51262.5	59802.7	85.72	PASS	70-125	2353515.8	2810378.2	83.74	PASS	70-125
N035705-015B-MSD	MSD	1	52288.3	59802.7	87.43	PASS	70-125	2383169.1	2810378.2	84.8	PASS	70-125
N035705-015B	SAMP	25	72039.8	59802.7	120.46	PASS	70-125	3064426.8	2810378.2	109.04	PASS	70-125
N035705-015B-PS	PS	5	64574.1	59802.7	107.98	PASS	70-125	2769503.5	2810378.2	98.55	PASS	70-125
N035705-015B-MS	MS	5	62702.5	59802.7	104.85	PASS	70-125	2760407.5	2810378.2	98.22	PASS	70-125
N035705-015B-MSD	MSD	5	62306.4	59802.7	104.19	PASS	70-125	2758020.7	2810378.2	98.14	PASS	70-125
CCV4	CCV	1	69473.3	59802.7	116.17	PASS	70-125	3152833.2	2810378.2	112.19	PASS	70-125
CCB4	CCB	1	68825.9	59802.7	115.09	PASS	70-125	3070335	2810378.2	109.25	PASS	70-125
ICSA2	ICSA	1	63382.8	59802.7	105.99	PASS	70-125	2821550.8	2810378.2	100.4	PASS	70-125
ICSAB2	ICSAB	1	64598.9	59802.7	108.02	PASS	70-125	2772332.7	2810378.2	98.65	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035712-002B	SAMP	1	65375.4	59802.7	109.32	PASS	70-125	2693771.3	2810378.2	95.85	PASS	70-125
N035712-004B	SAMP	1	56605.8	59802.7	94.65	PASS	70-125	2439047.6	2810378.2	86.79	PASS	70-125
N035712-004B	SAMP	5	67346.5	59802.7	112.61	PASS	70-125	2866856.7	2810378.2	102.01	PASS	70-125
N035712-006B	SAMP	1	60979.3	59802.7	101.97	PASS	70-125	2633696	2810378.2	93.71	PASS	70-125
N035712-006B	SAMP	5	67057.5	59802.7	112.13	PASS	70-125	2848039.3	2810378.2	101.34	PASS	70-125
N035712-007B	SAMP	1	52077.6	59802.7	87.082	PASS	70-125	2347495.9	2810378.2	83.53	PASS	70-125
N035712-007B	SAMP	5	63399.8	59802.7	106.02	PASS	70-125	2750486.4	2810378.2	97.87	PASS	70-125
N035712-008B	SAMP	1	58424.3	59802.7	97.7	PASS	70-125	2522305.1	2810378.2	89.75	PASS	70-125
N035712-008B	SAMP	5	66624.7	59802.7	111.41	PASS	70-125	2867017.2	2810378.2	102.02	PASS	70-125
N035712-009B	SAMP	1	49564.1	59802.7	82.88	PASS	70-125	2196849.6	2810378.2	78.17	PASS	70-125
CCV5	CCV	1	69627.7	59802.7	116.43	PASS	70-125	3122760.1	2810378.2	111.12	PASS	70-125
CCB5	CCB	1	67877.6	59802.7	113.5	PASS	70-125	3012642	2810378.2	107.2	PASS	70-125
N035712-009B	SAMP	5	59319.8	59802.7	99.19	PASS	70-125	2615377.8	2810378.2	93.061	PASS	70-125
N035712-009B	SAMP	10	63600.2	59802.7	106.35	PASS	70-125	2759298.9	2810378.2	98.18	PASS	70-125
N035712-010B	SAMP	1	46650.2	59802.7	78.007	PASS	70-125	2191488.3	2810378.2	77.98	PASS	70-125
N035712-010B	SAMP	5	63534.6	59802.7	106.24	PASS	70-125	2778922	2810378.2	98.88	PASS	70-125
N035712-011B	SAMP	1	45806.3	59802.7	76.6	PASS	70-125	2116775.8	2810378.2	75.32	PASS	70-125
N035712-011B	SAMP	5	64117.9	59802.7	107.22	PASS	70-125	2736268.7	2810378.2	97.36	PASS	70-125
N035712-012B	SAMP	1	46715.7	59802.7	78.12	PASS	70-125	2157852.7	2810378.2	76.78	PASS	70-125
N035712-012B	SAMP	5	62855.1	59802.7	105.1	PASS	70-125	2727049.4	2810378.2	97.035	PASS	70-125
N035712-013B	SAMP	1	51730.8	59802.7	86.5	PASS	70-125	2352505.9	2810378.2	83.71	PASS	70-125
N035712-013B	SAMP	5	64528.6	59802.7	107.9	PASS	70-125	2789341	2810378.2	99.25	PASS	70-125
CCV6	CCV	1	71189.2	59802.7	119.04	PASS	70-125	3177418.2	2810378.2	113.06	PASS	70-125
CCB6	CCB	1	69603.6	59802.7	116.39	PASS	70-125	3086302.3	2810378.2	109.82	PASS	70-125
N035712-013B	SAMP	10	65080.6	59802.7	108.83	PASS	70-125	2790793.6	2810378.2	99.3	PASS	70-125
N035712-016B	SAMP	1	45506.7	59802.7	76.095	PASS	70-125	2116688.2	2810378.2	75.32	PASS	70-125
N035712-016B	SAMP	5	61995.6	59802.7	103.67	PASS	70-125	2701031.3	2810378.2	96.11	PASS	70-125
N035712-017B	SAMP	1	44966.5	59802.7	75.19	PASS	70-125	2097319.5	2810378.2	74.63	PASS	70-125
N035712-017B	SAMP	5	62579.9	59802.7	104.64	PASS	70-125	2714417.6	2810378.2	96.59	PASS	70-125
N035712-018B	SAMP	1	52144.4	59802.7	87.19	PASS	70-125	2259001.6	2810378.2	80.38	PASS	70-125
N035712-018B	SAMP	5	68134.2	59802.7	113.93	PASS	70-125	2858748.3	2810378.2	101.72	PASS	70-125
N035712-020B	SAMP	1	57475.6	59802.7	96.11	PASS	70-125	2533199	2810378.2	90.14	PASS	70-125
N035712-020B	SAMP	5	69365.8	59802.7	115.99	PASS	70-125	2874956.7	2810378.2	102.3	PASS	70-125
CCV7	CCV	1	72875.7	59802.7	121.86	PASS	70-125	3156500.7	2810378.2	112.32	PASS	70-125
CCB7	CCB	1	69569.3	59802.7	116.33	PASS	70-125	3035534	2810378.2	108.01	PASS	70-125
ICSA3	ICSA	1	64735.2	59802.7	108.25	PASS	70-125	2757892.8	2810378.2	98.13	PASS	70-125
ICSAB3	ICSAB	1	64054.8	59802.7	107.11	PASS	70-125	2690254.2	2810378.2	95.73	PASS	70-125
CCV8	CCV	1	60483.1	59802.7	101.14	PASS	70-125	2800651.6	2810378.2	99.65	PASS	70-125
CCB8	CCB	1	71926.8	59802.7	120.27	PASS	70-125	3083972.4	2810378.2	109.74	PASS	70-125
CCV9	CCV	1	59402.6	59802.7	99.33	PASS	70-125	2771760.7	2810378.2	98.63	PASS	70-125
CCB9	CCB	1	72154.8	59802.7	120.65	PASS	70-125	3103769.2	2810378.2	110.44	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
ICSA4	ICSA	1	64731.8	59802.7	108.24	PASS	70-125	2718529.2	2810378.2	96.73	PASS	70-125
ICSAB4	ICSAB	1	62714.7	59802.7	104.87	PASS	70-125	2628604.9	2810378.2	93.53	PASS	70-125
CCV10	CCV	1	73221.6	59802.7	122.44	PASS	70-125	3106996.1	2810378.2	110.55	PASS	70-125
CCB10	CCB	1	69904.2	59802.7	116.89	PASS	70-125	2974144.5	2810378.2	105.83	PASS	70-125
CCV11	CCV	1	73052.3	59802.7	122.16	PASS	70-125	3095579.4	2810378.2	110.15	PASS	70-125
CCB11	CCB	1	70600.3	59802.7	118.06	PASS	70-125	2981586.1	2810378.2	106.09	PASS	70-125
CCV12	CCV	1	67700.6	59802.7	113.21	PASS	70-125	2945366.6	2810378.2	104.8	PASS	70-125
CCB12	CCB	1	66361.7	59802.7	110.97	PASS	70-125	2877090.8	2810378.2	102.37	PASS	70-125
ICSA5	ICSA	1	61420.1	59802.7	102.7	PASS	70-125	2588681.9	2810378.2	92.11	PASS	70-125
ICSAB5	ICSAB	1	61249.4	59802.7	102.42	PASS	70-125	2545753.3	2810378.2	90.58	PASS	70-125

INTERNAL STANDARD: 190617B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	45220.5	45220.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	45165.8	45220.5	99.88	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	45574.8	45220.5	100.78	PASS	70-125
Std3-5/50 ppb	ICAL	1	45749.7	45220.5	101.17	PASS	70-125
Std4-10/100 ppb	ICAL	1	45608.2	45220.5	100.86	PASS	70-125
Std5-20/200 ppb	ICAL	1	45923.5	45220.5	101.55	PASS	70-125
Std6-40/400 ppb	ICAL	1	45811	45220.5	101.31	PASS	70-125
Std7-100/1000 ppb	ICAL	1	45767.6	45220.5	101.21	PASS	70-125
Std8-200/2000 ppb	ICAL	1	45063.2	45220.5	99.65	PASS	70-125
ICV	ICV	1	41166.3	45220.5	91.035	PASS	70-125
ICB	ICB	1	43498	45220.5	96.19	PASS	70-125
LLICV	CCV1	1	50787	45220.5	112.31	PASS	70-125
ICSA1	ICSA	1	42803.8	45220.5	94.66	PASS	70-125
ICSAB1	ICSAB	1	44957.4	45220.5	99.42	PASS	70-125
LLICV	CCV1	1	58221.7	45220.5	128.75	NR!	70-125
CCV1	CCV	1	51990.8	45220.5	114.97	PASS	70-125
CCB1	CCB	1	51011.9	45220.5	112.81	PASS	70-125
N035712-010B	SAMP	1	36598.7	45220.5	80.93	PASS	70-125
N035712-011B	SAMP	1	36605.4	45220.5	80.95	PASS	70-125
N035712-020B	SAMP	1	41136.2	45220.5	90.97	PASS	70-125
CCV2	CCV	1	50248.6	45220.5	111.12	PASS	70-125
CCB2	CCB	1	50788.2	45220.5	112.31	PASS	70-125
CCV3	CCV	1	48161	45220.5	106.5	PASS	70-125
CCB3	CCB	1	47945.8	45220.5	106.03	PASS	70-125
CCV4	CCV	1	45278.5	45220.5	100.13	PASS	70-125
CCB4	CCB	1	44925.4	45220.5	99.35	PASS	70-125
ICSA2	ICSA	1	40831.1	45220.5	90.29	PASS	70-125
ICSAB2	ICSAB	1	44430.6	45220.5	98.25	PASS	70-125
CCV5	CCV	1	47517.1	45220.5	105.08	PASS	70-125
CCB5	CCB	1	46769.3	45220.5	103.42	PASS	70-125
CCV6	CCV	1	47328.7	45220.5	104.66	PASS	70-125
CCB6	CCB	1	45886.7	45220.5	101.47	PASS	70-125
ICSA3	ICSA	1	42876.4	45220.5	94.82	PASS	70-125
ICSAB3	ICSAB	1	47026.8	45220.5	103.99	PASS	70-125

INTERNAL STANDARD: 190624B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	127945.7	127945.7	100	PASS	70-125	67244.8	67244.8	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	134250.4	127945.7	104.93	PASS	70-125	69241.4	67244.8	102.97	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	134081.6	127945.7	104.8	PASS	70-125	69125.5	67244.8	102.8	PASS	70-125
Std3-5/50 ppb	ICAL	1	135424.9	127945.7	105.85	PASS	70-125	69387.2	67244.8	103.19	PASS	70-125
Std4-10/100 ppb	ICAL	1	135024.7	127945.7	105.53	PASS	70-125	69650.5	67244.8	103.58	PASS	70-125
Std5-20/200 ppb	ICAL	1	136400.7	127945.7	106.61	PASS	70-125	75198.4	67244.8	111.83	PASS	70-125
Std6-40/400 ppb	ICAL	1	138686.4	127945.7	108.39	PASS	70-125	70155.1	67244.8	104.33	PASS	70-125
Std7-100/1000 ppb	ICAL	1	137706.3	127945.7	107.63	PASS	70-125	67603.1	67244.8	100.53	PASS	70-125
Std8-200/2000 ppb	ICAL	1	136614.9	127945.7	106.78	PASS	70-125	66084.6	67244.8	98.27	PASS	70-125
ICV	ICV	1	133486.8	127945.7	104.33	PASS	70-125	68897.4	67244.8	102.46	PASS	70-125
ICB	ICB	1	128918.8	127945.7	100.76	PASS	70-125	68005.5	67244.8	101.13	PASS	70-125
ICV	ICV	1	133294.8	127945.7	104.18	PASS	70-125	68422.2	67244.8	101.75	PASS	70-125
ICV	ICV	1	133378.6	127945.7	104.25	PASS	70-125	71699.5	67244.8	106.62	PASS	70-125
ICB	ICB	1	127143.1	127945.7	99.37	PASS	70-125	67354.4	67244.8	100.16	PASS	70-125
LLICV	CCV1	1	132031.5	127945.7	103.19	PASS	70-125	67519.5	67244.8	100.41	PASS	70-125
ICSA1	ICSA	1	146814.9	127945.7	114.75	PASS	70-125	68926.3	67244.8	102.5	PASS	70-125
ICSAB1	ICSAB	1	169040.6	127945.7	132.12	NR!	70-125	82035.4	67244.8	122	PASS	70-125
MB-74311	MBLK	1	162552.6	127945.7	127.05	NR!	70-125	84604.4	67244.8	125.82	NR!	70-125
LCS-74311	LCS	1	156467.9	127945.7	122.29	PASS	70-125	78765.6	67244.8	117.13	PASS	70-125
N035705-005B	SAMP	1	143237.7	127945.7	111.95	PASS	70-125	57265.9	67244.8	85.16	PASS	70-125
N035705-005B	SAMP	5	138282.1	127945.7	108.08	PASS	70-125	65318.5	67244.8	97.14	PASS	70-125
N035705-005B-PS	PS	1	142870.6	127945.7	111.67	PASS	70-125	55014.7	67244.8	81.81	PASS	70-125
N035705-005B-MS	MS	1	146745.5	127945.7	114.69	PASS	70-125	59182.7	67244.8	88.011	PASS	70-125
N035705-005B-MSD	MSD	1	144193.3	127945.7	112.7	PASS	70-125	54029.1	67244.8	80.35	PASS	70-125
N035712-010B	SAMP	1	140081	127945.7	109.48	PASS	70-125	50353.3	67244.8	74.88	PASS	70-125
N035712-011B	SAMP	1	138897.7	127945.7	108.56	PASS	70-125	49488.3	67244.8	73.59	PASS	70-125
N035712-020B	SAMP	1	140896.9	127945.7	110.12	PASS	70-125	57073.1	67244.8	84.87	PASS	70-125
CCV1	CCV	1	143799.6	127945.7	112.39	PASS	70-125	67110	67244.8	99.8	PASS	70-125
CCB1	CCB	1	132347.4	127945.7	103.44	PASS	70-125	66159.3	67244.8	98.39	PASS	70-125
N035779-008B	SAMP	1	130068.9	127945.7	101.66	PASS	70-125	51032.1	67244.8	75.89	PASS	70-125
N035915-012B	SAMP	1	141544.3	127945.7	110.63	PASS	70-125	63606.2	67244.8	94.59	PASS	70-125
N035915-013B	SAMP	1	140240.9	127945.7	109.61	PASS	70-125	64881	67244.8	96.48	PASS	70-125
N035738-004B	SAMP	25	124746.6	127945.7	97.5	PASS	70-125	60525.6	67244.8	90.008	PASS	70-125
N035779-008B	SAMP	1	128870.5	127945.7	100.72	PASS	70-125	48505.4	67244.8	72.13	PASS	70-125
CCV2	CCV	1	123496.5	127945.7	96.52	PASS	70-125	58607.5	67244.8	87.16	PASS	70-125
CCB2	CCB	1	109334	127945.7	85.45	PASS	70-125	54990.5	67244.8	81.78	PASS	70-125
ICSA2	ICSA	1	111160	127945.7	86.88	PASS	70-125	50000.9	67244.8	74.36	PASS	70-125
ICSAB2	ICSAB	1	121984.1	127945.7	95.34	PASS	70-125	53653.8	67244.8	79.79	PASS	70-125
CCV3	CCV	1	118706.2	127945.7	92.78	PASS	70-125	56264.9	67244.8	83.67	PASS	70-125
CCB3	CCB	1	108314.8	127945.7	84.66	PASS	70-125	56657	67244.8	84.25	PASS	70-125
CCV4	CCV	1	118077.5	127945.7	92.29	PASS	70-125	56387.7	67244.8	83.85	PASS	70-125

INTERNAL STANDARD: 190624B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB4	CCB	1	107880.4	127945.7	84.32	PASS	70-125	53970.4	67244.8	80.26	PASS	70-125
ICSA3	ICSA	1	109482.2	127945.7	85.57	PASS	70-125	49466	67244.8	73.56	PASS	70-125
ICSAB3	ICSAB	1	118454.9	127945.7	92.58	PASS	70-125	52920.1	67244.8	78.7	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035712
Test Method: EPA 6020
Analysis Date: 6/14/2019

Matrix: Groundwater
Batch No.: 73997

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn, Se, Cr. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035705-015B DT 5x	Arsenic	As	µg/L	3.938521	PASS	3.788764	3.95%	10
N035705-015B DT 5x	Manganese	Mn	µg/L	4.339603	NA	0		10
N035705-015B DT 5x	Molybdenum	Mo	µg/L	57.92896	PASS	59.8573	3.22%	10
N035705-015B DT 5x	Selenium	Se	µg/L	0	NA	0.3922345	100.00%	10
N035705-015B DT 5x	Chromium	Cr	µg/L	6.561661	NA	5.980824	9.71%	10

Note: NA - Not Applicable

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035712
Test Method: EPA 6020
Analysis Date: 6/24/2019

Matrix: Groundwater
Batch No.: 74311

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Hanah Glodoviza

Dilution test is not applicable to Se. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035705-005B DT 5x	Selenium	Se	µg/L	0	NA	0.5231527	100.00%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035705-015B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **73997** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/14/2019** SeqNo: **3413057**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	14.494	0.10	10.00	3.789	107	80	120				
Manganese	92.166	0.50	100.0	0	92.2	80	120				
Molybdenum	70.329	0.50	10.00	59.86	105	80	120				
Selenium	11.410	0.50	10.00	0.3922	110	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035705-005B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134703**
Client ID: **ZZZZZZ** Batch ID: **74311** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/24/2019** SeqNo: **3419559**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.533	0.50	10.00	0.5232	100	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035712
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N035705-015B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID:	**ZZZZZZ**	Batch ID: **73997**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/14/2019**	SeqNo: **3412908**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	14.722	1.0	10.00	5.981	87.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

July 03, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035738

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 22, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburcaw for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N035738-004, -010, -012 and -013 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Since the actual result of total dissolved chromium (14.9 ug/L) differs with hexavalent chromium (12.4 ug/L) by no more than 20% for sample N035738-008 (MW-40S-Q219), reanalysis of the sample was not necessary.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for sample N035738-012 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Molybdenum in QC samples N035738-001B-MS and N035738-001B-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Since the actual result of total dissolved chromium (14.9 ug/L) differs with hexavalent chromium (12.4 ug/L) by no more than 20% for sample N035738-008 (MW-40S-Q219), reanalysis of the sample was not necessary.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035738
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035738-001A	MW-60BR-245-3V-Q219	Groundwater	5/22/2019 3:11:00 PM	5/22/2019	7/3/2019
N035738-001B	MW-60BR-245-3V-Q219	Groundwater	5/22/2019 3:11:00 PM	5/22/2019	7/3/2019
N035738-001C	MW-60BR-245-3V-Q219	Groundwater	5/22/2019 3:11:00 PM	5/22/2019	7/3/2019
N035738-001D	MW-60BR-245-3V-Q219	Groundwater	5/22/2019 3:11:00 PM	5/22/2019	7/3/2019
N035738-001E	MW-60BR-245-3V-Q219	Groundwater	5/22/2019 3:11:00 PM	5/22/2019	7/3/2019
N035738-002A	MW-60-125-Q219	Groundwater	5/22/2019 10:28:00 AM	5/22/2019	7/3/2019
N035738-002B	MW-60-125-Q219	Groundwater	5/22/2019 10:28:00 AM	5/22/2019	7/3/2019
N035738-002C	MW-60-125-Q219	Groundwater	5/22/2019 10:28:00 AM	5/22/2019	7/3/2019
N035738-002D	MW-60-125-Q219	Groundwater	5/22/2019 10:28:00 AM	5/22/2019	7/3/2019
N035738-002E	MW-60-125-Q219	Groundwater	5/22/2019 10:28:00 AM	5/22/2019	7/3/2019
N035738-003A	MW-21-EB-Q219	Groundwater	5/22/2019 8:20:00 AM	5/22/2019	7/3/2019
N035738-004A	MW-62-190-Q219	Groundwater	5/22/2019 4:00:00 PM	5/22/2019	7/3/2019
N035738-004B	MW-62-190-Q219	Groundwater	5/22/2019 4:00:00 PM	5/22/2019	7/3/2019
N035738-004C	MW-62-190-Q219	Groundwater	5/22/2019 4:00:00 PM	5/22/2019	7/3/2019
N035738-004D	MW-62-190-Q219	Groundwater	5/22/2019 4:00:00 PM	5/22/2019	7/3/2019
N035738-004E	MW-62-190-Q219	Groundwater	5/22/2019 4:00:00 PM	5/22/2019	7/3/2019
N035738-005A	MW-12-Q219	Groundwater	5/22/2019 3:28:00 PM	5/22/2019	7/3/2019
N035738-005B	MW-12-Q219	Groundwater	5/22/2019 3:28:00 PM	5/22/2019	7/3/2019
N035738-005C	MW-12-Q219	Groundwater	5/22/2019 3:28:00 PM	5/22/2019	7/3/2019
N035738-005D	MW-12-Q219	Groundwater	5/22/2019 3:28:00 PM	5/22/2019	7/3/2019
N035738-005E	MW-12-Q219	Groundwater	5/22/2019 3:28:00 PM	5/22/2019	7/3/2019
N035738-006A	MW-40D-Q219	Groundwater	5/22/2019 10:14:00 AM	5/22/2019	7/3/2019
N035738-006B	MW-40D-Q219	Groundwater	5/22/2019 10:14:00 AM	5/22/2019	7/3/2019
N035738-006C	MW-40D-Q219	Groundwater	5/22/2019 10:14:00 AM	5/22/2019	7/3/2019
N035738-006D	MW-40D-Q219	Groundwater	5/22/2019 10:14:00 AM	5/22/2019	7/3/2019
N035738-006E	MW-40D-Q219	Groundwater	5/22/2019 10:14:00 AM	5/22/2019	7/3/2019
N035738-007A	MW-906-Q219	Groundwater	5/22/2019 10:24:00 AM	5/22/2019	7/3/2019
N035738-007B	MW-906-Q219	Groundwater	5/22/2019 10:24:00 AM	5/22/2019	7/3/2019
N035738-007C	MW-906-Q219	Groundwater	5/22/2019 10:24:00 AM	5/22/2019	7/3/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035738
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035738-007D	MW-906-Q219	Groundwater	5/22/2019 10:24:00 AM	5/22/2019	7/3/2019
N035738-007E	MW-906-Q219	Groundwater	5/22/2019 10:24:00 AM	5/22/2019	7/3/2019
N035738-008A	MW-40S-Q219	Groundwater	5/22/2019 10:45:00 AM	5/22/2019	7/3/2019
N035738-008B	MW-40S-Q219	Groundwater	5/22/2019 10:45:00 AM	5/22/2019	7/3/2019
N035738-008C	MW-40S-Q219	Groundwater	5/22/2019 10:45:00 AM	5/22/2019	7/3/2019
N035738-008D	MW-40S-Q219	Groundwater	5/22/2019 10:45:00 AM	5/22/2019	7/3/2019
N035738-008E	MW-40S-Q219	Groundwater	5/22/2019 10:45:00 AM	5/22/2019	7/3/2019
N035738-009A	MW-68-180-Q219	Groundwater	5/22/2019 12:12:00 PM	5/22/2019	7/3/2019
N035738-009B	MW-68-180-Q219	Groundwater	5/22/2019 12:12:00 PM	5/22/2019	7/3/2019
N035738-009C	MW-68-180-Q219	Groundwater	5/22/2019 12:12:00 PM	5/22/2019	7/3/2019
N035738-009D	MW-68-180-Q219	Groundwater	5/22/2019 12:12:00 PM	5/22/2019	7/3/2019
N035738-009E	MW-68-180-Q219	Groundwater	5/22/2019 12:12:00 PM	5/22/2019	7/3/2019
N035738-010A	MW-62-110-Q219	Groundwater	5/22/2019 4:10:00 PM	5/22/2019	7/3/2019
N035738-010B	MW-62-110-Q219	Groundwater	5/22/2019 4:10:00 PM	5/22/2019	7/3/2019
N035738-010C	MW-62-110-Q219	Groundwater	5/22/2019 4:10:00 PM	5/22/2019	7/3/2019
N035738-010D	MW-62-110-Q219	Groundwater	5/22/2019 4:10:00 PM	5/22/2019	7/3/2019
N035738-010E	MW-62-110-Q219	Groundwater	5/22/2019 4:10:00 PM	5/22/2019	7/3/2019
N035738-011A	MW-74-240-Q219	Groundwater	5/22/2019 1:15:00 PM	5/22/2019	7/3/2019
N035738-011B	MW-74-240-Q219	Groundwater	5/22/2019 1:15:00 PM	5/22/2019	7/3/2019
N035738-011C	MW-74-240-Q219	Groundwater	5/22/2019 1:15:00 PM	5/22/2019	7/3/2019
N035738-011D	MW-74-240-Q219	Groundwater	5/22/2019 1:15:00 PM	5/22/2019	7/3/2019
N035738-011E	MW-74-240-Q219	Groundwater	5/22/2019 1:15:00 PM	5/22/2019	7/3/2019
N035738-012A	MW-68BR-280-Q219	Groundwater	5/22/2019 11:10:00 AM	5/22/2019	7/3/2019
N035738-012B	MW-68BR-280-Q219	Groundwater	5/22/2019 11:10:00 AM	5/22/2019	7/3/2019
N035738-012C	MW-68BR-280-Q219	Groundwater	5/22/2019 11:10:00 AM	5/22/2019	7/3/2019
N035738-012D	MW-68BR-280-Q219	Groundwater	5/22/2019 11:10:00 AM	5/22/2019	7/3/2019
N035738-012E	MW-68BR-280-Q219	Groundwater	5/22/2019 11:10:00 AM	5/22/2019	7/3/2019
N035738-013A	MW-66BR-270-Q219	Groundwater	5/22/2019 12:40:00 PM	5/22/2019	7/3/2019
N035738-013B	MW-66BR-270-Q219	Groundwater	5/22/2019 12:40:00 PM	5/22/2019	7/3/2019
N035738-013C	MW-66BR-270-Q219	Groundwater	5/22/2019 12:40:00 PM	5/22/2019	7/3/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035738
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035738-013D	MW-66BR-270-Q219	Groundwater	5/22/2019 12:40:00 PM	5/22/2019	7/3/2019
N035738-013E	MW-66BR-270-Q219	Groundwater	5/22/2019 12:40:00 PM	5/22/2019	7/3/2019
N035738-014A	MW-26-Q219	Groundwater	5/22/2019 2:24:00 PM	5/22/2019	7/3/2019
N035738-014B	MW-26-Q219	Groundwater	5/22/2019 2:24:00 PM	5/22/2019	7/3/2019
N035738-014C	MW-26-Q219	Groundwater	5/22/2019 2:24:00 PM	5/22/2019	7/3/2019
N035738-014D	MW-26-Q219	Groundwater	5/22/2019 2:24:00 PM	5/22/2019	7/3/2019
N035738-014E	MW-26-Q219	Groundwater	5/22/2019 2:24:00 PM	5/22/2019	7/3/2019
N035738-015A	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-015B	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-015C	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-015D	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-015E	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-015F	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-016A	MW-720-Q219	Groundwater	5/22/2019 3:30:00 PM	5/22/2019	7/3/2019
N035738-017A	MW-721-Q219	Groundwater	5/22/2019 3:30:00 PM	5/22/2019	7/3/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-3V-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:11:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60-125-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	8700	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-190-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-12-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:28:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	6900	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40D-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-906-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:24:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40S-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	2100	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:12:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	3500	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-74-240-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	800	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68BR-280-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66BR-270-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	2300	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-26-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	3700	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-51-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N035738-005DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	134127
Client ID:	ZZZZZZ	Batch ID:	R134127	TestNo:	EPA 120.1			Analysis Date:	5/23/2019	SeqNo:	3395601

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6970.000	0.10						6930	0.576	2	

Sample ID	N035738-012DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	134127
Client ID:	ZZZZZZ	Batch ID:	R134127	TestNo:	EPA 120.1			Analysis Date:	5/23/2019	SeqNo:	3395671

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	20600.000	0.10						20300	1.47	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-3V-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:11:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	130	0.66	4.0		µg/L	20	5/23/2019 11:03 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	120	0.13	1.0		µg/L	1	6/15/2019 02:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60-125-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	880	6.6	40		µg/L	200	5/23/2019 11:12 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	890	1.3	10		µg/L	10	6/15/2019 03:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-21-EB-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 8:20:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/23/2019 02:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-190-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/23/2019 12:56 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 03:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-12-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:28:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	1600	6.6	40		µg/L	200	5/23/2019 11:40 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	1600	3.2	25		µg/L	25	6/15/2019 04:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40D-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	120	0.66	4.0		µg/L	20	5/23/2019 11:50 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	120	0.13	1.0		µg/L	1	6/15/2019 04:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-906-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:24:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	120	0.66	4.0		µg/L	20	5/23/2019 11:59 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	120	0.13	1.0		µg/L	1	6/15/2019 04:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40S-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A** QC Batch: **R134150**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	12	0.17	1.0		µg/L	5	5/23/2019 12:09 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73999**				PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	15	0.13	1.0		µg/L	1	6/15/2019 04:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:12:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	5400	33	200		µg/L	1000	5/23/2019 05:54 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	6200	6.5	50		µg/L	50	6/15/2019 05:18 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A** QC Batch: **R134150**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/23/2019 01:34 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73999**				PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 05:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-74-240-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	0.55	0.033	0.20		µg/L	1	5/23/2019 02:59 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 05:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68BR-280-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190523A** QC Batch: **R134150**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/23/2019 01:53 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73999**				PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 05:52 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66BR-270-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/23/2019 02:19 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 06:02 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-26-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	2300	17	100		µg/L	500	5/23/2019 12:28 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	2500	3.2	25		µg/L	25	6/15/2019 06:22 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-51-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	3300	17	100		µg/L	500	5/23/2019 12:37 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	3800	3.2	25		µg/L	25	6/15/2019 06:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-720-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/23/2019 03:37 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-721-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/23/2019 03:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R134150	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134150
Client ID:	PBW	Batch ID:	R134150	TestNo:	EPA 218.6			Analysis Date:	5/23/2019	SeqNo:	3396679

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R134150	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134150
Client ID:	LCSW	Batch ID:	R134150	TestNo:	EPA 218.6			Analysis Date:	5/23/2019	SeqNo:	3396680

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.044	0.20	5.000	0	101	90	110				

Sample ID	N035736-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134150
Client ID:	ZZZZZZ	Batch ID:	R134150	TestNo:	EPA 218.6			Analysis Date:	5/23/2019	SeqNo:	3396684

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.078	0.20	1.000	0	108	90	110				

Sample ID	N035736-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134150
Client ID:	ZZZZZZ	Batch ID:	R134150	TestNo:	EPA 218.6			Analysis Date:	5/23/2019	SeqNo:	3396685

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.282	0.20	1.000	0.2486	103	90	110				

Sample ID	N035737-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134150
Client ID:	ZZZZZZ	Batch ID:	R134150	TestNo:	EPA 218.6			Analysis Date:	5/23/2019	SeqNo:	3396686

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035738-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	129.374	4.0						131.8	1.87	20	

Sample ID **N035738-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.256	1.0	5.000	0	105	90	110				

Sample ID **N035738-012AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.294	1.0	5.000	0	106	90	110				

Sample ID **N035738-013AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.121	1.0	5.000	0	102	90	110				

Sample ID **N035738-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.002	0.20	1.000	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N035738-011AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134150
Client ID:	ZZZZZZ	Batch ID:	R134150	TestNo:	EPA 218.6			Analysis Date:	5/23/2019	SeqNo:	3396710

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.569	0.20	1.000	0.5486	102	90	110				

Sample ID	N035738-016AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134150
Client ID:	ZZZZZZ	Batch ID:	R134150	TestNo:	EPA 218.6			Analysis Date:	5/23/2019	SeqNo:	3396714

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.013	0.20	1.000	0	101	90	110				

Sample ID	N035738-017AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134150
Client ID:	ZZZZZZ	Batch ID:	R134150	TestNo:	EPA 218.6			Analysis Date:	5/23/2019	SeqNo:	3396716

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.018	0.20	1.000	0	102	90	110				

Sample ID	N035738-010AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134150
Client ID:	ZZZZZZ	Batch ID:	R134150	TestNo:	EPA 218.6			Analysis Date:	5/23/2019	SeqNo:	3396717

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.244	1.0	5.000	0	105	90	110				

Sample ID	N035738-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134150
Client ID:	ZZZZZZ	Batch ID:	R134150	TestNo:	EPA 218.6			Analysis Date:	5/23/2019	SeqNo:	3396718

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1859.360	40	1000	880.9	97.8	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035738-002AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1866.140	40	1000	880.9	98.5	90	110	1859	0.364	20	

Sample ID **N035738-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	232.178	4.0	100.0	131.8	100	90	110				

Sample ID **N035738-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2608.340	40	1000	1610	99.8	90	110				

Sample ID **N035738-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	217.154	4.0	100.0	117.7	99.5	90	110				

Sample ID **N035738-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	217.620	4.0	100.0	117.8	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035738-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	37.575	1.0	25.00	12.38	101	90	110				

Sample ID **N035738-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10366.200	200	5000	5423	98.9	90	110				

Sample ID **N035738-014AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4822.900	100	2500	2330	99.7	90	110				

Sample ID **N035738-015AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5751.100	100	2500	3307	97.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-73999	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	PBW	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3412956

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.207	1.0									

Sample ID	LCS-73999	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	LCSW	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3412957

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.809	1.0	10.00	0	98.1	85	115				

Sample ID	N035738-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	ZZZZZZ	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3412963

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	135.249	1.0	10.00	123.9	114	75	125				

Sample ID	N035738-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134539
Client ID:	ZZZZZZ	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3412965

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	134.330	1.0	10.00	123.9	104	75	125	135.2	0.682	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-3V-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:11:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.30	0.032	0.050		mg/L	1	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60-125-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	3.7	0.16	0.25		mg/L	5	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-190-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-12-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:28:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	16	0.63	1.0		mg/L	20	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40D-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.5	0.16	0.25		mg/L	5	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-906-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:24:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.6	0.16	0.25		mg/L	5	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40S-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	5.6	0.32	0.50		mg/L	10	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:12:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	9.4	0.63	1.0		mg/L	20	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-74-240-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.1	0.16	0.25		mg/L	5	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68BR-280-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION			**SM4500-NO3F**				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66BR-270-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.7	0.063	0.10		mg/L	2	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-26-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	21	1.6	2.5		mg/L	50	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-51-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	8.3	0.32	0.50		mg/L	10	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134314	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134314		
Client ID:	PBW	Batch ID:	R134314	TestNo:	SM4500-NO3			Analysis Date:	6/4/2019	SeqNo:	3401520		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050											

Sample ID	LCS-R134314	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134314		
Client ID:	LCSW	Batch ID:	R134314	TestNo:	SM4500-NO3			Analysis Date:	6/4/2019	SeqNo:	3401521		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	0.527	0.050	0.5000	0	105	85	115						

Sample ID	N035737-001BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134314		
Client ID:	ZZZZZZ	Batch ID:	R134314	TestNo:	SM4500-NO3			Analysis Date:	6/4/2019	SeqNo:	3401525		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	1.222	0.10						1.243	1.75	20			

Sample ID	N035737-002BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134314		
Client ID:	ZZZZZZ	Batch ID:	R134314	TestNo:	SM4500-NO3			Analysis Date:	6/4/2019	SeqNo:	3401527		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	4.759	0.25	2.500	2.364	95.8	75	125						

Sample ID	N035737-002BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134314		
Client ID:	ZZZZZZ	Batch ID:	R134314	TestNo:	SM4500-NO3			Analysis Date:	6/4/2019	SeqNo:	3401528		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	5.057	0.25	2.500	2.364	108	75	125	4.758	6.08	20			

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-3V-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:11:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	8.8	0.081	0.10		µg/L	1	6/15/2019 02:45 AM
Manganese	7.9	0.26	0.50		µg/L	1	6/15/2019 02:45 AM
Molybdenum	60	0.21	0.50		µg/L	1	6/15/2019 02:45 AM
Selenium	2.7	0.36	0.50		µg/L	1	6/15/2019 02:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60-125-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	1.6	0.081	0.10		µg/L	1	6/15/2019 03:39 AM
Manganese	4.3	0.26	0.50		µg/L	1	6/15/2019 03:39 AM
Molybdenum	17	0.21	0.50		µg/L	1	6/15/2019 03:39 AM
Selenium	6.2	0.36	0.50		µg/L	1	6/15/2019 03:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-190-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	6/15/2019 03:54 AM
Manganese	780	6.4	12		µg/L	25	7/2/2019 03:30 PM
Molybdenum	46	0.21	0.50		µg/L	1	6/15/2019 03:54 AM
Selenium	ND	0.36	0.50		µg/L	1	6/15/2019 03:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-12-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:28:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Molybdenum	6.3	0.21	0.50		µg/L	1	6/15/2019 04:04 AM
Selenium	32	0.36	0.50		µg/L	1	6/15/2019 04:04 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40D-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	4.5	0.081	0.10		µg/L	1	6/15/2019 04:19 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 04:19 AM
Molybdenum	54	0.21	0.50		µg/L	1	6/15/2019 04:19 AM
Selenium	2.0	0.36	0.50		µg/L	1	6/15/2019 04:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-906-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:24:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	4.5	0.081	0.10		µg/L	1	6/15/2019 04:48 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 04:48 AM
Molybdenum	54	0.21	0.50		µg/L	1	6/15/2019 04:48 AM
Selenium	1.9	0.36	0.50		µg/L	1	6/15/2019 04:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40S-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E** QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	2.7	0.081	0.10		µg/L	1	6/15/2019 04:58 AM
Manganese	1.8	0.26	0.50		µg/L	1	6/15/2019 04:58 AM
Molybdenum	18	0.21	0.50		µg/L	1	6/15/2019 04:58 AM
Selenium	5.6	0.36	0.50		µg/L	1	6/15/2019 04:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:12:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	3.1	0.081	0.10		µg/L	1	6/15/2019 05:08 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 05:08 AM
Molybdenum	36	0.21	0.50		µg/L	1	6/15/2019 05:08 AM
Selenium	11	0.36	0.50		µg/L	1	6/15/2019 05:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	3.0	0.081	0.10		µg/L	1	6/15/2019 05:23 AM
Manganese	150	0.26	0.50		µg/L	1	6/15/2019 05:23 AM
Molybdenum	68	0.21	0.50		µg/L	1	6/15/2019 05:23 AM
Selenium	ND	0.36	0.50		µg/L	1	6/15/2019 05:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-74-240-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	8.3	0.081	0.10		µg/L	1	6/15/2019 05:43 AM
Manganese	4.5	0.26	0.50		µg/L	1	6/15/2019 05:43 AM
Molybdenum	19	0.21	0.50		µg/L	1	6/15/2019 05:43 AM
Selenium	2.4	0.36	0.50		µg/L	1	6/15/2019 05:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68BR-280-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	1.2	0.081	0.10		µg/L	1	6/15/2019 05:52 AM
Manganese	150	0.26	0.50		µg/L	1	6/15/2019 05:52 AM
Molybdenum	40	1.1	2.5		µg/L	5	6/15/2019 05:57 AM
Selenium	ND	1.8	2.5		µg/L	5	6/15/2019 05:57 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66BR-270-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	ND	0.081	0.10		µg/L	1	6/15/2019 06:02 AM
Manganese	66	0.26	0.50		µg/L	1	6/15/2019 06:02 AM
Molybdenum	10	0.21	0.50		µg/L	1	6/15/2019 06:02 AM
Selenium	ND	0.36	0.50		µg/L	1	6/15/2019 06:02 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-26-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	1.9	0.081	0.10		µg/L	1	6/15/2019 06:12 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 06:12 AM
Molybdenum	30	0.21	0.50		µg/L	1	6/15/2019 06:12 AM
Selenium	39	0.36	0.50		µg/L	1	6/15/2019 06:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-51-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	4.1	0.081	0.10		µg/L	1	6/15/2019 06:27 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 06:27 AM
Molybdenum	48	0.21	0.50		µg/L	1	6/15/2019 06:27 AM
Selenium	15	0.36	0.50		µg/L	1	6/15/2019 06:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-73999	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	PBW	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3413105

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	LCS-73999	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	LCSW	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3413106

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.386	0.10	10.00	0	104	85	115				
Manganese	103.930	0.50	100.0	0	104	85	115				
Molybdenum	10.529	0.50	10.00	0	105	85	115				
Selenium	10.185	0.50	10.00	0	102	85	115				

Sample ID	N035738-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	ZZZZZZ	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3413112

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.801	0.10	10.00	8.762	110	75	125				
Manganese	100.801	0.50	100.0	7.917	92.9	75	125				
Molybdenum	74.089	0.50	10.00	59.83	143	75	125				S
Selenium	13.428	0.50	10.00	2.720	107	75	125				

Sample ID	N035738-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	ZZZZZZ	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3413114

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.012	0.10	10.00	8.762	112	75	125	19.80	1.06	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035738-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	ZZZZZZ	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3413114

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	100.091	0.50	100.0	7.917	92.2	75	125	100.8	0.706	20	
Molybdenum	74.234	0.50	10.00	59.83	144	75	125	74.09	0.195	20	S
Selenium	13.238	0.50	10.00	2.720	105	75	125	13.43	1.43	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035738-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	134540
Client ID:	ZZZZZZ	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3413110

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.750	0.10	10.00	8.762	120	80	120				
Manganese	105.401	0.50	100.0	7.917	97.5	80	120				
Molybdenum	77.829	0.50	10.00	59.83	180	80	120				S
Selenium	14.318	0.50	10.00	2.720	116	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

| | | |

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
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ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Page 2 of 2

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@gritigen.com	Address:	Sample Receipt Condition: 1. Chilled; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051	Global ID: Specify State:
Submitted By: Joe Gatel	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	6. Method of Cooling: ICE
Title: Scientist 1			Sample Temp: 1.7/2.0
Signature: Date: 5/22/19	Sampled By: Jason Mahn		Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally misslabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: Date: 5/22/2019		
Project Number: RC000753.801D			

Matrix: Ground; Potable; NPDES; Surface; Sediment; Soil; Other Solid

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020A FF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020A FF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7); HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035738-11	MW-74-240-Q219	5/22/2019	13:15		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-12	MW-68BR-280-Q219	5/22/2019	11:10		X		X	X	X	X	X	X		X						E	4	P	BNS	
3	-13	MW-66BR-270-Q219	5/22/2019	12:40		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	-14	MW-26-Q219	5/22/2019	14:24		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	-15	MW-51-Q219	5/22/2019	15:20		X		X	X	X	X	X	X		X						E	4	P	BNS	
6	-16	MW-720-Q219	5/22/2019	15:30		X															E	1	P	B	
7	-17	MW-721-Q219	5/22/2019	15:30		X															E	1	P	B	
8																									
9																									
10																									

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Jason Mahn	5/22/19 1636	JORDAN IGE	5-22-19 1636
JORDAN IGE	5/22/19 1807	JORDAN IGE	5/22/19 1807

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/22/2019	Workorder:	N035738
Rep sample Temp (Deg C):	1.9/2.0	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 5/23/2019

Reviewed By: LG 060419

ASSET Laboratories

WORK ORDER Summary

23-May-19

WorkOrder: N035738

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035738-001A	MW-60BR-245-3V-Q219	5/22/2019 3:11:00 PM	6/6/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-001B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-001C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-001D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-002A	MW-60-125-Q219	5/22/2019 10:28:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-002B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-002C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-002D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-003A	MW-21-EB-Q219	5/22/2019 8:20:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-004A	MW-62-190-Q219	5/22/2019 4:00:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-004B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-004C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-004D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-005A	MW-12-Q219	5/22/2019 3:28:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-005B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

23-May-19

WorkOrder: N035738

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035738-005B	MW-12-Q219	5/22/2019 3:28:00 PM	6/6/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-005C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-005D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-006A	MW-40D-Q219	5/22/2019 10:14:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-006B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-006C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-006D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-007A	MW-906-Q219	5/22/2019 10:24:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-007B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-007C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-007D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-008A	MW-40S-Q219	5/22/2019 10:45:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-008B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-008C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

23-May-19

WorkOrder: N035738

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035738-008D	MW-40S-Q219	5/22/2019 10:45:00 AM	6/6/2019	Groundwater	EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-009A	MW-68-180-Q219	5/22/2019 12:12:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-009B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-009C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-009D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-010A	MW-62-110-Q219	5/22/2019 4:10:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-010B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-010C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-010D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-011A	MW-74-240-Q219	5/22/2019 1:15:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-011B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-011C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-011D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-012A	MW-68BR-280-Q219	5/22/2019 11:10:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-012B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

23-May-19

WorkOrder: N035738

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035738-012B	MW-68BR-280-Q219	5/22/2019 11:10:00 AM	6/6/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-012C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-012D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-013A	MW-66BR-270-Q219	5/22/2019 12:40:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-013B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-013C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-013D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-014A	MW-26-Q219	5/22/2019 2:24:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-014B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-014C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-014D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-015A	MW-51-Q219	5/22/2019 3:20:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-015B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-015C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

23-May-19

WorkOrder: N035738

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035738-015D	MW-51-Q219	5/22/2019 3:20:00 PM	6/6/2019	Groundwater	EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-016A	MW-720-Q219	5/22/2019 3:30:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-017A	MW-721-Q219		6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-018A	FOLDER	6/6/2019	6/6/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/6/2019		Folder	Folder	☐	☐	☐	LAB
			6/6/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035738

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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July 03, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035738

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 22, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburcaw for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035738

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N035738-004, -010, -012 and -013 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Since the actual result of total dissolved chromium (14.9 ug/L) differs with hexavalent chromium (12.4 ug/L) by no more than 20% for sample N035738-008 (MW-40S-Q219), reanalysis of the sample was not necessary.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for sample N035738-012 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Molybdenum in QC samples N035738-001B-MS and N035738-001B-MSD possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Since the actual result of total dissolved chromium (14.9 ug/L) differs with hexavalent chromium (12.4 ug/L) by no more than 20% for sample N035738-008 (MW-40S-Q219), reanalysis of the sample was not necessary.

ASSET Laboratories

Date: *03-Jul-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035738
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035738-001A	MW-60BR-245-3V-Q219	Groundwater	5/22/2019 3:11:00 PM	5/22/2019	7/3/2019
N035738-001B	MW-60BR-245-3V-Q219	Groundwater	5/22/2019 3:11:00 PM	5/22/2019	7/3/2019
N035738-001C	MW-60BR-245-3V-Q219	Groundwater	5/22/2019 3:11:00 PM	5/22/2019	7/3/2019
N035738-001D	MW-60BR-245-3V-Q219	Groundwater	5/22/2019 3:11:00 PM	5/22/2019	7/3/2019
N035738-001E	MW-60BR-245-3V-Q219	Groundwater	5/22/2019 3:11:00 PM	5/22/2019	7/3/2019
N035738-002A	MW-60-125-Q219	Groundwater	5/22/2019 10:28:00 AM	5/22/2019	7/3/2019
N035738-002B	MW-60-125-Q219	Groundwater	5/22/2019 10:28:00 AM	5/22/2019	7/3/2019
N035738-002C	MW-60-125-Q219	Groundwater	5/22/2019 10:28:00 AM	5/22/2019	7/3/2019
N035738-002D	MW-60-125-Q219	Groundwater	5/22/2019 10:28:00 AM	5/22/2019	7/3/2019
N035738-002E	MW-60-125-Q219	Groundwater	5/22/2019 10:28:00 AM	5/22/2019	7/3/2019
N035738-003A	MW-21-EB-Q219	Groundwater	5/22/2019 8:20:00 AM	5/22/2019	7/3/2019
N035738-004A	MW-62-190-Q219	Groundwater	5/22/2019 4:00:00 PM	5/22/2019	7/3/2019
N035738-004B	MW-62-190-Q219	Groundwater	5/22/2019 4:00:00 PM	5/22/2019	7/3/2019
N035738-004C	MW-62-190-Q219	Groundwater	5/22/2019 4:00:00 PM	5/22/2019	7/3/2019
N035738-004D	MW-62-190-Q219	Groundwater	5/22/2019 4:00:00 PM	5/22/2019	7/3/2019
N035738-004E	MW-62-190-Q219	Groundwater	5/22/2019 4:00:00 PM	5/22/2019	7/3/2019
N035738-005A	MW-12-Q219	Groundwater	5/22/2019 3:28:00 PM	5/22/2019	7/3/2019
N035738-005B	MW-12-Q219	Groundwater	5/22/2019 3:28:00 PM	5/22/2019	7/3/2019
N035738-005C	MW-12-Q219	Groundwater	5/22/2019 3:28:00 PM	5/22/2019	7/3/2019
N035738-005D	MW-12-Q219	Groundwater	5/22/2019 3:28:00 PM	5/22/2019	7/3/2019
N035738-005E	MW-12-Q219	Groundwater	5/22/2019 3:28:00 PM	5/22/2019	7/3/2019
N035738-006A	MW-40D-Q219	Groundwater	5/22/2019 10:14:00 AM	5/22/2019	7/3/2019
N035738-006B	MW-40D-Q219	Groundwater	5/22/2019 10:14:00 AM	5/22/2019	7/3/2019
N035738-006C	MW-40D-Q219	Groundwater	5/22/2019 10:14:00 AM	5/22/2019	7/3/2019
N035738-006D	MW-40D-Q219	Groundwater	5/22/2019 10:14:00 AM	5/22/2019	7/3/2019
N035738-006E	MW-40D-Q219	Groundwater	5/22/2019 10:14:00 AM	5/22/2019	7/3/2019
N035738-007A	MW-906-Q219	Groundwater	5/22/2019 10:24:00 AM	5/22/2019	7/3/2019
N035738-007B	MW-906-Q219	Groundwater	5/22/2019 10:24:00 AM	5/22/2019	7/3/2019
N035738-007C	MW-906-Q219	Groundwater	5/22/2019 10:24:00 AM	5/22/2019	7/3/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035738
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035738-007D	MW-906-Q219	Groundwater	5/22/2019 10:24:00 AM	5/22/2019	7/3/2019
N035738-007E	MW-906-Q219	Groundwater	5/22/2019 10:24:00 AM	5/22/2019	7/3/2019
N035738-008A	MW-40S-Q219	Groundwater	5/22/2019 10:45:00 AM	5/22/2019	7/3/2019
N035738-008B	MW-40S-Q219	Groundwater	5/22/2019 10:45:00 AM	5/22/2019	7/3/2019
N035738-008C	MW-40S-Q219	Groundwater	5/22/2019 10:45:00 AM	5/22/2019	7/3/2019
N035738-008D	MW-40S-Q219	Groundwater	5/22/2019 10:45:00 AM	5/22/2019	7/3/2019
N035738-008E	MW-40S-Q219	Groundwater	5/22/2019 10:45:00 AM	5/22/2019	7/3/2019
N035738-009A	MW-68-180-Q219	Groundwater	5/22/2019 12:12:00 PM	5/22/2019	7/3/2019
N035738-009B	MW-68-180-Q219	Groundwater	5/22/2019 12:12:00 PM	5/22/2019	7/3/2019
N035738-009C	MW-68-180-Q219	Groundwater	5/22/2019 12:12:00 PM	5/22/2019	7/3/2019
N035738-009D	MW-68-180-Q219	Groundwater	5/22/2019 12:12:00 PM	5/22/2019	7/3/2019
N035738-009E	MW-68-180-Q219	Groundwater	5/22/2019 12:12:00 PM	5/22/2019	7/3/2019
N035738-010A	MW-62-110-Q219	Groundwater	5/22/2019 4:10:00 PM	5/22/2019	7/3/2019
N035738-010B	MW-62-110-Q219	Groundwater	5/22/2019 4:10:00 PM	5/22/2019	7/3/2019
N035738-010C	MW-62-110-Q219	Groundwater	5/22/2019 4:10:00 PM	5/22/2019	7/3/2019
N035738-010D	MW-62-110-Q219	Groundwater	5/22/2019 4:10:00 PM	5/22/2019	7/3/2019
N035738-010E	MW-62-110-Q219	Groundwater	5/22/2019 4:10:00 PM	5/22/2019	7/3/2019
N035738-011A	MW-74-240-Q219	Groundwater	5/22/2019 1:15:00 PM	5/22/2019	7/3/2019
N035738-011B	MW-74-240-Q219	Groundwater	5/22/2019 1:15:00 PM	5/22/2019	7/3/2019
N035738-011C	MW-74-240-Q219	Groundwater	5/22/2019 1:15:00 PM	5/22/2019	7/3/2019
N035738-011D	MW-74-240-Q219	Groundwater	5/22/2019 1:15:00 PM	5/22/2019	7/3/2019
N035738-011E	MW-74-240-Q219	Groundwater	5/22/2019 1:15:00 PM	5/22/2019	7/3/2019
N035738-012A	MW-68BR-280-Q219	Groundwater	5/22/2019 11:10:00 AM	5/22/2019	7/3/2019
N035738-012B	MW-68BR-280-Q219	Groundwater	5/22/2019 11:10:00 AM	5/22/2019	7/3/2019
N035738-012C	MW-68BR-280-Q219	Groundwater	5/22/2019 11:10:00 AM	5/22/2019	7/3/2019
N035738-012D	MW-68BR-280-Q219	Groundwater	5/22/2019 11:10:00 AM	5/22/2019	7/3/2019
N035738-012E	MW-68BR-280-Q219	Groundwater	5/22/2019 11:10:00 AM	5/22/2019	7/3/2019
N035738-013A	MW-66BR-270-Q219	Groundwater	5/22/2019 12:40:00 PM	5/22/2019	7/3/2019
N035738-013B	MW-66BR-270-Q219	Groundwater	5/22/2019 12:40:00 PM	5/22/2019	7/3/2019
N035738-013C	MW-66BR-270-Q219	Groundwater	5/22/2019 12:40:00 PM	5/22/2019	7/3/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035738
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035738-013D	MW-66BR-270-Q219	Groundwater	5/22/2019 12:40:00 PM	5/22/2019	7/3/2019
N035738-013E	MW-66BR-270-Q219	Groundwater	5/22/2019 12:40:00 PM	5/22/2019	7/3/2019
N035738-014A	MW-26-Q219	Groundwater	5/22/2019 2:24:00 PM	5/22/2019	7/3/2019
N035738-014B	MW-26-Q219	Groundwater	5/22/2019 2:24:00 PM	5/22/2019	7/3/2019
N035738-014C	MW-26-Q219	Groundwater	5/22/2019 2:24:00 PM	5/22/2019	7/3/2019
N035738-014D	MW-26-Q219	Groundwater	5/22/2019 2:24:00 PM	5/22/2019	7/3/2019
N035738-014E	MW-26-Q219	Groundwater	5/22/2019 2:24:00 PM	5/22/2019	7/3/2019
N035738-015A	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-015B	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-015C	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-015D	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-015E	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-015F	MW-51-Q219	Groundwater	5/22/2019 3:20:00 PM	5/22/2019	7/3/2019
N035738-016A	MW-720-Q219	Groundwater	5/22/2019 3:30:00 PM	5/22/2019	7/3/2019
N035738-017A	MW-721-Q219	Groundwater	5/22/2019 3:30:00 PM	5/22/2019	7/3/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-3V-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:11:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**		PrepDate				Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60-125-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**		PrepDate				Analyst: **LR**
Specific Conductance	8700	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-190-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	18000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-12-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:28:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	6900	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40D-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-906-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:24:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40S-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	2100	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:12:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	3500	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-74-240-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	800	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68BR-280-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	20000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66BR-270-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	2300	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-26-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**		PrepDate				Analyst: **LR**
Specific Conductance	3700	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-51-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190523B**	QC Batch: **R134127**			PrepDate			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	5/23/2019 11:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	**N035738-005DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**134127**
Client ID:	**ZZZZZZ**	Batch ID:	**R134127**	TestNo:	**EPA 120.1**			Analysis Date:	**5/23/2019**	SeqNo:	**3395601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	6970.000	0.10						6930	0.576	2	

Sample ID	**N035738-012DDUP**	SampType:	**DUP**	TestCode:	**120.1_WPGE**	Units:	**umhos/cm**	Prep Date:		RunNo:	**134127**
Client ID:	**ZZZZZZ**	Batch ID:	**R134127**	TestNo:	**EPA 120.1**			Analysis Date:	**5/23/2019**	SeqNo:	**3395671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	20600.000	0.10						20300	1.47	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-3V-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:11:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	130	0.66	4.0		µg/L	20	5/23/2019 11:03 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	120	0.13	1.0		µg/L	1	6/15/2019 02:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60-125-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	880	6.6	40		µg/L	200	5/23/2019 11:12 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	890	1.3	10		µg/L	10	6/15/2019 03:49 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-21-EB-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 8:20:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/23/2019 02:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-190-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/23/2019 12:56 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 03:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-12-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:28:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	1600	6.6	40		µg/L	200	5/23/2019 11:40 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	1600	3.2	25		µg/L	25	6/15/2019 04:14 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40D-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	120	0.66	4.0		µg/L	20	5/23/2019 11:50 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	120	0.13	1.0		µg/L	1	6/15/2019 04:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-906-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:24:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	120	0.66	4.0		µg/L	20	5/23/2019 11:59 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	120	0.13	1.0		µg/L	1	6/15/2019 04:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40S-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A** QC Batch: **R134150**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	12	0.17	1.0		µg/L	5	5/23/2019 12:09 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73999**				PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	15	0.13	1.0		µg/L	1	6/15/2019 04:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:12:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	5400	33	200		µg/L	1000	5/23/2019 05:54 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	6200	6.5	50		µg/L	50	6/15/2019 05:18 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/23/2019 01:34 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 05:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-74-240-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	0.55	0.033	0.20		µg/L	1	5/23/2019 02:59 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 05:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68BR-280-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190523A** QC Batch: **R134150**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/23/2019 01:53 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190614D** QC Batch: **73999**				PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 05:52 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66BR-270-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/23/2019 02:19 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/15/2019 06:02 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-26-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	2300	17	100		µg/L	500	5/23/2019 12:28 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	2500	3.2	25		µg/L	25	6/15/2019 06:22 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-51-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	3300	17	100		µg/L	500	5/23/2019 12:37 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190614D**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Chromium	3800	3.2	25		µg/L	25	6/15/2019 06:47 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-720-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/23/2019 03:37 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-721-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-017		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190523A**	QC Batch: **R134150**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/23/2019 03:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R134150**	SampType:	**MBLK**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**134150**
Client ID:	**PBW**	Batch ID:	**R134150**	TestNo:	**EPA 218.6**			Analysis Date:	**5/23/2019**	SeqNo:	**3396679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-R134150**	SampType:	**LCS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**134150**
Client ID:	**LCSW**	Batch ID:	**R134150**	TestNo:	**EPA 218.6**			Analysis Date:	**5/23/2019**	SeqNo:	**3396680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.044	0.20	5.000	0	101	90	110				

Sample ID	**N035736-001AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**134150**
Client ID:	**ZZZZZZ**	Batch ID:	**R134150**	TestNo:	**EPA 218.6**			Analysis Date:	**5/23/2019**	SeqNo:	**3396684**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.078	0.20	1.000	0	108	90	110				

Sample ID	**N035736-002AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**134150**
Client ID:	**ZZZZZZ**	Batch ID:	**R134150**	TestNo:	**EPA 218.6**			Analysis Date:	**5/23/2019**	SeqNo:	**3396685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.282	0.20	1.000	0.2486	103	90	110				

Sample ID	**N035737-003AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**134150**
Client ID:	**ZZZZZZ**	Batch ID:	**R134150**	TestNo:	**EPA 218.6**			Analysis Date:	**5/23/2019**	SeqNo:	**3396686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035738-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	129.374	4.0						131.8	1.87	20	

Sample ID **N035738-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.256	1.0	5.000	0	105	90	110				

Sample ID **N035738-012AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.294	1.0	5.000	0	106	90	110				

Sample ID **N035738-013AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.121	1.0	5.000	0	102	90	110				

Sample ID **N035738-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.002	0.20	1.000	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035738-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134150**
Client ID: **ZZZZZZ** Batch ID: **R134150** TestNo: **EPA 218.6** Analysis Date: **5/23/2019** SeqNo: **3396710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.569	0.20	1.000	0.5486	102	90	110				

Sample ID **N035738-016AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134150**
Client ID: **ZZZZZZ** Batch ID: **R134150** TestNo: **EPA 218.6** Analysis Date: **5/23/2019** SeqNo: **3396714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.013	0.20	1.000	0	101	90	110				

Sample ID **N035738-017AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134150**
Client ID: **ZZZZZZ** Batch ID: **R134150** TestNo: **EPA 218.6** Analysis Date: **5/23/2019** SeqNo: **3396716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.018	0.20	1.000	0	102	90	110				

Sample ID **N035738-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134150**
Client ID: **ZZZZZZ** Batch ID: **R134150** TestNo: **EPA 218.6** Analysis Date: **5/23/2019** SeqNo: **3396717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.244	1.0	5.000	0	105	90	110				

Sample ID **N035738-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134150**
Client ID: **ZZZZZZ** Batch ID: **R134150** TestNo: **EPA 218.6** Analysis Date: **5/23/2019** SeqNo: **3396718**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1859.360	40	1000	880.9	97.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035738-002AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134150**
Client ID: **ZZZZZZ** Batch ID: **R134150** TestNo: **EPA 218.6** Analysis Date: **5/23/2019** SeqNo: **3396719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1866.140	40	1000	880.9	98.5	90	110	1859	0.364	20	

Sample ID **N035738-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134150**
Client ID: **ZZZZZZ** Batch ID: **R134150** TestNo: **EPA 218.6** Analysis Date: **5/23/2019** SeqNo: **3396720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	232.178	4.0	100.0	131.8	100	90	110				

Sample ID **N035738-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134150**
Client ID: **ZZZZZZ** Batch ID: **R134150** TestNo: **EPA 218.6** Analysis Date: **5/23/2019** SeqNo: **3396721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2608.340	40	1000	1610	99.8	90	110				

Sample ID **N035738-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134150**
Client ID: **ZZZZZZ** Batch ID: **R134150** TestNo: **EPA 218.6** Analysis Date: **5/23/2019** SeqNo: **3396722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	217.154	4.0	100.0	117.7	99.5	90	110				

Sample ID **N035738-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134150**
Client ID: **ZZZZZZ** Batch ID: **R134150** TestNo: **EPA 218.6** Analysis Date: **5/23/2019** SeqNo: **3396725**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	217.620	4.0	100.0	117.8	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035738-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	37.575	1.0	25.00	12.38	101	90	110				

Sample ID **N035738-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10366.200	200	5000	5423	98.9	90	110				

Sample ID **N035738-014AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4822.900	100	2500	2330	99.7	90	110				

Sample ID **N035738-015AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5751.100	100	2500	3307	97.8	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **MB-73999**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **PBW**	Batch ID: **73999**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/15/2019**	SeqNo: **3412956**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.207	1.0									

Sample ID **LCS-73999**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **LCSW**	Batch ID: **73999**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/15/2019**	SeqNo: **3412957**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.809	1.0	10.00	0	98.1	85	115				

Sample ID **N035738-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **ZZZZZZ**	Batch ID: **73999**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/15/2019**	SeqNo: **3412963**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	135.249	1.0	10.00	123.9	114	75	125				

Sample ID **N035738-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **5/24/2019**	RunNo: **134539**
Client ID: **ZZZZZZ**	Batch ID: **73999**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/15/2019**	SeqNo: **3412965**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	134.330	1.0	10.00	123.9	104	75	125	135.2	0.682	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-3V-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:11:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.30	0.032	0.050		mg/L	1	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60-125-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	3.7	0.16	0.25		mg/L	5	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-190-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate			Analyst: **QBM**	
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-12-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:28:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**			PrepDate			Analyst: **QBM**
Nitrate/Nitrite as N	16	0.63	1.0		mg/L	20	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40D-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate			Analyst: **QBM**	
Nitrate/Nitrite as N	2.5	0.16	0.25		mg/L	5	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-906-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:24:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.6	0.16	0.25		mg/L	5	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40S-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	5.6	0.32	0.50		mg/L	10	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:12:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	9.4	0.63	1.0		mg/L	20	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-74-240-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.1	0.16	0.25		mg/L	5	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68BR-280-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66BR-270-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	1.7	0.063	0.10		mg/L	2	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-26-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	21	1.6	2.5		mg/L	50	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-51-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190604B**	QC Batch: **R134314**			PrepDate			Analyst: **QBM**
Nitrate/Nitrite as N	8.3	0.32	0.50		mg/L	10	6/4/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134314	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134314
Client ID:	PBW	Batch ID:	R134314	TestNo:	SM4500-NO3			Analysis Date:	6/4/2019	SeqNo:	3401520

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R134314	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134314
Client ID:	LCSW	Batch ID:	R134314	TestNo:	SM4500-NO3			Analysis Date:	6/4/2019	SeqNo:	3401521

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.527	0.050	0.5000	0	105	85	115				

Sample ID	N035737-001BDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134314
Client ID:	ZZZZZZ	Batch ID:	R134314	TestNo:	SM4500-NO3			Analysis Date:	6/4/2019	SeqNo:	3401525

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	1.222	0.10						1.243	1.75	20	

Sample ID	N035737-002BMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134314
Client ID:	ZZZZZZ	Batch ID:	R134314	TestNo:	SM4500-NO3			Analysis Date:	6/4/2019	SeqNo:	3401527

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	4.759	0.25	2.500	2.364	95.8	75	125				

Sample ID	N035737-002BMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134314
Client ID:	ZZZZZZ	Batch ID:	R134314	TestNo:	SM4500-NO3			Analysis Date:	6/4/2019	SeqNo:	3401528

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.057	0.25	2.500	2.364	108	75	125	4.758	6.08	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-3V-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:11:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	8.8	0.081	0.10		µg/L	1	6/15/2019 02:45 AM
Manganese	7.9	0.26	0.50		µg/L	1	6/15/2019 02:45 AM
Molybdenum	60	0.21	0.50		µg/L	1	6/15/2019 02:45 AM
Selenium	2.7	0.36	0.50		µg/L	1	6/15/2019 02:45 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60-125-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	1.6	0.081	0.10		µg/L	1	6/15/2019 03:39 AM
Manganese	4.3	0.26	0.50		µg/L	1	6/15/2019 03:39 AM
Molybdenum	17	0.21	0.50		µg/L	1	6/15/2019 03:39 AM
Selenium	6.2	0.36	0.50		µg/L	1	6/15/2019 03:39 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-190-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	6/15/2019 03:54 AM
Manganese	780	6.4	12		µg/L	25	7/2/2019 03:30 PM
Molybdenum	46	0.21	0.50		µg/L	1	6/15/2019 03:54 AM
Selenium	ND	0.36	0.50		µg/L	1	6/15/2019 03:54 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-12-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:28:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Molybdenum	6.3	0.21	0.50		µg/L	1	6/15/2019 04:04 AM
Selenium	32	0.36	0.50		µg/L	1	6/15/2019 04:04 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40D-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	4.5	0.081	0.10		µg/L	1	6/15/2019 04:19 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 04:19 AM
Molybdenum	54	0.21	0.50		µg/L	1	6/15/2019 04:19 AM
Selenium	2.0	0.36	0.50		µg/L	1	6/15/2019 04:19 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-906-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:24:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	4.5	0.081	0.10		µg/L	1	6/15/2019 04:48 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 04:48 AM
Molybdenum	54	0.21	0.50		µg/L	1	6/15/2019 04:48 AM
Selenium	1.9	0.36	0.50		µg/L	1	6/15/2019 04:48 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-40S-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 10:45:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	2.7	0.081	0.10		µg/L	1	6/15/2019 04:58 AM
Manganese	1.8	0.26	0.50		µg/L	1	6/15/2019 04:58 AM
Molybdenum	18	0.21	0.50		µg/L	1	6/15/2019 04:58 AM
Selenium	5.6	0.36	0.50		µg/L	1	6/15/2019 04:58 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-180-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:12:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	3.1	0.081	0.10		µg/L	1	6/15/2019 05:08 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 05:08 AM
Molybdenum	36	0.21	0.50		µg/L	1	6/15/2019 05:08 AM
Selenium	11	0.36	0.50		µg/L	1	6/15/2019 05:08 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-62-110-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 4:10:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	3.0	0.081	0.10		µg/L	1	6/15/2019 05:23 AM
Manganese	150	0.26	0.50		µg/L	1	6/15/2019 05:23 AM
Molybdenum	68	0.21	0.50		µg/L	1	6/15/2019 05:23 AM
Selenium	ND	0.36	0.50		µg/L	1	6/15/2019 05:23 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-74-240-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 1:15:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**		Analyst: **CEI**
Arsenic	8.3	0.081	0.10		µg/L	1	6/15/2019 05:43 AM
Manganese	4.5	0.26	0.50		µg/L	1	6/15/2019 05:43 AM
Molybdenum	19	0.21	0.50		µg/L	1	6/15/2019 05:43 AM
Selenium	2.4	0.36	0.50		µg/L	1	6/15/2019 05:43 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68BR-280-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 11:10:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	1.2	0.081	0.10		µg/L	1	6/15/2019 05:52 AM
Manganese	150	0.26	0.50		µg/L	1	6/15/2019 05:52 AM
Molybdenum	40	1.1	2.5		µg/L	5	6/15/2019 05:57 AM
Selenium	ND	1.8	2.5		µg/L	5	6/15/2019 05:57 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *03-Jul-19*

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-66BR-270-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 12:40:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**			PrepDate	**5/24/2019**	Analyst: **CEI**	
Arsenic	ND	0.081	0.10		µg/L	1	6/15/2019 06:02 AM
Manganese	66	0.26	0.50		µg/L	1	6/15/2019 06:02 AM
Molybdenum	10	0.21	0.50		µg/L	1	6/15/2019 06:02 AM
Selenium	ND	0.36	0.50		µg/L	1	6/15/2019 06:02 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-26-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 2:24:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	1.9	0.081	0.10		µg/L	1	6/15/2019 06:12 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 06:12 AM
Molybdenum	30	0.21	0.50		µg/L	1	6/15/2019 06:12 AM
Selenium	39	0.36	0.50		µg/L	1	6/15/2019 06:12 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-51-Q219
Lab Order:	N035738	**Collection Date:**	5/22/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035738-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190614E**	QC Batch: **73999**				PrepDate	**5/24/2019**	Analyst: **CEI**
Arsenic	4.1	0.081	0.10		µg/L	1	6/15/2019 06:27 AM
Manganese	ND	0.26	0.50		µg/L	1	6/15/2019 06:27 AM
Molybdenum	48	0.21	0.50		µg/L	1	6/15/2019 06:27 AM
Selenium	15	0.36	0.50		µg/L	1	6/15/2019 06:27 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-73999	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	PBW	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3413105

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	LCS-73999	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	LCSW	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3413106

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.386	0.10	10.00	0	104	85	115				
Manganese	103.930	0.50	100.0	0	104	85	115				
Molybdenum	10.529	0.50	10.00	0	105	85	115				
Selenium	10.185	0.50	10.00	0	102	85	115				

Sample ID	N035738-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	ZZZZZZ	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3413112

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.801	0.10	10.00	8.762	110	75	125				
Manganese	100.801	0.50	100.0	7.917	92.9	75	125				
Molybdenum	74.089	0.50	10.00	59.83	143	75	125				S
Selenium	13.428	0.50	10.00	2.720	107	75	125				

Sample ID	N035738-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	5/24/2019	RunNo:	134540
Client ID:	ZZZZZZ	Batch ID:	73999	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/15/2019	SeqNo:	3413114

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.012	0.10	10.00	8.762	112	75	125	19.80	1.06	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035738-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **5/24/2019** RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **73999** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/15/2019** SeqNo: **3413114**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	100.091	0.50	100.0	7.917	92.2	75	125	100.8	0.706	20	
Molybdenum	74.234	0.50	10.00	59.83	144	75	125	74.09	0.195	20	S
Selenium	13.238	0.50	10.00	2.720	105	75	125	13.43	1.43	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035738-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **73999** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/15/2019** SeqNo: **3413110**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.750	0.10	10.00	8.762	120	80	120				
Manganese	105.401	0.50	100.0	7.917	97.5	80	120				
Molybdenum	77.829	0.50	10.00	59.83	180	80	120				S
Selenium	14.318	0.50	10.00	2.720	116	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES

ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

CHAIN OF CUSTODY RECORD

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

Page 1 of 2

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD ☐ Geotracker ☐ Labspec ☐ Others ✓ Specify: RWQCB Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE ☐ RWQCB ✓ CalTrans ☐ LEVEL III ☐ LEVEL IV ☐ Regulatory ☐ Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		

Sample Receipt Condition

	Y	N
1. Chilled	✓	
2. Headspace		✓
3. Container Intact	✓	
4. Seal Present		✓
5. IR number	2	
6. Method of Cooling:	ice	
Sample Temp:	1.4/2.4	

Signature: Date: 5/22/19 — *I hereby authorize ASSET Labs to perform the tests indicated below.*

Sampled By: Jason Mahn — *I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*

Signature: Date: 5/22/2019

Project Name: PG&E Topock - GMP

Project Number: RC000753.801D

Matrix: Ground x Sediment; Potable Soil; NPDES Other Solid; Surface

Courier:

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7); HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035738-01	MW-60BR-245-3V-Q219	5/22/2019	15:11		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-02	MW-60-125-Q219	5/22/2019	10:28		X		X	X	X	X	X	X		X						E	4	P	BNS	
3	-03	MW-21-EB-Q219	5/22/2019	8:20		X															E	1	P	B	
4	-04	MW-62-190-Q219	5/22/2019	16:00		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	-05	MW-12-Q219	5/22/2019	15:28		X			X		X	X	X		X						E	4	P	BNS	
6	-06	MW-40D-Q219	5/22/2019	10:14		X		X	X	X	X	X	X		X						E	4	P	BNS	
7	-07	MW-906-Q219	5/22/2019	10:24		X		X	X	X	X	X	X		X						E	4	P	BNS	
8	-08	MW-40S-Q219	5/22/2019	10:45		X		X	X	X	X	X	X		X						E	4	P	BNS	
9	-09	MW-68-180-Q219	5/22/2019	12:12		X		X	X	X	X	X	X		X						E	4	P	BNS	
10	-10	MW-62-110-Q219	5/22/2019	16:10		X		X	X	X	X	X	X		X						E	4	P	BNS	

Relinquished by (Signature and Printed Name): Jason Mahn Date/Time: 5/22/19 1636

Received by (Signature and Printed Name): Jordan Ice Date/Time: 5-22-19 1636

Relinquished by (Signature and Printed Name): Jordan Ice 5/22/19 1900

Received by (Signature and Printed Name): Jordan Ice 5/22/19 1900

Relinquished by (Signature and Printed Name): Date/Time:

Received by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

- ☐ A = < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- X E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@gritigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200 Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:	
Signature: Date: 5/22/19	Sampled By: Jason Mahn	
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally misslabeling the sample location, date or time of collection is considered fraud and may be grounds for	
Project Name: PG&E Topock - GMP	Signature: Date: 5/22/2019	
Project Number: RC000753.801D		

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE				
Geotracker		RWQCB	✓	1. Chilled		
Labspec		CalTrans		2. Headspace		
Others	✓	LEVEL III		3. Container Intact		
Specify: RWQCB		LEVEL IV		4. Seal Present		
Global ID:		Regulatory		5. IR number		
		Specify State:		6. Method of Cooling: ICE		
				Sample Temp: 1.7/2.0		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7); HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035738-11	MW-74-240-Q219	5/22/2019	13:15		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	-12	MW-68BR-280-Q219	5/22/2019	11:10		X		X	X	X	X	X	X		X						E	4	P	BNS	
3	-13	MW-66BR-270-Q219	5/22/2019	12:40		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	-14	MW-26-Q219	5/22/2019	14:24		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	-15	MW-51-Q219	5/22/2019	15:20		X		X	X	X	X	X	X		X						E	4	P	BNS	
6	-16	MW-720-Q219	5/22/2019	15:30		X															E	1	P	B	
7	-17	MW-721-Q219	5/22/2019	15:30		X															E	1	P	B	
8																									
9																									
10																									

Courier:
Tracking No.:

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Jason Mahn	5/22/19 1636	JORDAN IGE	5-22-19 1636
JORDAN IGE	5/22/19 1807	JORDAN IGE	5/22/19 1807

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
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7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B (NH4)2SO4/NH4OH			M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/22/2019	Workorder:	N035738
Rep sample Temp (Deg C):	1.9/2.0	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 5/23/2019

Reviewed By: LG 060419

ASSET Laboratories

WORK ORDER Summary

23-May-19

WorkOrder: N035738

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035738-001A	MW-60BR-245-3V-Q219	5/22/2019 3:11:00 PM	6/6/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-001B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-001C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-001D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-002A	MW-60-125-Q219	5/22/2019 10:28:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-002B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-002C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-002D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-003A	MW-21-EB-Q219	5/22/2019 8:20:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-004A	MW-62-190-Q219	5/22/2019 4:00:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-004B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-004C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-004D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-005A	MW-12-Q219	5/22/2019 3:28:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-005B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

23-May-19

WorkOrder: N035738

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035738-005B	MW-12-Q219	5/22/2019 3:28:00 PM	6/6/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-005C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-005D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-006A	MW-40D-Q219	5/22/2019 10:14:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-006B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-006C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-006D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-007A	MW-906-Q219	5/22/2019 10:24:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-007B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-007C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-007D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-008A	MW-40S-Q219	5/22/2019 10:45:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-008B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-008C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW

WORK ORDER Summary

23-May-19

WorkOrder: N035738

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035738-008D	MW-40S-Q219	5/22/2019 10:45:00 AM	6/6/2019	Groundwater	EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-009A	MW-68-180-Q219	5/22/2019 12:12:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-009B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-009C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-009D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-010A	MW-62-110-Q219	5/22/2019 4:10:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-010B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-010C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-010D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-011A	MW-74-240-Q219	5/22/2019 1:15:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-011B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-011C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-011D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-012A	MW-68BR-280-Q219	5/22/2019 11:10:00 AM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-012B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

23-May-19

WorkOrder: N035738

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035738-012B	MW-68BR-280-Q219	5/22/2019 11:10:00 AM	6/6/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-012C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-012D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-013A	MW-66BR-270-Q219	5/22/2019 12:40:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-013B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-013C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-013D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-014A	MW-26-Q219	5/22/2019 2:24:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-014B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-014C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035738-014D			6/6/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-015A	MW-51-Q219	5/22/2019 3:20:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-015B			6/6/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/6/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035738-015C			6/6/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW

WORK ORDER Summary

23-May-19

WorkOrder: N035738

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/22/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035738-015D	MW-51-Q219	5/22/2019 3:20:00 PM	6/6/2019	Groundwater	EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035738-016A	MW-720-Q219	5/22/2019 3:30:00 PM	6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-017A	MW-721-Q219		6/6/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035738-018A	FOLDER	6/6/2019	6/6/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/6/2019		Folder	Folder	☐	☐	☐	LAB
			6/6/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035738

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Lilia Ramit	EPA 120.1
Ria Abes	EPA 218.6

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134127 **Analyst:** LSR

ASSET #: N035738 **Date Analyzed:** 23-May

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: Julia Ramit Date: 5/30/2019

2nd Level Reviewer: 6/13/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 5/22/19 1140
Analyst: LSR (CONT'D)

Standard	Std ID	Reading	Comments
9.84 mS/cm	CAN-181121A	9.36 @ 19.1°C	% Rec: (90-110%)
1411	190425C	1444 @ 19.2°C	
99625	190218B	10030 @ 19.2°C	
100390	190218C	101401 @ 19.2°C	

	Sample ID	Matrix	Reading	Comments
1	NU35712-16C	H2O	16270 @ 18.1°C	
2	17C		16780 @ 18.3°C	
3	18D		6230 @ 18.1°C	
4	20D		66600 @ 18.4°C	
5	20D DUP		66320 @ 18.2°C	
6				
7				
8				
9	MB mS/cm	CAN-190313A	1445 @ 18.6°C	
10	10000	B	10010 @ 18.7°C	
Dup	99922	CAN-190111H	98400 @ 18.7°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 5/23/19 1130
Analyst: LSR

Julia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
9.84 mS/cm	CAN-181121A	9.70 @ 18.8°C	% Rec: (90-110%)
1411	190425C	1419 @ 18.8°C	
99625	190218B	9950 @ 18.8°C	
100390	190218C	100400 @ 18.8°C	

	Sample ID	Matrix	Reading	Comments
1	NU35738-1D	H2O	16150 @ 17.7°C	
2	2D		8670 @ 18.0°C	STD CHECK
3	4D		17810 @ 17.9°C	1413 CAN 190313A
4	5D		6930 @ 17.9°C	= 1427 @ 18.5°C
5	5D DUP		6970 @ 17.5°C	10000 CAN 190313B
6	6D		14730 @ 17.5°C	= 9830 @ 18.6°C
7	7D		14760 @ 17.5°C	99922 CAN 190111H
8	8D		2110 @ 17.9°C	= 98000 @ 18.6°C
9	9D		3470 @ 18.0°C	
10	10D		12500 @ 17.9°C	
Dup	1D		796 @ 18.0°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

Conductivity Logbook

Date: 5/23/19 1130
Analyst: Lew CONTD

Standard	Std ID	Reading	Comments
9.56 uS/cm	CNV-181121A	9.70 @ 18.6C	% Rec: (90-110%)
1411	190425C	1419 @ 18.8C	
9965	190218B	9950 @ 18.8C	
100390	190218C	100470 @ 18.8C	

	Sample ID	Matrix	Reading	Comments
1	N035738-12D	H2O	20300 @ 18.2C	
2	12DDUP		20600 @ 17.9C	
3	13D		2260 @ 18.2C	
4	14D		3660 @ 18.1C	
5	15D		12630 @ 18.3C	
6				
7				
8				
9	1413 uS/cm	CNV-190313A	1437 @ 18.4C	
10	10000	B	9830 @ 18.9C	
Dup	99922	CNV-190111H	98500 @ 18.7C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 5/24/19 1110
Analyst: LSR

Silvia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
9.56 uS/cm	CNV-181121A	9.71 @ 20.5C	% Rec: (90-110%)
1411	190425C	1419 @ 20.5C	
9965	190218B	9940 @ 20.3C	
100390	190218C	100200 @ 20.4C	

	Sample ID	Matrix	Reading	Comments
1	N035761-1D	H2O	14110 @ 19.2C	
2	2D		14700 @ 18.6C	STD CHECK
3	3D		11510 @ 18.8C	1413 CNV 190313A
4	4D		16800 @ 18.6C	= 1458 @ 19.5°C
5	4DDUP		16820 @ 18.4C	10000 CNV 190213B
6	5D		16190 @ 18.5C	= 9970 @ 19.9°C
7	6D		15930 @ 18.4C	99922 CNV 190111H
8	7D		15940 @ 18.4C	= 100800 @ 20.1°C
9	8D		11730 @ 18.5C	
10	10D		15960 @ 18.5C	
Dup	13C		17220 @ 18.4C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

QC Batch Number: R134150
ASSET #: N035737

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 5/23/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

Dilution was necessary for samples N035738-004A, 10A, 12A and 13A due to matrix interference.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 6/10/2019

2nd Level Reviewer: [signature] Date: 6/10/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in μg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035738-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 6.5910 * 20$$

$$Cr^{+6}, \mu g/L = 131.8200$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 130}$$

6/10/2019

ANALYSIS RUN LOG

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

rba 5/11/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 5/11/2019

INJECTION LOG: 190523A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/23/19 8:54 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/23/19 9:05 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/23/19 9:14 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/23/19 9:24 AM	Reported
14	MB-R134150	MBLK	1	Hexavalent Chromium	05/23/19 9:33 AM	Reported
15	LCS-R134150	LCS	1	Hexavalent Chromium	05/23/19 9:43 AM	Reported
16	N035736-001A	SAMP	1	Hexavalent Chromium	05/23/19 10:05 AM	Reported
17	N035736-002A	SAMP	1	Hexavalent Chromium	05/23/19 10:15 AM	Reported
18	N035737-003A	SAMP	1	Hexavalent Chromium	05/23/19 10:25 AM	Reported
19	N035736-001AMS	MS	1	Hexavalent Chromium	05/23/19 10:34 AM	Reported
20	N035736-002AMS	MS	1	Hexavalent Chromium	05/23/19 10:44 AM	Reported
21	N035737-003AMS	MS	1	Hexavalent Chromium	05/23/19 10:53 AM	Reported
22	N035738-001A	SAMP	20	Hexavalent Chromium	05/23/19 11:03 AM	Reported
23	N035738-002A	SAMP	200	Hexavalent Chromium	05/23/19 11:12 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	05/23/19 11:22 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/23/19 11:31 AM	Reported
26	N035738-005A	SAMP	200	Hexavalent Chromium	05/23/19 11:40 AM	Reported
27	N035738-006A	SAMP	20	Hexavalent Chromium	05/23/19 11:50 AM	Reported
28	N035738-007A	SAMP	20	Hexavalent Chromium	05/23/19 11:59 AM	Reported
29	N035738-008A	SAMP	5	Hexavalent Chromium	05/23/19 12:09 PM	Reported
30	N035738-009A	SAMP	2000	Hexavalent Chromium	05/23/19 12:18 PM	Not Reported
31	N035738-014A	SAMP	500	Hexavalent Chromium	05/23/19 12:28 PM	Reported
32	N035738-015A	SAMP	500	Hexavalent Chromium	05/23/19 12:37 PM	Reported
33	N035738-001ADUP	DUP	20	Hexavalent Chromium	05/23/19 12:47 PM	Reported
34	N035738-004A	SAMP	5	Hexavalent Chromium	05/23/19 12:56 PM	Reported
35	N035738-004AMS	MS	5	Hexavalent Chromium	05/23/19 1:06 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	05/23/19 1:15 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/23/19 1:25 PM	Reported
38	N035738-010A	SAMP	5	Hexavalent Chromium	05/23/19 1:34 PM	Reported
39	N035738-010AMS	MS	5	Hexavalent Chromium	05/23/19 1:43 PM	Not Reported
40	N035738-012A	SAMP	5	Hexavalent Chromium	05/23/19 1:53 PM	Reported
41	N035738-012AMS	MS	5	Hexavalent Chromium	05/23/19 2:02 PM	Reported
42	N035738-013A	SAMP	5	Hexavalent Chromium	05/23/19 2:19 PM	Reported

INJECTION LOG: 190523A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035738-013AMS	MS	5	Hexavalent Chromium	05/23/19 2:30 PM	Reported
44	N035738-003A	SAMP	1	Hexavalent Chromium	05/23/19 2:40 PM	Reported
45	N035738-003AMS	MS	1	Hexavalent Chromium	05/23/19 2:49 PM	Reported
46	N035738-011A	SAMP	1	Hexavalent Chromium	05/23/19 2:59 PM	Reported
47	N035738-011AMS	MS	1	Hexavalent Chromium	05/23/19 3:08 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	05/23/19 3:18 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	05/23/19 3:27 PM	Reported
50	N035738-016A	SAMP	1	Hexavalent Chromium	05/23/19 3:37 PM	Reported
51	N035738-016AMS	MS	1	Hexavalent Chromium	05/23/19 3:46 PM	Reported
52	N035738-017A	SAMP	1	Hexavalent Chromium	05/23/19 3:55 PM	Reported
53	N035738-017AMS	MS	1	Hexavalent Chromium	05/23/19 4:05 PM	Reported
54	N035738-010AMS	MS	5	Hexavalent Chromium	05/23/19 4:18 PM	Reported
55	N035738-002AMS	MS	200	Hexavalent Chromium	05/23/19 4:29 PM	Reported
56	N035738-002AMSD	MSD	200	Hexavalent Chromium	05/23/19 4:39 PM	Reported
57	N035738-001AMS	MS	20	Hexavalent Chromium	05/23/19 4:48 PM	Reported
58	N035738-005AMS	MS	200	Hexavalent Chromium	05/23/19 4:58 PM	Reported
59	N035738-006AMS	MS	20	Hexavalent Chromium	05/23/19 5:07 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	05/23/19 5:17 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	05/23/19 5:26 PM	Reported
62	N035738-007AMS	MS	20	Hexavalent Chromium	05/23/19 5:35 PM	Reported
63	N035738-008AMS	MS	5	Hexavalent Chromium	05/23/19 5:45 PM	Reported
64	N035738-009A	SAMP	1000	Hexavalent Chromium	05/23/19 5:54 PM	Reported
65	N035738-009AMS	MS	1000	Hexavalent Chromium	05/23/19 6:04 PM	Reported
66	N035738-014AMS	MS	500	Hexavalent Chromium	05/23/19 6:13 PM	Reported
67	N035738-015AMS	MS	500	Hexavalent Chromium	05/23/19 6:23 PM	Reported
68	N035738-004A	SAMP	1	Hexavalent Chromium	05/23/19 6:32 PM	Not Reported
69	N035738-004AMS	MS	1	Hexavalent Chromium	05/23/19 6:42 PM	Not Reported
70	N035738-010A	SAMP	1	Hexavalent Chromium	05/23/19 6:51 PM	Not Reported
71	N035738-010AMS	MS	1	Hexavalent Chromium	05/23/19 7:01 PM	Not Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	05/23/19 7:10 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	05/23/19 7:20 PM	Reported
74	N035738-012A	SAMP	1	Hexavalent Chromium	05/23/19 7:29 PM	Not Reported
75	N035738-012AMS	MS	1	Hexavalent Chromium	05/23/19 7:38 PM	Not Reported
76	N035738-013A	SAMP	1	Hexavalent Chromium	05/23/19 7:48 PM	Not Reported
77	N035738-013AMS	MS	1	Hexavalent Chromium	05/23/19 7:57 PM	Not Reported
78	CCV-7	CCV	1	Hexavalent Chromium	05/23/19 8:07 PM	Reported
79	CCB-7	CCB	1	Hexavalent Chromium	05/23/19 8:16 PM	Reported
80	BLANK	BLANK	1	Hexavalent Chromium	05/23/19 8:26 PM	Not Reported
81	BLANK	BLANK	1	Hexavalent Chromium	05/23/19 8:35 PM	Not Reported
82	BLANK	BLANK	1	Hexavalent Chromium	05/23/19 8:45 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190523A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**23/May/19 21:15:30**
No. of Injections:	**85**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/23/2019 08:54	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/23/2019 09:05	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/23/2019 09:14	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/23/2019 09:24	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/23/2019 09:33	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/23/2019 09:43	Finished	LCS @5ppb, IWST-190423B
16	N035736-001A,SAMF	1	1000	Unknown		05/23/2019 10:05	Finished	SAMP,10mL
17	N035736-002A,SAMF	2	1000	Unknown		05/23/2019 10:15	Finished	SAMP,10mL
18	N035737-003A,SAMF	3	1000	Unknown		05/23/2019 10:25	Finished	SAMP,10mL
19	N035736-001AMS,MS	4	1000	Unknown		05/23/2019 10:34	Finished	MS (1ppb), IWST-190423B,10
20	N035736-002AMS,MS	5	1000	Unknown		05/23/2019 10:44	Finished	MS (1ppb), IWST-190423B,10
21	N035737-003AMS,MS	6	1000	Unknown		05/23/2019 10:53	Finished	MS (1ppb), IWST-190423B,10
22	N035738-001A,SAMF	7	1000	Unknown		05/23/2019 11:03	Finished	SAMP,0.5>10mL
23	N035738-002A,SAMF	8	1000	Unknown		05/23/2019 11:12	Finished	SAMP,0.05>10mL
24	CCV-2,CCV1,1,	9	1000	Unknown		05/23/2019 11:22	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	10	1000	Unknown		05/23/2019 11:31	Finished	CCB R190508A
26	N035738-005A,SAMF	11	1000	Unknown		05/23/2019 11:40	Finished	SAMP,0.05>10mL
27	N035738-006A,SAMF	12	1000	Unknown		05/23/2019 11:50	Finished	SAMP,0.5> 10mL
28	N035738-007A,SAMF	13	1000	Unknown		05/23/2019 11:59	Finished	SAMP,0.5> 10mL
29	N035738-008A,SAMF	14	1000	Unknown		05/23/2019 12:09	Finished	SAMP,2> 10mL
30	N035738-009A,SAMF	15	1000	Unknown		05/23/2019 12:18	Finished	SAMP,0.005> 10mL
31	N035738-014A,SAMF	16	1000	Unknown		05/23/2019 12:28	Finished	SAMP,0.02> 10mL
32	N035738-015A,SAMF	17	1000	Unknown		05/23/2019 12:37	Finished	SAMP,0.02> 10mL
33	N035738-001ADUP,D	18	1000	Unknown		05/23/2019 12:47	Finished	DUP,0.5> 10mL
34	N035738-004A,SAMF	19	1000	Unknown		05/23/2019 12:56	Finished	SAMP,2> 10mL
35	N035738-004AMS,MS	20	1000	Unknown		05/23/2019 13:06	Finished	MS (1ppb), IWST-190423B,2>1
36	CCV-3,CCV,1,	21	1000	Unknown		05/23/2019 13:15	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	22	1000	Unknown		05/23/2019 13:25	Finished	CCB R190508A
38	N035738-010A,SAMF	23	1000	Unknown		05/23/2019 13:34	Finished	SAMP,2> 10mL
39	N035738-010AMS,MS	24	1000	Unknown		05/23/2019 13:43	Finished	MS (1ppb), IWST-190423B,2>1
40	N035738-012A,SAMF	25	1000	Unknown		05/23/2019 13:53	Finished	SAMP,2> 10mL
41	N035738-012AMS,MS	26	1000	Unknown		05/23/2019 14:02	Finished	MS (1ppb), IWST-190423B,2>1
42	N035738-013A,SAMF	27	1000	Unknown		05/23/2019 14:19	Finished	SAMP,2> 10mL
43	N035738-013AMS,MS	28	1000	Unknown		05/23/2019 14:30	Finished	MS (1ppb), IWST-190423B,2>1
44	N035738-003A,SAMF	29	1000	Unknown		05/23/2019 14:40	Finished	MS (5ppb), IWST-190423B,0.0
45	N035738-003AMS,MS	30	1000	Unknown		05/23/2019 14:49	Finished	MSD (5ppb), IWST-190423B,0.
46	N035738-011A,SAMF	31	1000	Unknown		05/23/2019 14:59	Finished	SAMP, 10mL
47	N035738-011AMS,MS	32	1000	Unknown		05/23/2019 15:08	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	33	1000	Unknown		05/23/2019 15:18	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	34	1000	Unknown		05/23/2019 15:27	Finished	CCB R190508A
50	N035738-016A,SAMF	35	1000	Unknown		05/23/2019 15:37	Finished	SAMP, 10mL
51	N035738-016AMS,MS	36	1000	Unknown		05/23/2019 15:46	Finished	MS (1ppb), IWST-190423B,10
52	N035738-017A,SAMF	37	1000	Unknown		05/23/2019 15:55	Finished	SAMP, 10mL
53	N035738-017AMS,MS	38	1000	Unknown		05/23/2019 16:05	Finished	MS (1ppb), IWST-190423B,10
54	N035738-010AMS,MS	1	1000	Unknown		05/23/2019 16:18	Finished	MS (1ppb), IWST-190423B,2>1
55	N035738-002AMS,MS	2	1000	Unknown		05/23/2019 16:29	Finished	MS (5ppb), IWST-190423B,0.0
56	N035738-002AMSD,M	3	1000	Unknown		05/23/2019 16:39	Finished	MSD (5ppb), IWST-190423B,0.
57	N035738-001AMS,MS	4	1000	Unknown		05/23/2019 16:48	Finished	MS (5ppb), IWST-190423B,0.5
58	N035738-005AMS,MS	5	1000	Unknown		05/23/2019 16:58	Finished	MS (5ppb), IWST-190423B,0.0
59	N035738-006AMS,MS	6	1000	Unknown		05/23/2019 17:07	Finished	MS (5ppb), IWST-190423B,0.5
60	CCV-5,CCV,1,	7	1000	Unknown		05/23/2019 17:17	Finished	CCV @5ppb, IWST-190423A

61	CCB-5,CCB,1,	8	1000	Unknown		05/23/2019 17:26	Finished	CCB R190508A
62	N035738-007AMS,MS	9	1000	Unknown		05/23/2019 17:35	Finished	MS (5ppb), IWST-190423B,0.5
63	N035738-008AMS,MS	10	1000	Unknown		05/23/2019 17:45	Finished	MS (5ppb), IWST-190423B,2>1
64	N035738-009A,SAMP	11	1000	Unknown		05/23/2019 17:54	Finished	SAMP, 0.01>10mL
65	N035738-009AMS,MS	12	1000	Unknown		05/23/2019 18:04	Finished	MS (5ppb), IWST-190423B,0.0
66	N035738-014AMS,MS	13	1000	Unknown		05/23/2019 18:13	Finished	MS (5ppb), IWST-190423B,0.0
67	N035738-015AMS,MS	14	1000	Unknown		05/23/2019 18:23	Finished	MS (5ppb), IWST-190423B,0.0
68	N035738-004A,SAMP	15	1000	Unknown		05/23/2019 18:32	Finished	SAMP, 10mL
69	N035738-004AMS,MS	16	1000	Unknown		05/23/2019 18:42	Finished	MS (1ppb), IWST-190423B,10
70	N035738-010A,SAMP	17	1000	Unknown		05/23/2019 18:51	Finished	SAMP, 10mL
71	N035738-010AMS,MS	18	1000	Unknown		05/23/2019 19:01	Finished	MS (1ppb), IWST-190423B,10
72	CCV-6,CCV1,1,	19	1000	Unknown		05/23/2019 19:10	Finished	CCV @10ppb, IWST-190423A
73	CCB-6,CCB,1,	20	1000	Unknown		05/23/2019 19:20	Finished	CCB R190508A
74	N035738-012A,SAMP	21	1000	Unknown		05/23/2019 19:29	Finished	SAMP, 10mL
75	N035738-012AMS,MS	22	1000	Unknown		05/23/2019 19:38	Finished	MS (1ppb), IWST-190423B,10
76	N035738-013A,SAMP	23	1000	Unknown		05/23/2019 19:48	Finished	SAMP, 10mL
77	N035738-013AMS,MS	24	1000	Unknown		05/23/2019 19:57	Finished	MS (1ppb), IWST-190423B,10
78	CCV-7,CCV,1,	25	1000	Unknown		05/23/2019 20:07	Finished	CCV @5ppb, IWST-190423A
79	CCB-7,CCB,1,	26	1000	Unknown		05/23/2019 20:16	Finished	CCB R190508A
80	BLANK	27	1000	Unknown		05/23/2019 20:26	Finished	BLANK
81	BLANK	28	1000	Unknown		05/23/2019 20:35	Finished	BLANK
82	BLANK	29	1000	Unknown		05/23/2019 20:45	Finished	BLANK
83	SHUTDOWN	30	1000	Unknown		05/23/2019 20:54	Finished	
84	Eluent: R190522A	31	1000	Unknown		n.a.	Finished	Eluent
85	PCR: R190522B	32	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 5/22/19
Time Prepared: 0904H
Prepared By: NBA

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNN - 190329A
NH4OH + NH4SO4 eluent: M90522A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N035772-04A	9.72	-	~250ml	~250ml		
2)	15A	9.72	-				
3)	16A	9.66	-				
4)	17A	9.70	-				
5)	18A	9.59	-				
6)	19A	9.70	-				
7)	20A	9.36	-				
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 5/23/19
Time Prepared: 0921H
Prepared By: NBA

Slope: 97.4%
pH 4: 4.02
7: 7.02
10: 10.02

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNN - 190329A
NH4OH + NH4SO4 eluent: M90522A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N035736-001A	9.39	-	~250ml	~250ml		
2)	2A	9.63	-				
3)	N035737-3A	9.72	-				
4)	N035738-1A	9.68	-				
5)	2A	9.63	-				
6)	3A	9.70	-				
7)	4A	9.65	-				
8)	5A	9.67	-				
9)	6A	9.63	-				
10)	7A	9.67	-				
11)	8A	9.65	-				
12)	9A	9.59	-				
13)	10A	9.58	-				
14)	11A	9.63	-				
15)	12A	9.56	-				
	13A	9.68	-				

Logbook No. 16

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/23/19
Time Prepared: 0921H
Prepared By: AMB

Reagent ID:
Sulfuric Acid: 109U1
Diphenylcarbazide: CHV-190329A
NH4OH + NH4SO4 eluent: M905224
NH4OH + NH4SO4 buffer: M905058A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	MW35738-14A	9.50	-	~50mL	~250mL		
2)	15A	9.55	-				
3)	16A	9.75	-				
4)	17A	9.74	-				
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 8/21/19
Time Prepared: 0954H
Prepared By: MA

8hr: 9.02
pH 4: 4.02
7: 7.02
10: 10.02

Reagent ID:
Sulfuric Acid: 109U1
Diphenylcarbazide: CHV-190329A
NH4OH + NH4SO4 eluent: M905244 B
NH4OH + NH4SO4 buffer: M905058A

6N NaOH M903294

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	MW35755-01A	8.73	9.32	~250mL	~250mL	+9 drops NaOH	
2)	MW35761-1A	9.31	-				
3)	2A	9.58	-				
4)	3A	9.49	-				
5)	4A	9.57	-				
6)	5A	9.65	-				
7)	6A	9.54	-				
8)	7A	9.56	-				
9)	8A	9.18	9.41			+4 drops NaOH	1/2
10)	8A	9.14	9.39			+4 " "	2/2
11)	9A	9.68	-				
12)	10A	9.55	-				
13)	11A	9.69	-				
14)	12A	9.70	-				
15)	13A	9.57	-				

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 5/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2514	1.2615	2.5188	3.7985	5.0310	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ICV**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3396673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.175	0.20	5.000	0	104	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3396674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCV**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396676**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.979	0.20	5.000	0	99.6	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.976	0.20	10.00	0	99.8	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCV**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.993	0.20	5.000	0	99.9	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.913	0.20	10.00	0	99.1	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCV**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396723**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.985	0.20	5.000	0	99.7	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ZZZZZZ**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.976	0.20	10.00	0	99.8	95	105				

Sample ID **CCV-7**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCV**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.952	0.20	5.000	0	99.0	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **ICB**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3396675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCB**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCB**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCB**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCB**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCB**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCB**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-7**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134150**
Client ID: **CCB**	Batch ID: **R134150**	TestNo: **EPA 218.6**		Analysis Date: **5/23/2019**	SeqNo: **3396734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/23/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.740	
CCV-3	4.740	
CCV-4	4.731	
CCV-5	4.740	
CCV-6	4.740	
CCV-7	4.740	

Average	4.739	
Actual RT Window	4.659 -	4.819
Applied RT Window	4.539 -	4.939

MB-R134150	N.A.	N.A.
LCS-R134150	4.731	PASS
N035736-001A	N.A.	N.A.
N035736-002A	4.631	PASS
N035737-003A	N.A.	N.A.
N035736-001AMS	4.631	PASS
N035736-002AMS	4.631	PASS
N035737-003AMS	4.740	PASS
N035738-001A	4.731	PASS
N035738-002A	4.740	PASS
N035738-005A	4.740	PASS
N035738-006A	4.723	PASS
N035738-007A	4.731	PASS
N035738-008A	4.731	PASS
N035738-009A	4.740	PASS
N035738-014A	4.740	PASS
N035738-015A	4.740	PASS
N035738-001ADUP	4.723	PASS
N035738-004A	N.A.	N.A.
N035738-004AMS	4.681	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/23/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.740	
CCV-3	4.740	
CCV-4	4.731	
CCV-5	4.740	
CCV-6	4.740	
CCV-7	4.740	
Average	4.739	
Actual RT Window	4.659 - 4.819	
Applied RT Window	4.539 - 4.939	
N035738-010A	N.A.	N.A.
N035738-010AMS	4.706	PASS
N035738-012A	N.A.	N.A.
N035738-012AMS	4.673	PASS
N035738-013A	N.A.	N.A.
N035738-013AMS	4.731	PASS
N035738-003A	N.A.	N.A.
N035738-003AMS	4.740	PASS
N035738-011A	4.731	PASS
N035738-011AMS	4.731	PASS
N035738-016A	N.A.	N.A.
N035738-016AMS	4.731	PASS
N035738-017A	N.A.	N.A.
N035738-017AMS	4.740	PASS
N035738-010AMS	4.706	PASS
N035738-002AMS	4.740	PASS
N035738-002AMSD	4.740	PASS
N035738-001AMS	4.723	PASS
N035738-005AMS	4.740	PASS
N035738-006AMS	4.731	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/23/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.740	
CCV-3	4.740	
CCV-4	4.731	
CCV-5	4.740	
CCV-6	4.740	
CCV-7	4.740	
Average	4.739	
Actual RT Window	4.659 - 4.819	
Applied RT Window	4.539 - 4.939	
N035738-007AMS	4.731	PASS
N035738-008AMS	4.731	PASS
N035738-009A	4.740	PASS
N035738-009AMS	4.740	PASS
N035738-014AMS	4.740	PASS
N035738-015AMS	4.740	PASS
N035738-004A	N.A.	N.A.
N035738-004AMS	4.256	FAIL
N035738-010A	4.515	FAIL
N035738-010AMS	4.506	FAIL
N035738-012A	N.A.	N.A.
N035738-012AMS	N.A.	N.A.
N035738-013A	N.A.	N.A.
N035738-013AMS	4.715	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

rba 5/11/2019

5/15/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

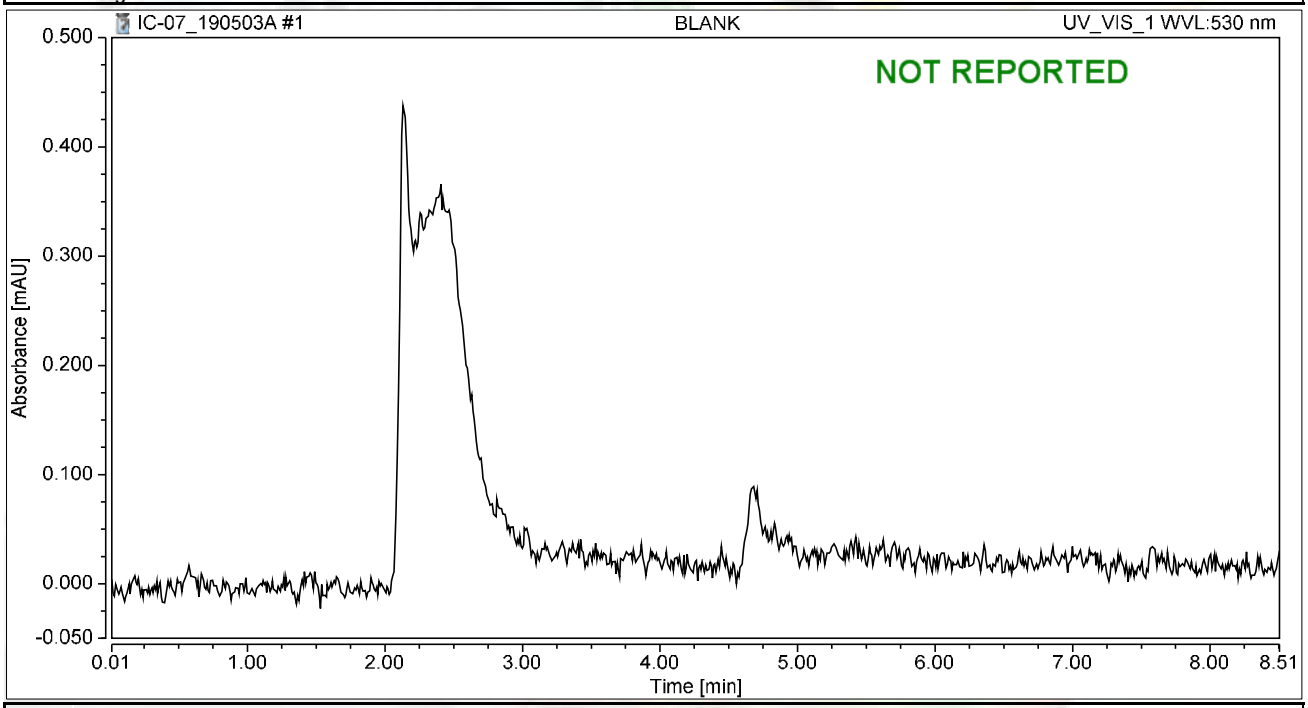
rba 5/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 09:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

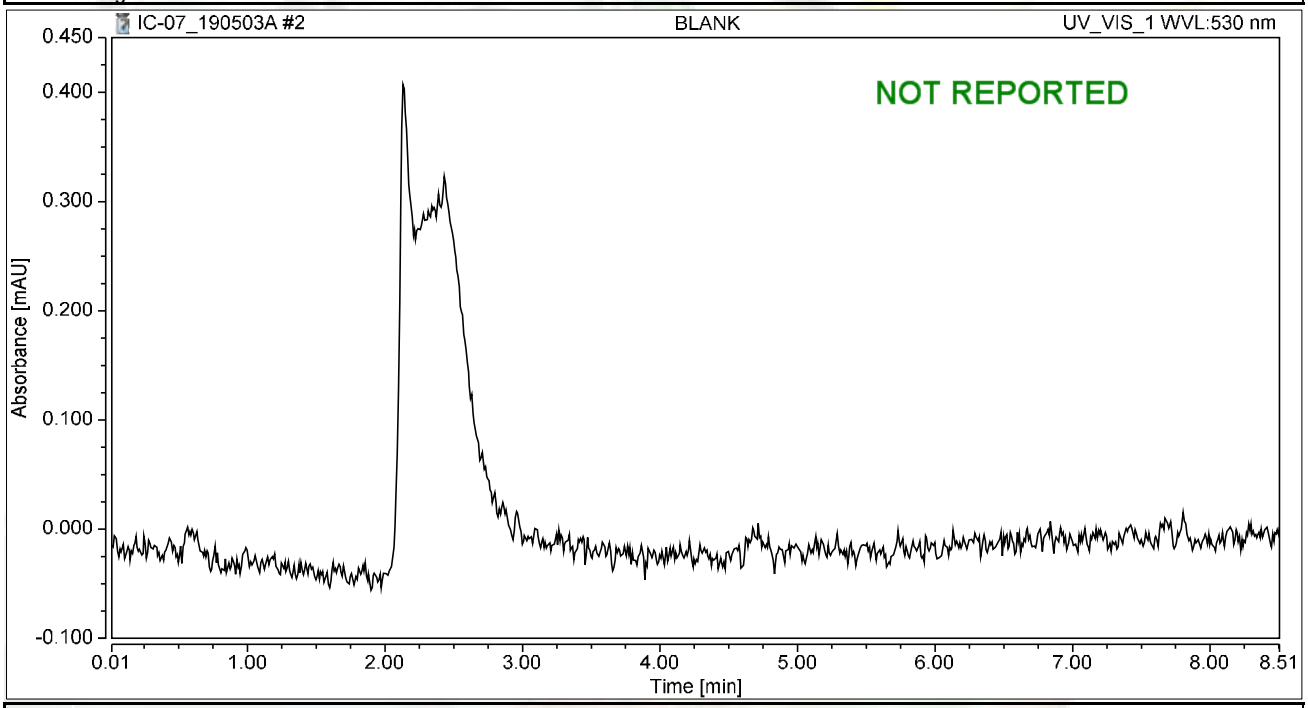
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

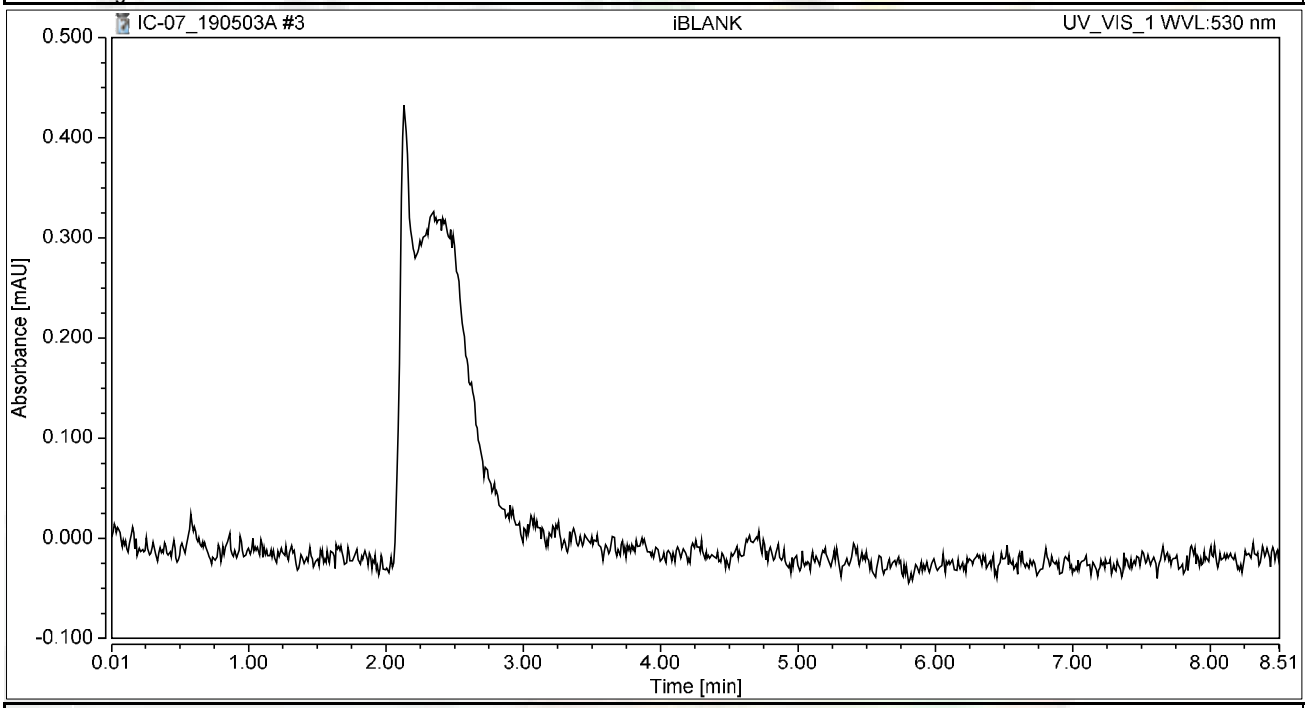
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

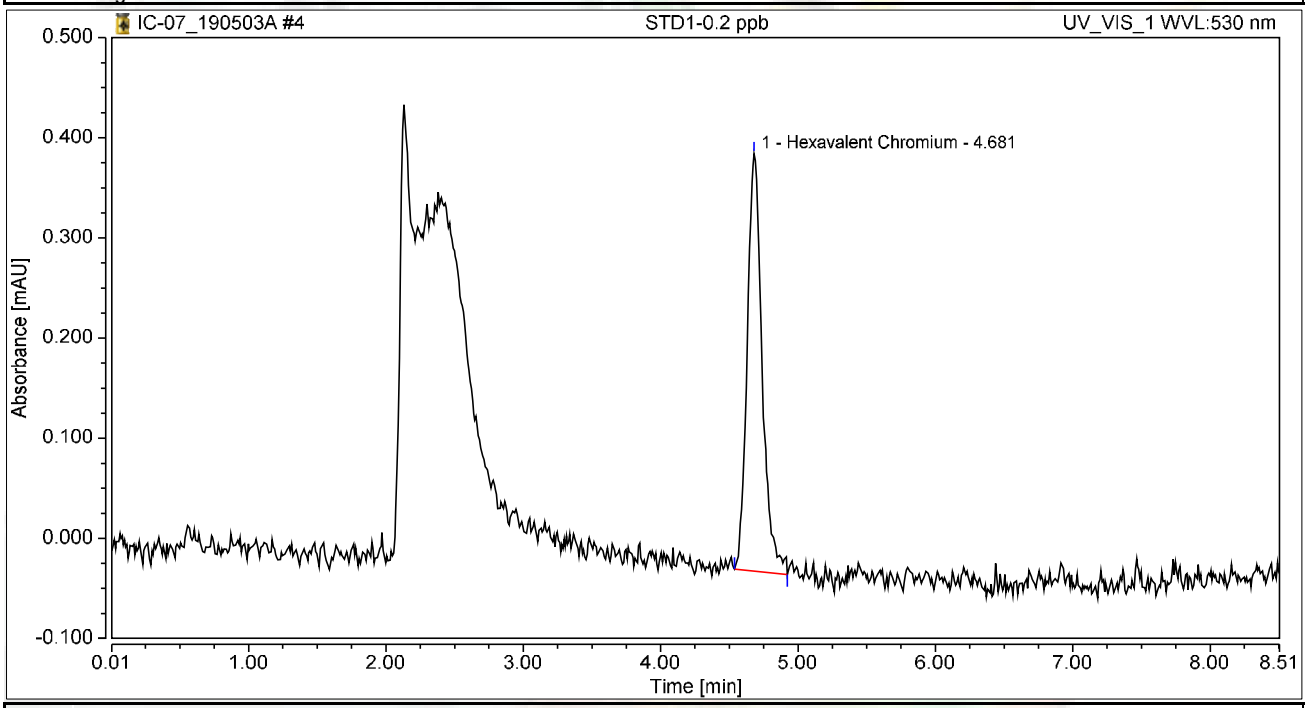
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

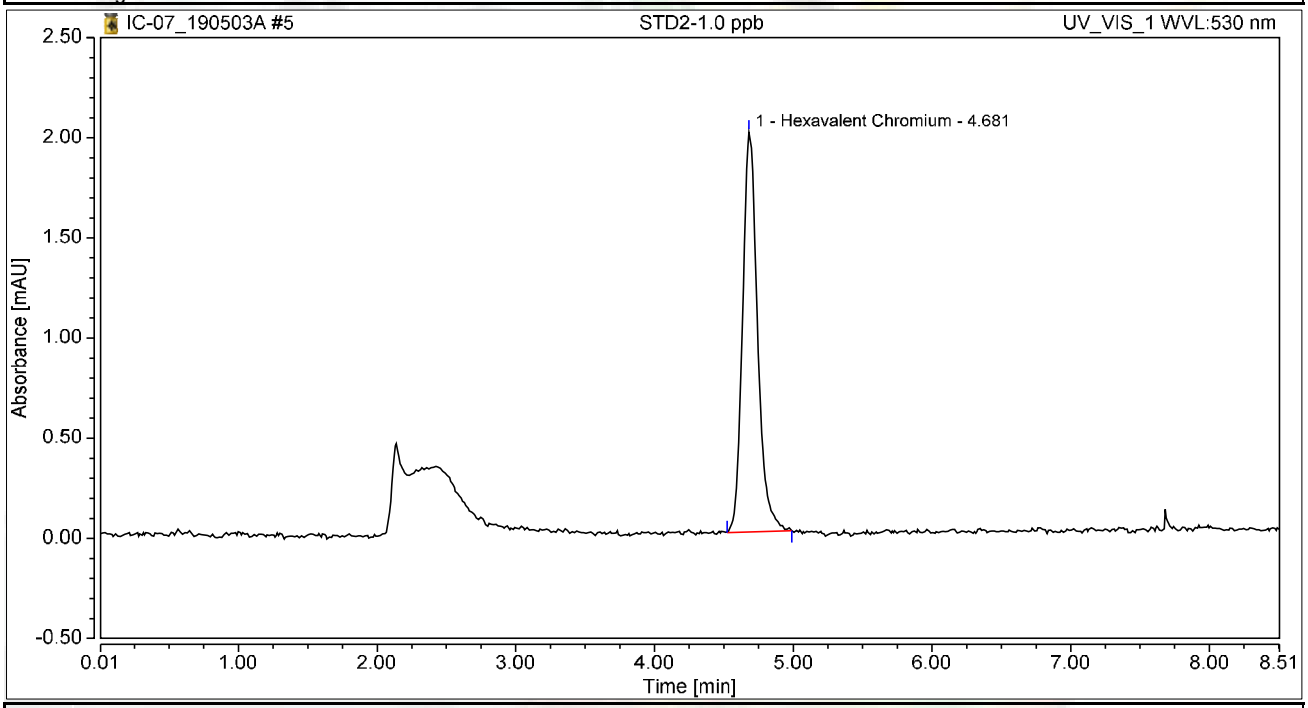
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.053	0.417	100.00	100.00	0.2092
Total:			**0.053**	**0.417**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

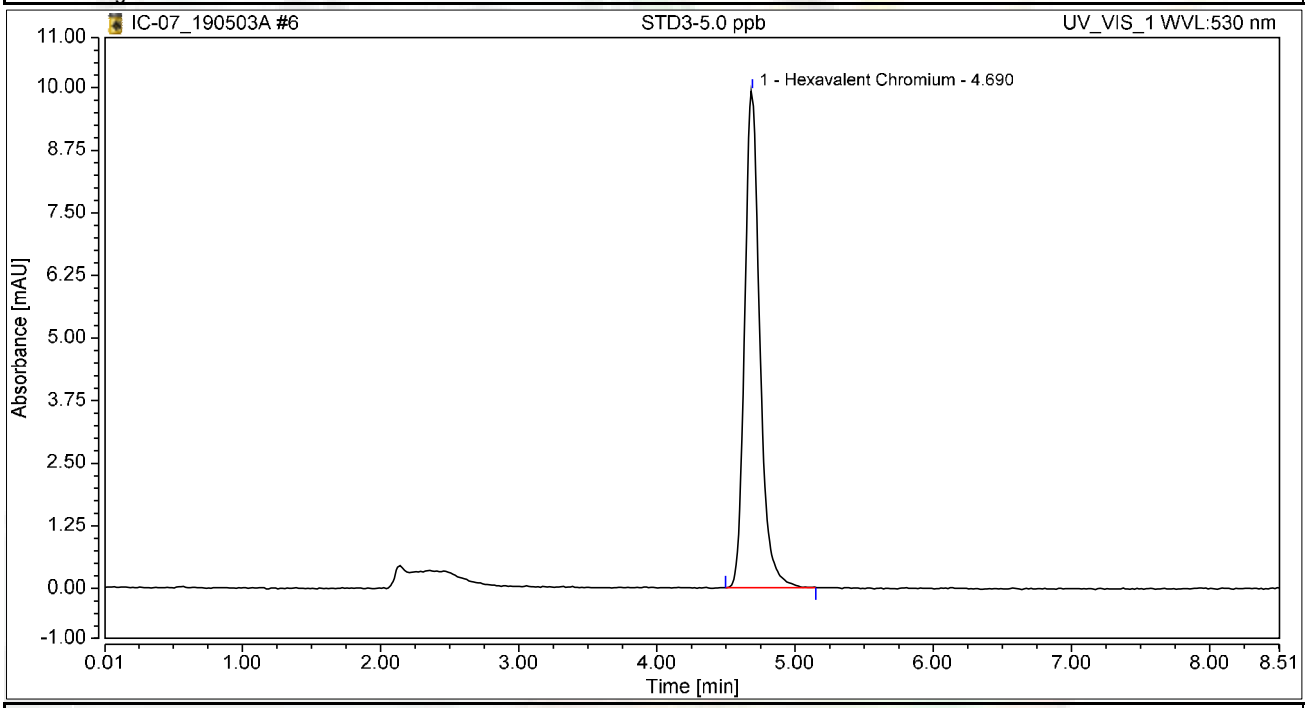
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.251	1.997	100.00	100.00	0.9971
Total:			**0.251**	**1.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

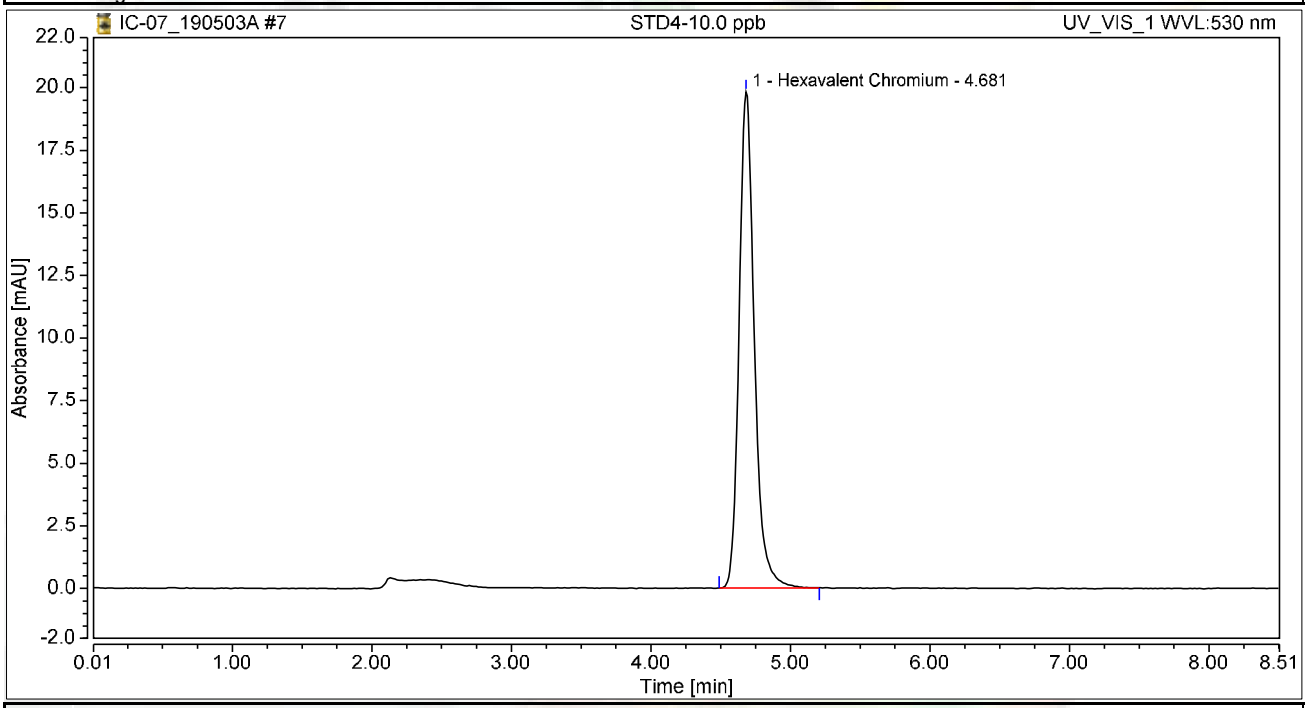
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.261	9.919	100.00	100.00	5.0034
Total:			**1.261**	**9.919**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

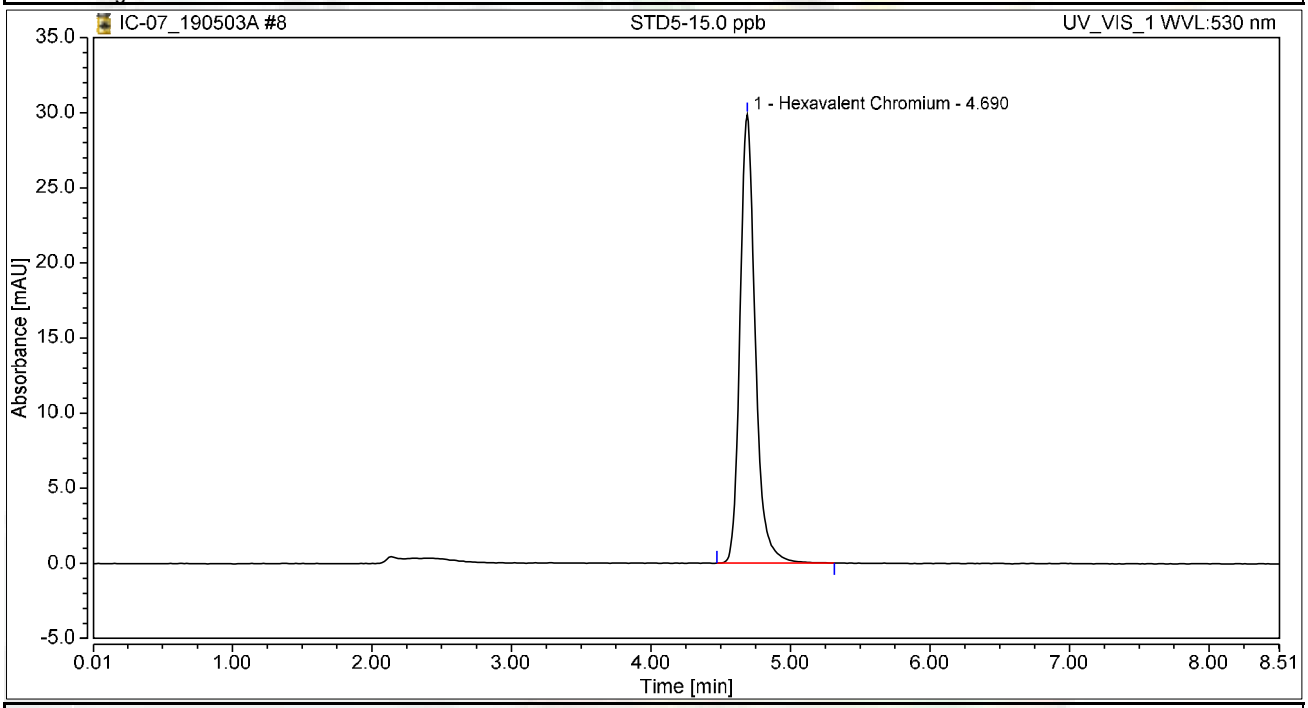
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	2.519	19.825	100.00	100.00	9.9901
Total:			**2.519**	**19.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

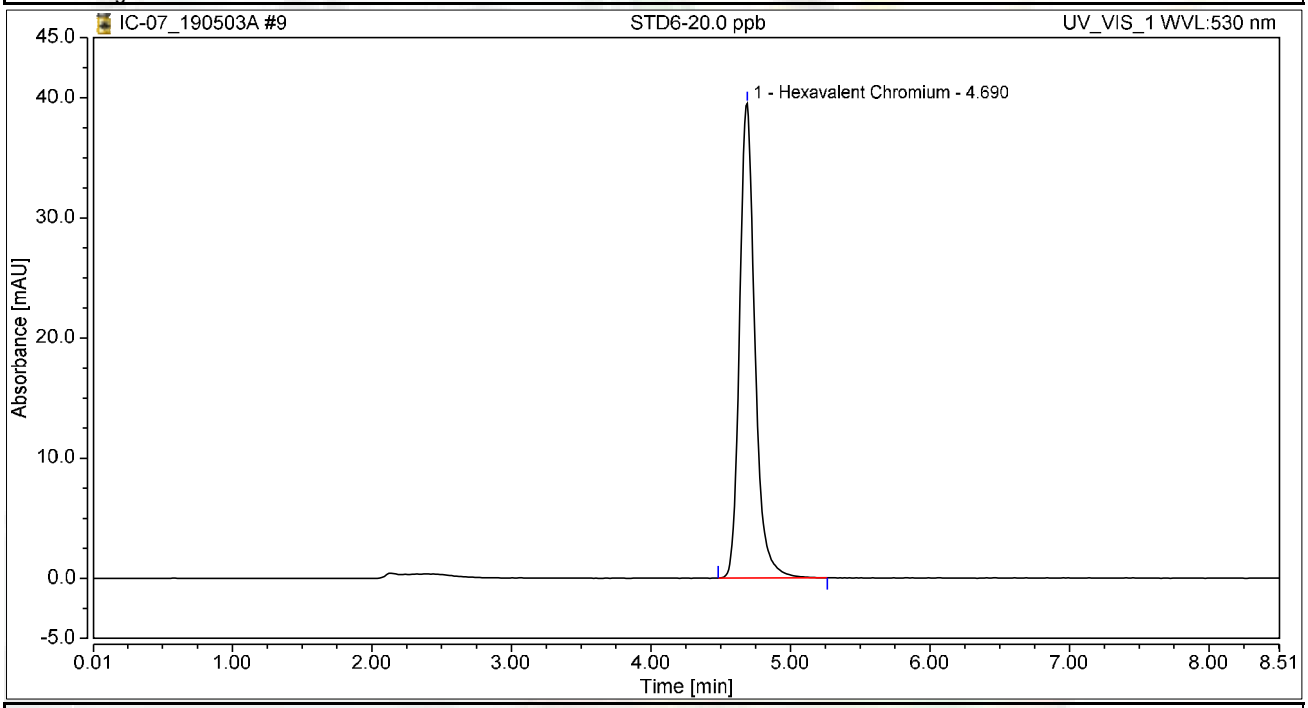
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.799	29.868	100.00	100.00	15.0660
Total:			**3.799**	**29.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



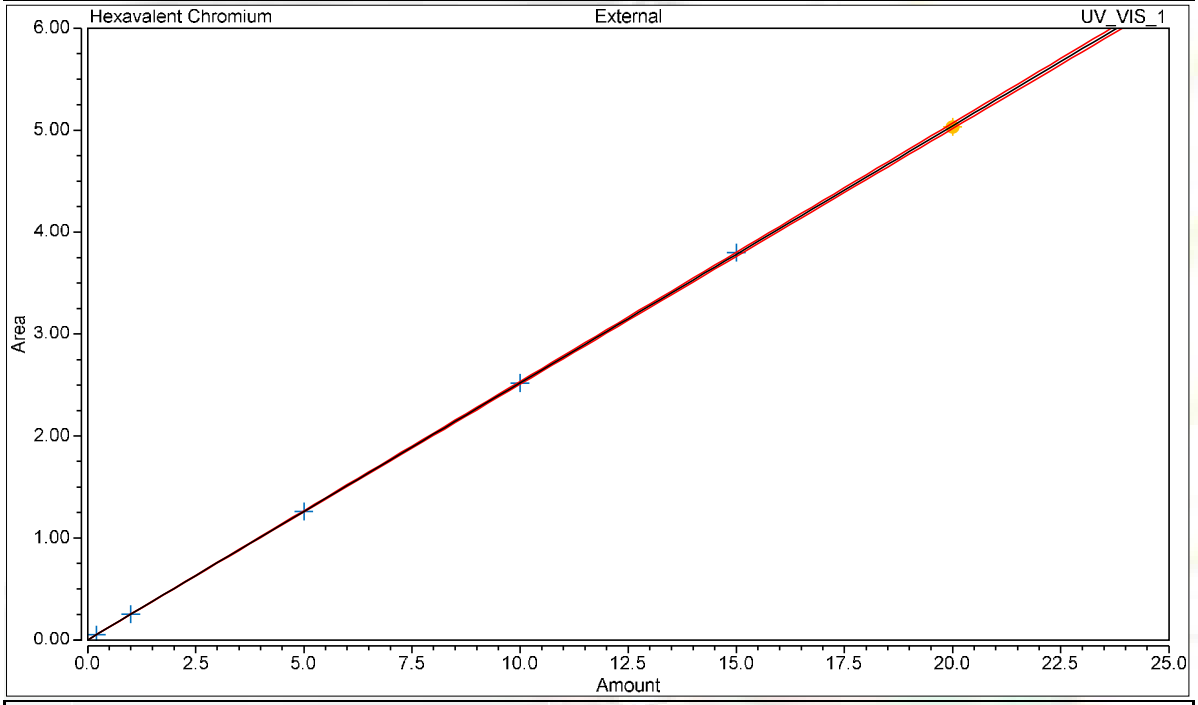
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	5.031	39.475	100.00	100.00	19.9546
Total:			**5.031**	**39.475**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2521
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

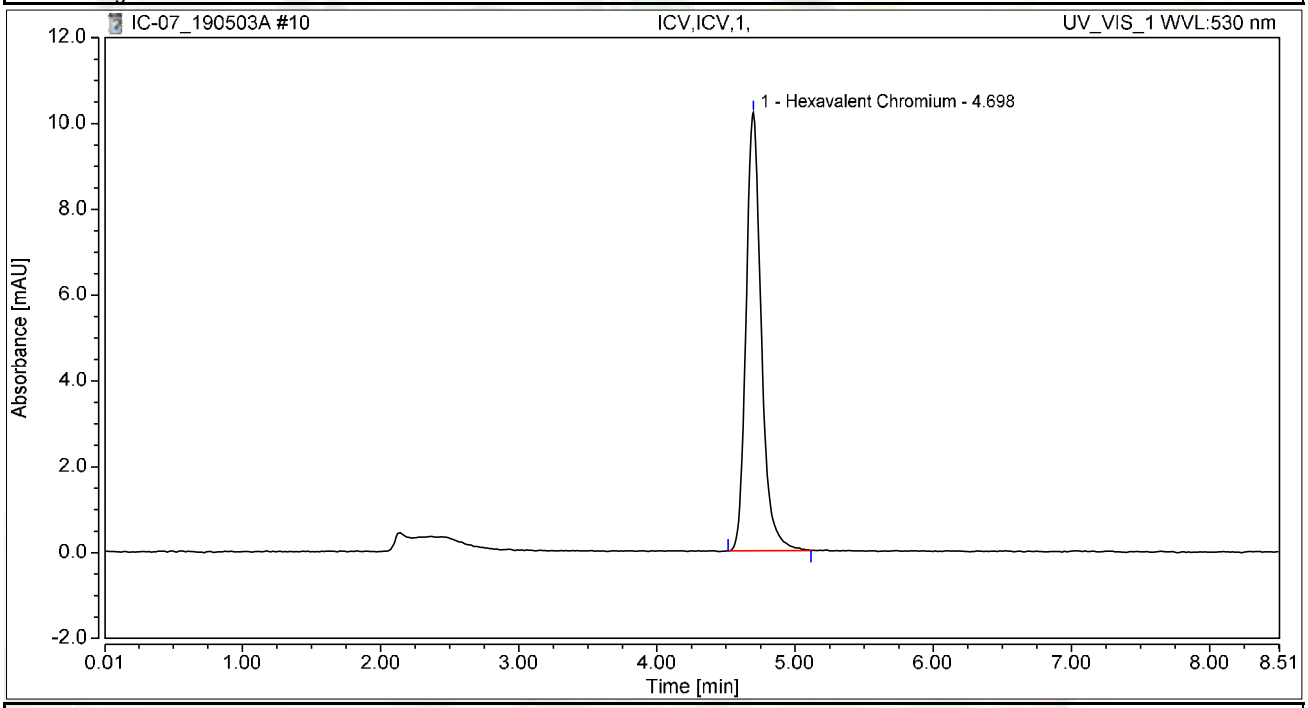
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.417
5	STD2-1.0 ppb	02	1.0000	0.2514	0.251	1.997
6	STD3-5.0 ppb	03	5.0000	1.2615	1.261	9.919
7	STD4-10.0 ppb	04	10.0000	2.5188	2.519	19.825
8	STD5-15.0 ppb	05	15.0000	3.7985	3.799	29.868
9	STD6-20.0 ppb	06	20.0000	5.0310	5.031	39.475

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

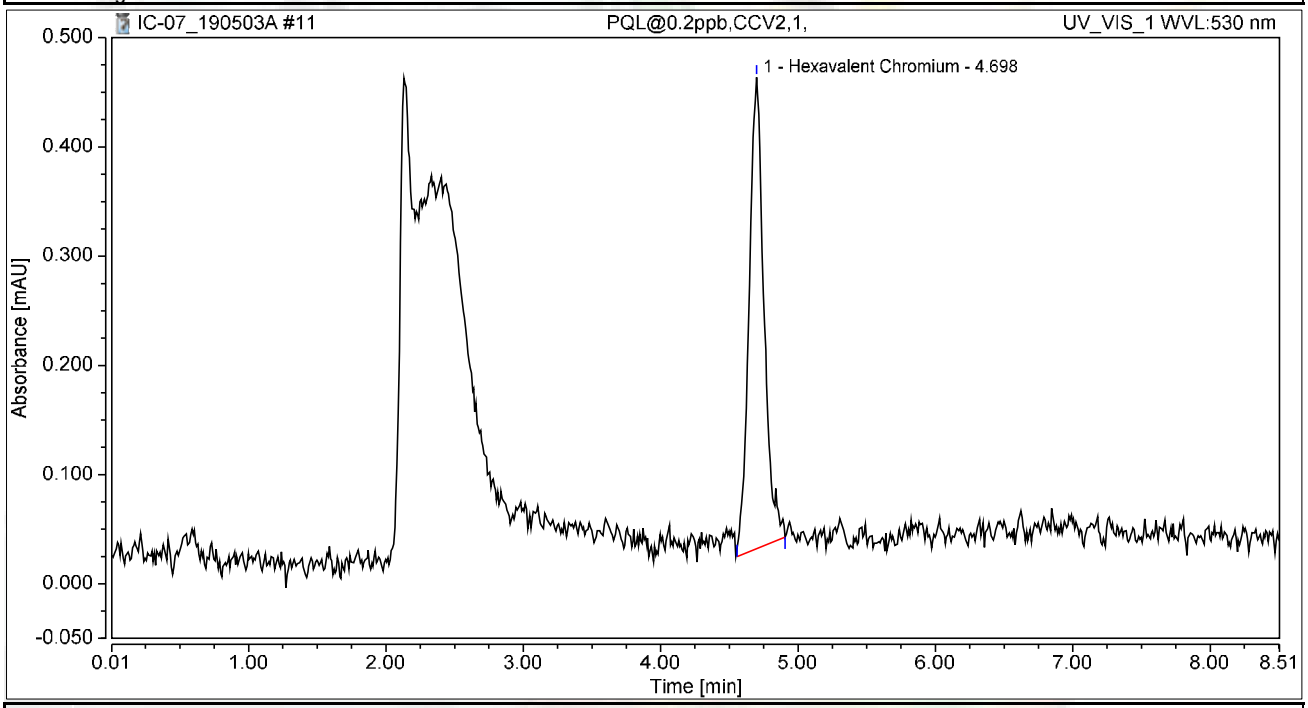
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.305	10.217	100.00	100.00	5.1753
Total:			**1.305**	**10.217**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

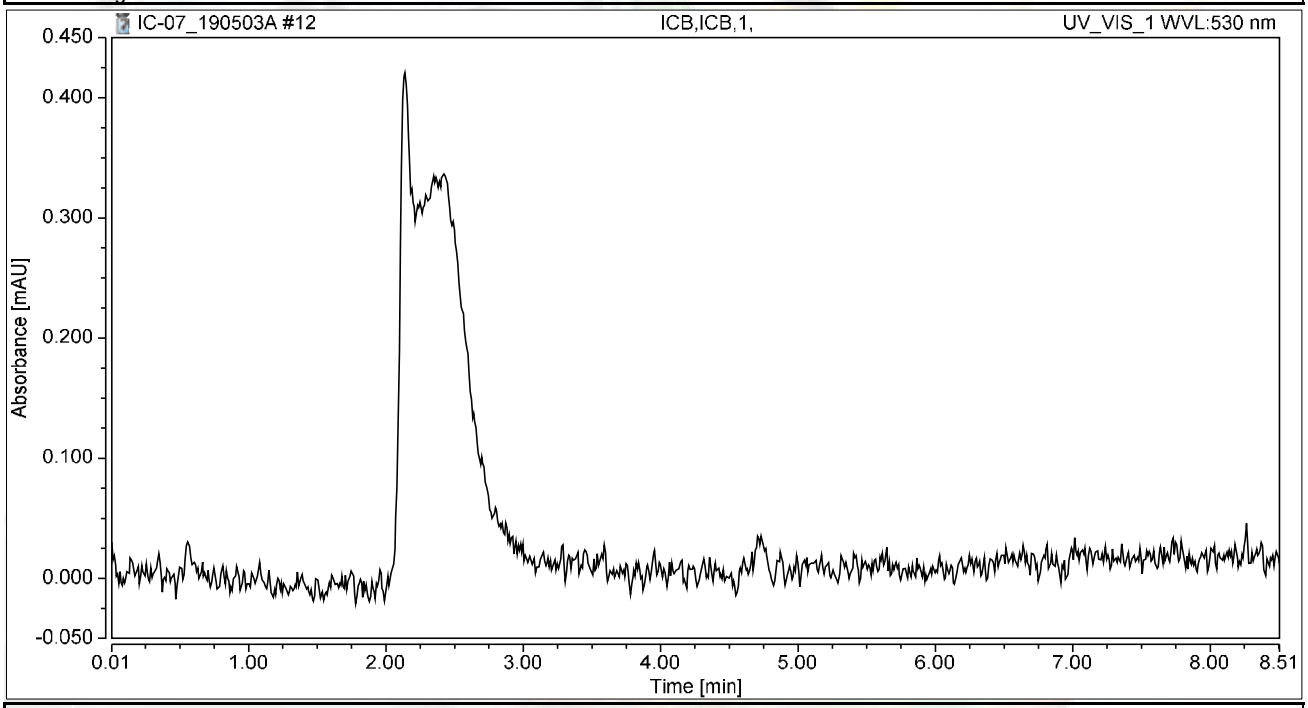
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.431	100.00	100.00	0.2143
Total:			**0.054**	**0.431**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190523A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/23/19 8:54 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/23/19 9:05 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/23/19 9:14 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/23/19 9:24 AM	Reported
14	MB-R134150	MBLK	1	Hexavalent Chromium	05/23/19 9:33 AM	Reported
15	LCS-R134150	LCS	1	Hexavalent Chromium	05/23/19 9:43 AM	Reported
16	N035736-001A	SAMP	1	Hexavalent Chromium	05/23/19 10:05 AM	Reported
17	N035736-002A	SAMP	1	Hexavalent Chromium	05/23/19 10:15 AM	Reported
18	N035737-003A	SAMP	1	Hexavalent Chromium	05/23/19 10:25 AM	Reported
19	N035736-001AMS	MS	1	Hexavalent Chromium	05/23/19 10:34 AM	Reported
20	N035736-002AMS	MS	1	Hexavalent Chromium	05/23/19 10:44 AM	Reported
21	N035737-003AMS	MS	1	Hexavalent Chromium	05/23/19 10:53 AM	Reported
22	N035738-001A	SAMP	20	Hexavalent Chromium	05/23/19 11:03 AM	Reported
23	N035738-002A	SAMP	200	Hexavalent Chromium	05/23/19 11:12 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	05/23/19 11:22 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/23/19 11:31 AM	Reported
26	N035738-005A	SAMP	200	Hexavalent Chromium	05/23/19 11:40 AM	Reported
27	N035738-006A	SAMP	20	Hexavalent Chromium	05/23/19 11:50 AM	Reported
28	N035738-007A	SAMP	20	Hexavalent Chromium	05/23/19 11:59 AM	Reported
29	N035738-008A	SAMP	5	Hexavalent Chromium	05/23/19 12:09 PM	Reported
30	N035738-009A	SAMP	2000	Hexavalent Chromium	05/23/19 12:18 PM	Not Reported
31	N035738-014A	SAMP	500	Hexavalent Chromium	05/23/19 12:28 PM	Reported
32	N035738-015A	SAMP	500	Hexavalent Chromium	05/23/19 12:37 PM	Reported
33	N035738-001ADUP	DUP	20	Hexavalent Chromium	05/23/19 12:47 PM	Reported
34	N035738-004A	SAMP	5	Hexavalent Chromium	05/23/19 12:56 PM	Reported
35	N035738-004AMS	MS	5	Hexavalent Chromium	05/23/19 1:06 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	05/23/19 1:15 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/23/19 1:25 PM	Reported
38	N035738-010A	SAMP	5	Hexavalent Chromium	05/23/19 1:34 PM	Reported
39	N035738-010AMS	MS	5	Hexavalent Chromium	05/23/19 1:43 PM	Not Reported
40	N035738-012A	SAMP	5	Hexavalent Chromium	05/23/19 1:53 PM	Reported
41	N035738-012AMS	MS	5	Hexavalent Chromium	05/23/19 2:02 PM	Reported
42	N035738-013A	SAMP	5	Hexavalent Chromium	05/23/19 2:19 PM	Reported

INJECTION LOG: 190523A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035738-013AMS	MS	5	Hexavalent Chromium	05/23/19 2:30 PM	Reported
44	N035738-003A	SAMP	1	Hexavalent Chromium	05/23/19 2:40 PM	Reported
45	N035738-003AMS	MS	1	Hexavalent Chromium	05/23/19 2:49 PM	Reported
46	N035738-011A	SAMP	1	Hexavalent Chromium	05/23/19 2:59 PM	Reported
47	N035738-011AMS	MS	1	Hexavalent Chromium	05/23/19 3:08 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	05/23/19 3:18 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	05/23/19 3:27 PM	Reported
50	N035738-016A	SAMP	1	Hexavalent Chromium	05/23/19 3:37 PM	Reported
51	N035738-016AMS	MS	1	Hexavalent Chromium	05/23/19 3:46 PM	Reported
52	N035738-017A	SAMP	1	Hexavalent Chromium	05/23/19 3:55 PM	Reported
53	N035738-017AMS	MS	1	Hexavalent Chromium	05/23/19 4:05 PM	Reported
54	N035738-010AMS	MS	5	Hexavalent Chromium	05/23/19 4:18 PM	Reported
55	N035738-002AMS	MS	200	Hexavalent Chromium	05/23/19 4:29 PM	Reported
56	N035738-002AMSD	MSD	200	Hexavalent Chromium	05/23/19 4:39 PM	Reported
57	N035738-001AMS	MS	20	Hexavalent Chromium	05/23/19 4:48 PM	Reported
58	N035738-005AMS	MS	200	Hexavalent Chromium	05/23/19 4:58 PM	Reported
59	N035738-006AMS	MS	20	Hexavalent Chromium	05/23/19 5:07 PM	Reported
60	CCV-5	CCV	1	Hexavalent Chromium	05/23/19 5:17 PM	Reported
61	CCB-5	CCB	1	Hexavalent Chromium	05/23/19 5:26 PM	Reported
62	N035738-007AMS	MS	20	Hexavalent Chromium	05/23/19 5:35 PM	Reported
63	N035738-008AMS	MS	5	Hexavalent Chromium	05/23/19 5:45 PM	Reported
64	N035738-009A	SAMP	1000	Hexavalent Chromium	05/23/19 5:54 PM	Reported
65	N035738-009AMS	MS	1000	Hexavalent Chromium	05/23/19 6:04 PM	Reported
66	N035738-014AMS	MS	500	Hexavalent Chromium	05/23/19 6:13 PM	Reported
67	N035738-015AMS	MS	500	Hexavalent Chromium	05/23/19 6:23 PM	Reported
68	N035738-004A	SAMP	1	Hexavalent Chromium	05/23/19 6:32 PM	NotReported
69	N035738-004AMS	MS	1	Hexavalent Chromium	05/23/19 6:42 PM	Not Reported
70	N035738-010A	SAMP	1	Hexavalent Chromium	05/23/19 6:51 PM	Not Reported
71	N035738-010AMS	MS	1	Hexavalent Chromium	05/23/19 7:01 PM	Not Reported
72	CCV-6	CCV1	1	Hexavalent Chromium	05/23/19 7:10 PM	Reported
73	CCB-6	CCB	1	Hexavalent Chromium	05/23/19 7:20 PM	Reported
74	N035738-012A	SAMP	1	Hexavalent Chromium	05/23/19 7:29 PM	Not Reported
75	N035738-012AMS	MS	1	Hexavalent Chromium	05/23/19 7:38 PM	Not Reported
76	N035738-013A	SAMP	1	Hexavalent Chromium	05/23/19 7:48 PM	Not Reported
77	N035738-013AMS	MS	1	Hexavalent Chromium	05/23/19 7:57 PM	Not Reported
78	CCV-7	CCV	1	Hexavalent Chromium	05/23/19 8:07 PM	Reported
79	CCB-7	CCB	1	Hexavalent Chromium	05/23/19 8:16 PM	Reported
80	BLANK	BLANK	1	Hexavalent Chromium	05/23/19 8:26 PM	Not Reported
81	BLANK	BLANK	1	Hexavalent Chromium	05/23/19 8:35 PM	Not Reported
82	BLANK	BLANK	1	Hexavalent Chromium	05/23/19 8:45 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190523A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**23/May/19 21:15:30**
No. of Injections:	**85**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/23/2019 08:54	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/23/2019 09:05	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/23/2019 09:14	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/23/2019 09:24	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/23/2019 09:33	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/23/2019 09:43	Finished	LCS @5ppb, IWST-190423B
16	N035736-001A,SAMF	1	1000	Unknown		05/23/2019 10:05	Finished	SAMP,10mL
17	N035736-002A,SAMF	2	1000	Unknown		05/23/2019 10:15	Finished	SAMP,10mL
18	N035737-003A,SAMF	3	1000	Unknown		05/23/2019 10:25	Finished	SAMP,10mL
19	N035736-001AMS,MS	4	1000	Unknown		05/23/2019 10:34	Finished	MS (1ppb), IWST-190423B,10
20	N035736-002AMS,MS	5	1000	Unknown		05/23/2019 10:44	Finished	MS (1ppb), IWST-190423B,10
21	N035737-003AMS,MS	6	1000	Unknown		05/23/2019 10:53	Finished	MS (1ppb), IWST-190423B,10
22	N035738-001A,SAMF	7	1000	Unknown		05/23/2019 11:03	Finished	SAMP,0.5>10mL
23	N035738-002A,SAMF	8	1000	Unknown		05/23/2019 11:12	Finished	SAMP,0.05>10mL
24	CCV-2,CCV1,1,	9	1000	Unknown		05/23/2019 11:22	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	10	1000	Unknown		05/23/2019 11:31	Finished	CCB R190508A
26	N035738-005A,SAMF	11	1000	Unknown		05/23/2019 11:40	Finished	SAMP,0.05>10mL
27	N035738-006A,SAMF	12	1000	Unknown		05/23/2019 11:50	Finished	SAMP,0.5> 10mL
28	N035738-007A,SAMF	13	1000	Unknown		05/23/2019 11:59	Finished	SAMP,0.5> 10mL
29	N035738-008A,SAMF	14	1000	Unknown		05/23/2019 12:09	Finished	SAMP,2> 10mL
30	N035738-009A,SAMF	15	1000	Unknown		05/23/2019 12:18	Finished	SAMP,0.005> 10mL
31	N035738-014A,SAMF	16	1000	Unknown		05/23/2019 12:28	Finished	SAMP,0.02> 10mL
32	N035738-015A,SAMF	17	1000	Unknown		05/23/2019 12:37	Finished	SAMP,0.02> 10mL
33	N035738-001ADUP,D	18	1000	Unknown		05/23/2019 12:47	Finished	DUP,0.5> 10mL
34	N035738-004A,SAMF	19	1000	Unknown		05/23/2019 12:56	Finished	SAMP,2> 10mL
35	N035738-004AMS,MS	20	1000	Unknown		05/23/2019 13:06	Finished	MS (1ppb), IWST-190423B,2>1
36	CCV-3,CCV,1,	21	1000	Unknown		05/23/2019 13:15	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	22	1000	Unknown		05/23/2019 13:25	Finished	CCB R190508A
38	N035738-010A,SAMF	23	1000	Unknown		05/23/2019 13:34	Finished	SAMP,2> 10mL
39	N035738-010AMS,MS	24	1000	Unknown		05/23/2019 13:43	Finished	MS (1ppb), IWST-190423B,2>1
40	N035738-012A,SAMF	25	1000	Unknown		05/23/2019 13:53	Finished	SAMP,2> 10mL
41	N035738-012AMS,MS	26	1000	Unknown		05/23/2019 14:02	Finished	MS (1ppb), IWST-190423B,2>1
42	N035738-013A,SAMF	27	1000	Unknown		05/23/2019 14:19	Finished	SAMP,2> 10mL
43	N035738-013AMS,MS	28	1000	Unknown		05/23/2019 14:30	Finished	MS (1ppb), IWST-190423B,2>1
44	N035738-003A,SAMF	29	1000	Unknown		05/23/2019 14:40	Finished	MS (5ppb), IWST-190423B,0.0
45	N035738-003AMS,MS	30	1000	Unknown		05/23/2019 14:49	Finished	MSD (5ppb), IWST-190423B,0.
46	N035738-011A,SAMF	31	1000	Unknown		05/23/2019 14:59	Finished	SAMP, 10mL
47	N035738-011AMS,MS	32	1000	Unknown		05/23/2019 15:08	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	33	1000	Unknown		05/23/2019 15:18	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	34	1000	Unknown		05/23/2019 15:27	Finished	CCB R190508A
50	N035738-016A,SAMF	35	1000	Unknown		05/23/2019 15:37	Finished	SAMP, 10mL
51	N035738-016AMS,MS	36	1000	Unknown		05/23/2019 15:46	Finished	MS (1ppb), IWST-190423B,10
52	N035738-017A,SAMF	37	1000	Unknown		05/23/2019 15:55	Finished	SAMP, 10mL
53	N035738-017AMS,MS	38	1000	Unknown		05/23/2019 16:05	Finished	MS (1ppb), IWST-190423B,10
54	N035738-010AMS,MS	1	1000	Unknown		05/23/2019 16:18	Finished	MS (1ppb), IWST-190423B,2>1
55	N035738-002AMS,MS	2	1000	Unknown		05/23/2019 16:29	Finished	MS (5ppb), IWST-190423B,0.0
56	N035738-002AMSD,M	3	1000	Unknown		05/23/2019 16:39	Finished	MSD (5ppb), IWST-190423B,0.
57	N035738-001AMS,MS	4	1000	Unknown		05/23/2019 16:48	Finished	MS (5ppb), IWST-190423B,0.5
58	N035738-005AMS,MS	5	1000	Unknown		05/23/2019 16:58	Finished	MS (5ppb), IWST-190423B,0.0
59	N035738-006AMS,MS	6	1000	Unknown		05/23/2019 17:07	Finished	MS (5ppb), IWST-190423B,0.5
60	CCV-5,CCV,1,	7	1000	Unknown		05/23/2019 17:17	Finished	CCV @5ppb, IWST-190423A

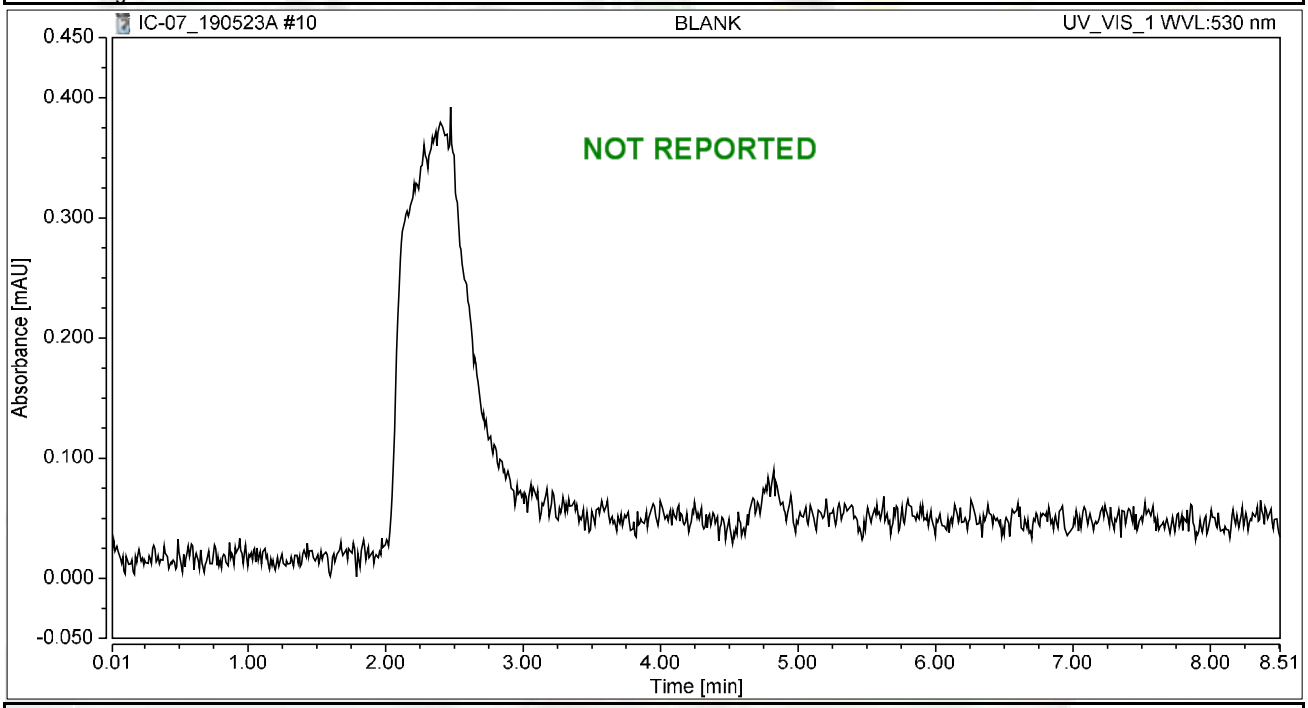
61	CCB-5,CCB,1,	8	1000	Unknown		05/23/2019 17:26	Finished	CCB R190508A
62	N035738-007AMS,MS	9	1000	Unknown		05/23/2019 17:35	Finished	MS (5ppb), IWST-190423B,0.5
63	N035738-008AMS,MS	10	1000	Unknown		05/23/2019 17:45	Finished	MS (5ppb), IWST-190423B,2>1
64	N035738-009A,SAMP	11	1000	Unknown		05/23/2019 17:54	Finished	SAMP, 0.01>10mL
65	N035738-009AMS,MS	12	1000	Unknown		05/23/2019 18:04	Finished	MS (5ppb), IWST-190423B,0.0
66	N035738-014AMS,MS	13	1000	Unknown		05/23/2019 18:13	Finished	MS (5ppb), IWST-190423B,0.0
67	N035738-015AMS,MS	14	1000	Unknown		05/23/2019 18:23	Finished	MS (5ppb), IWST-190423B,0.0
68	N035738-004A,SAMP	15	1000	Unknown		05/23/2019 18:32	Finished	SAMP, 10mL
69	N035738-004AMS,MS	16	1000	Unknown		05/23/2019 18:42	Finished	MS (1ppb), IWST-190423B,10
70	N035738-010A,SAMP	17	1000	Unknown		05/23/2019 18:51	Finished	SAMP, 10mL
71	N035738-010AMS,MS	18	1000	Unknown		05/23/2019 19:01	Finished	MS (1ppb), IWST-190423B,10
72	CCV-6,CCV1,1,	19	1000	Unknown		05/23/2019 19:10	Finished	CCV @10ppb, IWST-190423A
73	CCB-6,CCB,1,	20	1000	Unknown		05/23/2019 19:20	Finished	CCB R190508A
74	N035738-012A,SAMP	21	1000	Unknown		05/23/2019 19:29	Finished	SAMP, 10mL
75	N035738-012AMS,MS	22	1000	Unknown		05/23/2019 19:38	Finished	MS (1ppb), IWST-190423B,10
76	N035738-013A,SAMP	23	1000	Unknown		05/23/2019 19:48	Finished	SAMP, 10mL
77	N035738-013AMS,MS	24	1000	Unknown		05/23/2019 19:57	Finished	MS (1ppb), IWST-190423B,10
78	CCV-7,CCV,1,	25	1000	Unknown		05/23/2019 20:07	Finished	CCV @5ppb, IWST-190423A
79	CCB-7,CCB,1,	26	1000	Unknown		05/23/2019 20:16	Finished	CCB R190508A
80	BLANK	27	1000	Unknown		05/23/2019 20:26	Finished	BLANK
81	BLANK	28	1000	Unknown		05/23/2019 20:35	Finished	BLANK
82	BLANK	29	1000	Unknown		05/23/2019 20:45	Finished	BLANK
83	SHUTDOWN	30	1000	Unknown		05/23/2019 20:54	Finished	
84	Eluent: R190522A	31	1000	Unknown		n.a.	Finished	Eluent
85	PCR: R190522B	32	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 08:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

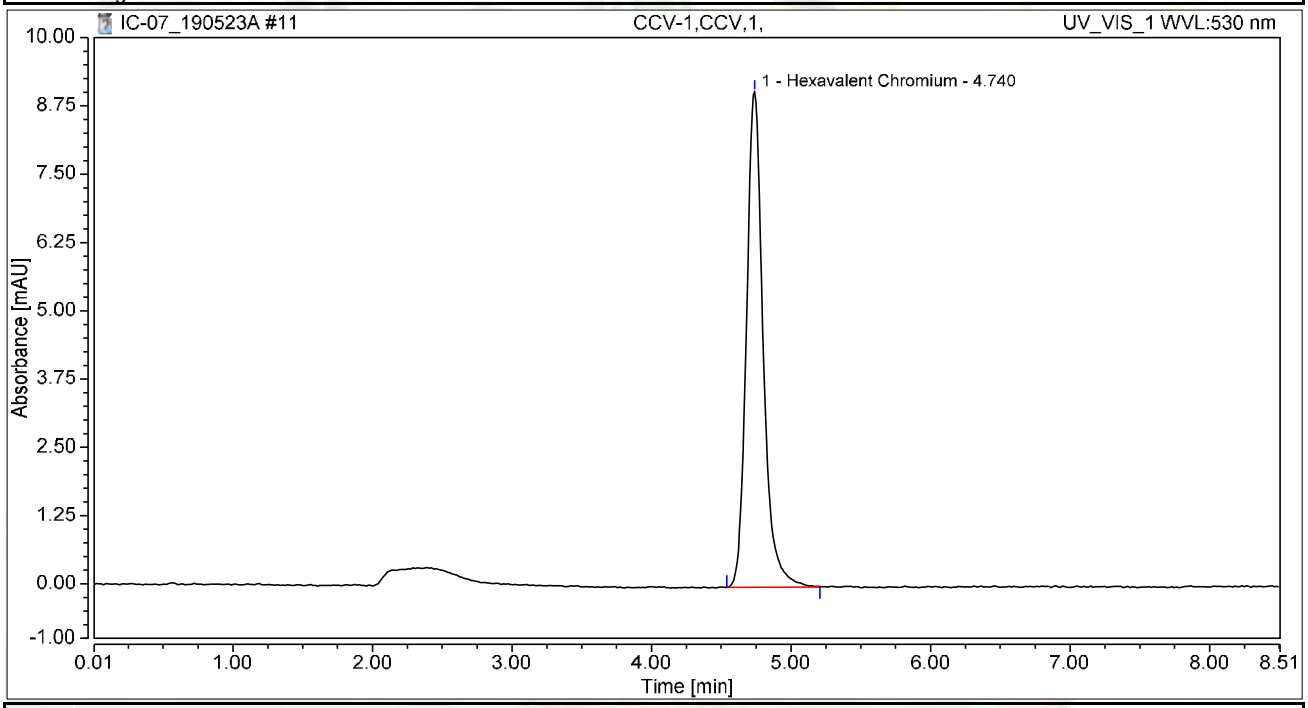
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 09:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

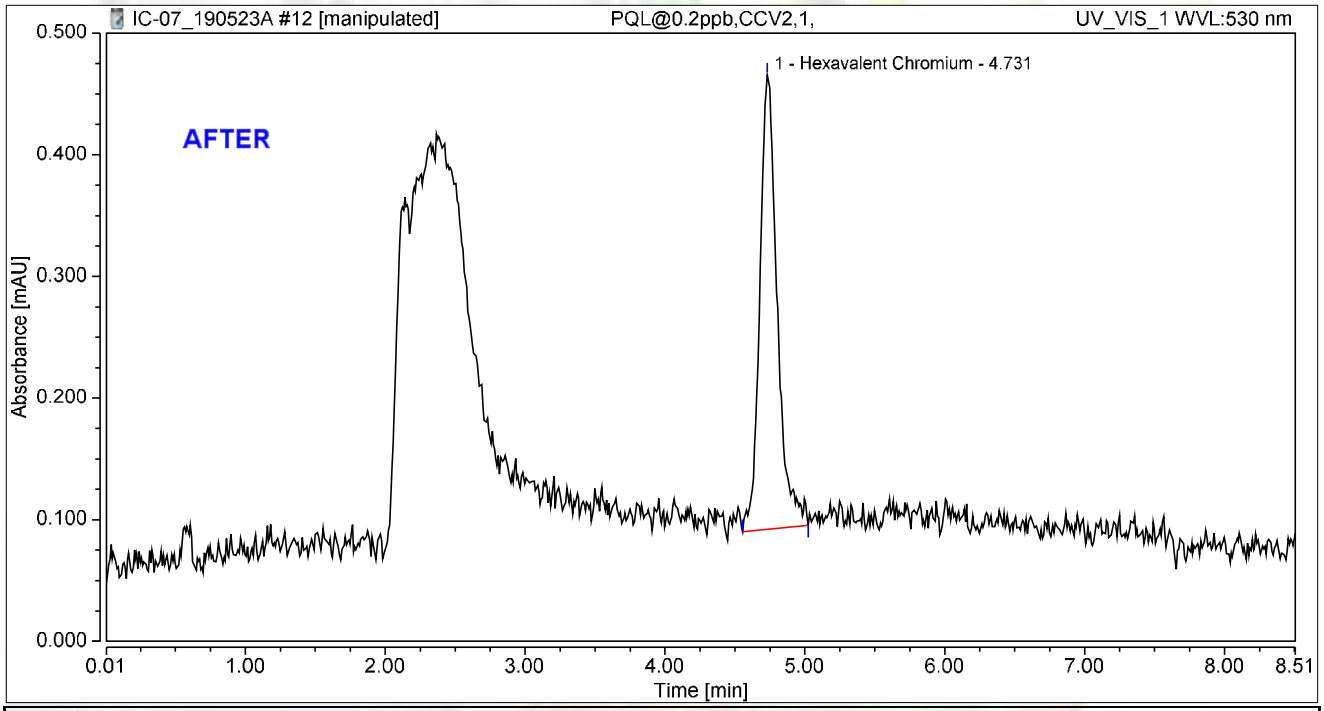
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.255	9.065	100.00	100.00	4.9792
Total:			**1.255**	**9.065**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 09:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.054	0.373	100.00	100.00	0.2140
Total:			**0.054**	**0.373**	**100.00**	**100.00**	

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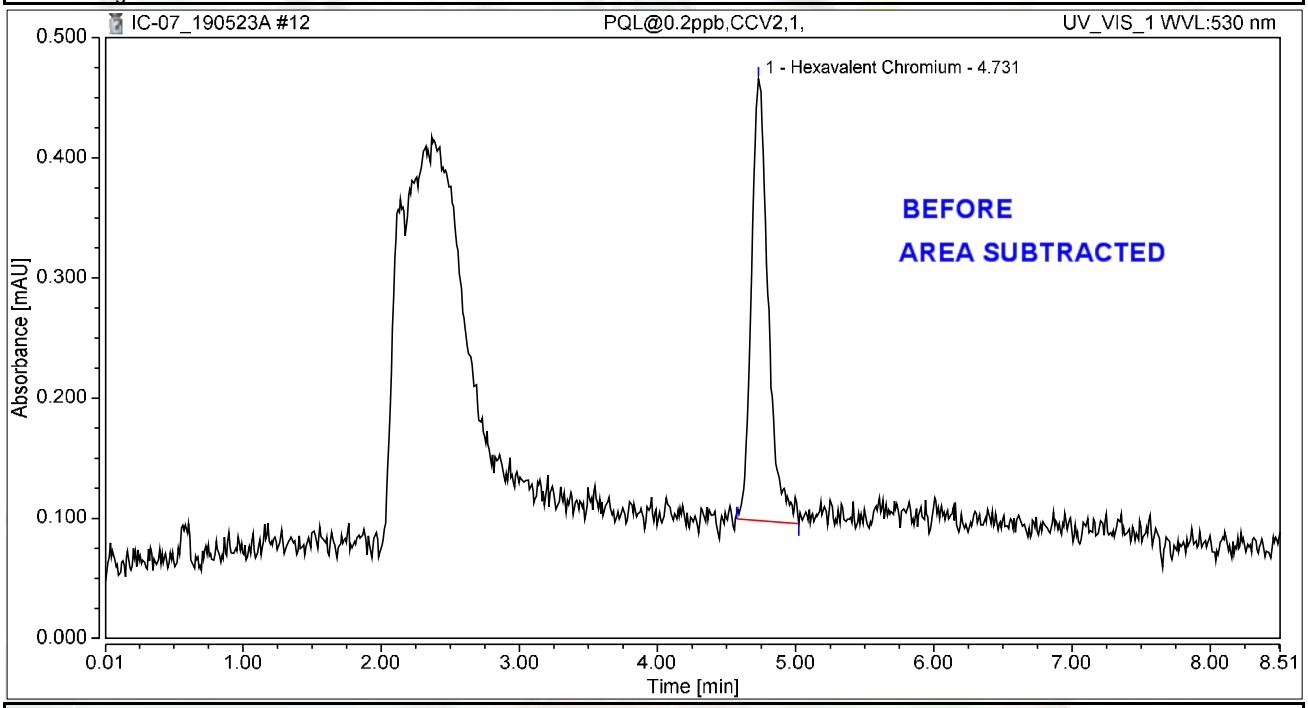
Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 09:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.052	0.368	100.00	100.00	0.2054
Total:			**0.052**	**0.368**	**100.00**	**100.00**	

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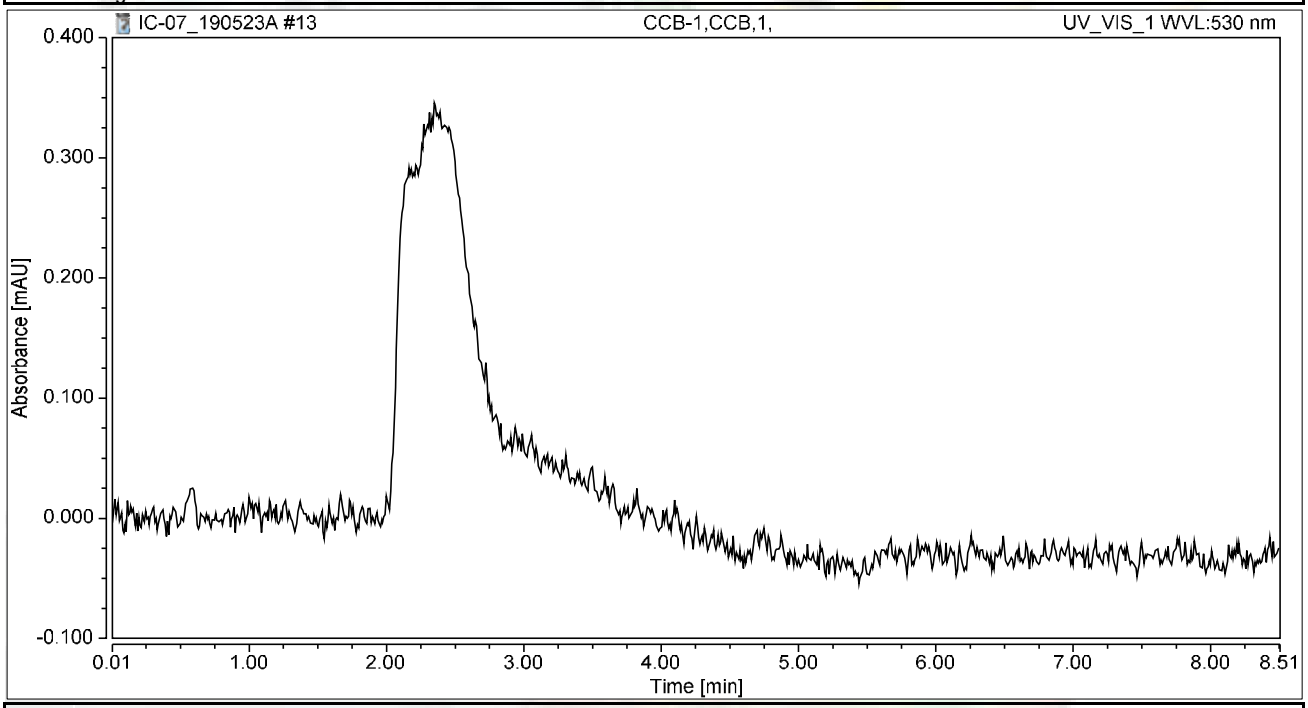
Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 09:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

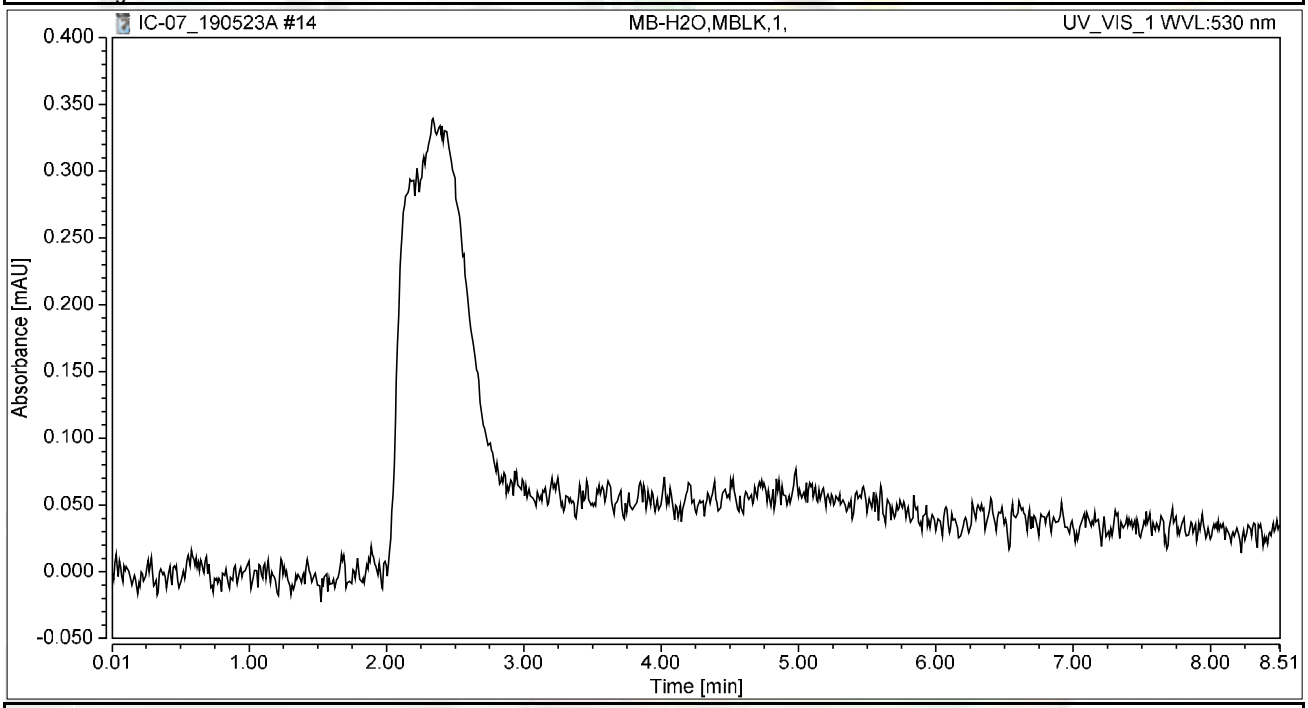
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 09:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

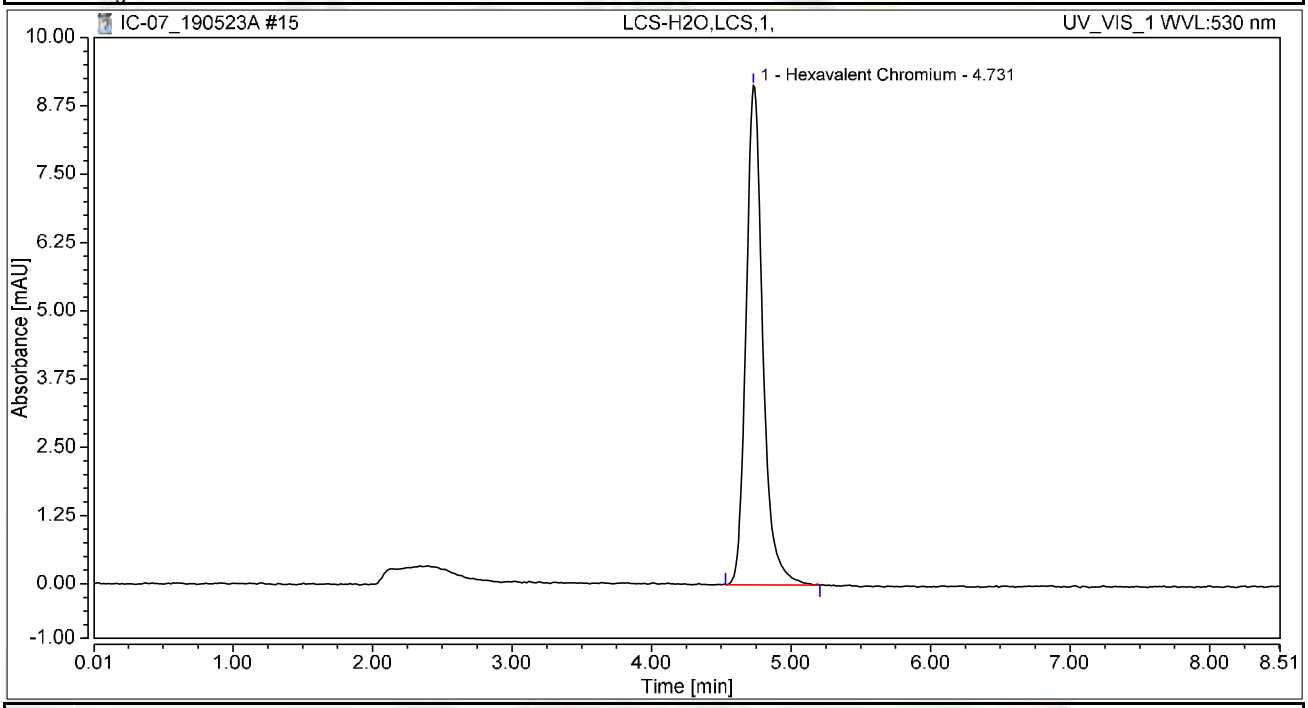
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 09:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

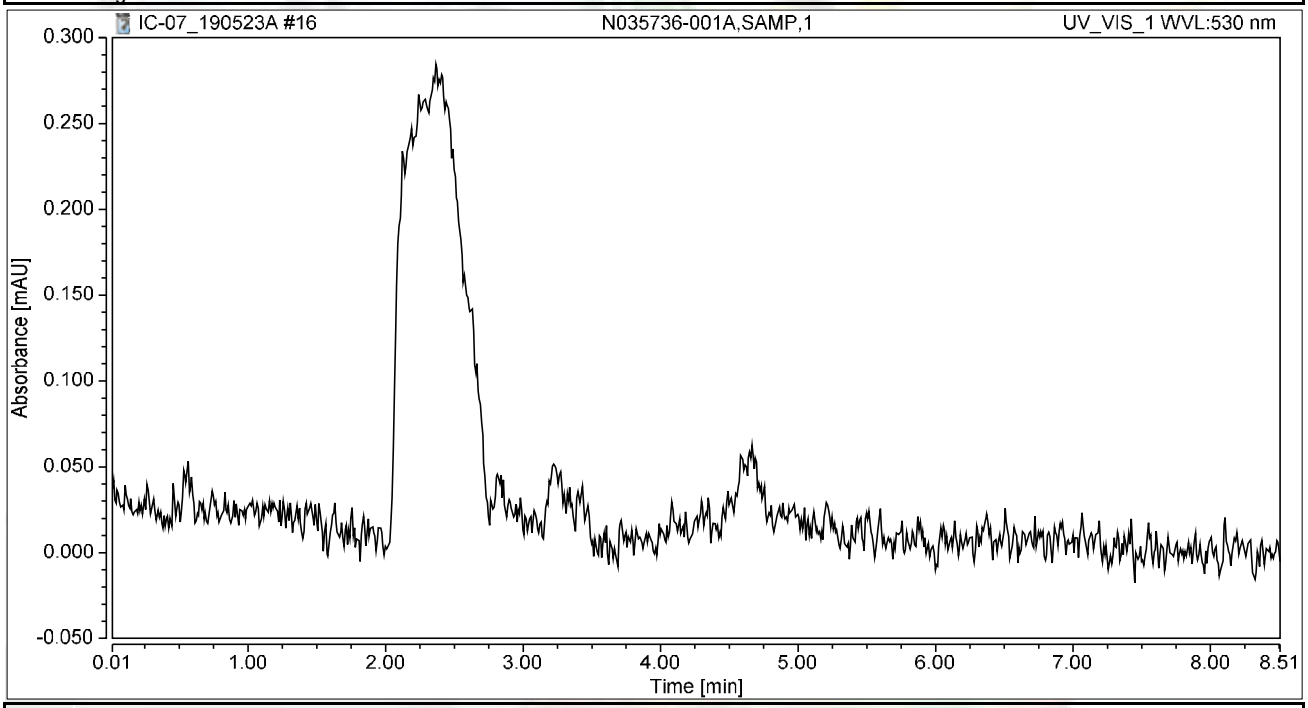
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.272	9.141	100.00	100.00	5.0437
Total:			**1.272**	**9.141**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035736-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 10:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

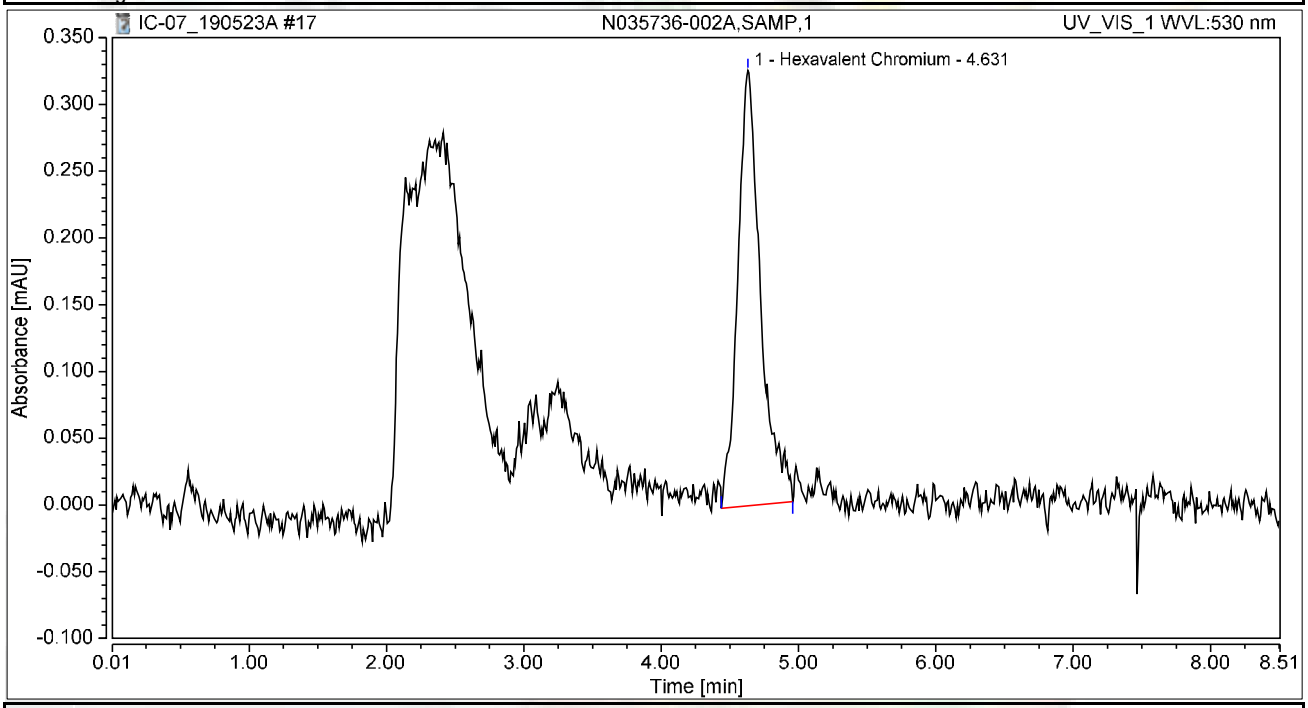
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035736-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 10:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

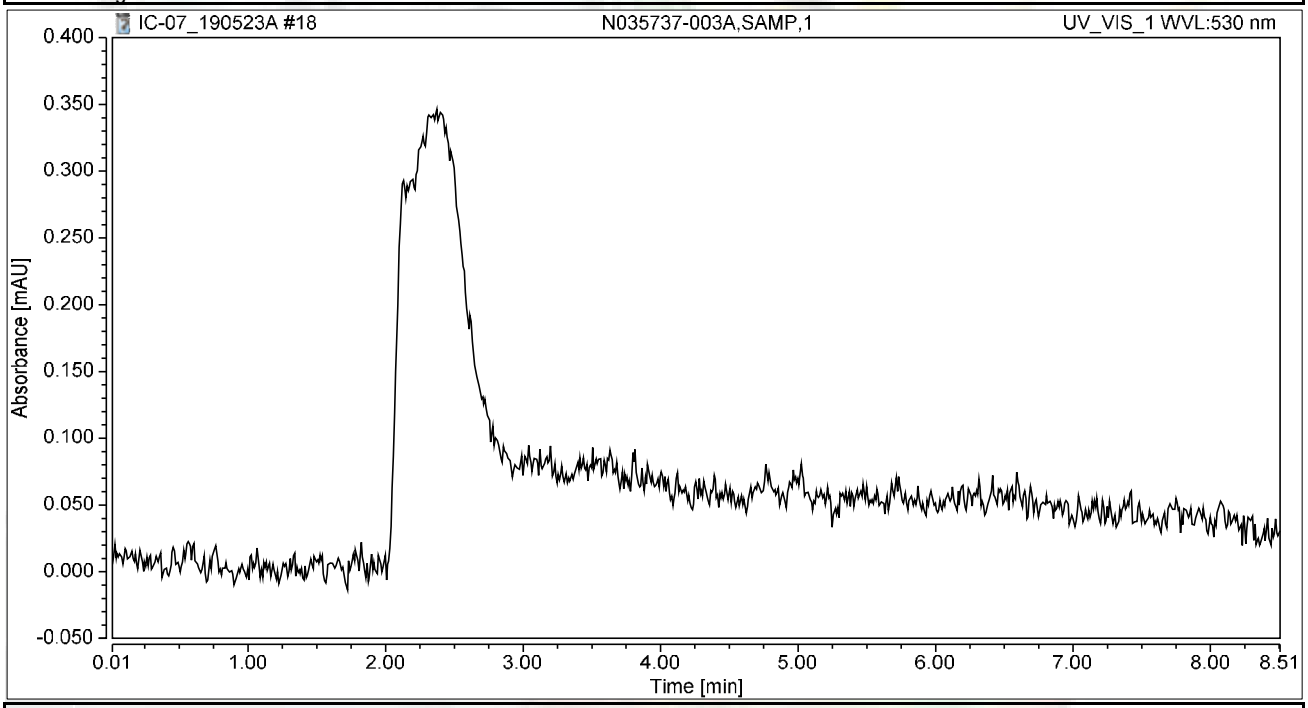
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	0.063	0.326	100.00	100.00	0.2486
Total:			**0.063**	**0.326**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035737-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 10:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

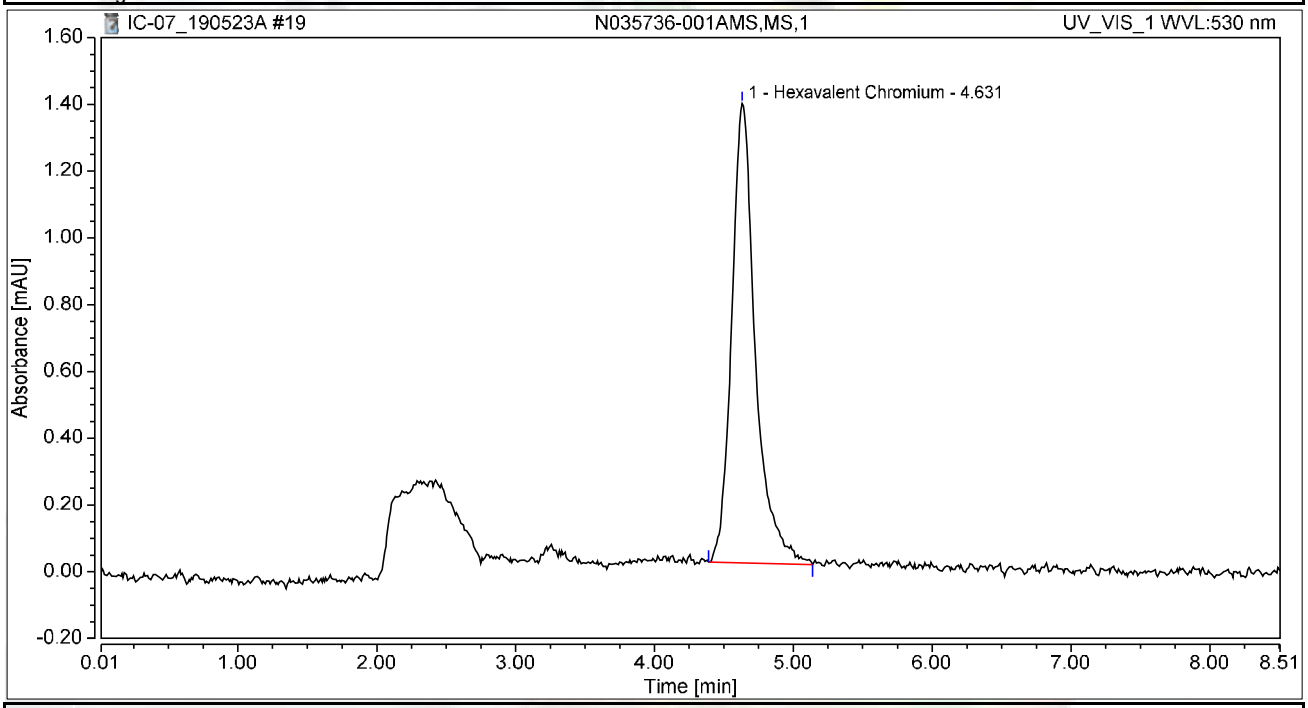
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035736-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 10:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

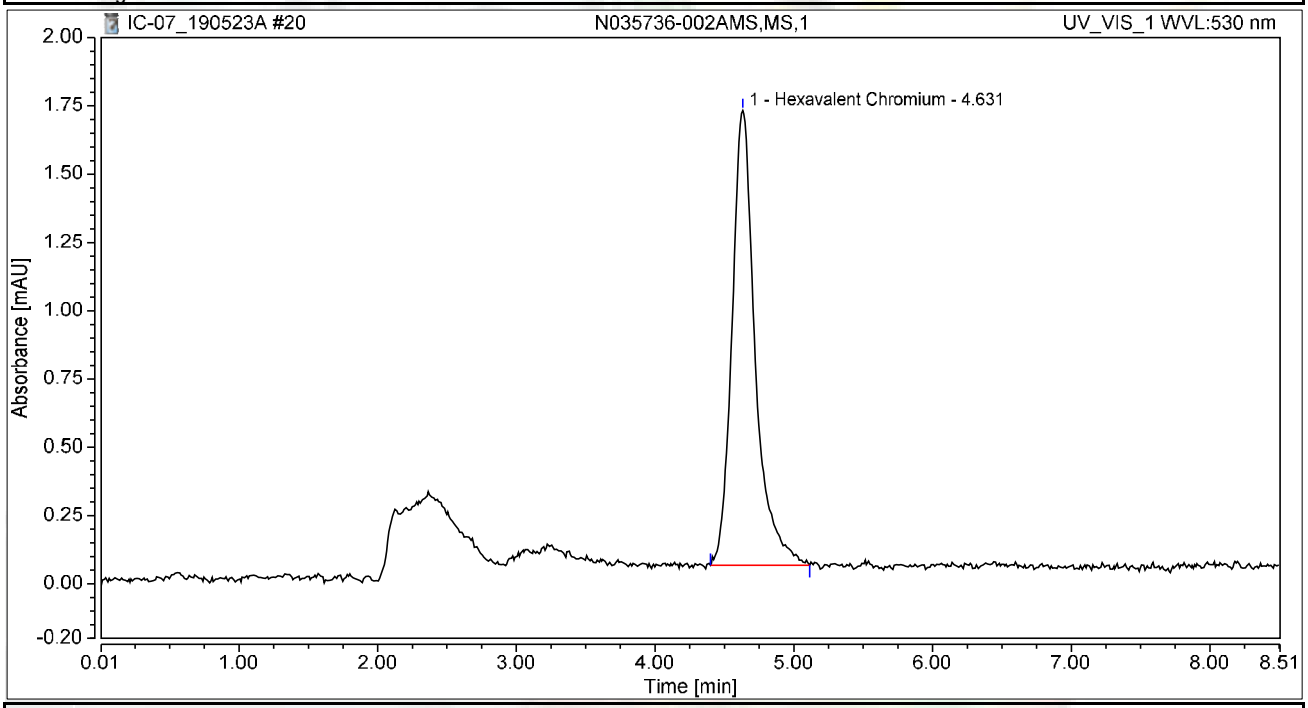
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	0.272	1.376	100.00	100.00	1.0778
Total:			**0.272**	**1.376**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035736-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 10:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

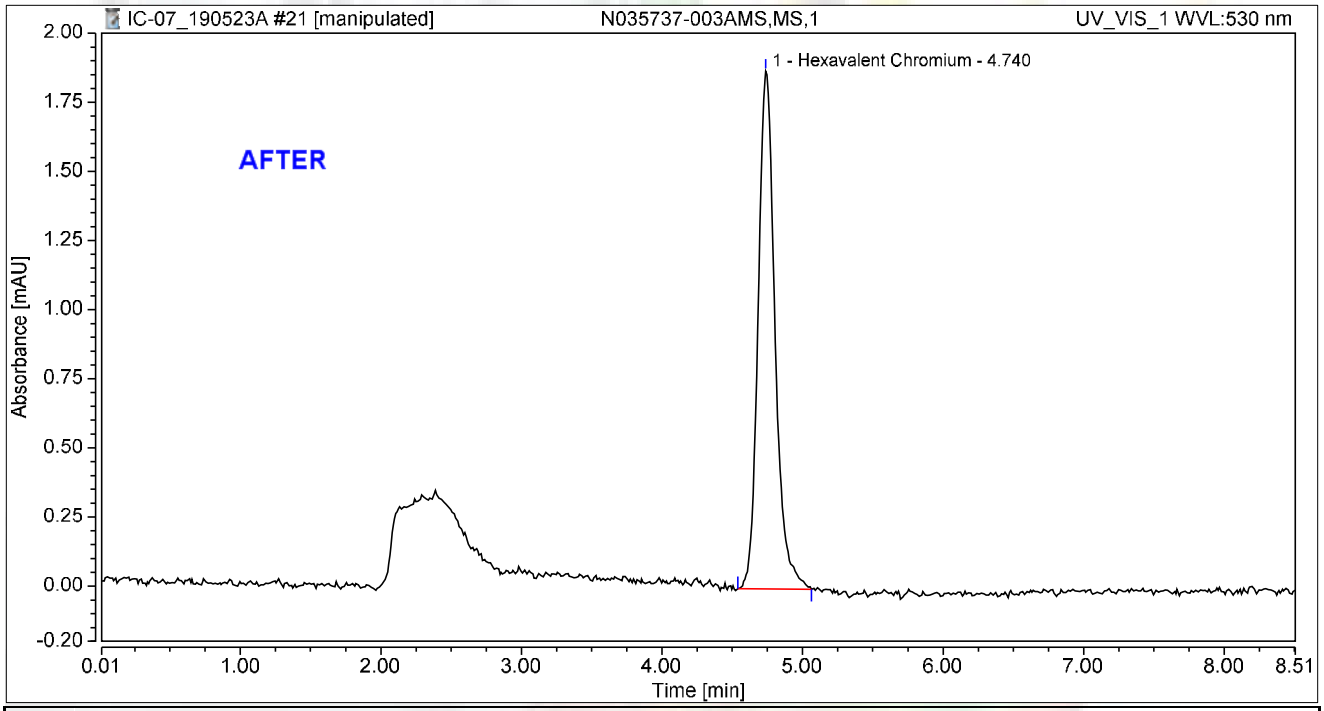
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	0.323	1.665	100.00	100.00	1.2824
Total:			**0.323**	**1.665**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035737-003AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 10:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.261	1.871	100.00	100.00	1.0339
Total:			**0.261**	**1.871**	**100.00**	**100.00**	

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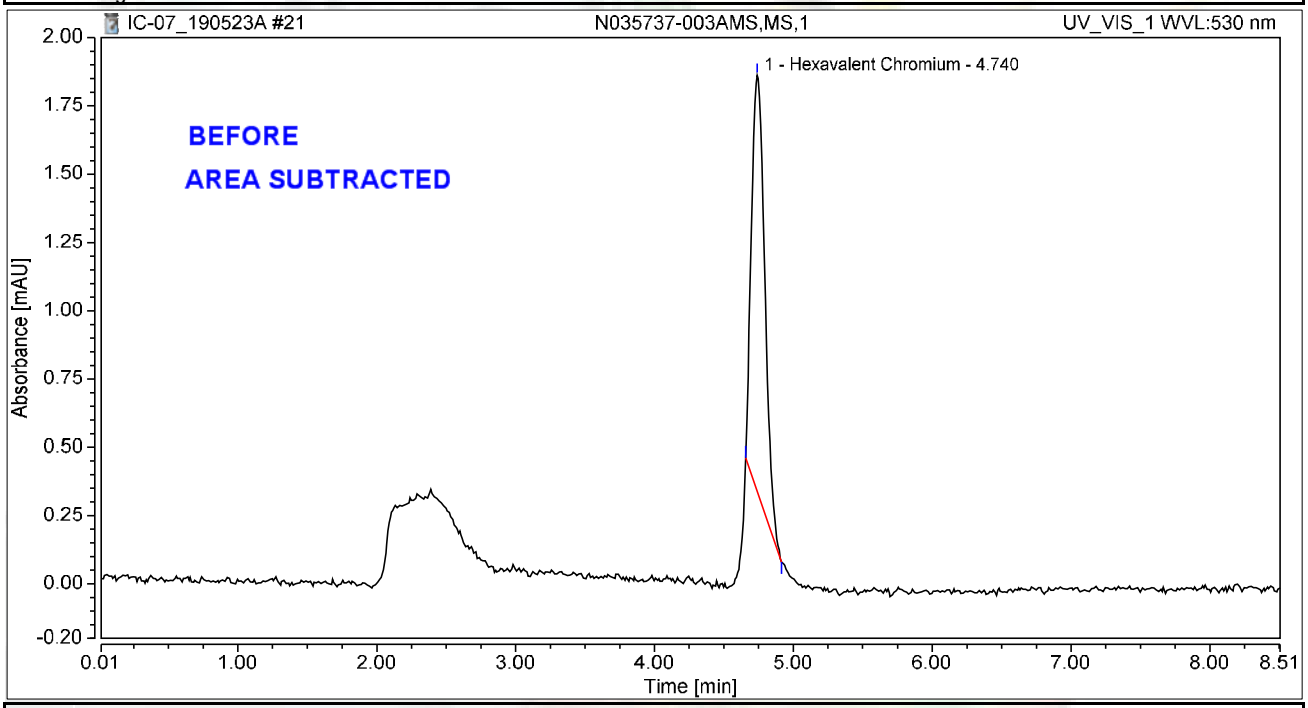
Chromatogram and Results

Injection Details

Injection Name:	**N035737-003AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 10:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.170	1.523	100.00	100.00	0.6749
Total:			**0.170**	**1.523**	**100.00**	**100.00**	

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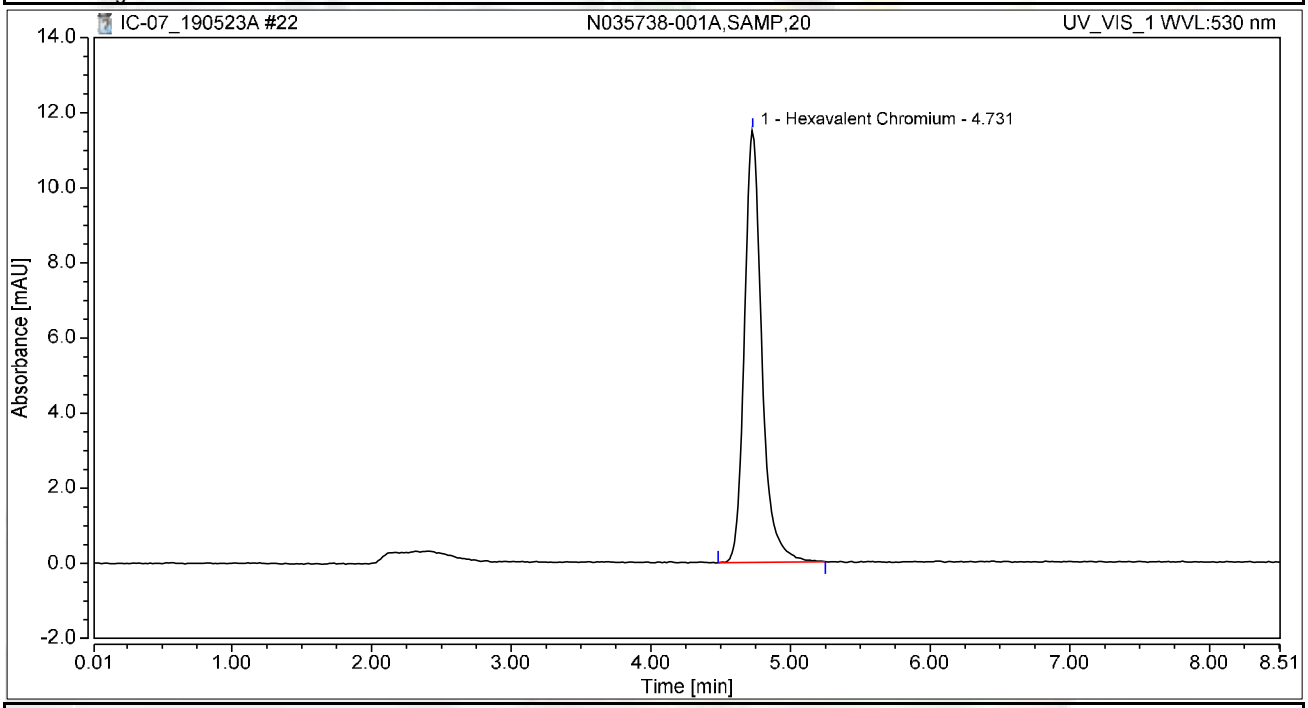
Chromatogram and Results

Injection Details

Injection Name:	**N035738-001A,SAMP,20**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 11:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

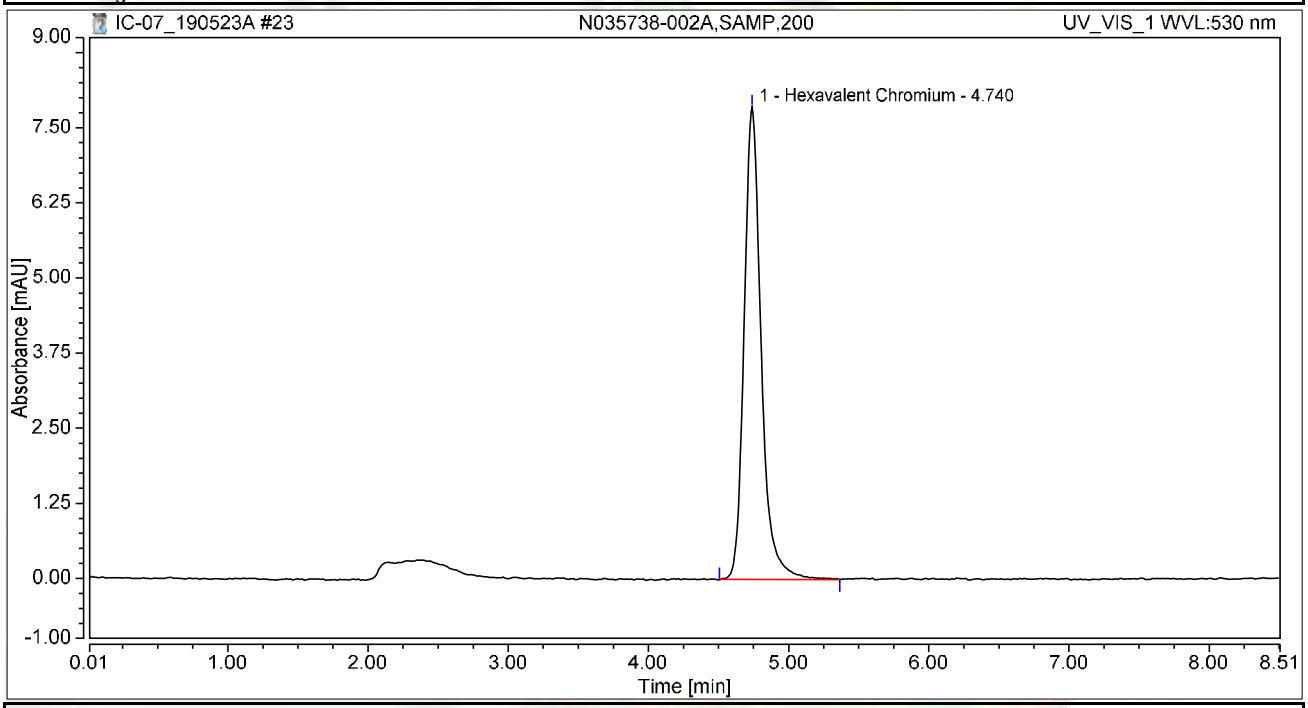
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.662	11.512	100.00	100.00	6.5910
Total:			**1.662**	**11.512**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-002A,SAMP,200**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 11:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

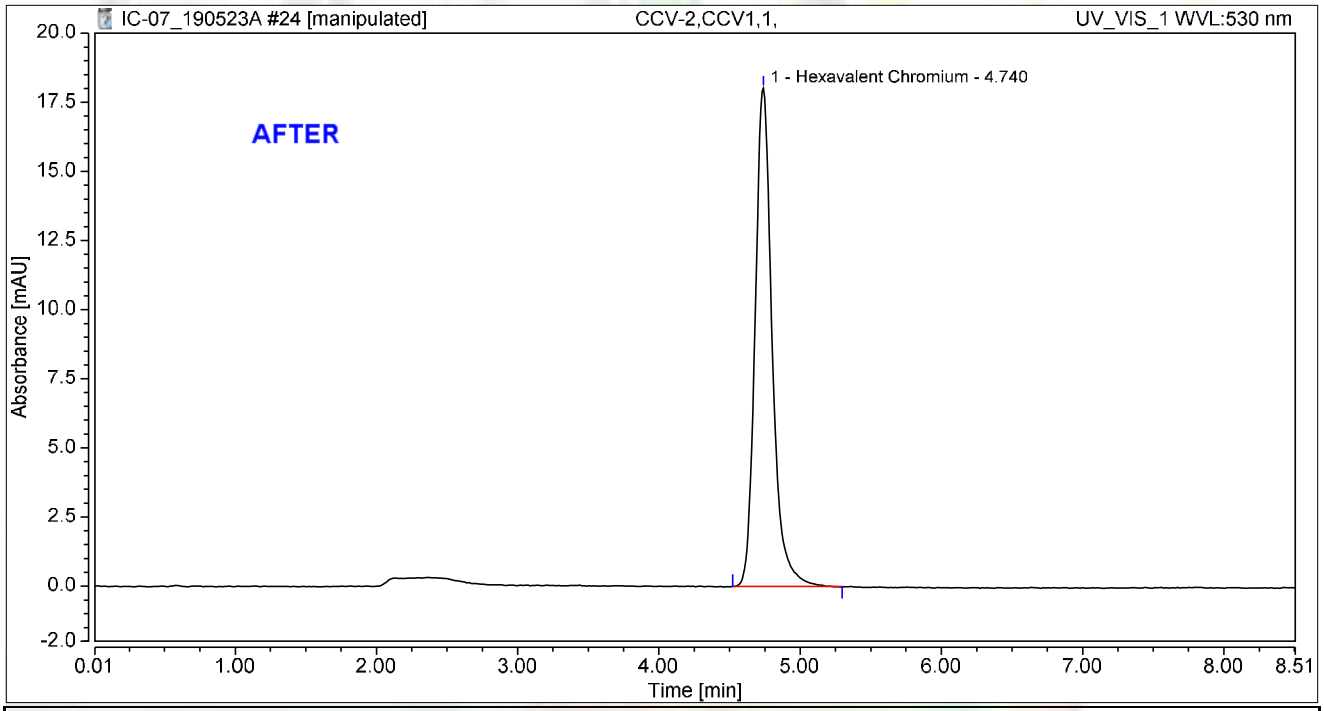
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.110	7.871	100.00	100.00	4.4043
Total:			**1.110**	**7.871**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 11:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.515	18.023	100.00	100.00	9.9756
Total:			**2.515**	**18.023**	**100.00**	**100.00**	

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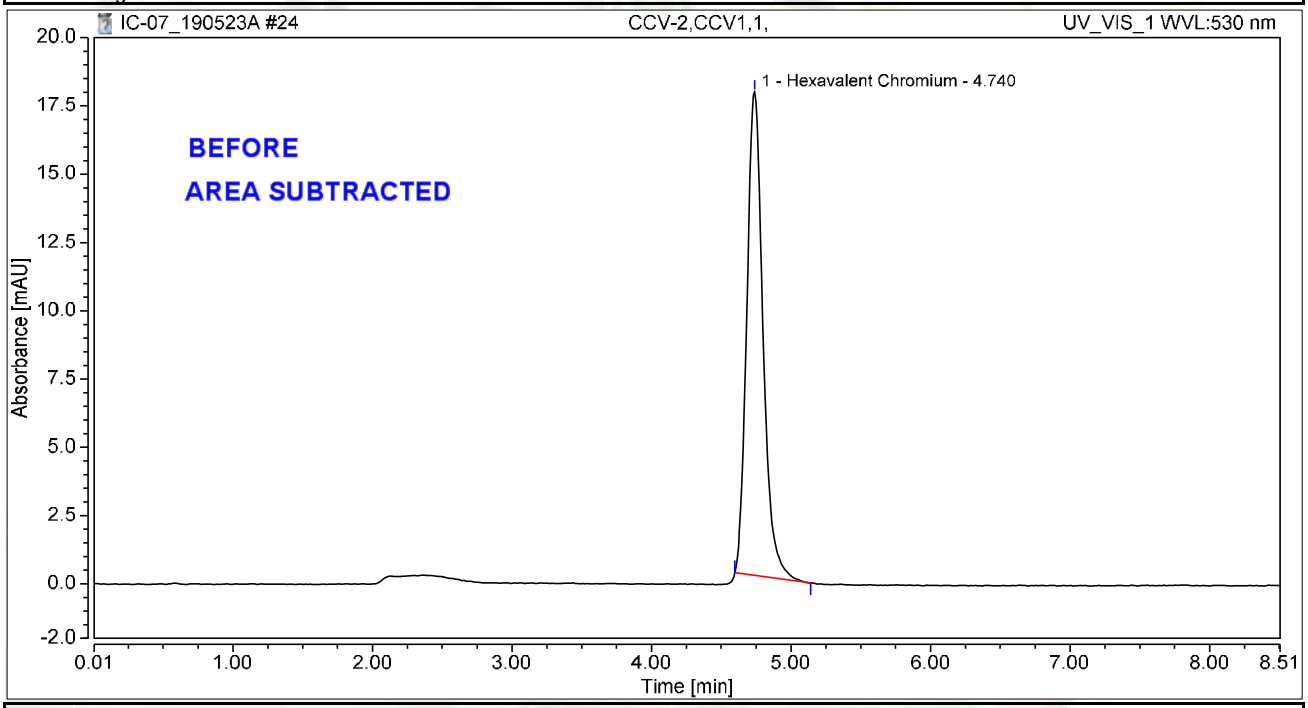
Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 11:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.381	17.700	100.00	100.00	9.4433
Total:			**2.381**	**17.700**	**100.00**	**100.00**	

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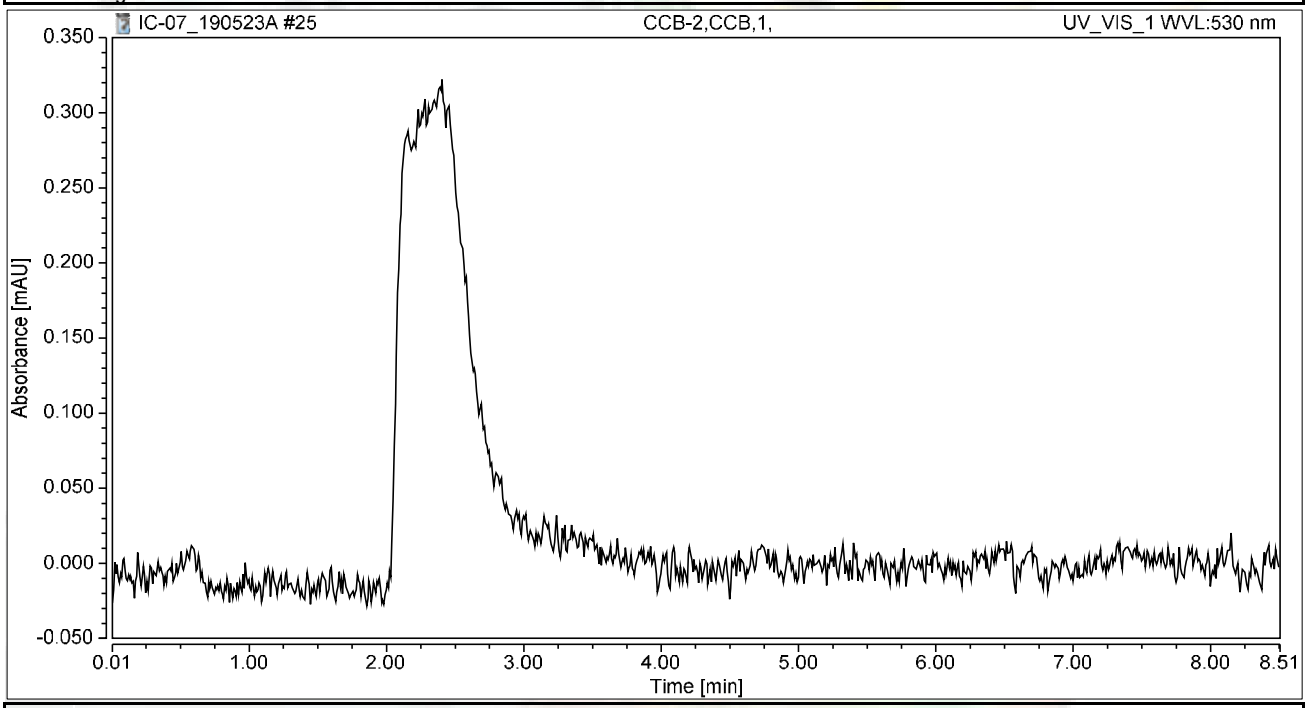
Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 11:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

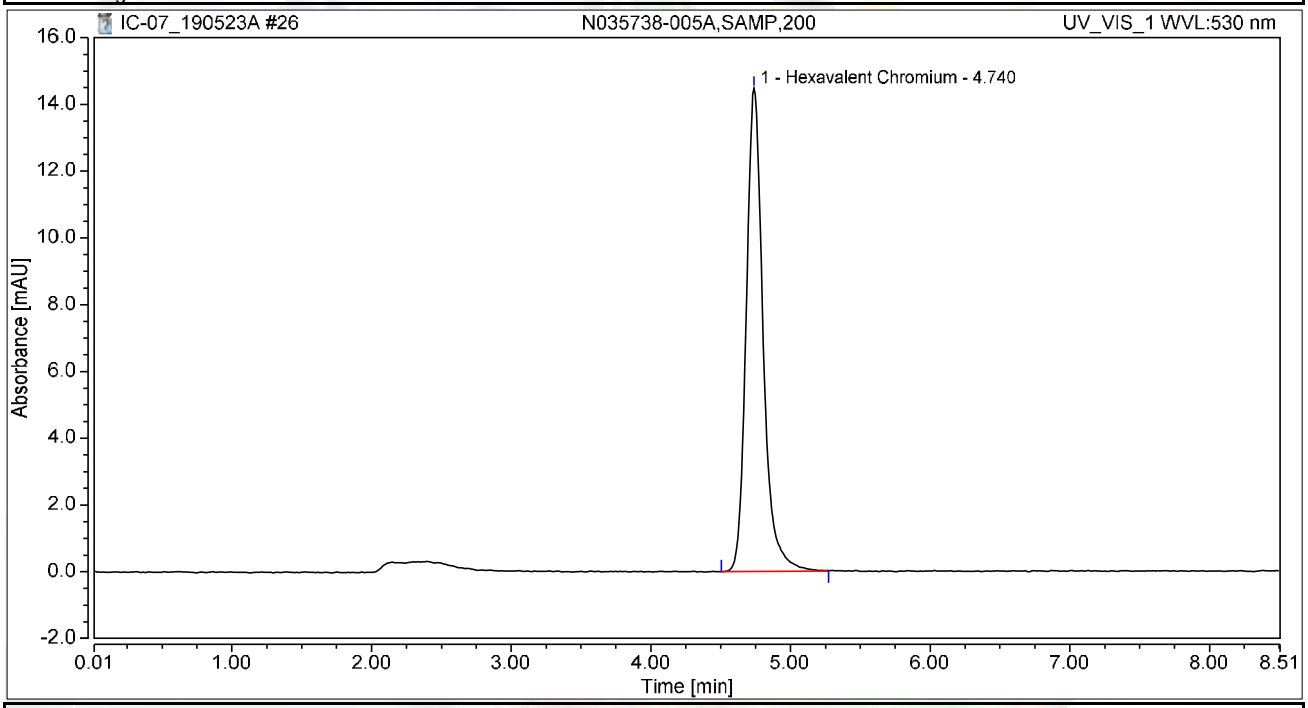
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-005A,SAMP,200**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 11:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

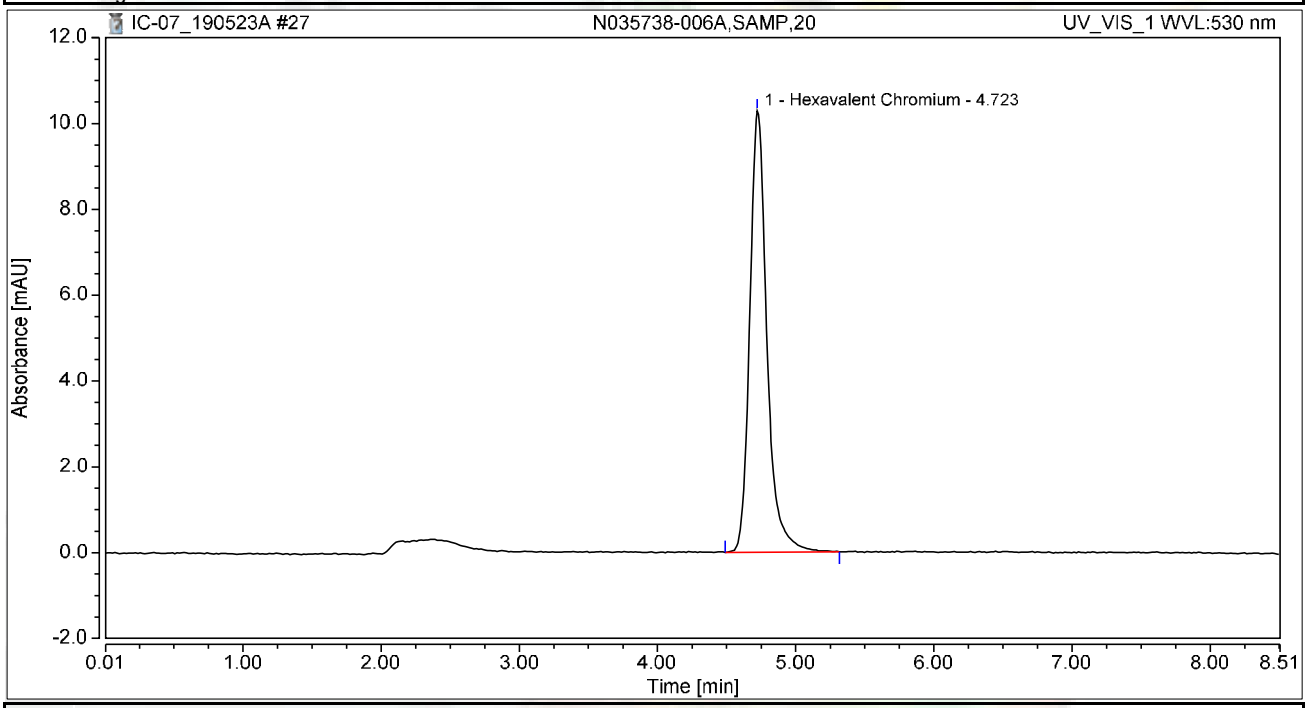
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.030	14.477	100.00	100.00	8.0521
Total:			**2.030**	**14.477**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-006A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 11:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

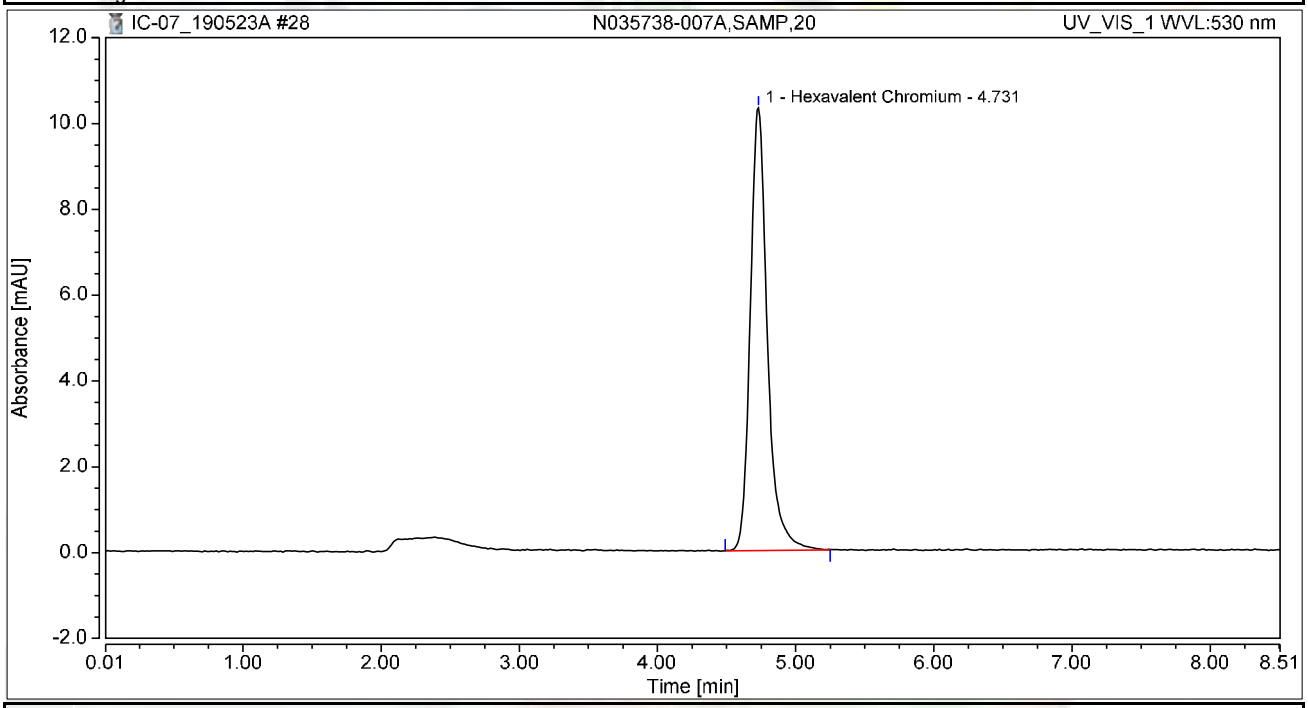
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.484	10.281	100.00	100.00	5.8842
Total:			**1.484**	**10.281**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-007A,SAMP,20**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 11:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

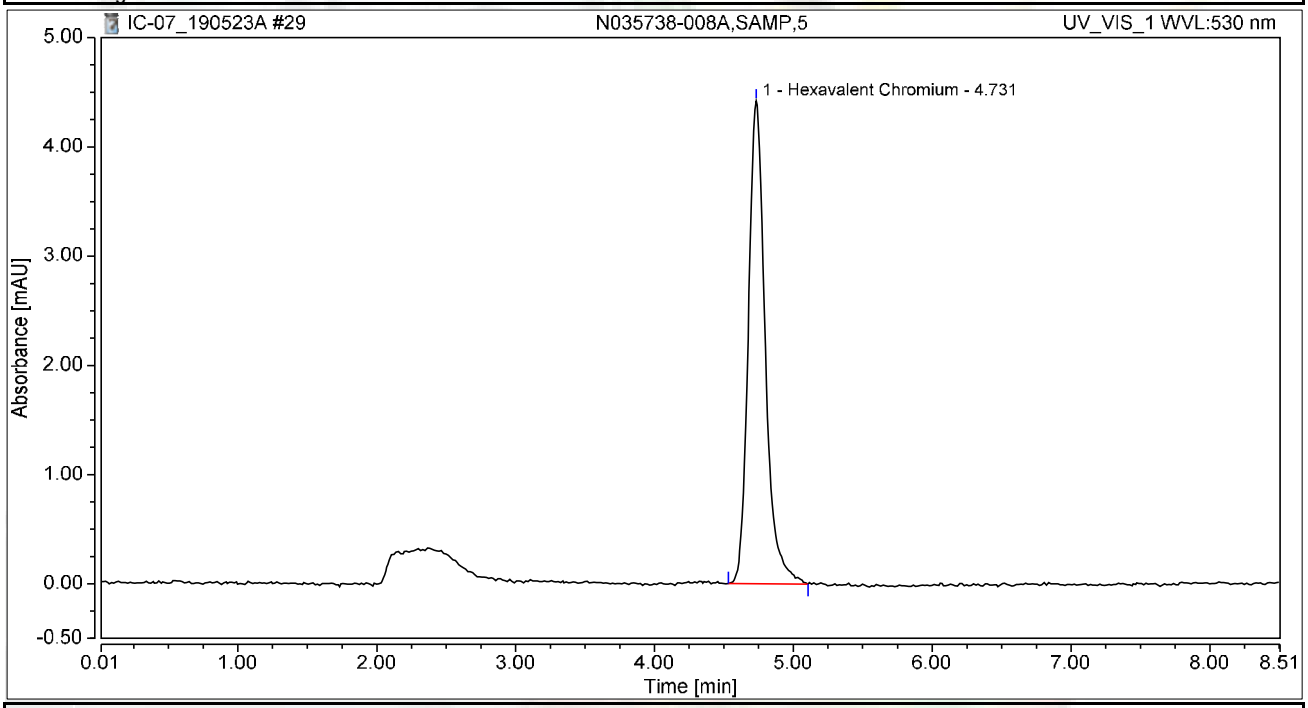
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.485	10.318	100.00	100.00	5.8900
Total:			**1.485**	**10.318**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-008A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 12:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

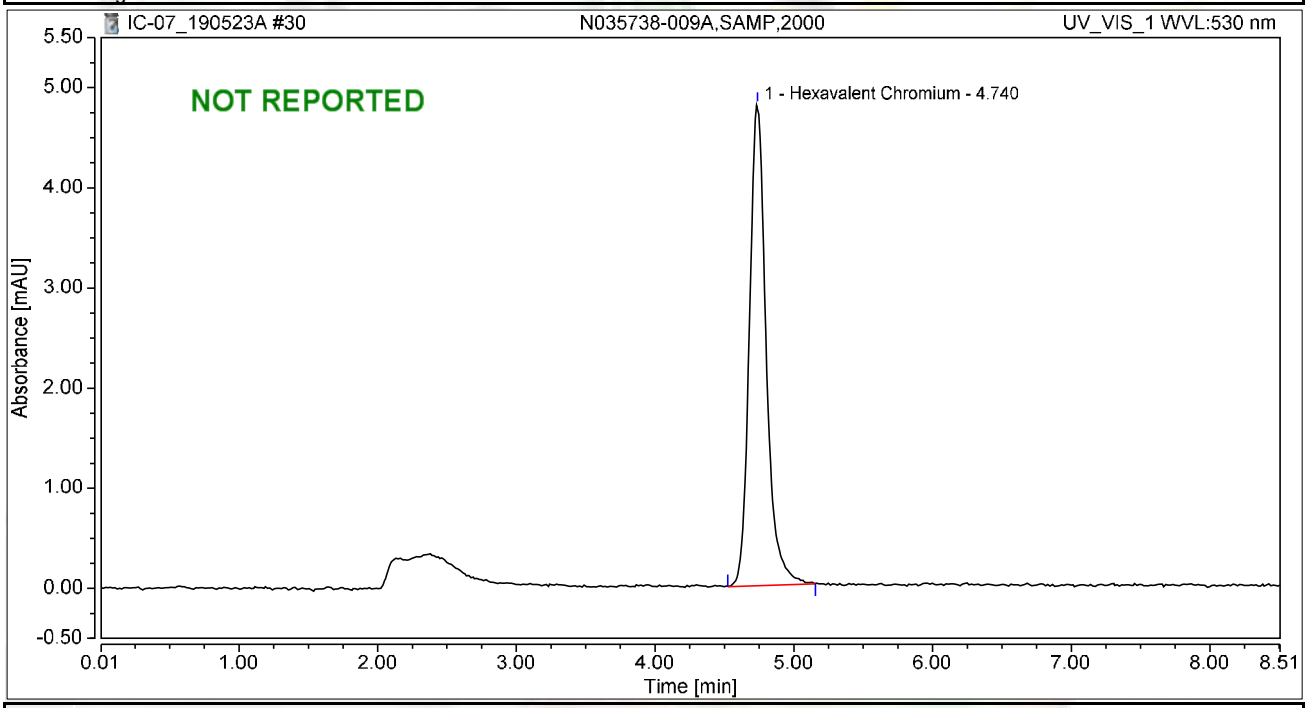
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.624	4.420	100.00	100.00	2.4768
Total:			**0.624**	**4.420**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-009A,SAMP,2000**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 12:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

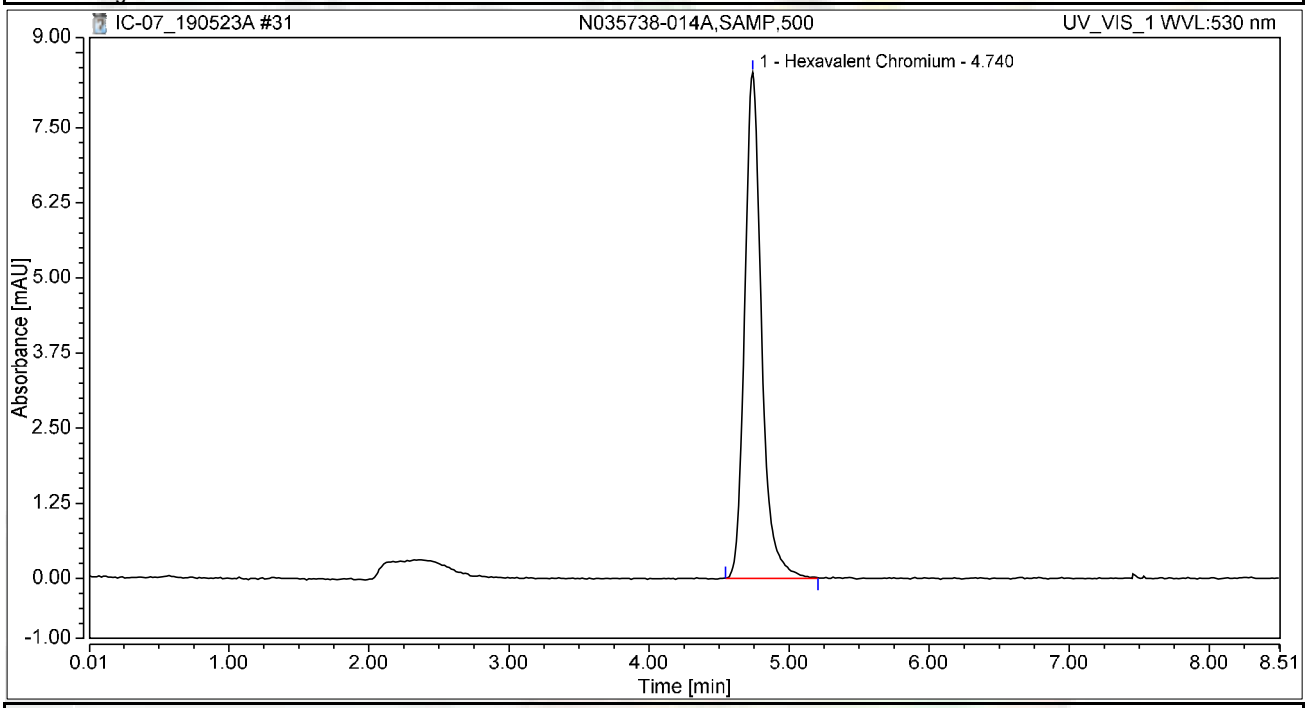
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.674	4.807	100.00	100.00	2.6739
Total:			**0.674**	**4.807**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-014A,SAMP,500**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 12:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

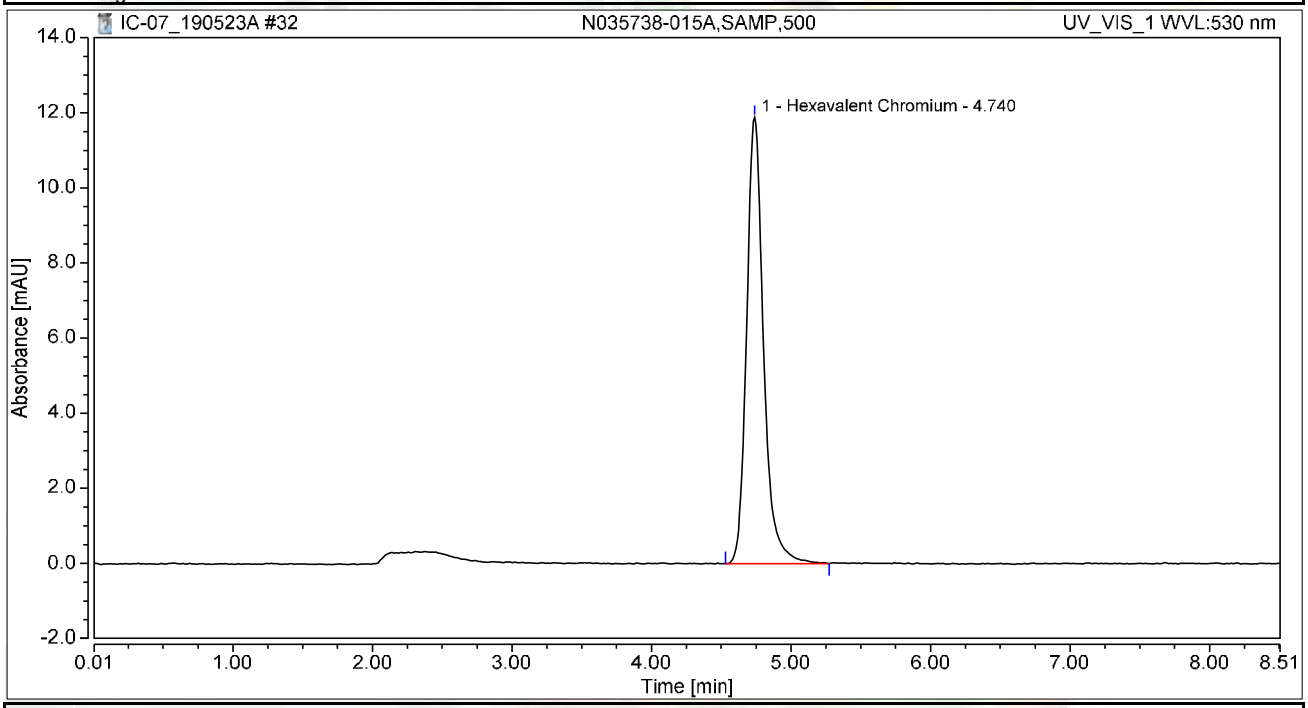
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.175	8.421	100.00	100.00	4.6599
Total:			**1.175**	**8.421**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-015A,SAMP,500**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 12:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

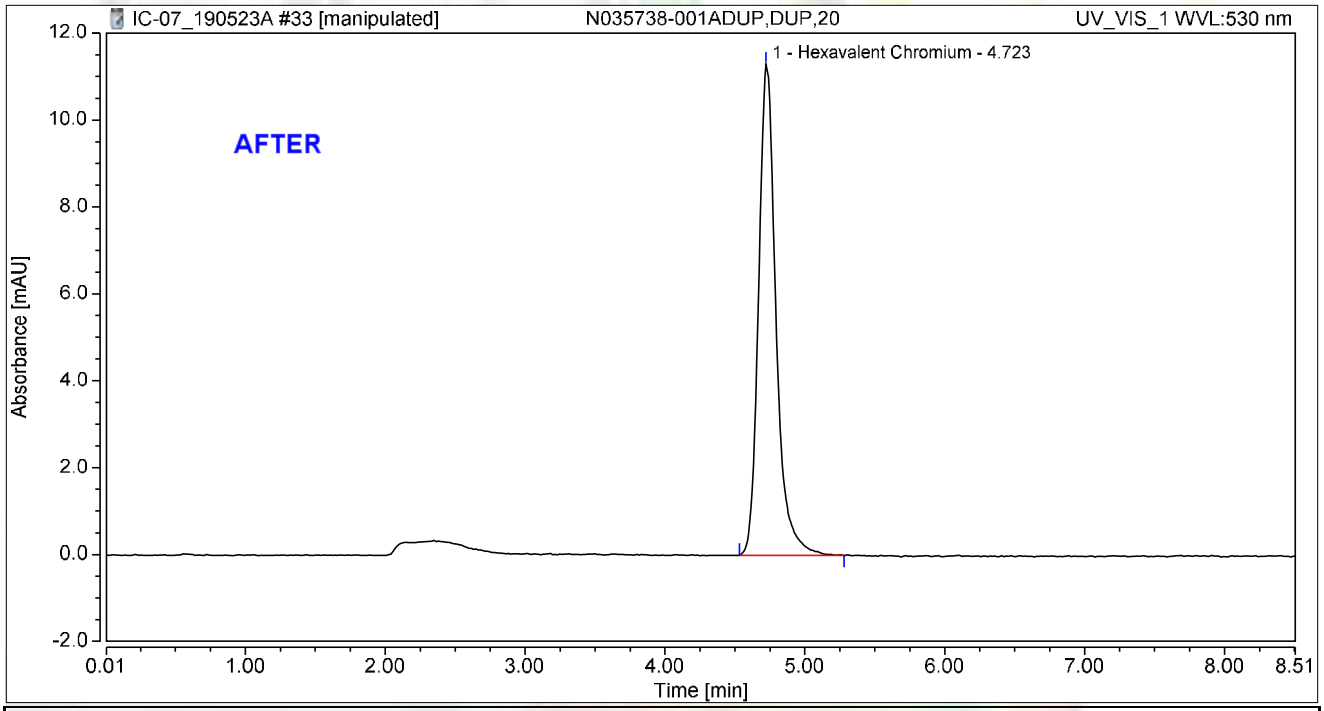
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.667	11.884	100.00	100.00	6.6135
Total:			**1.667**	**11.884**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-001ADUP,DUP,20**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 12:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.631	11.307	100.00	100.00	6.4687
Total:			**1.631**	**11.307**	**100.00**	**100.00**	

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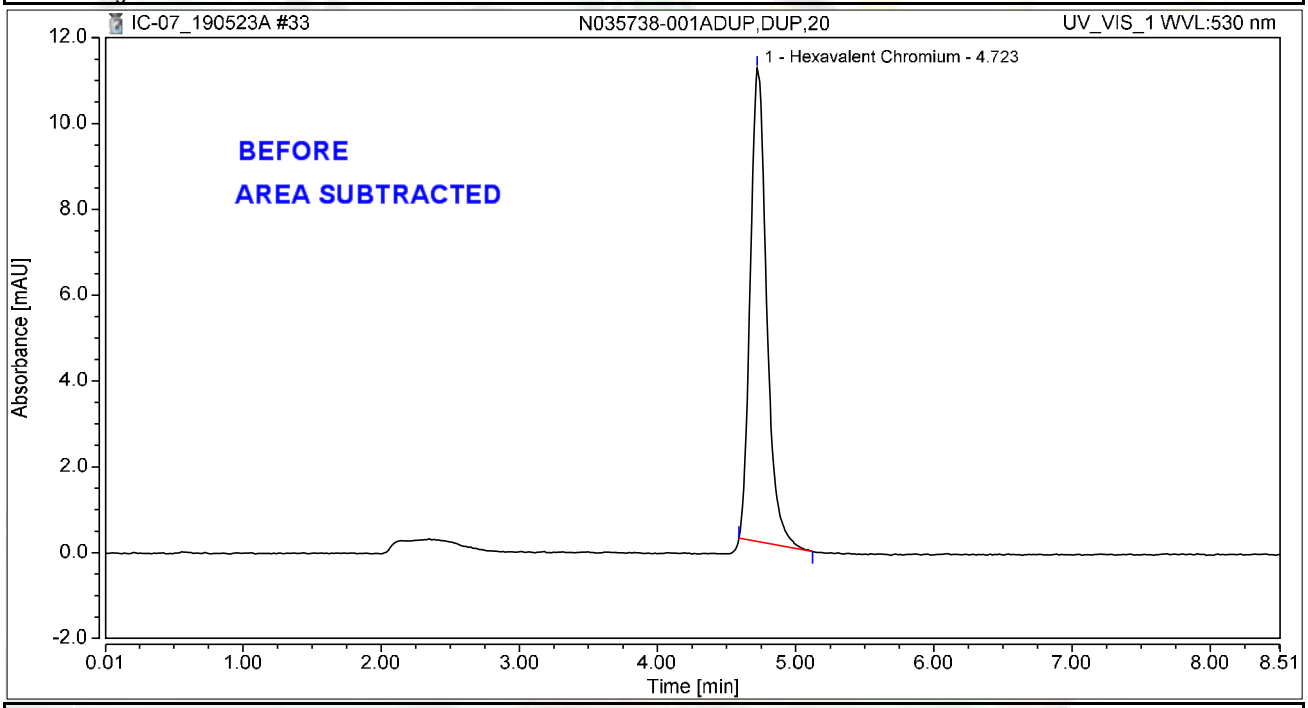
6/5/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035738-001ADUP,DUP,20**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 12:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.516	11.031	100.00	100.00	6.0131
Total:			**1.516**	**11.031**	**100.00**	**100.00**	

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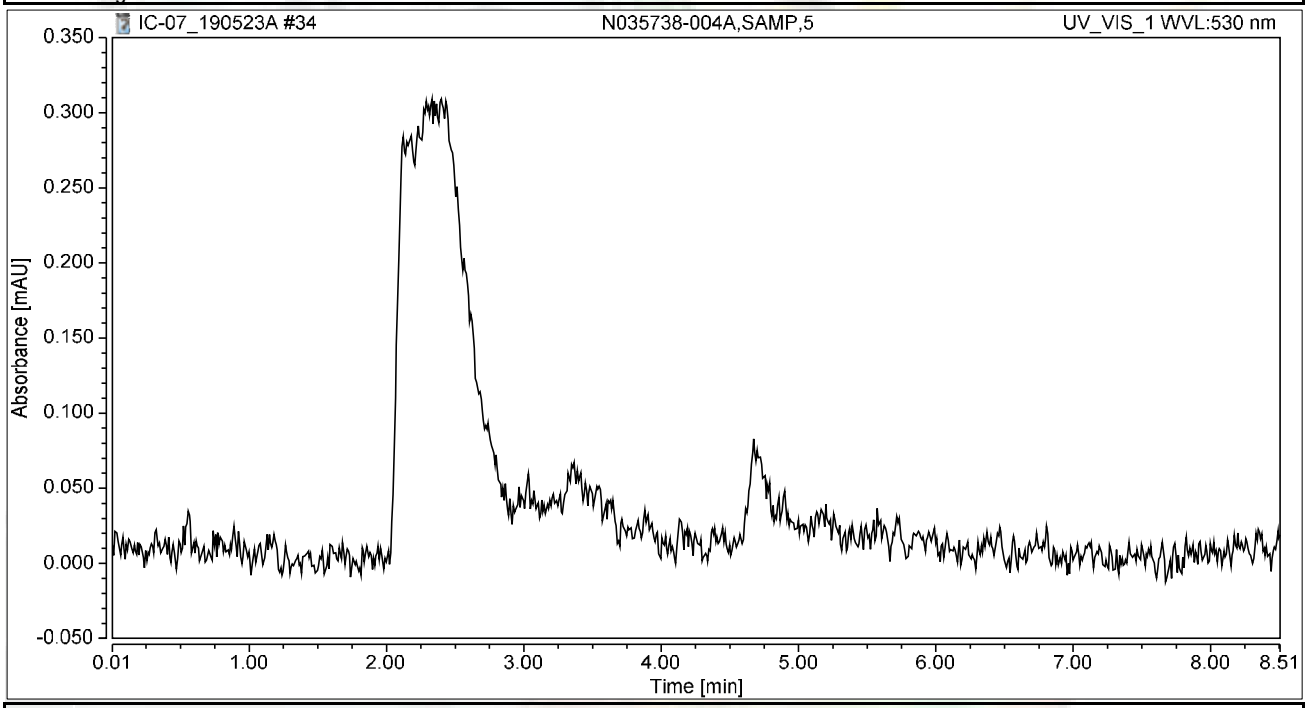
Chromatogram and Results

Injection Details

Injection Name:	**N035738-004A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 12:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

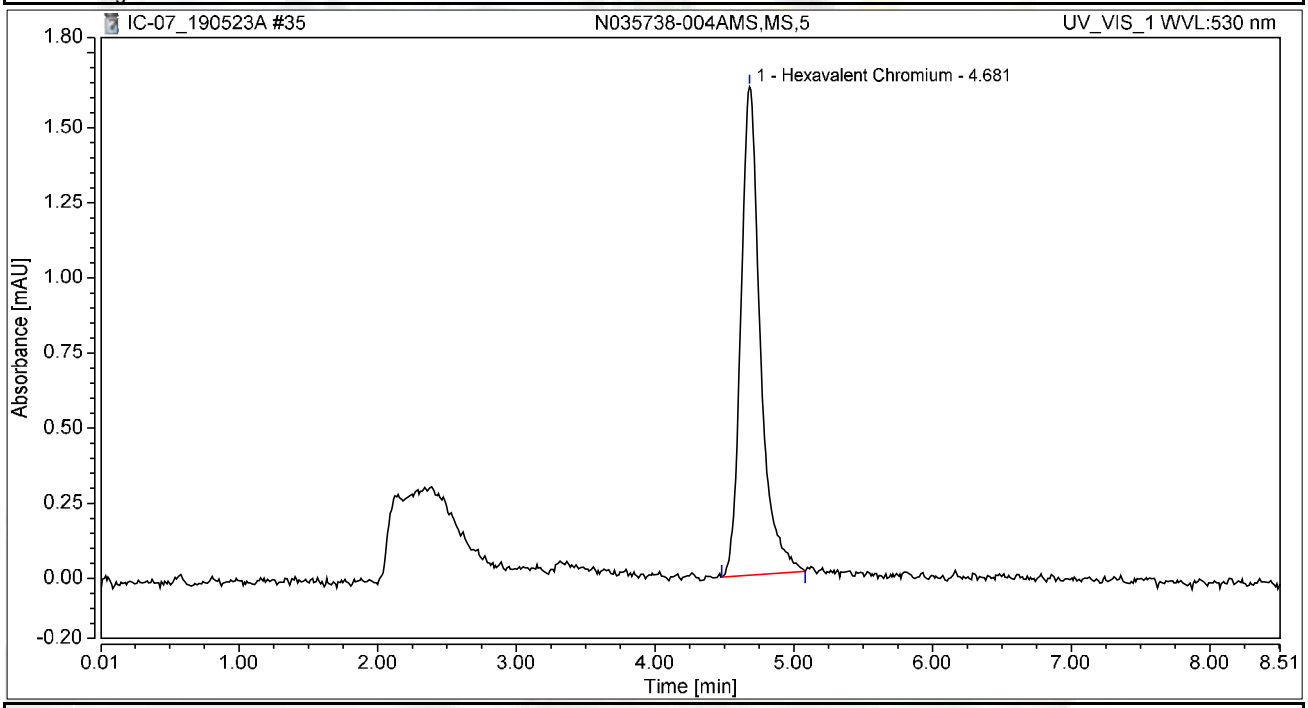
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-004AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 13:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

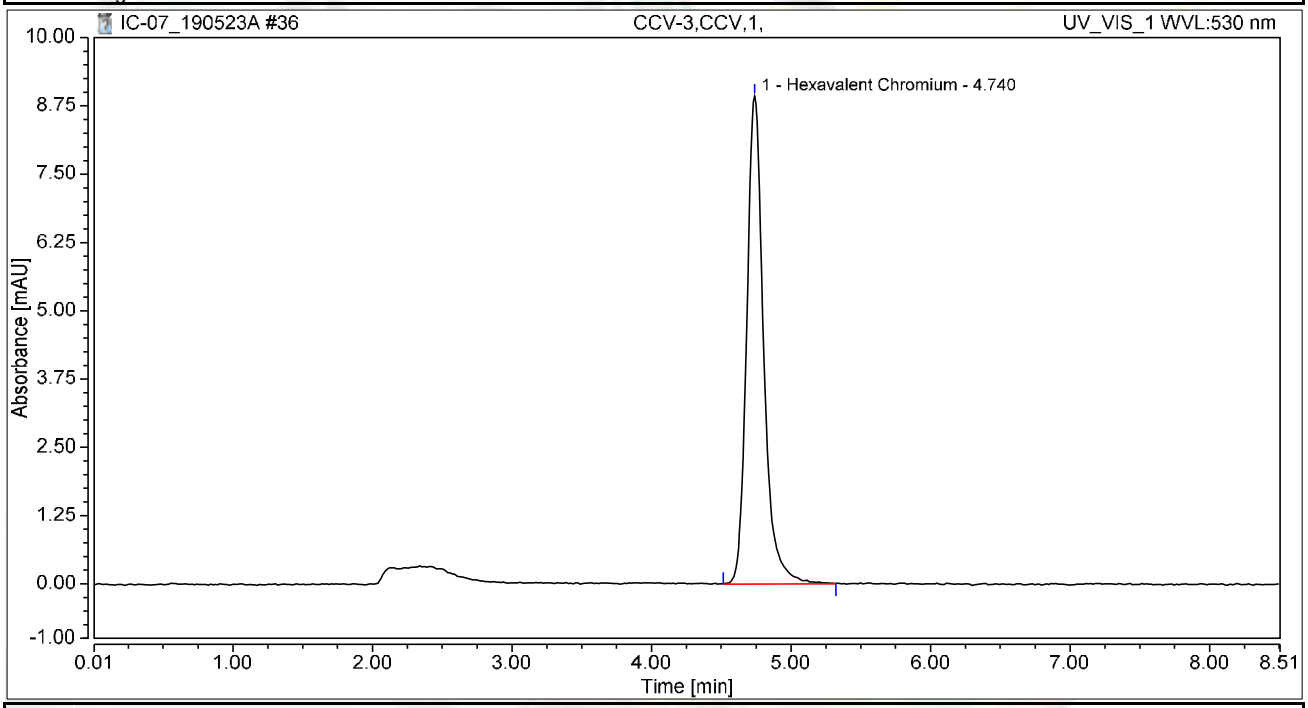
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.265	1.626	100.00	100.00	1.0512
Total:			**0.265**	**1.626**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 13:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

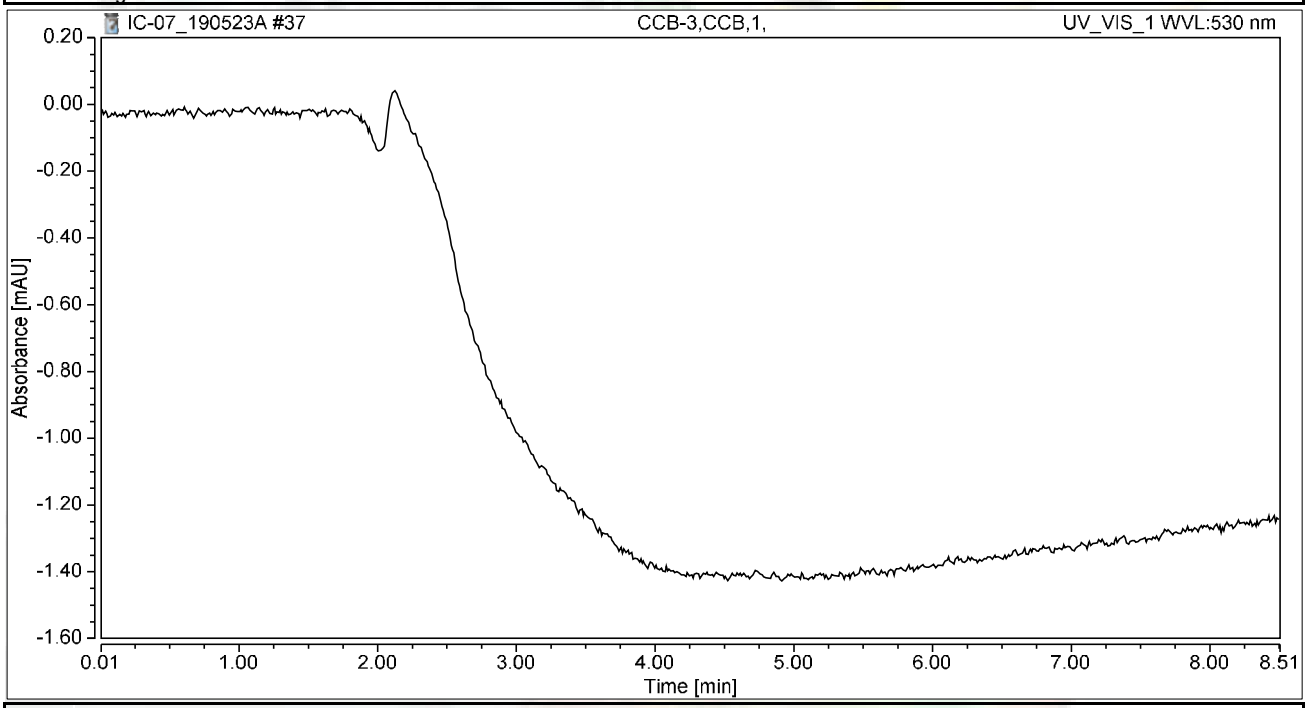
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.259	8.938	100.00	100.00	4.9930
Total:			**1.259**	**8.938**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 13:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

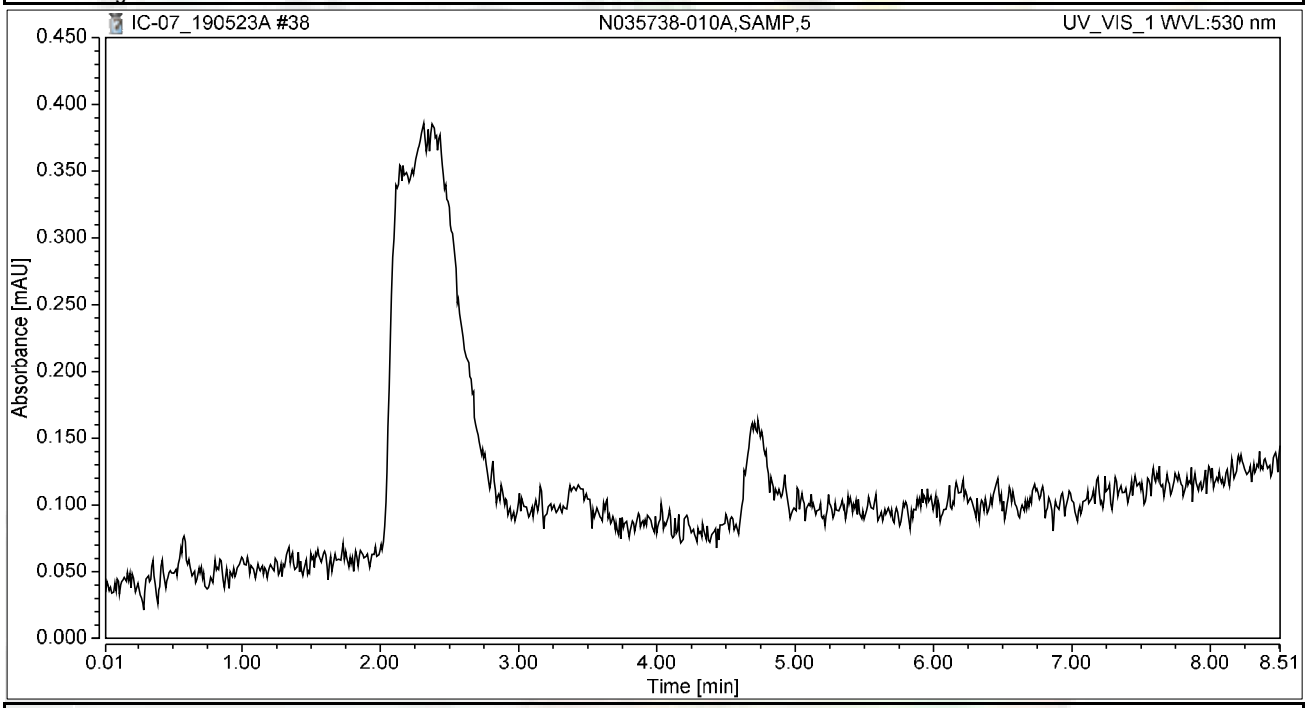
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-010A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 13:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

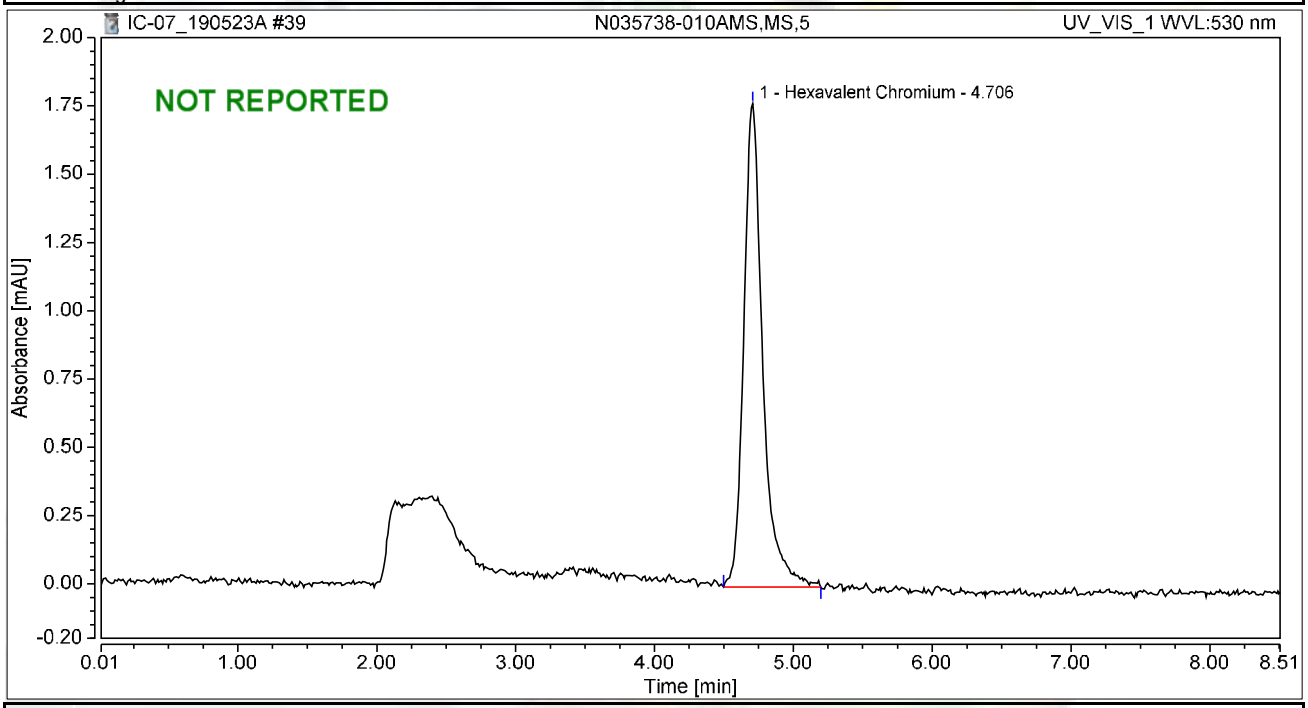
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-010AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 13:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

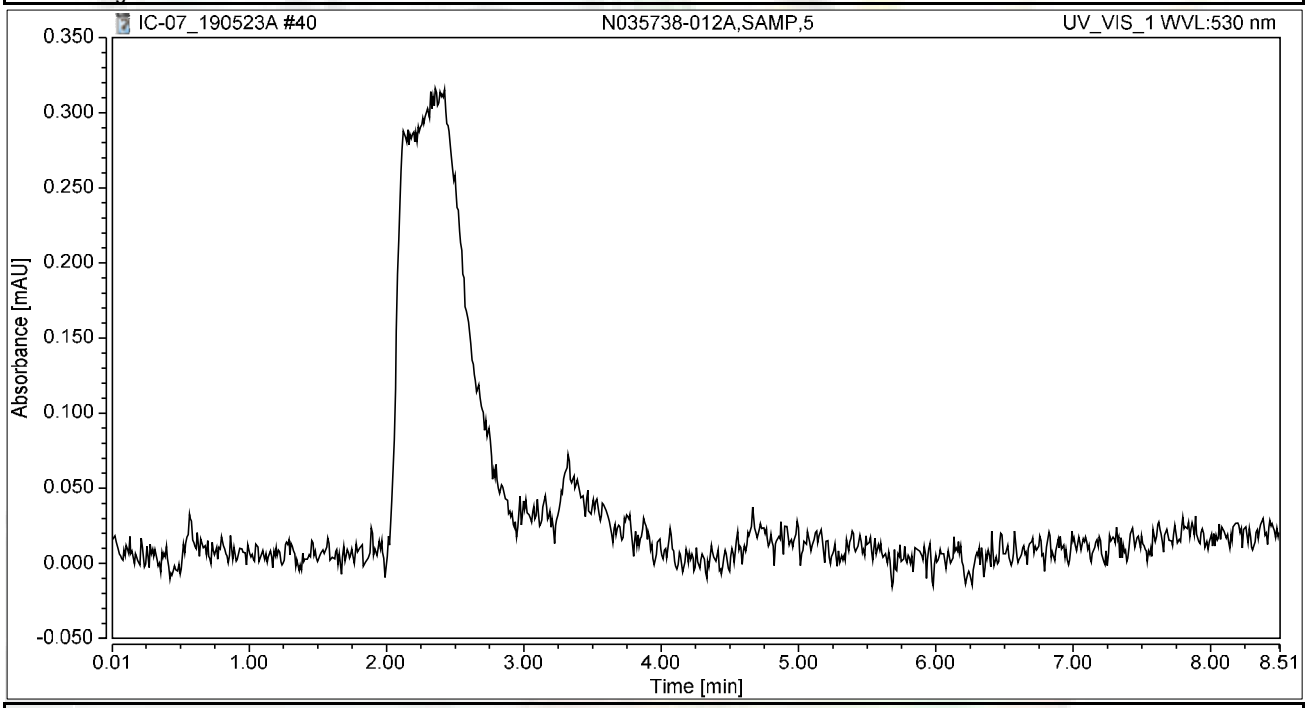
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.281	1.770	100.00	100.00	1.1136
Total:			**0.281**	**1.770**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-012A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 13:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

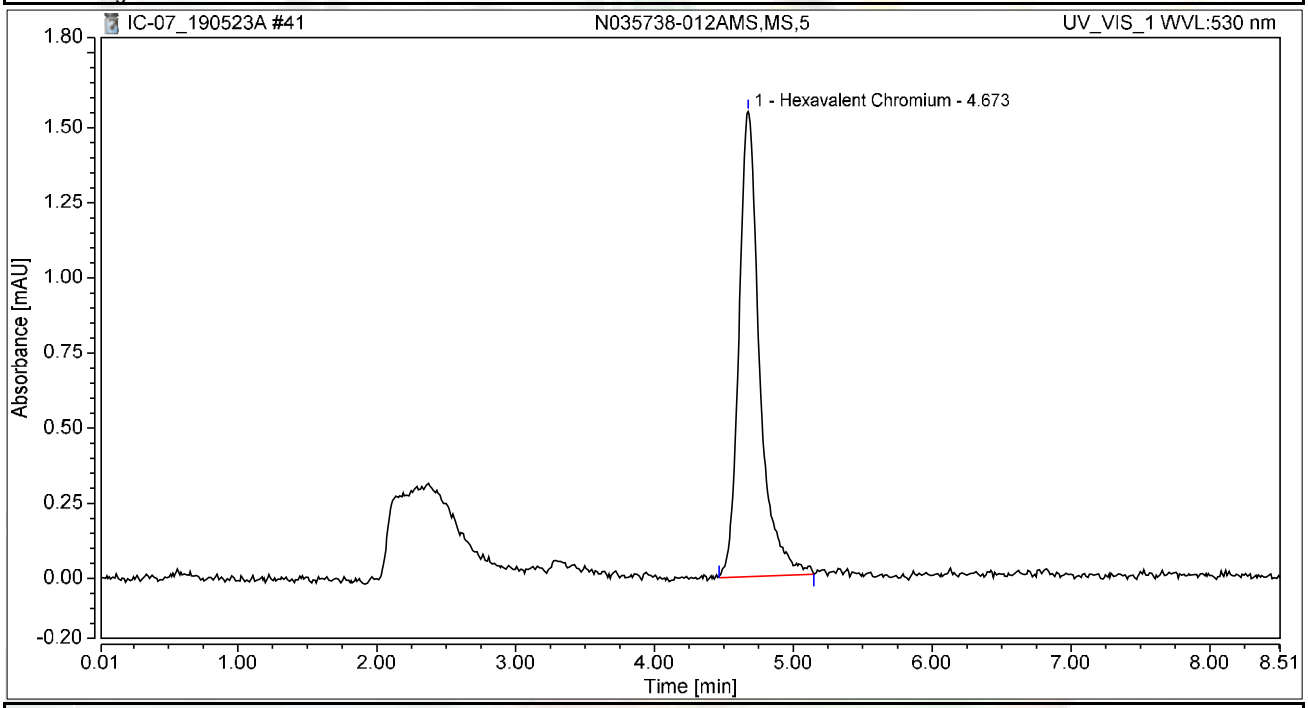
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-012AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 14:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

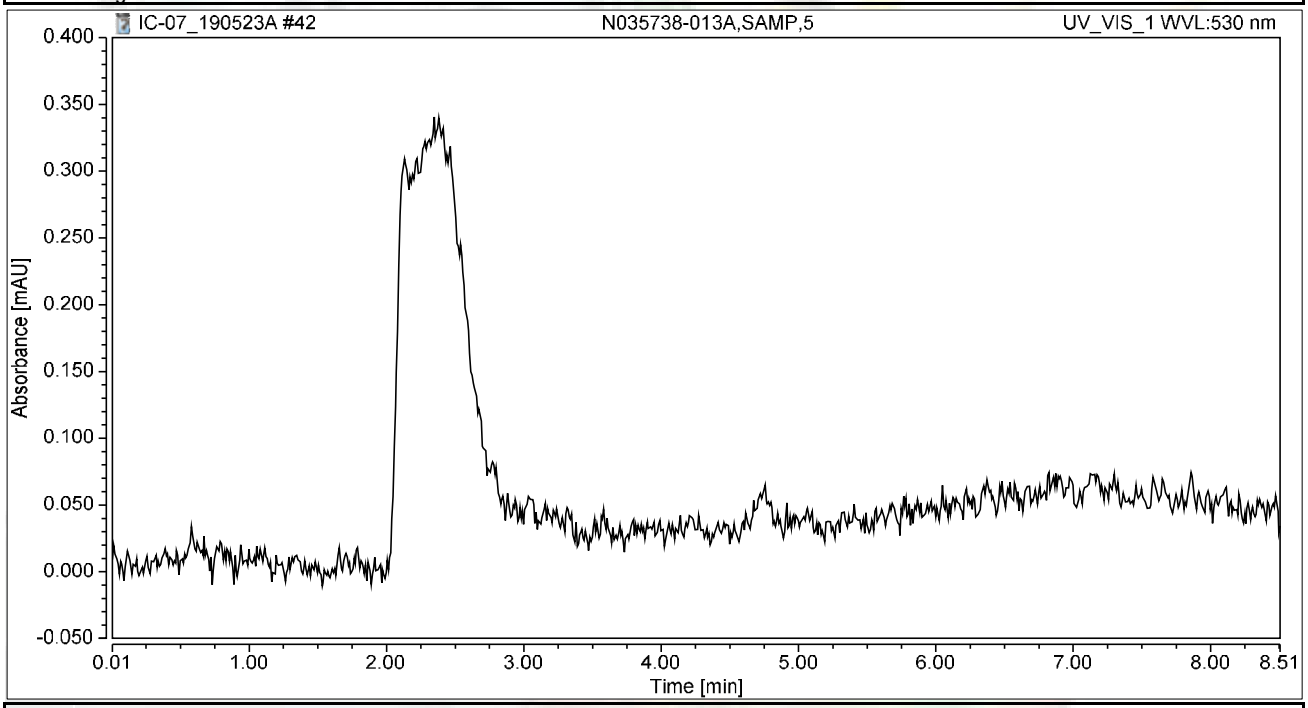
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.673	0.267	1.548	100.00	100.00	1.0588
Total:			**0.267**	**1.548**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-013A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 14:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

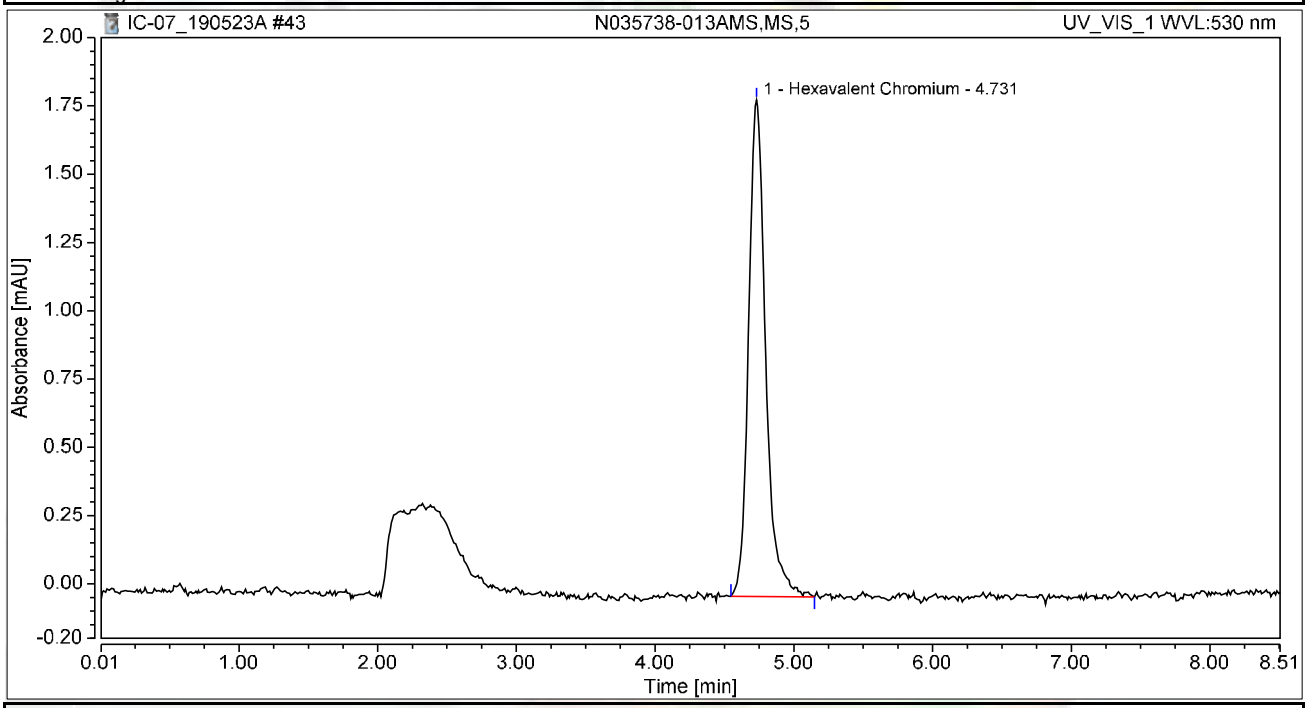
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-013AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 14:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

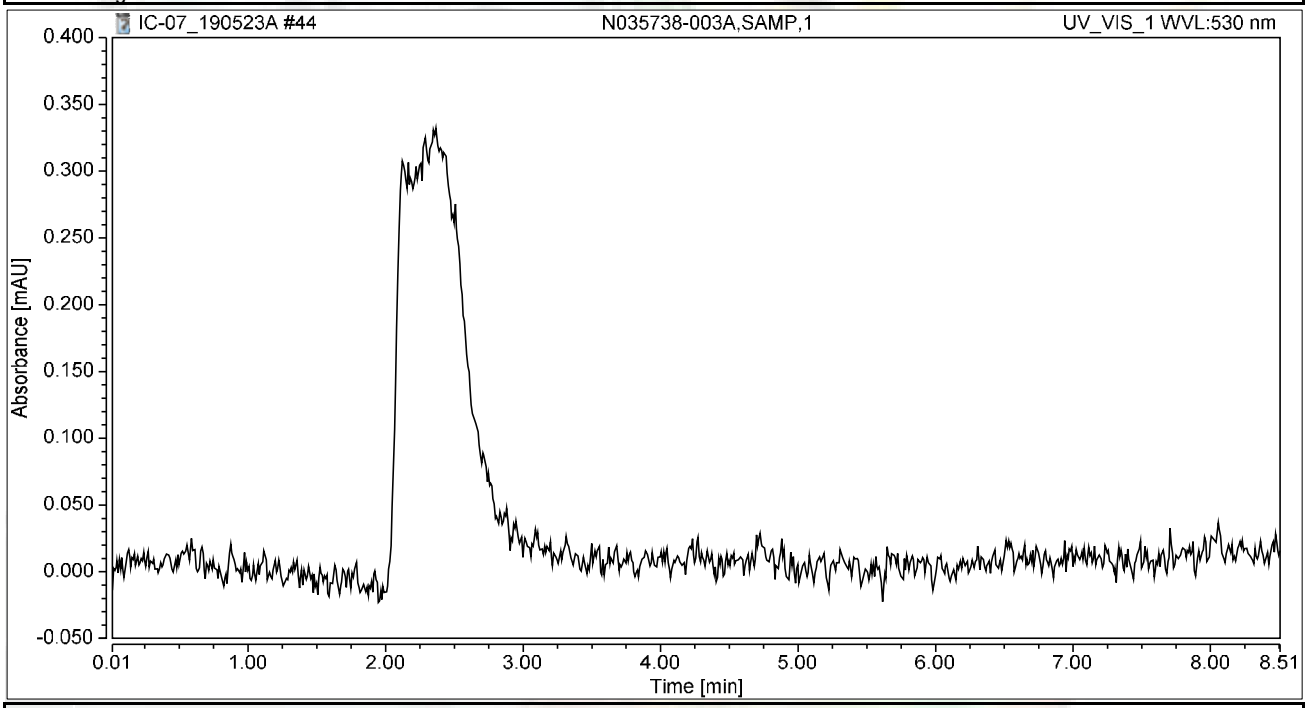
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.258	1.818	100.00	100.00	1.0241
Total:			**0.258**	**1.818**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 14:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

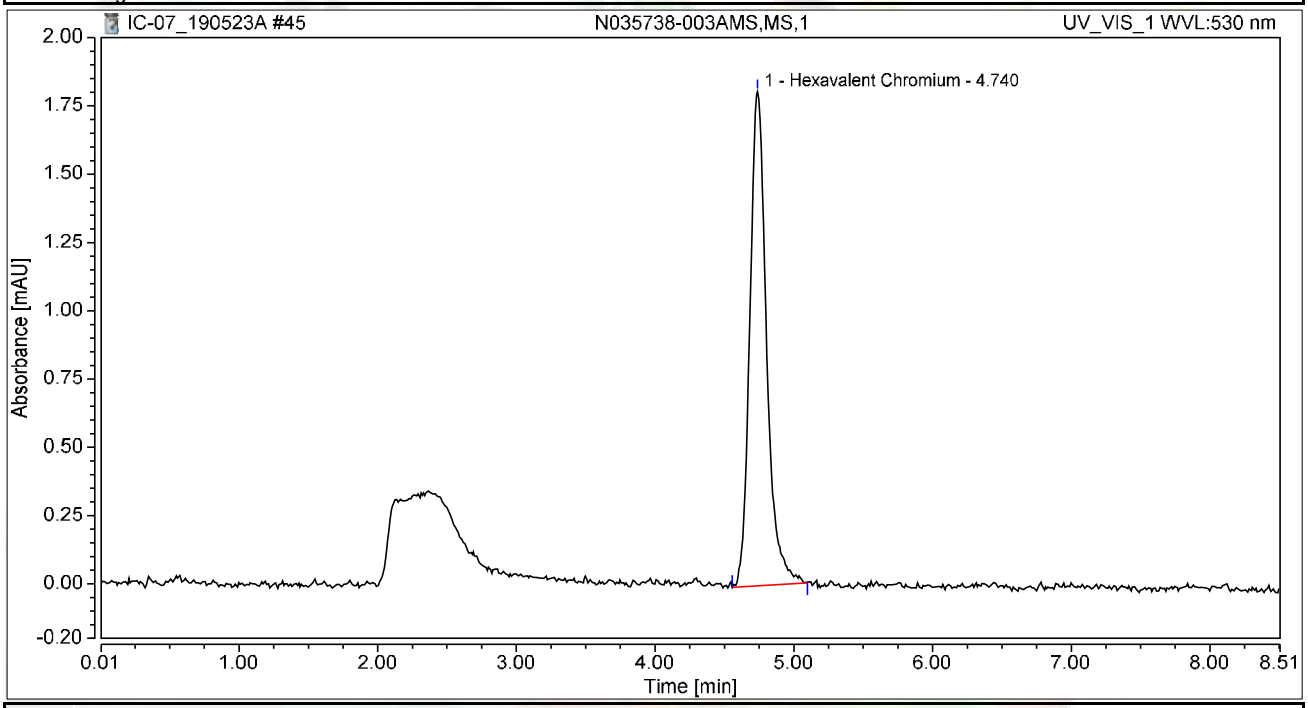
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 14:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

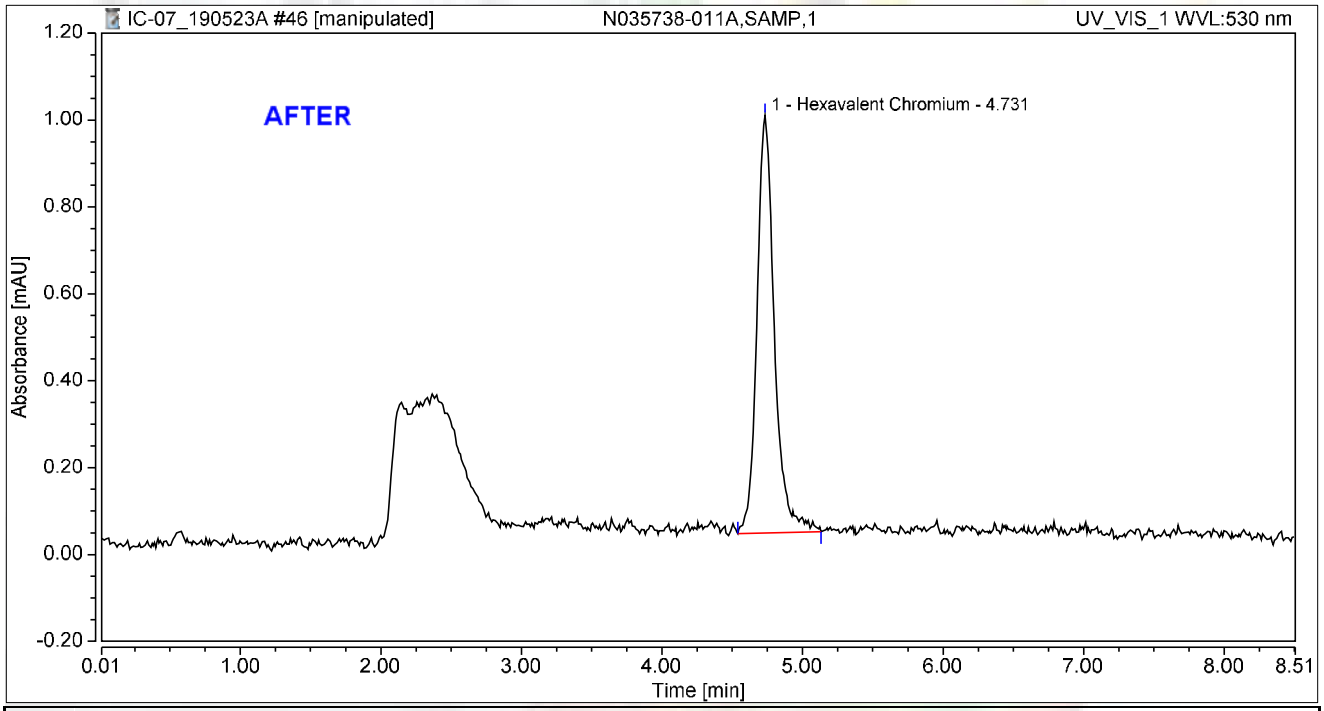
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.253	1.809	100.00	100.00	1.0023
Total:			**0.253**	**1.809**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-011A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 14:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.138	0.961	100.00	100.00	0.5486
Total:			**0.138**	**0.961**	**100.00**	**100.00**	

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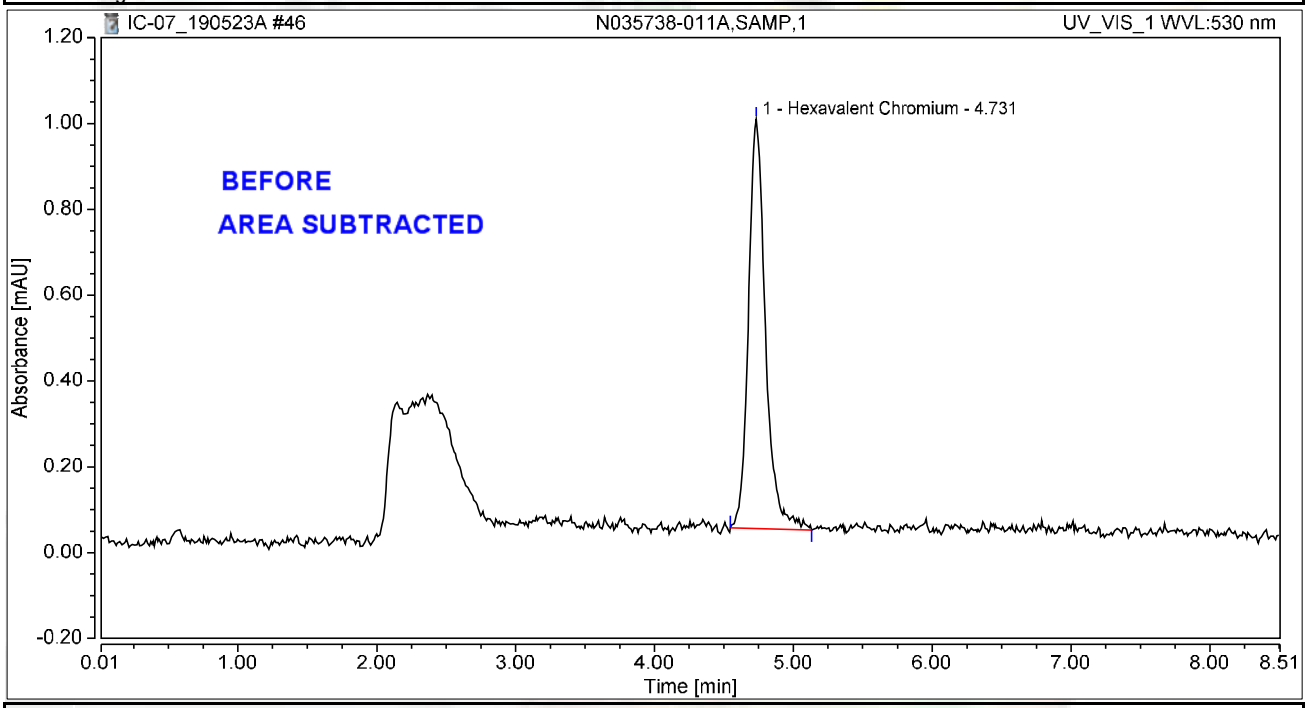
Chromatogram and Results

Injection Details

Injection Name:	**N035738-011A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 14:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.135	0.954	100.00	100.00	0.5363
Total:			**0.135**	**0.954**	**100.00**	**100.00**	

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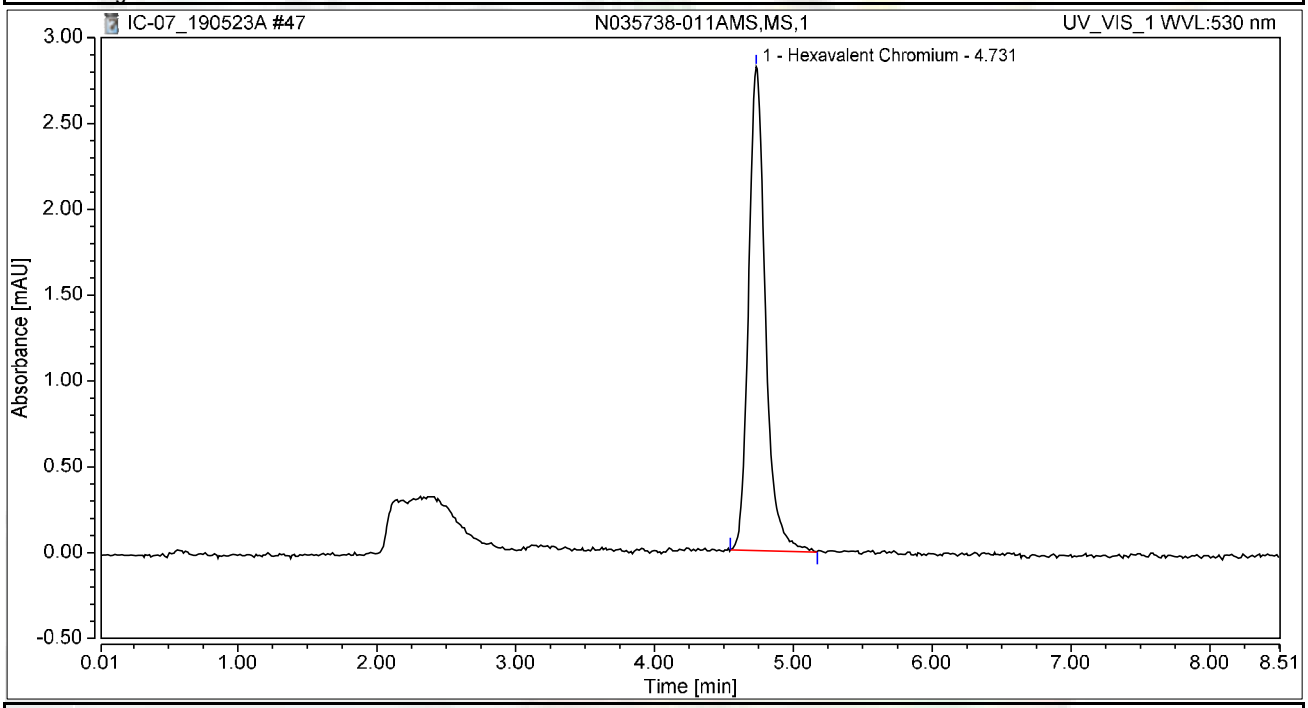
Chromatogram and Results

Injection Details

Injection Name:	**N035738-011AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 15:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

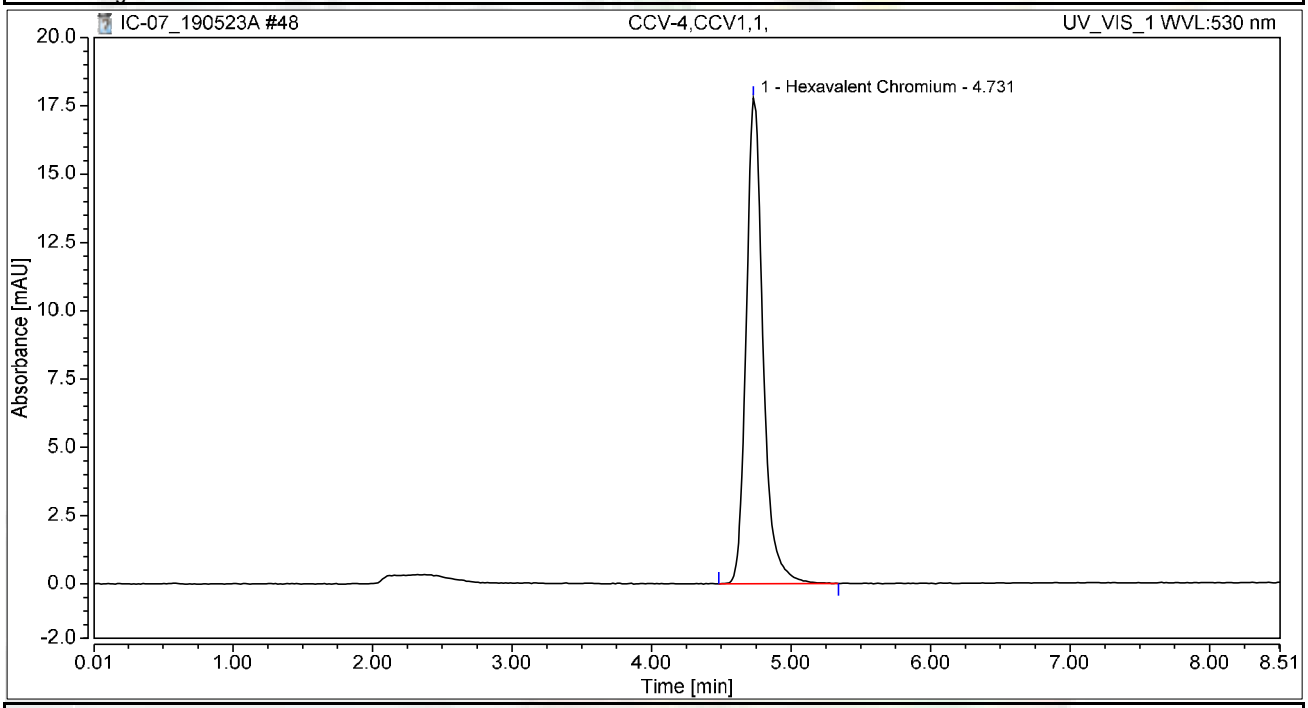
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.396	2.818	100.00	100.00	1.5694
Total:			**0.396**	**2.818**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 15:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

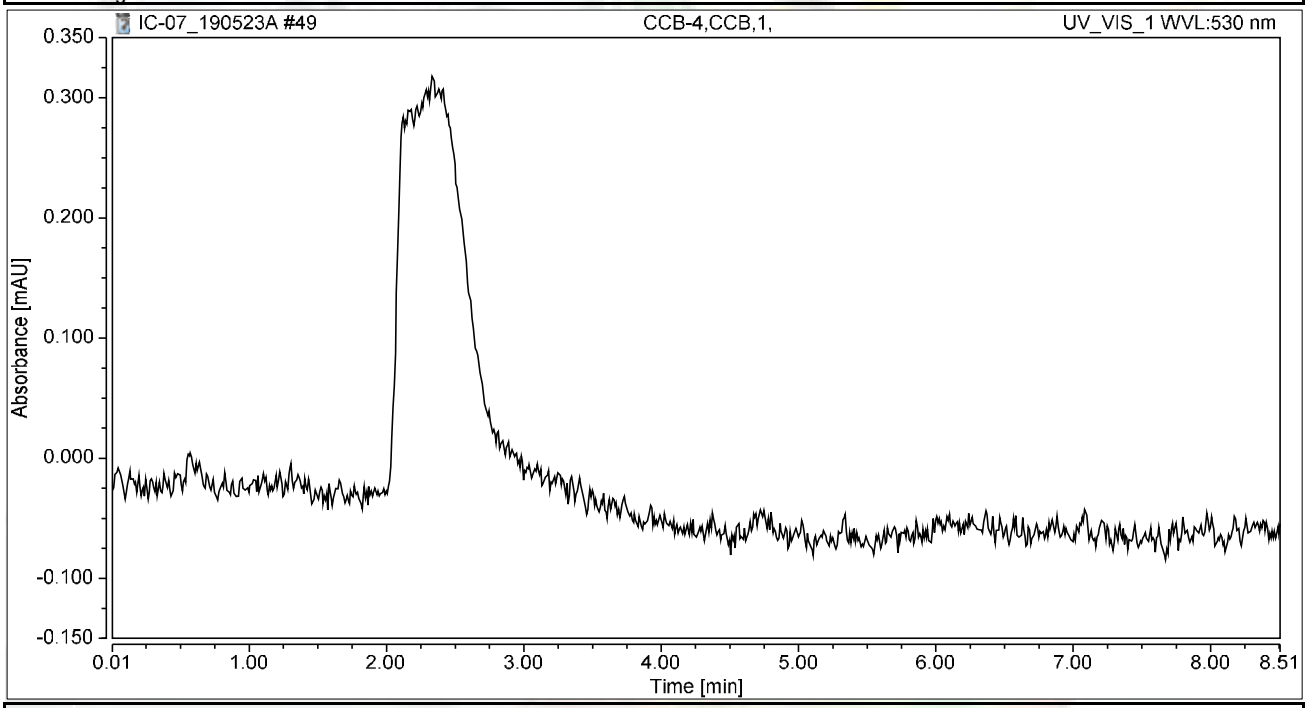
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.499	17.789	100.00	100.00	9.9129
Total:			**2.499**	**17.789**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 15:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

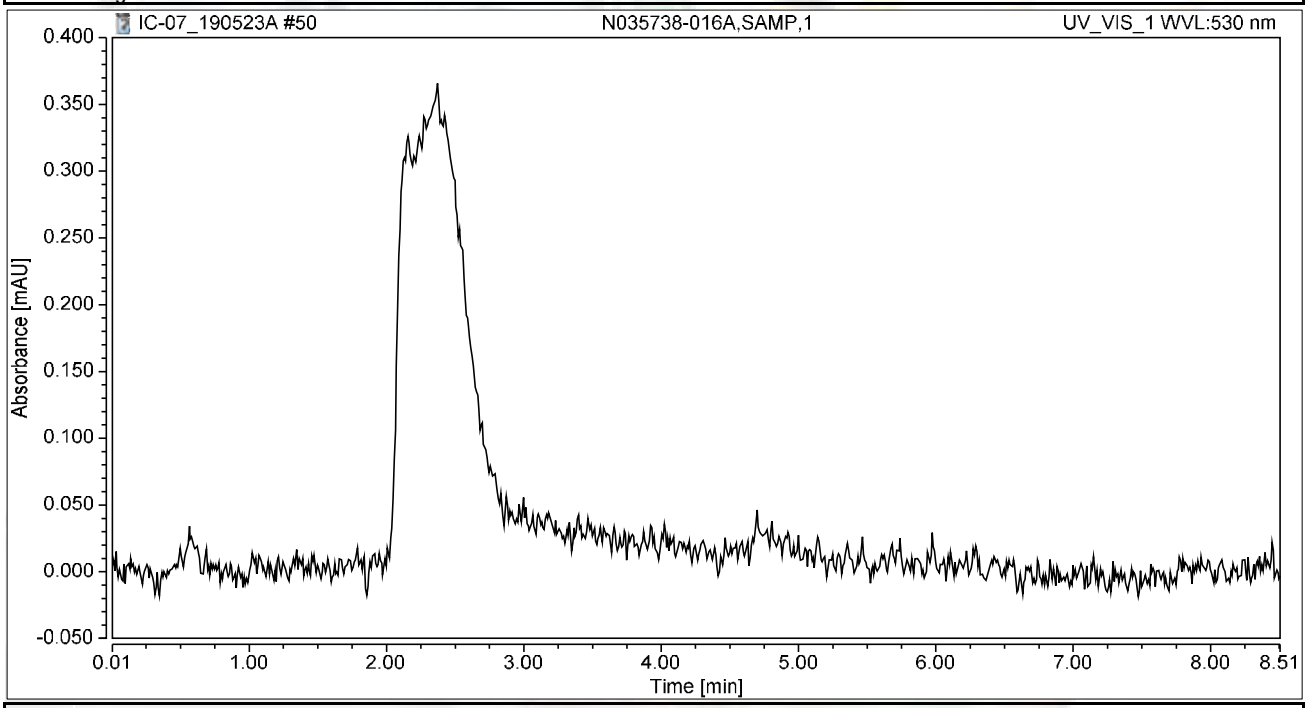
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-016A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 15:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

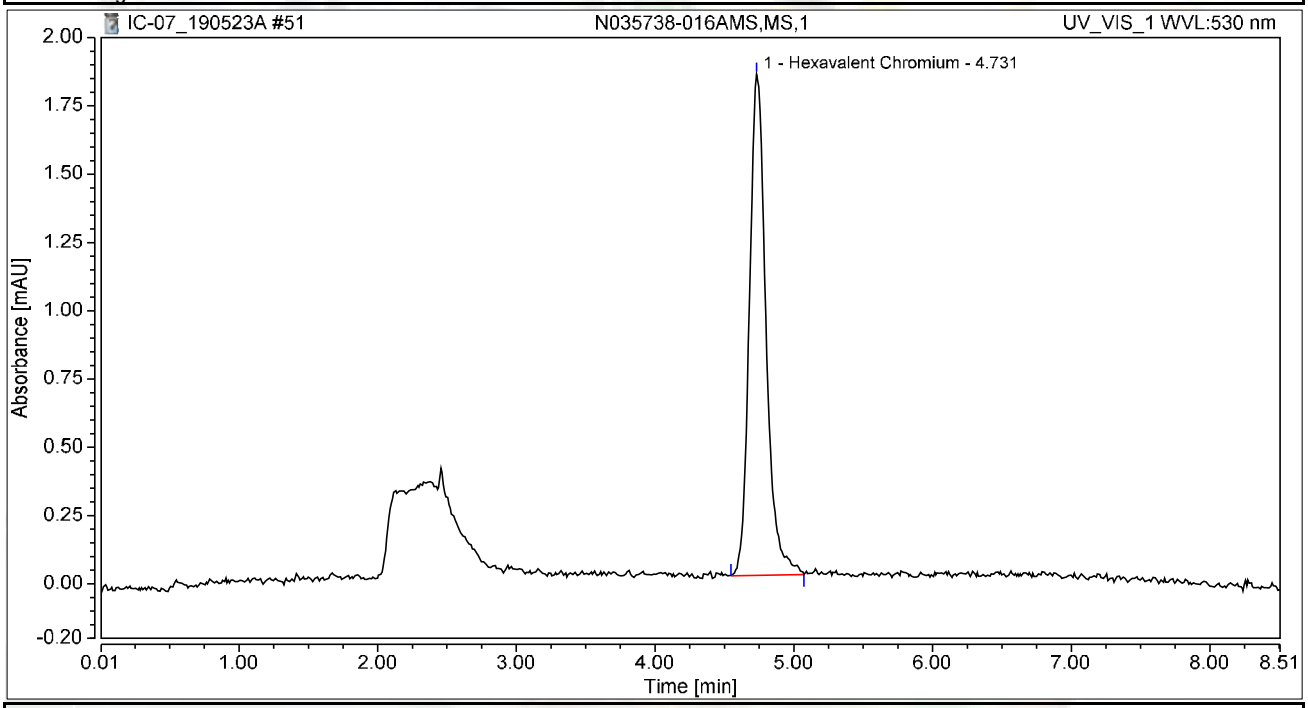
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-016AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 15:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

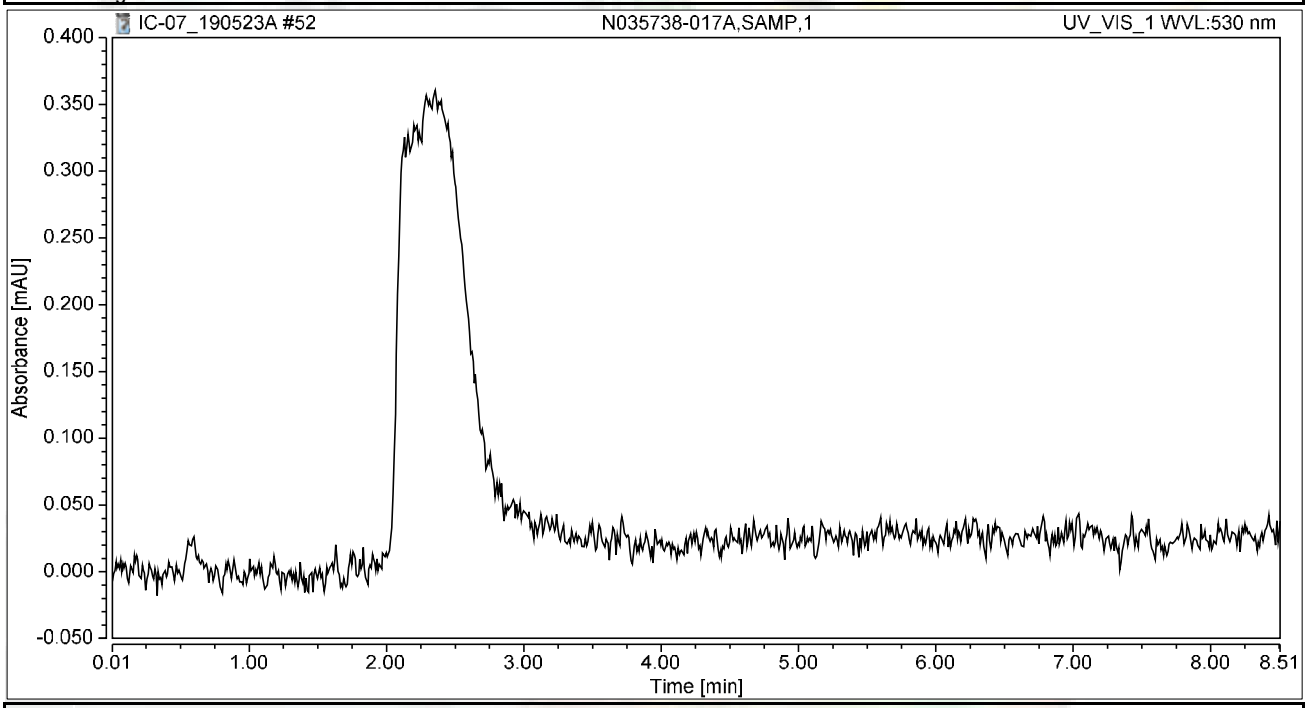
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.255	1.835	100.00	100.00	1.0130
Total:			**0.255**	**1.835**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-017A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 15:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

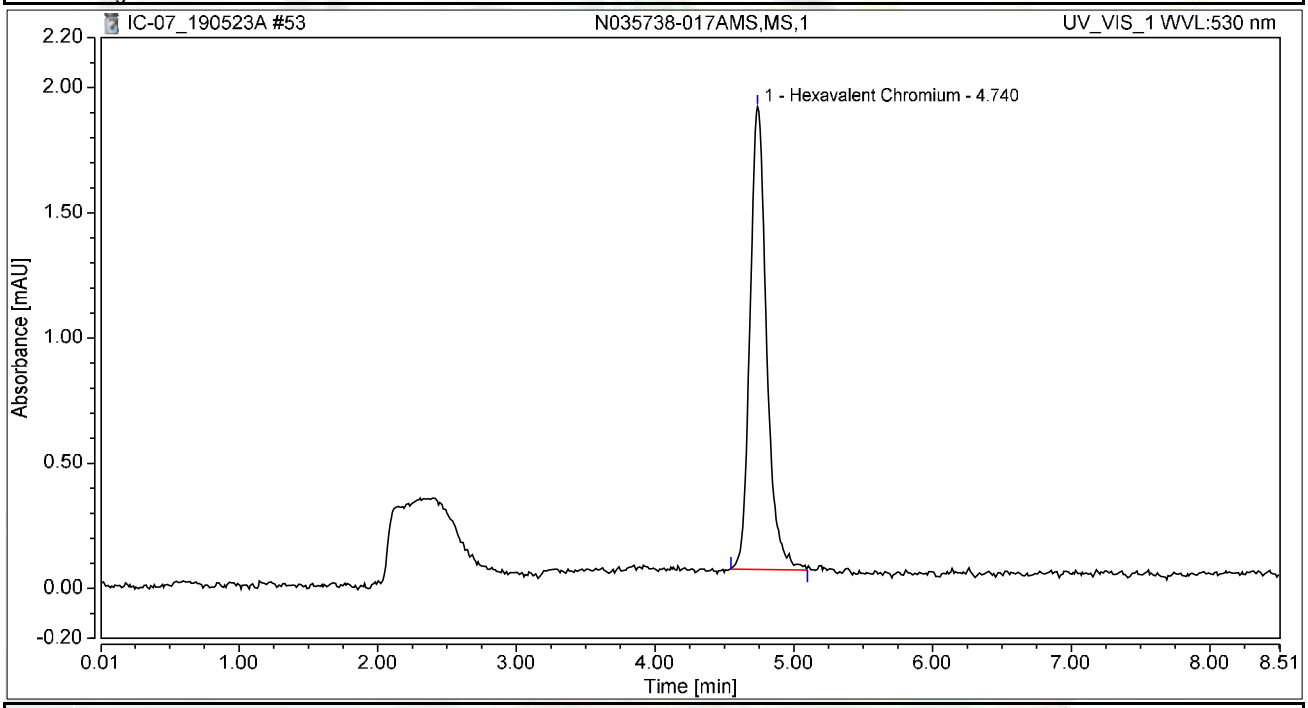
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-017AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**38**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 16:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

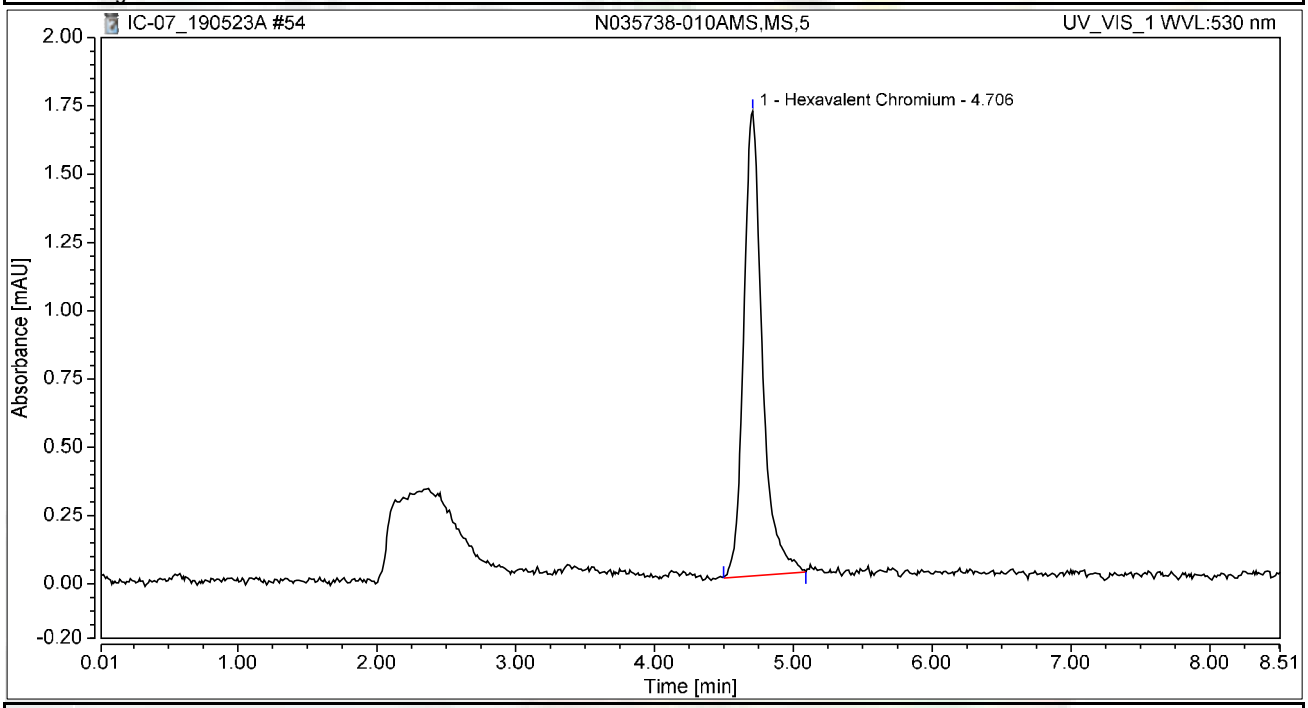
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.257	1.849	100.00	100.00	1.0176
Total:			**0.257**	**1.849**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-010AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 16:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

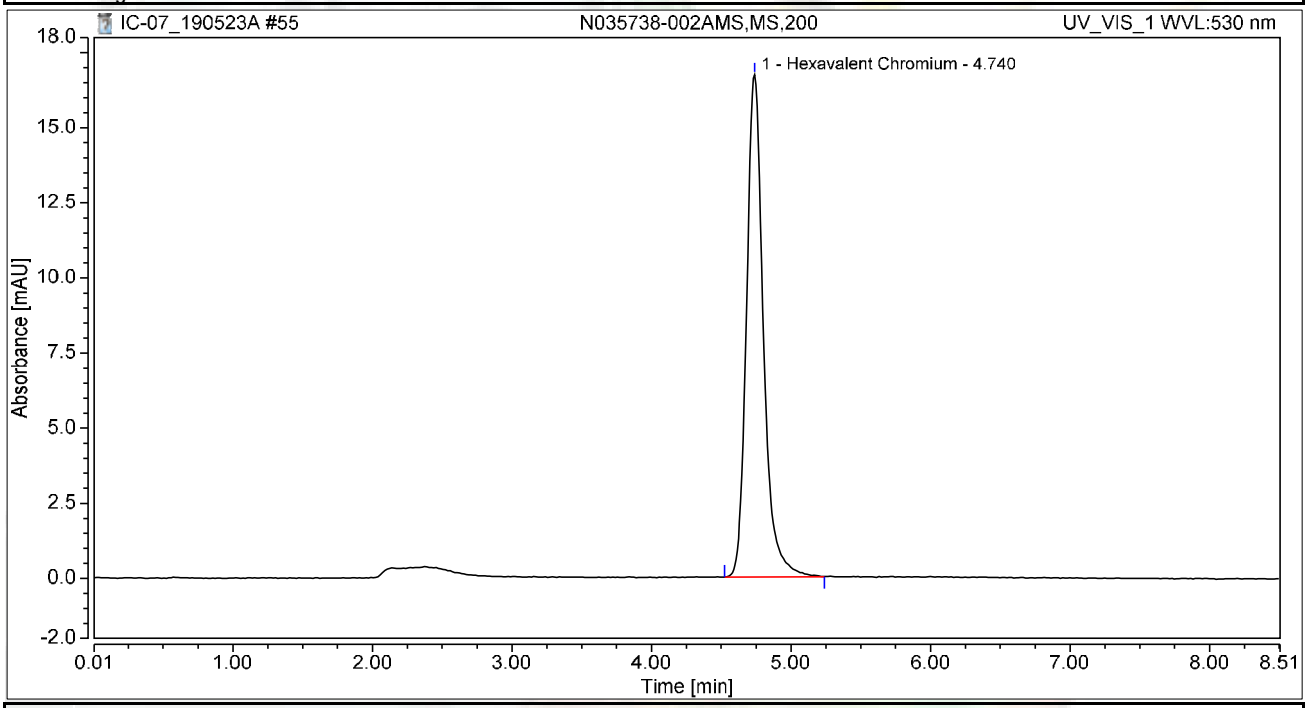
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.264	1.701	100.00	100.00	1.0488
Total:			**0.264**	**1.701**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-002AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 16:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

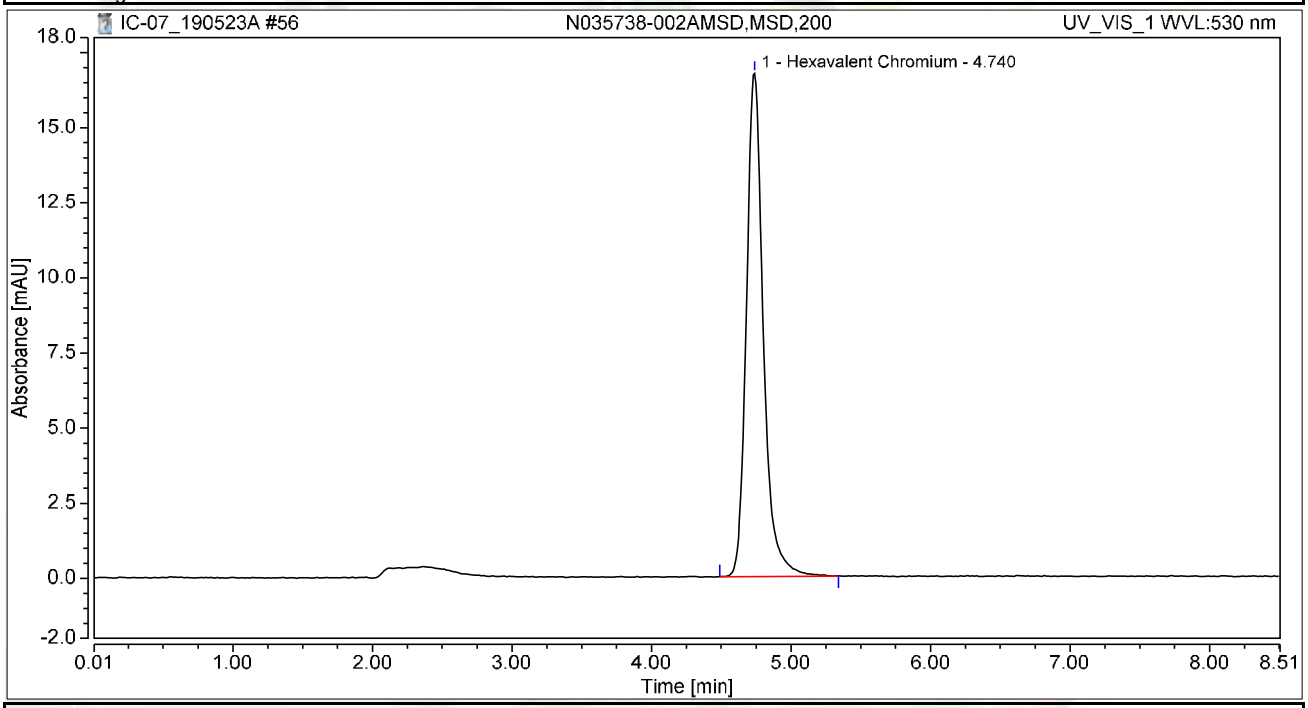
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.344	16.710	100.00	100.00	9.2968
Total:			**2.344**	**16.710**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-002AMSD,MSD,200**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 16:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

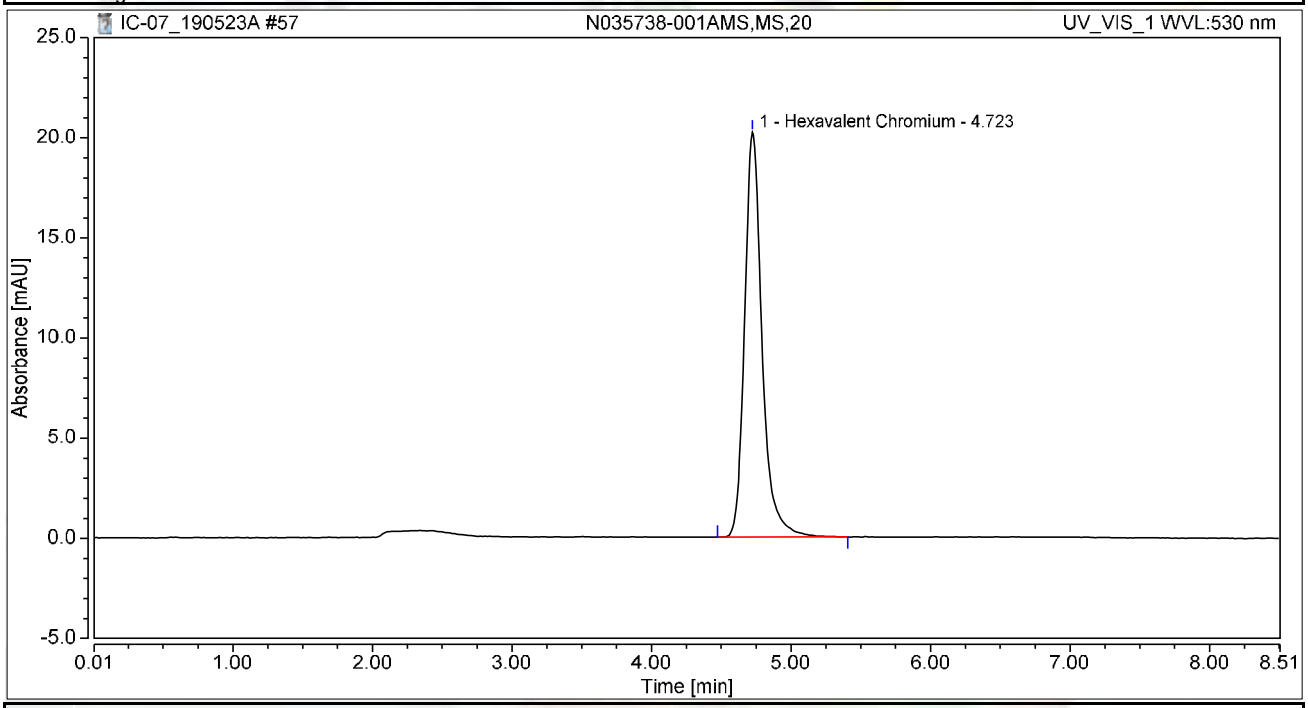
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.353	16.750	100.00	100.00	9.3307
Total:			**2.353**	**16.750**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-001AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 16:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

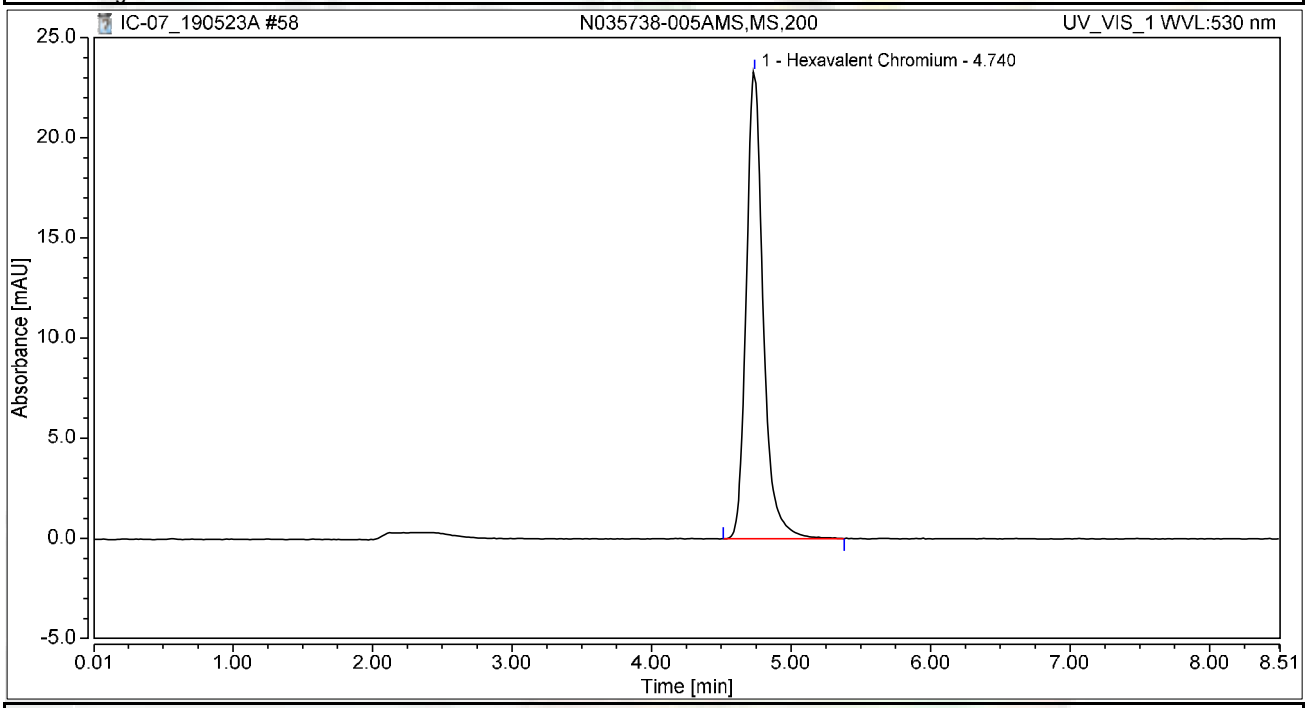
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.927	20.215	100.00	100.00	11.6089
Total:			**2.927**	**20.215**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-005AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 16:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

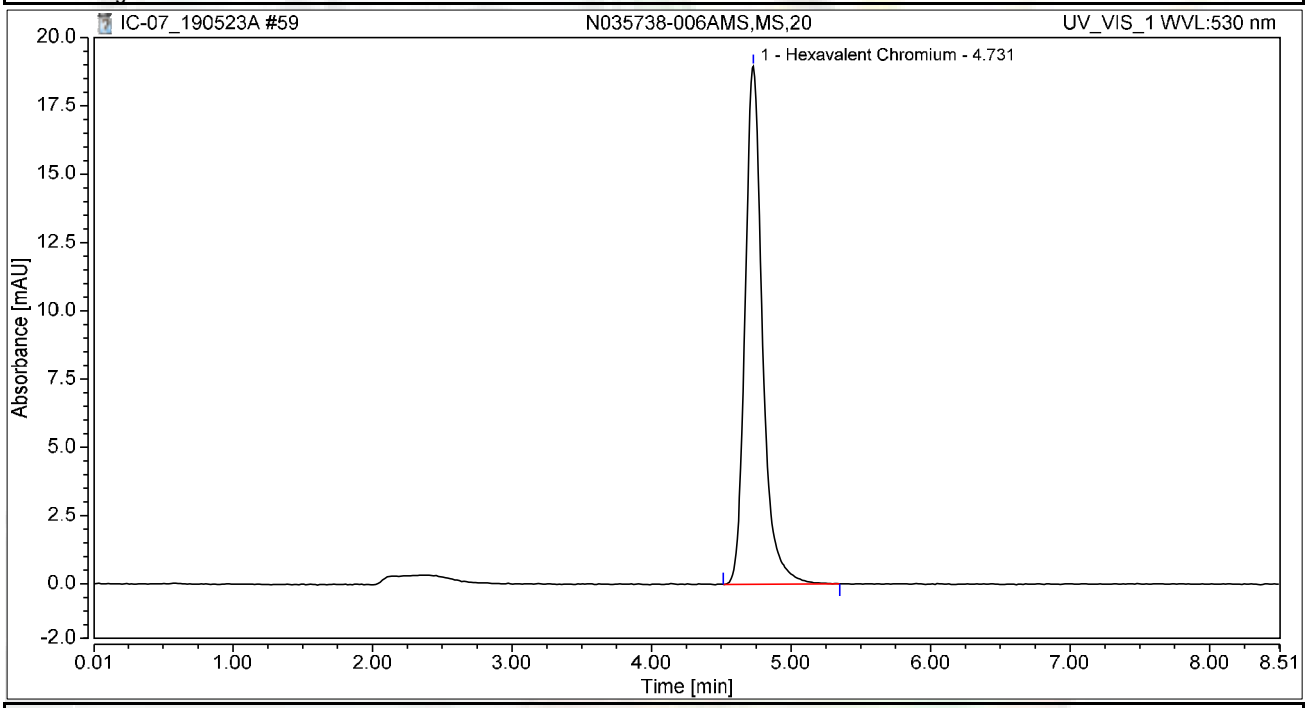
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.288	23.321	100.00	100.00	13.0417
Total:			**3.288**	**23.321**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-006AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 17:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

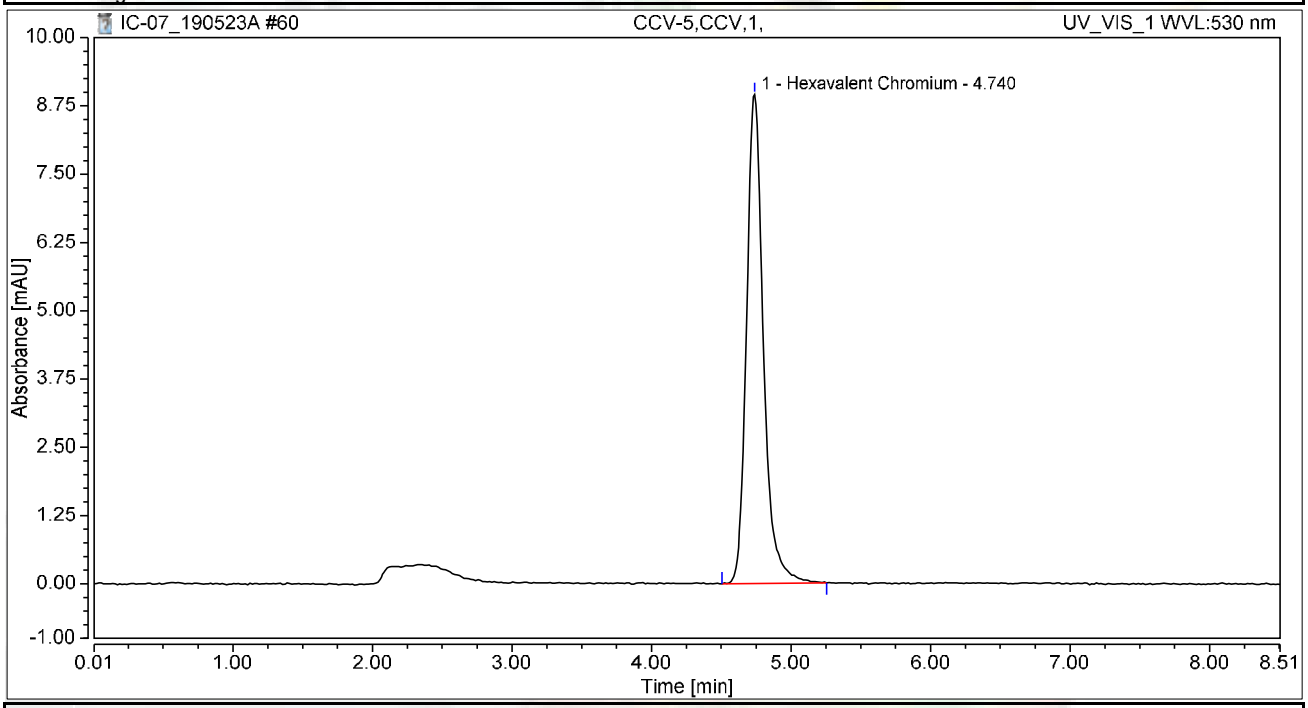
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.737	18.969	100.00	100.00	10.8577
Total:			**2.737**	**18.969**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 17:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

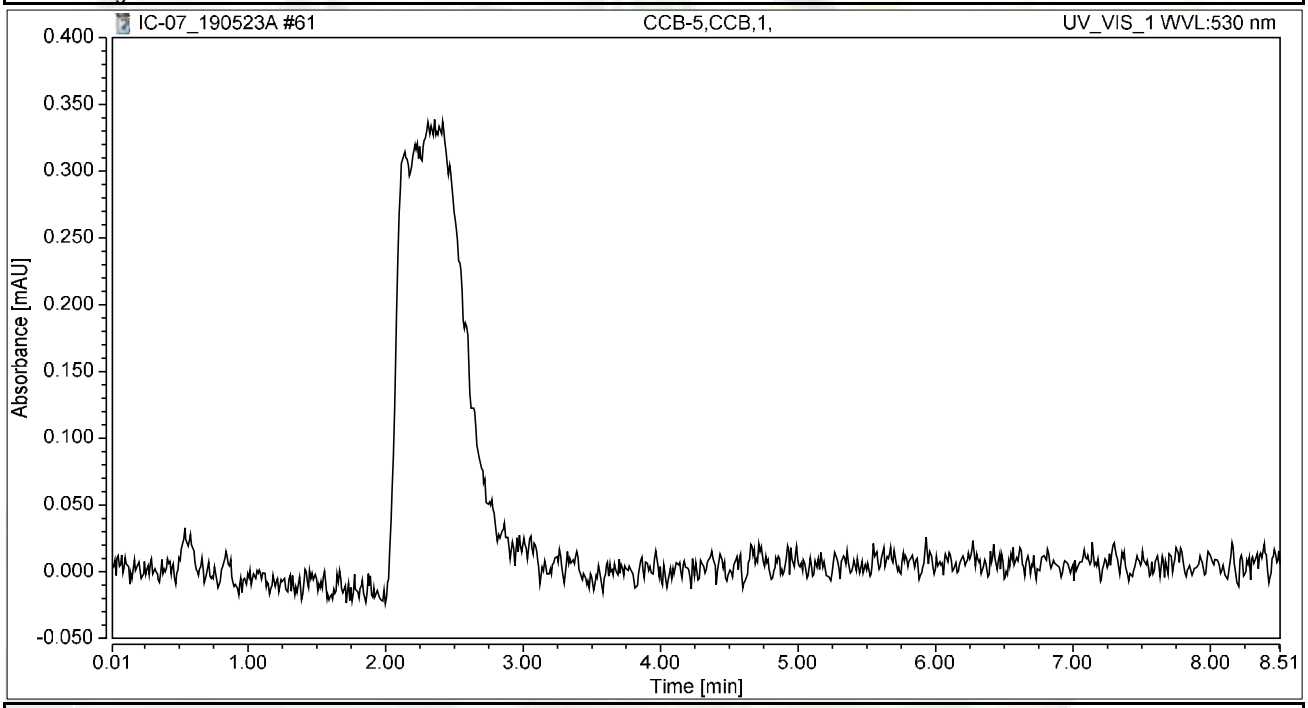
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.257	8.955	100.00	100.00	4.9851
Total:			**1.257**	**8.955**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 17:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

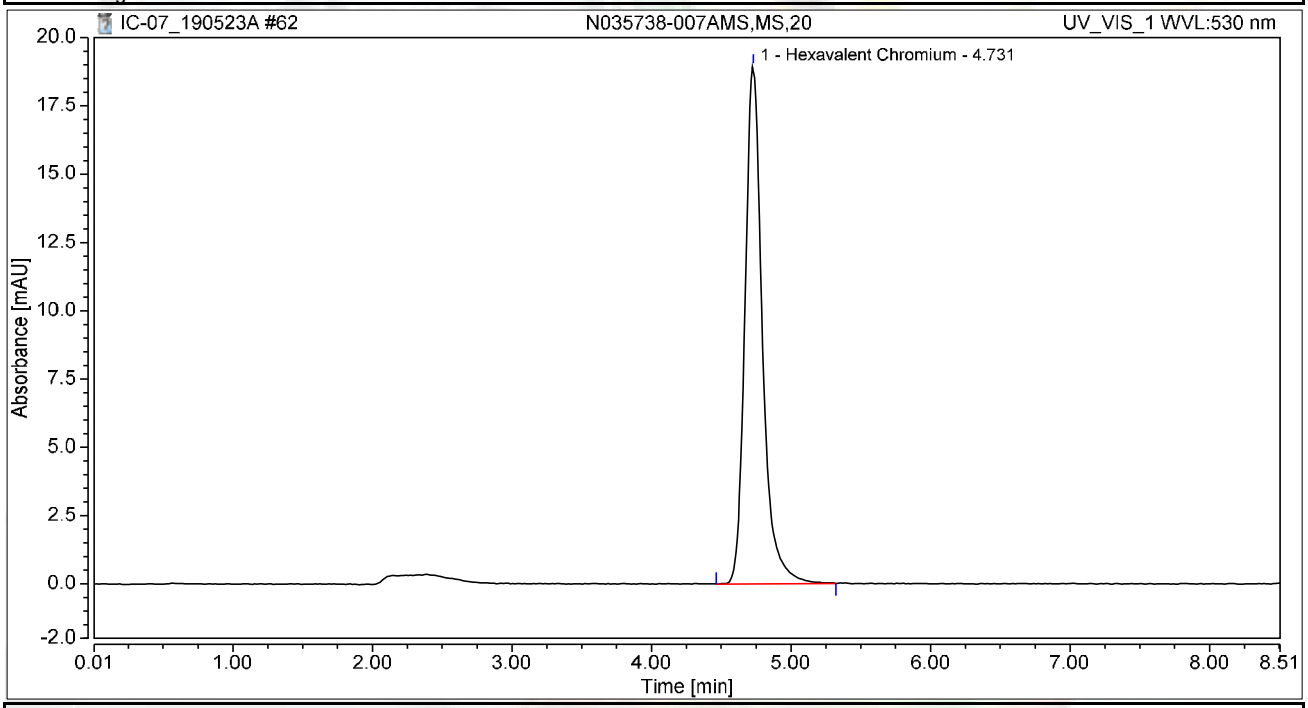
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-007AMS,MS,20**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 17:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

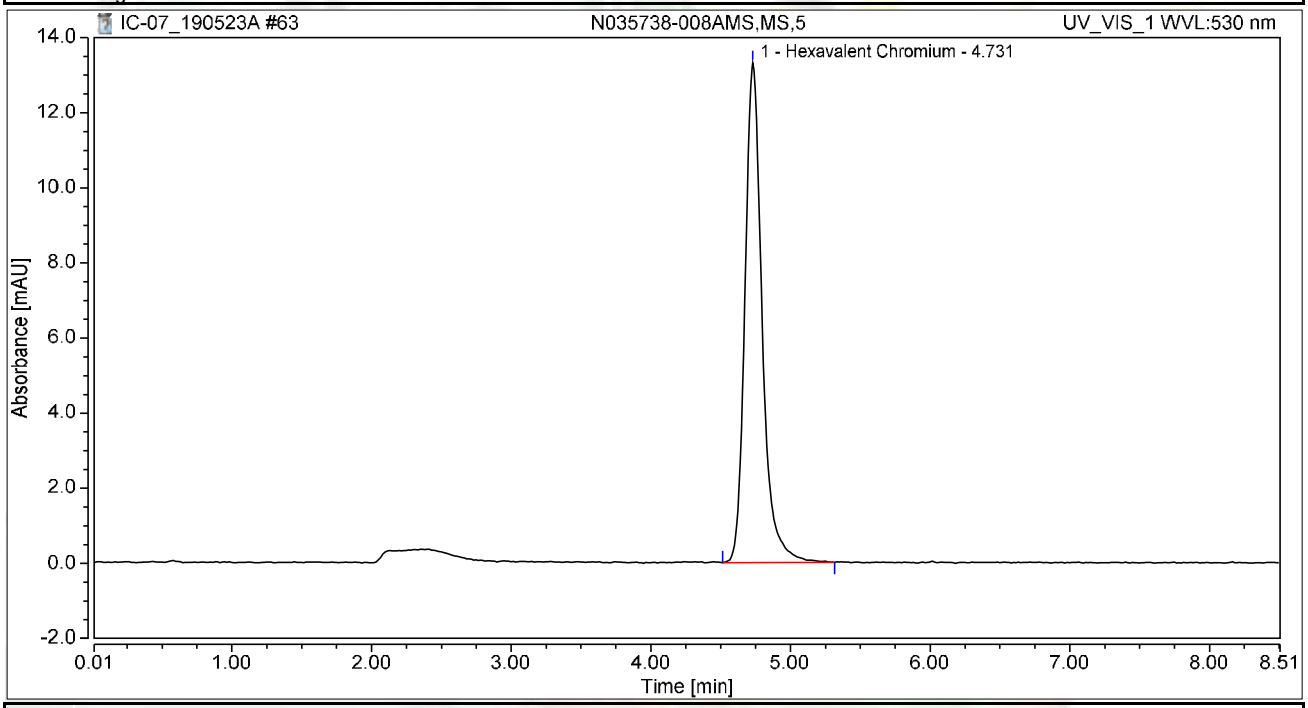
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.743	18.965	100.00	100.00	10.8810
Total:			**2.743**	**18.965**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-008AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 17:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

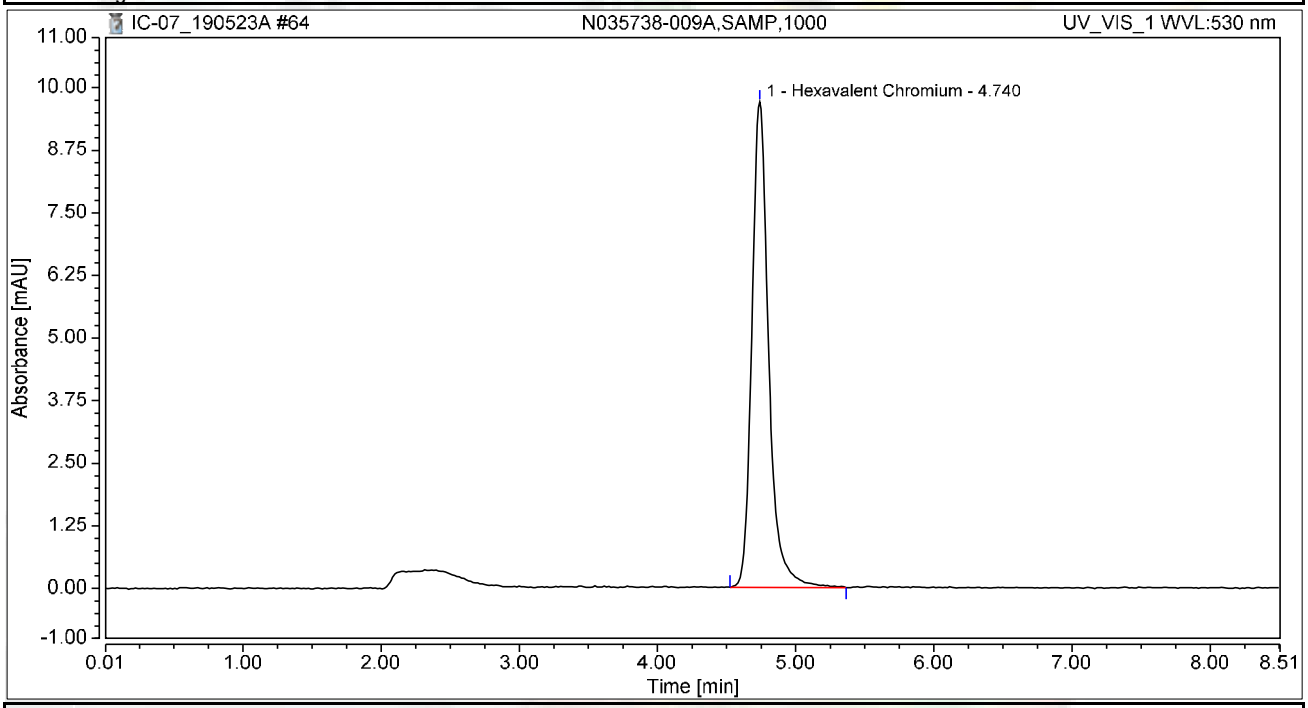
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.895	13.306	100.00	100.00	7.5150
Total:			**1.895**	**13.306**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-009A,SAMP,1000**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 17:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

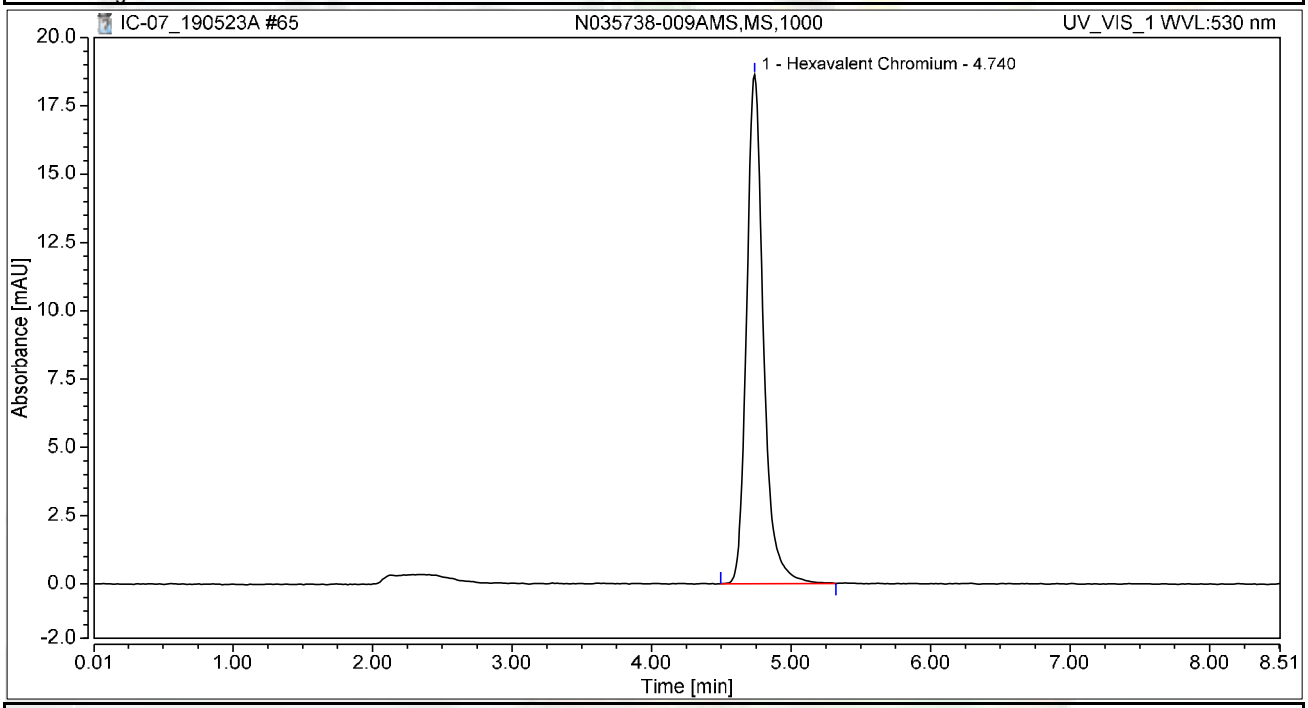
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.367	9.696	100.00	100.00	5.4234
Total:			**1.367**	**9.696**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-009AMS,MS,1000**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 18:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

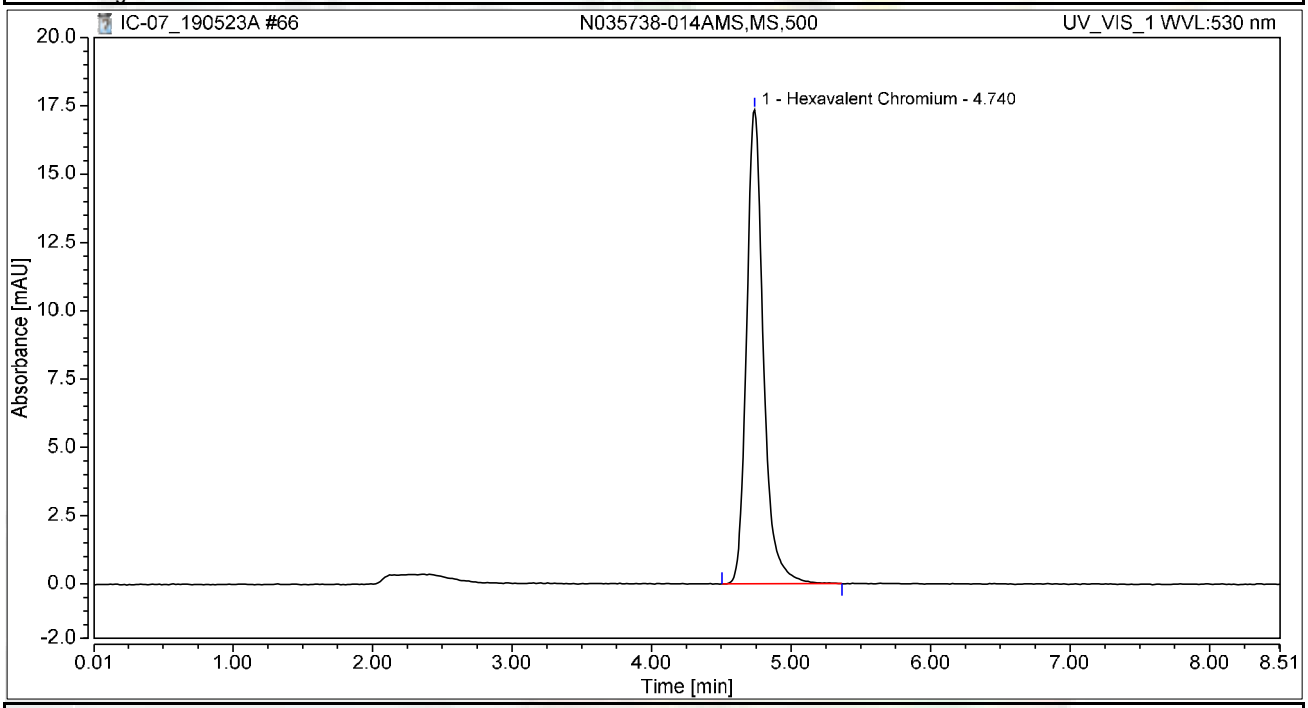
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.614	18.635	100.00	100.00	10.3662
Total:			**2.614**	**18.635**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-014AMS,MS,500**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 18:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

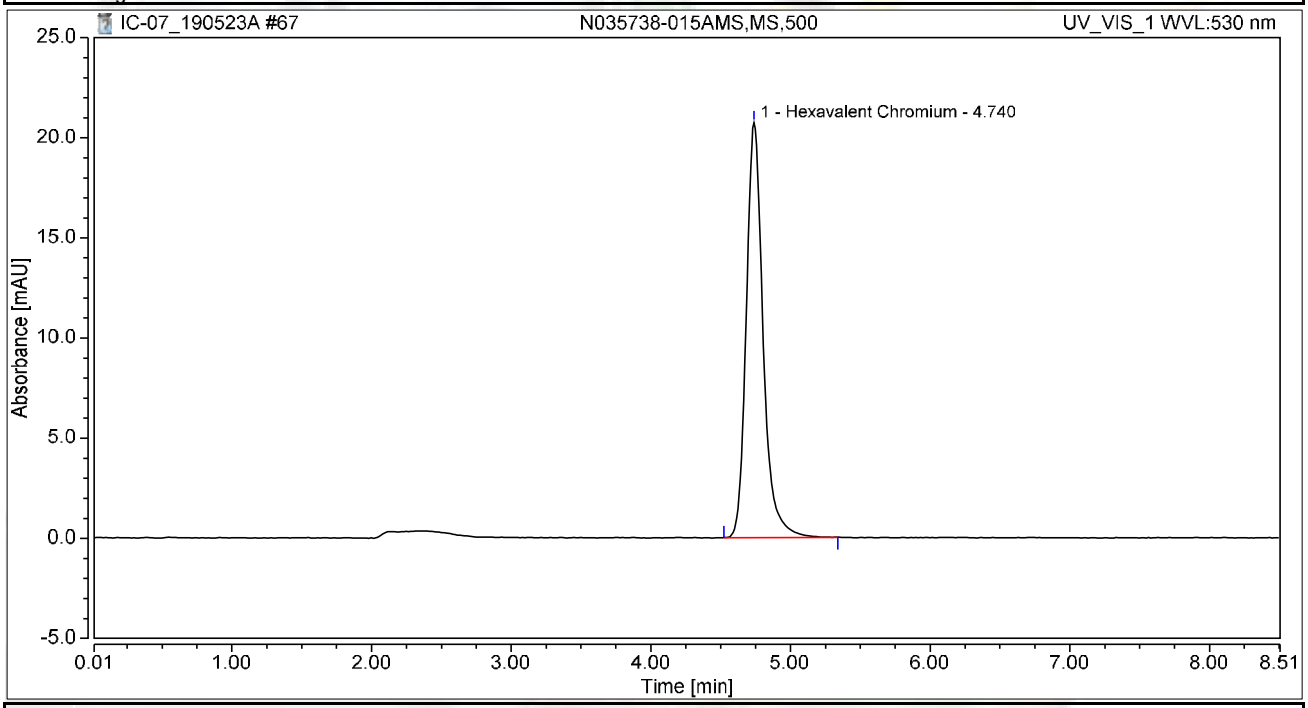
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.432	17.366	100.00	100.00	9.6458
Total:			**2.432**	**17.366**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-015AMS,MS,500**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 18:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

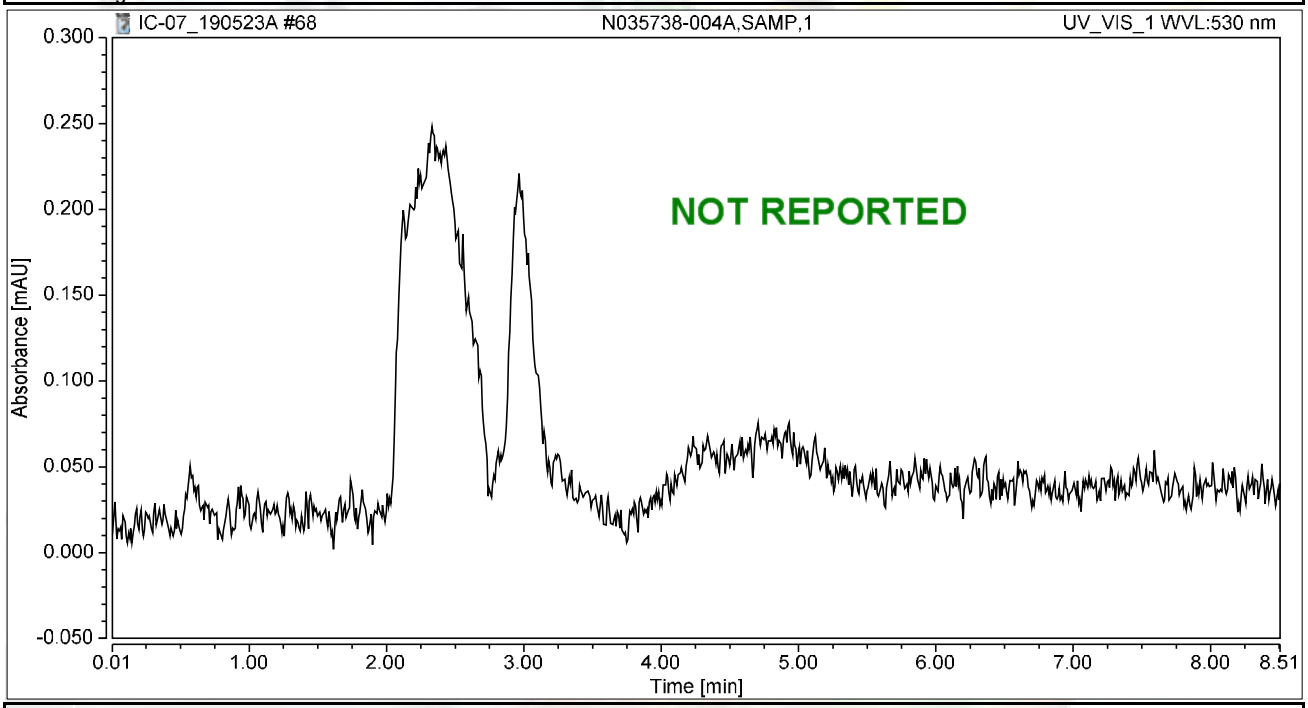
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.900	20.719	100.00	100.00	11.5022
Total:			**2.900**	**20.719**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 18:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

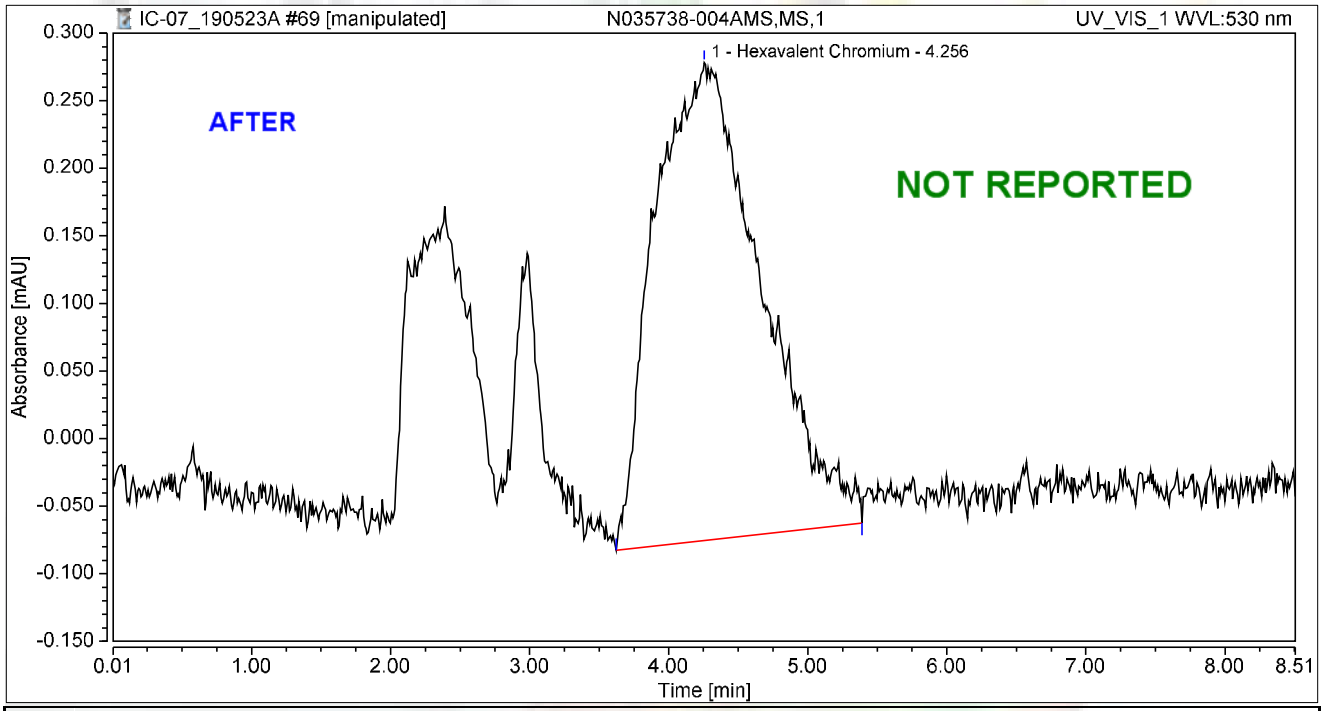
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**n.a.**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 18:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.256	0.312	0.354	100.00	100.00	1.2374
Total:			**0.312**	**0.354**	**100.00**	**100.00**	

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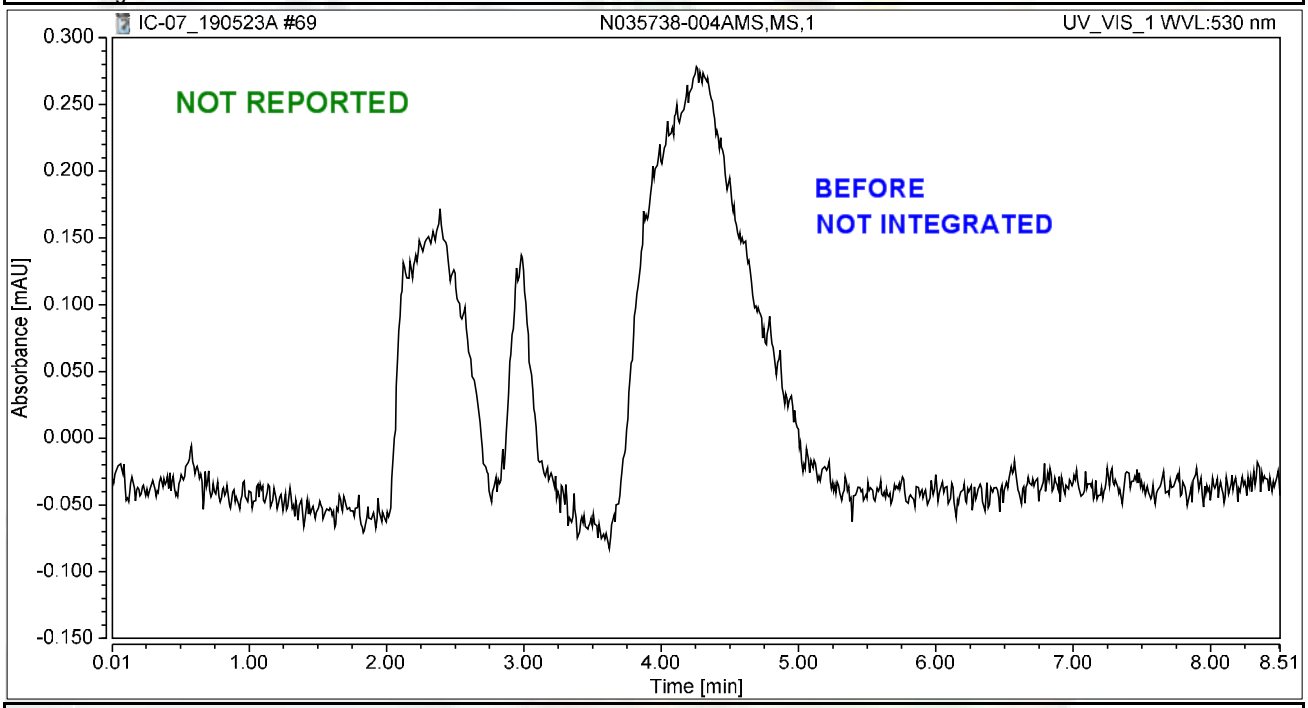
Chromatogram and Results

Injection Details

Injection Name:	**N035738-004AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 18:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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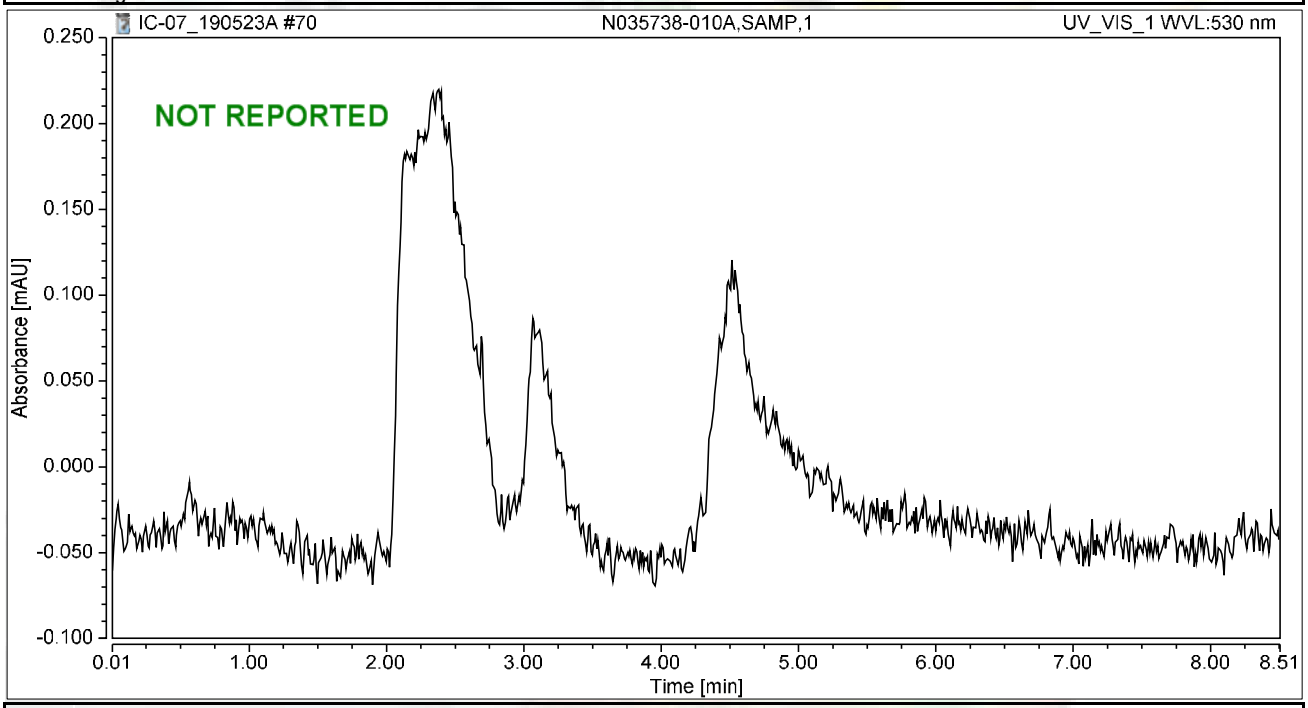
Chromatogram and Results

Injection Details

Injection Name:	**N035738-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 18:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

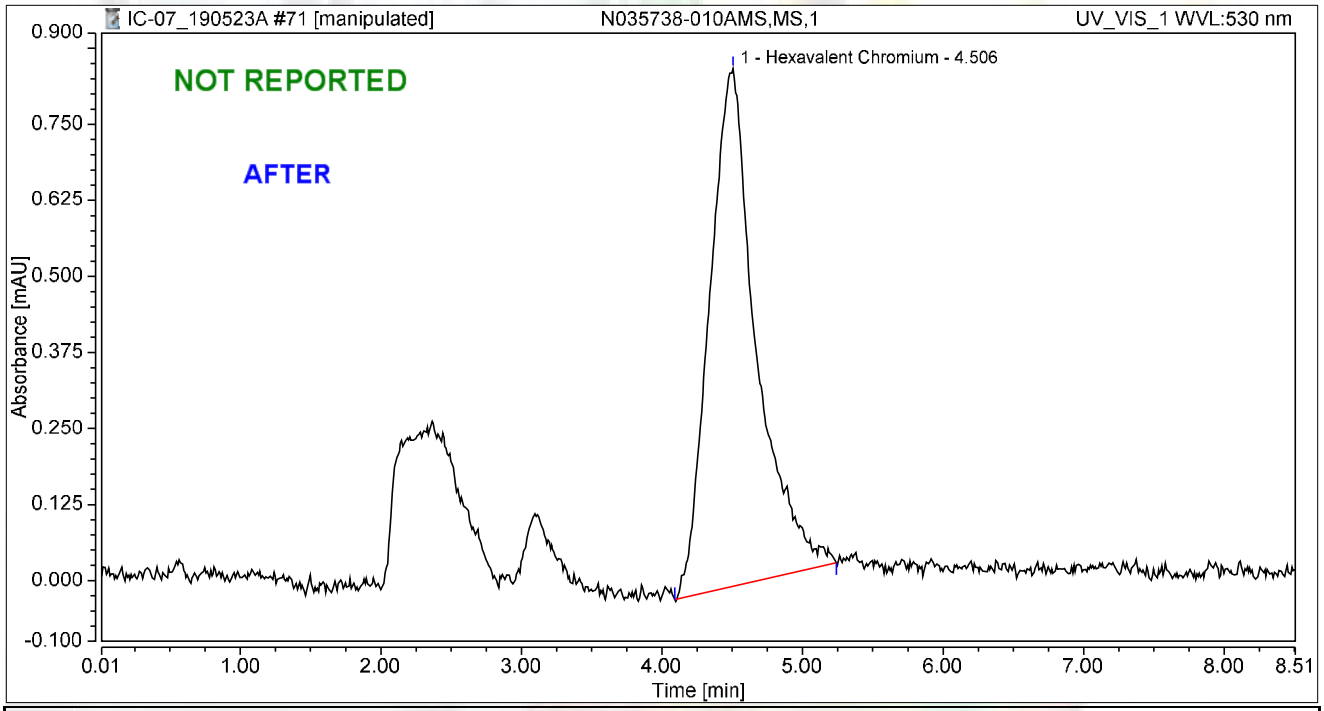
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-010AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 19:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.506	0.329	0.851	100.00	100.00	1.3039
Total:			**0.329**	**0.851**	**100.00**	**100.00**	

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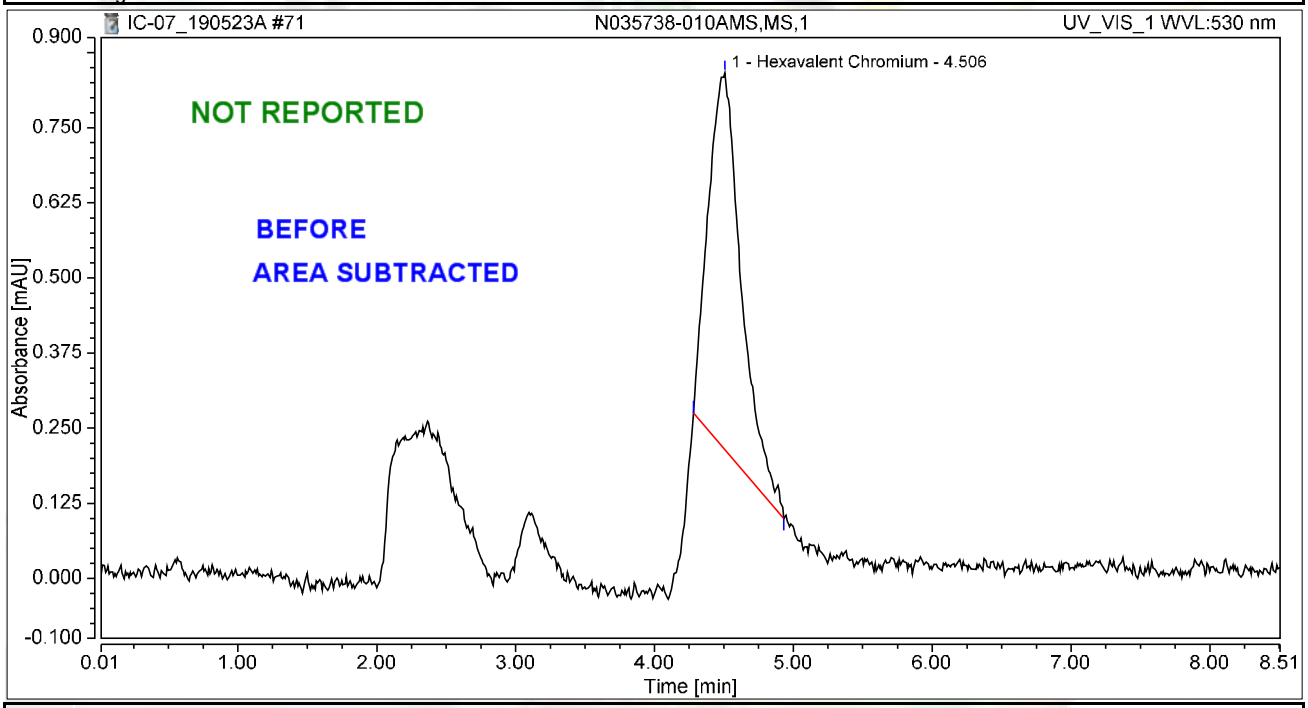
Chromatogram and Results

Injection Details

Injection Name:	**N035738-010AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 19:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.506	0.172	0.627	100.00	100.00	0.6829
Total:			**0.172**	**0.627**	**100.00**	**100.00**	

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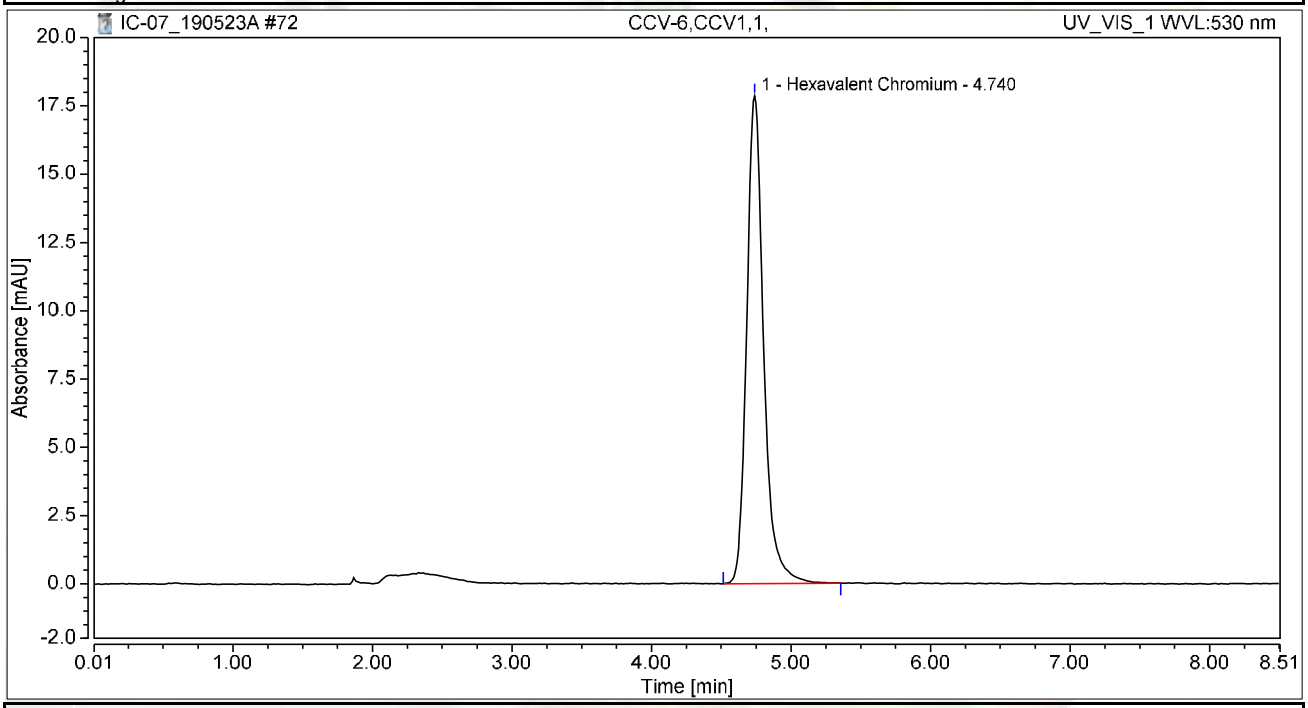
Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 19:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

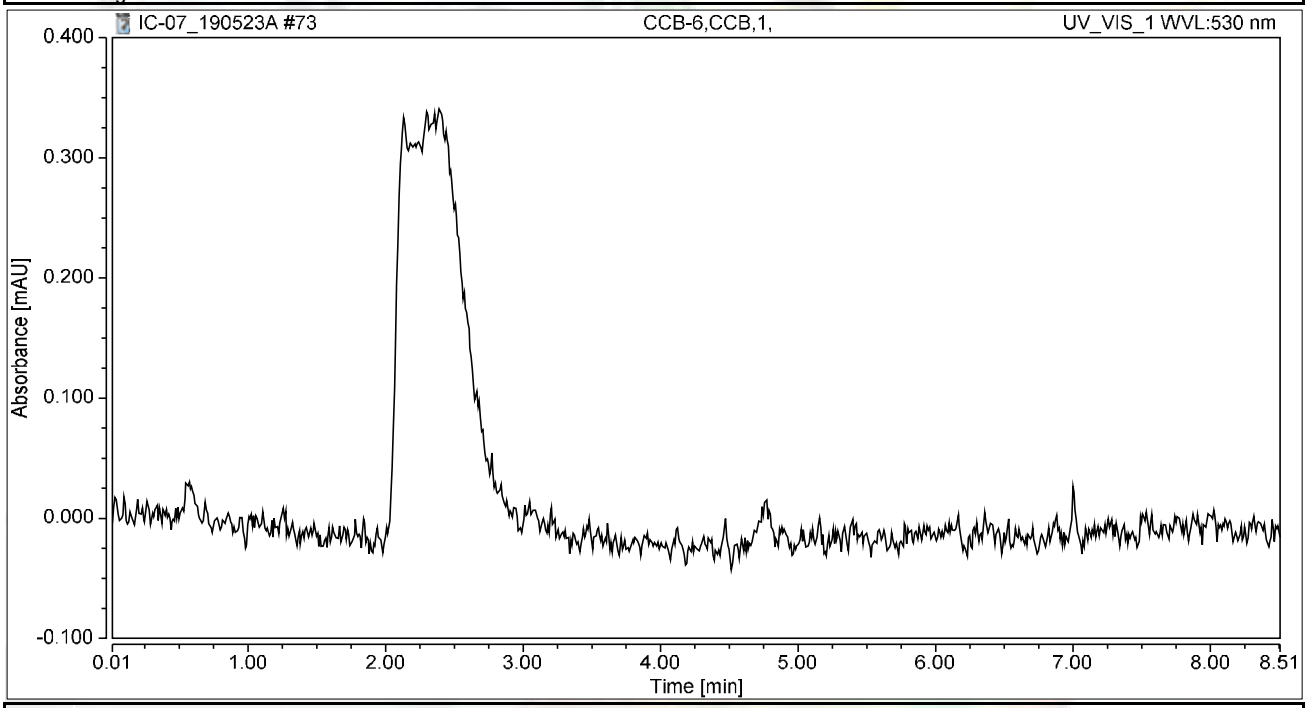
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.515	17.870	100.00	100.00	9.9764
Total:			**2.515**	**17.870**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 19:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

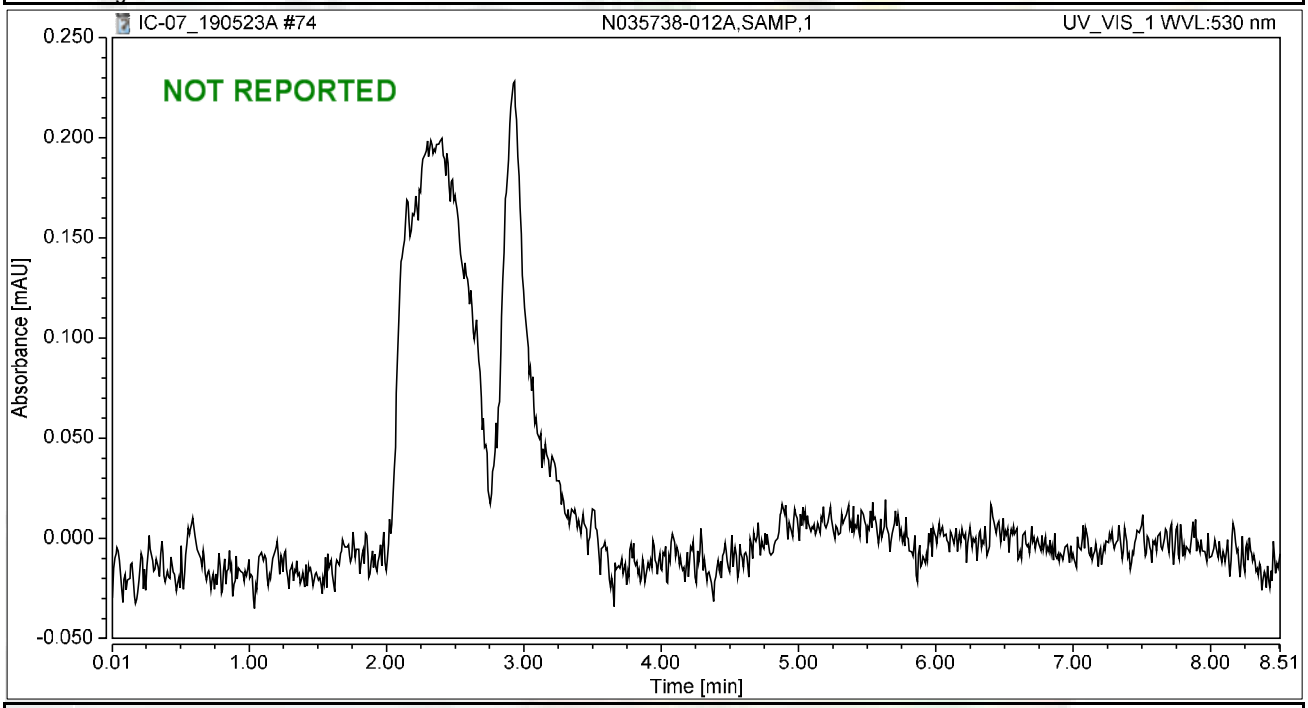
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 19:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

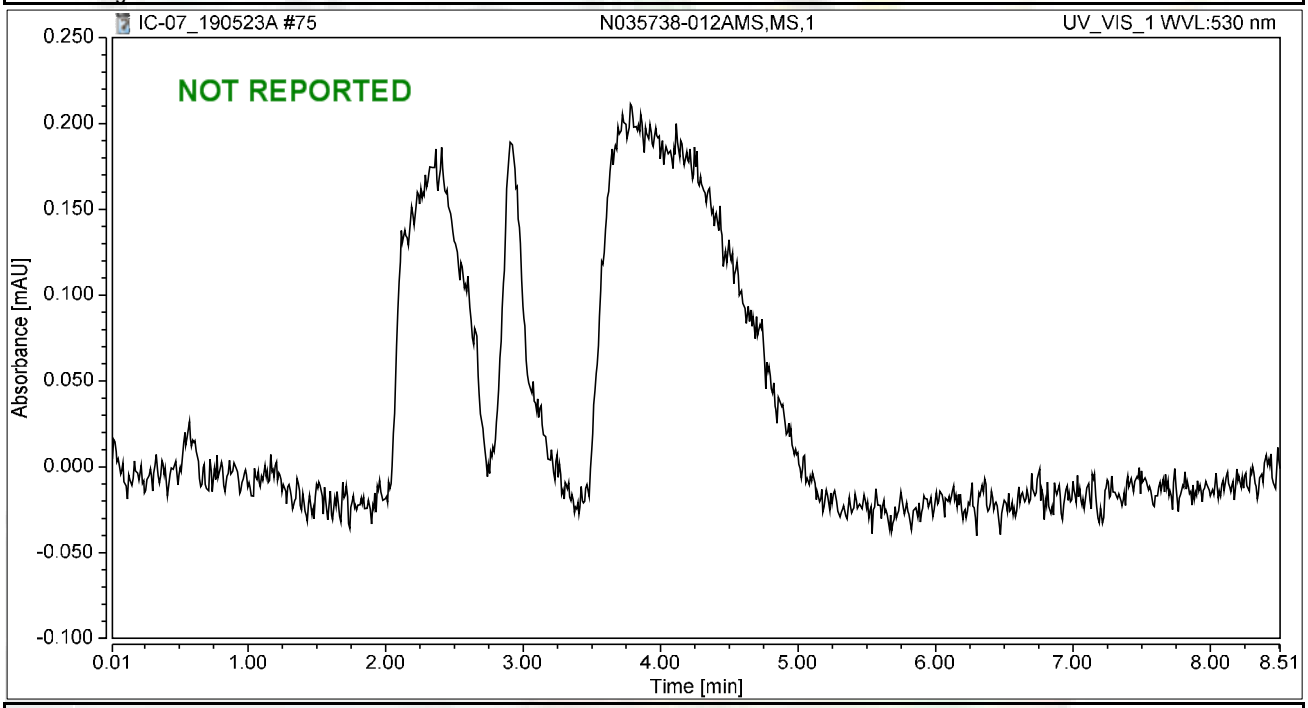
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-012AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 19:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

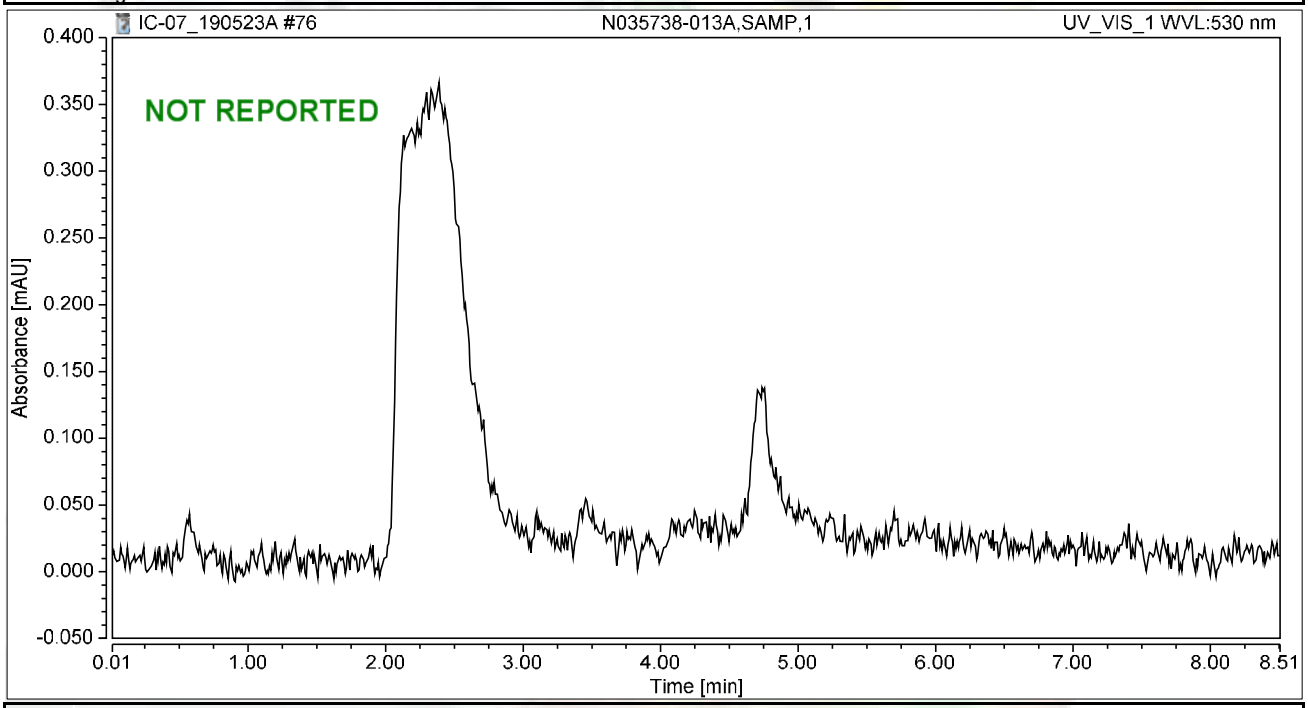
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-013A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 19:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

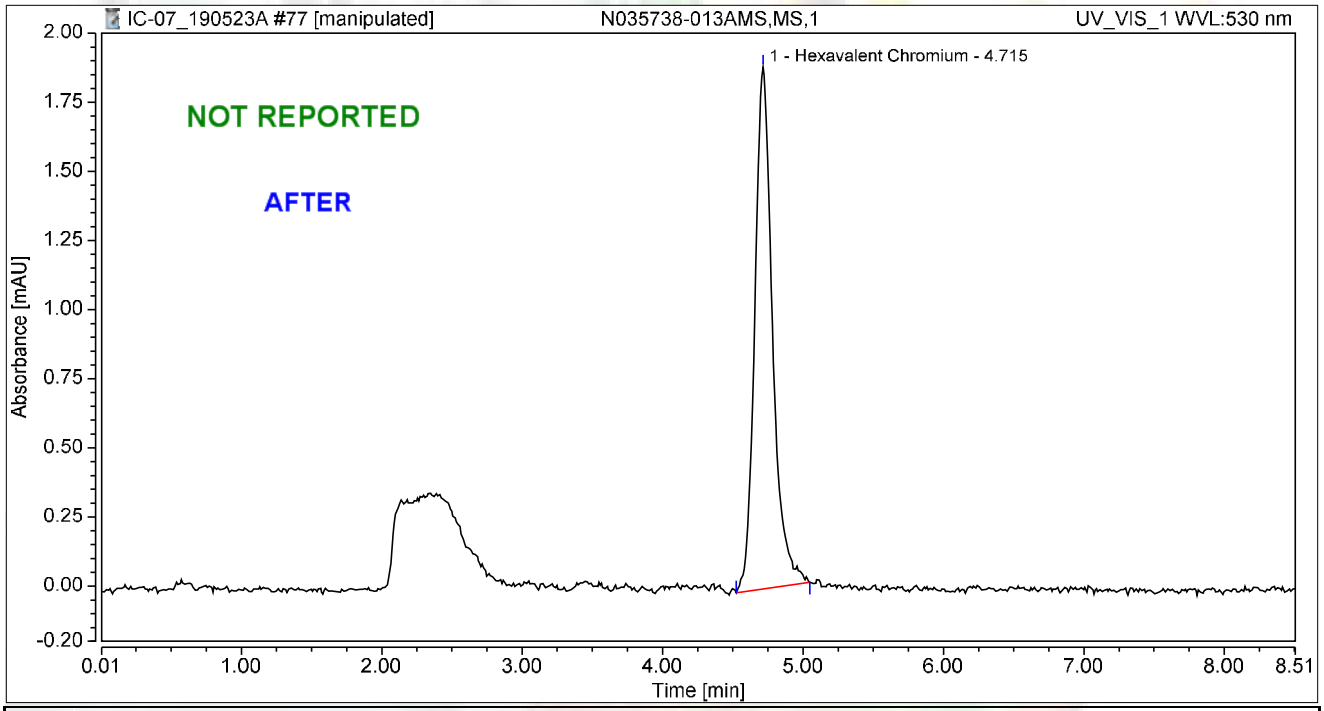
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035738-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 19:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.276	1.887	100.00	100.00	1.0958
Total:			**0.276**	**1.887**	**100.00**	**100.00**	

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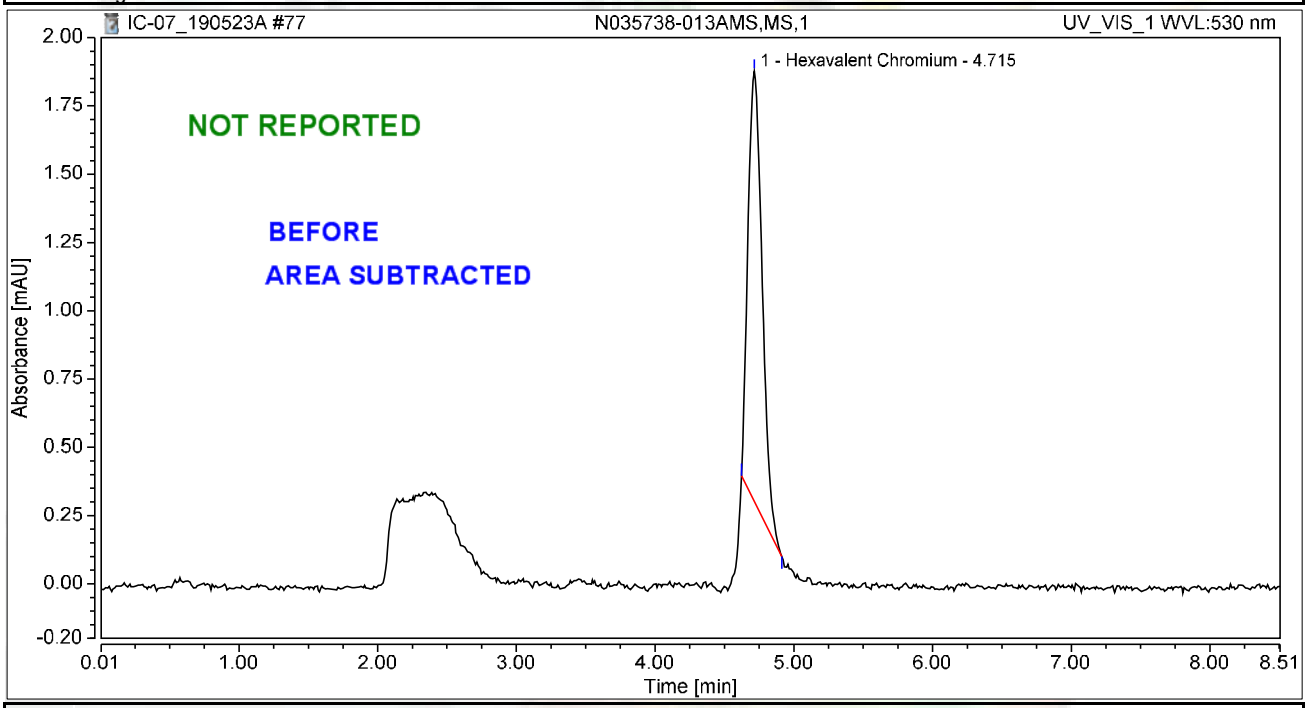
Chromatogram and Results

Injection Details

Injection Name:	**N035738-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 19:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.186	1.574	100.00	100.00	0.7377
Total:			**0.186**	**1.574**	**100.00**	**100.00**	

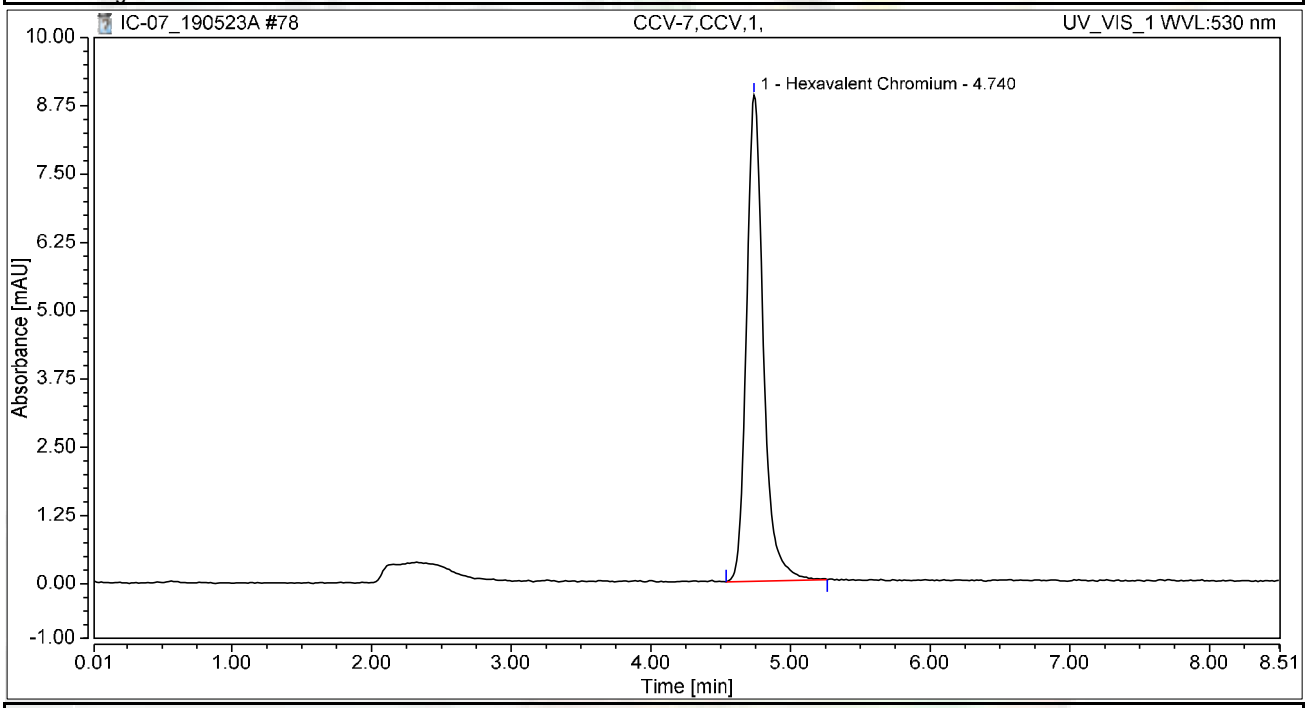
rba 6/4/2019

Chromatogram and Results

Injection Details

Injection Name:	**CCV-7,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 20:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

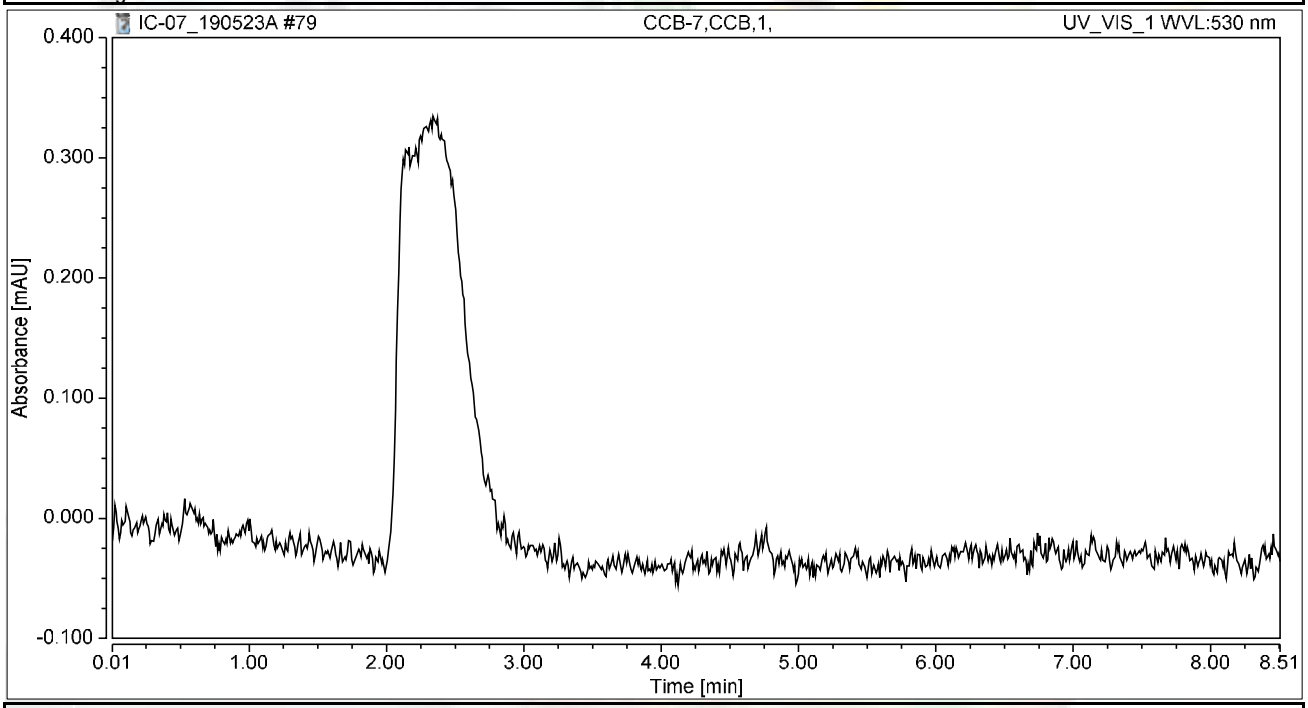
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.248	8.898	100.00	100.00	4.9517
Total:			**1.248**	**8.898**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-7,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 20:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

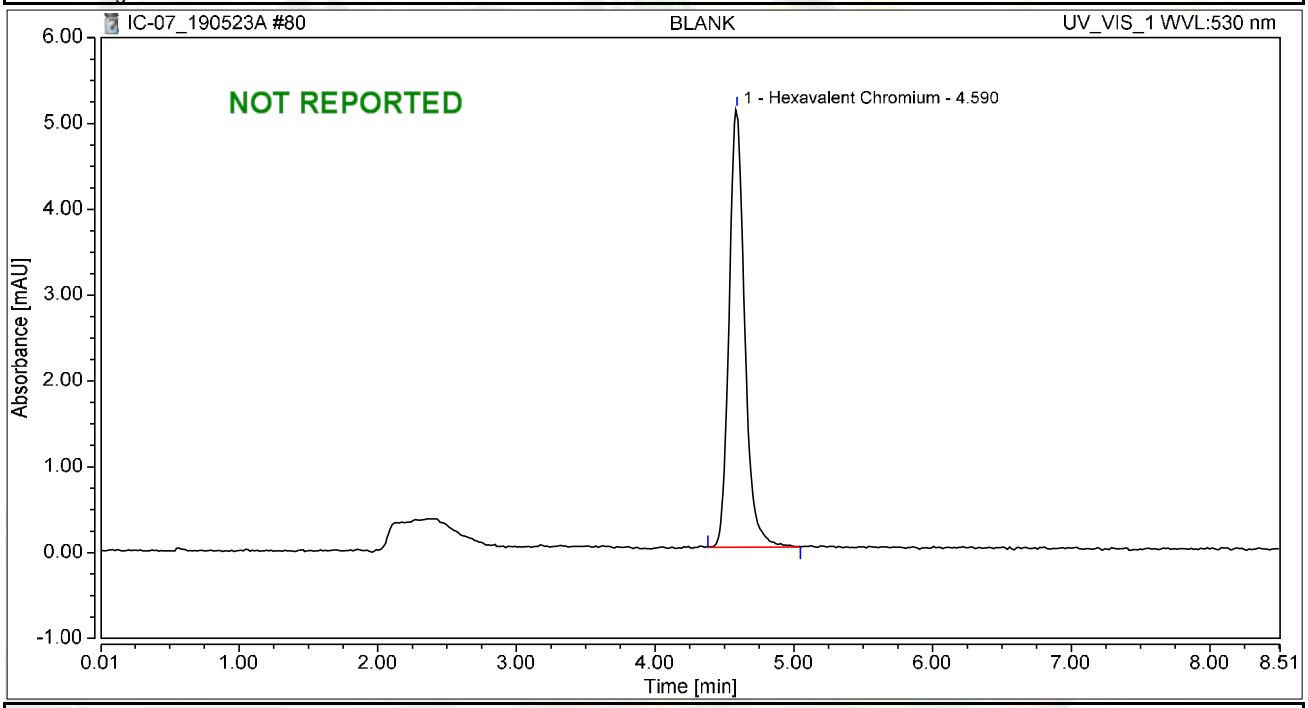
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 20:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

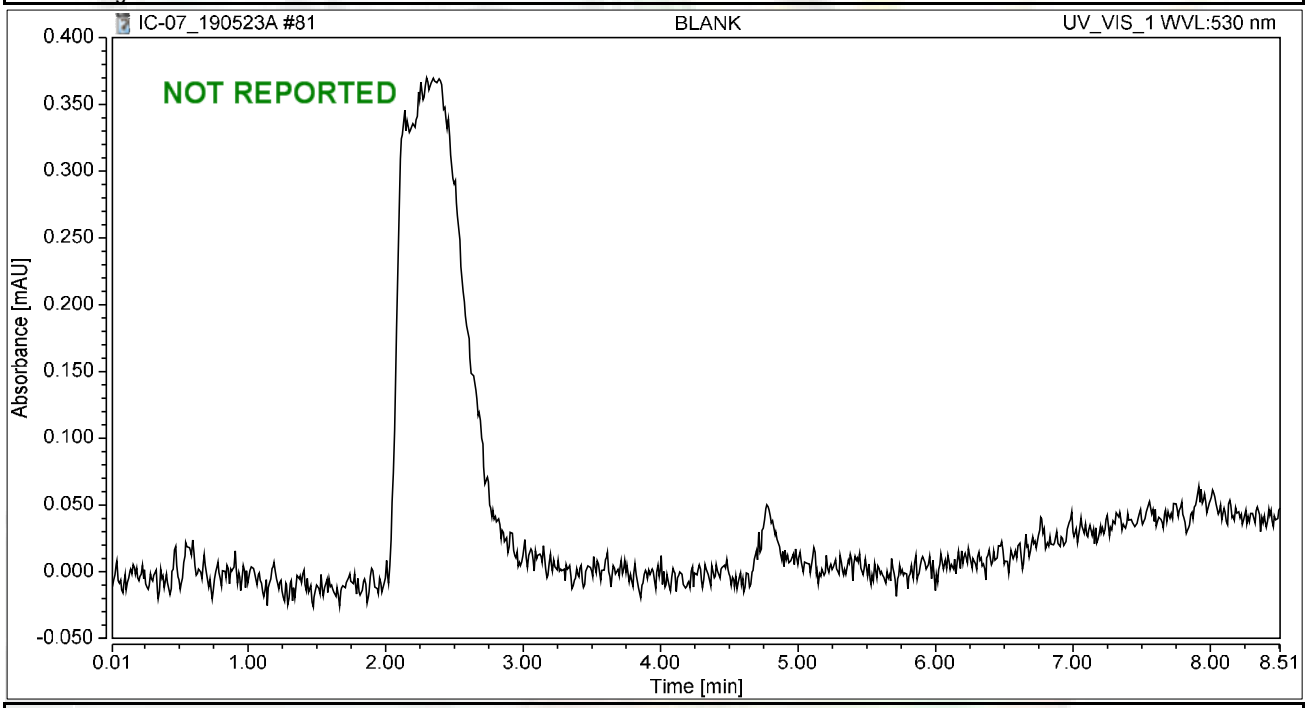
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.590	0.667	5.106	100.00	100.00	2.6452
Total:			**0.667**	**5.106**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 20:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

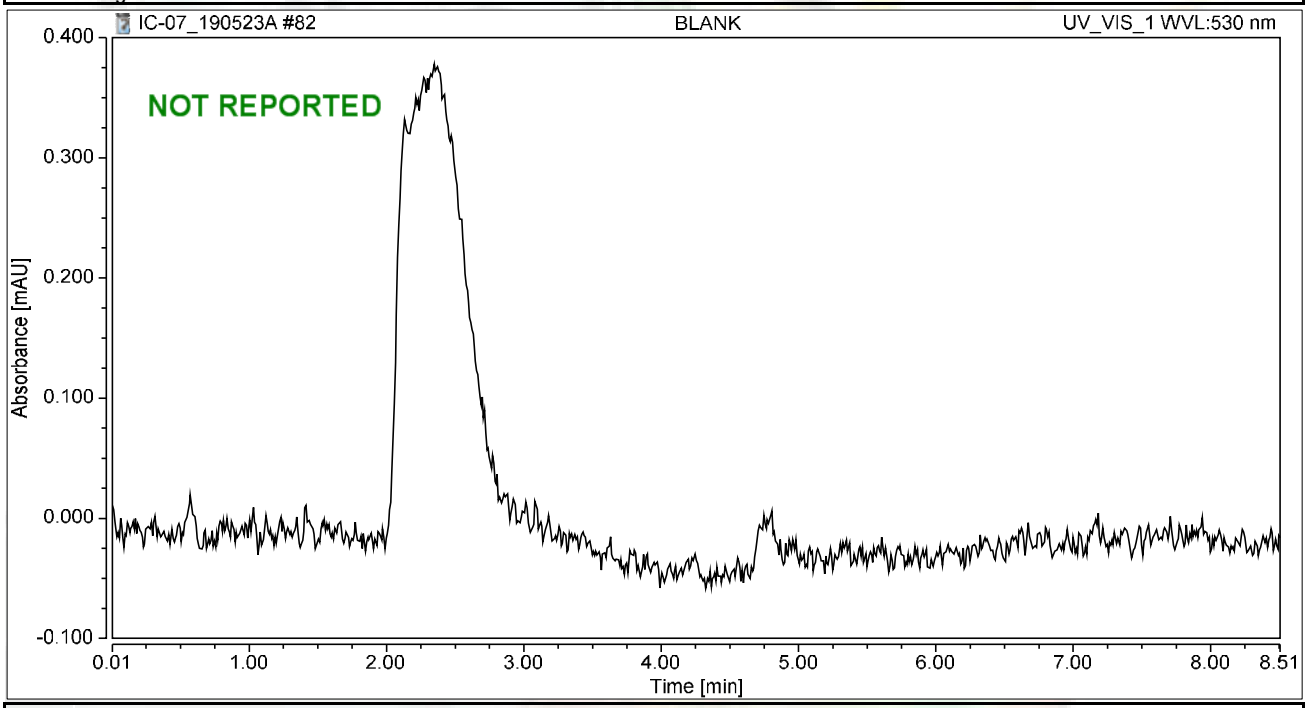
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**23/May/19 20:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134314 **Analyst:** QBM

ASSET #: N035737, N035738 **Date Analyzed:** 6/5/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 6/23/2019

2nd Level Reviewer NS 6/23/2019 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N035738-001C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.3005	*	1
	=	0.3005	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 0.30 mg/L

NS 6/23/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

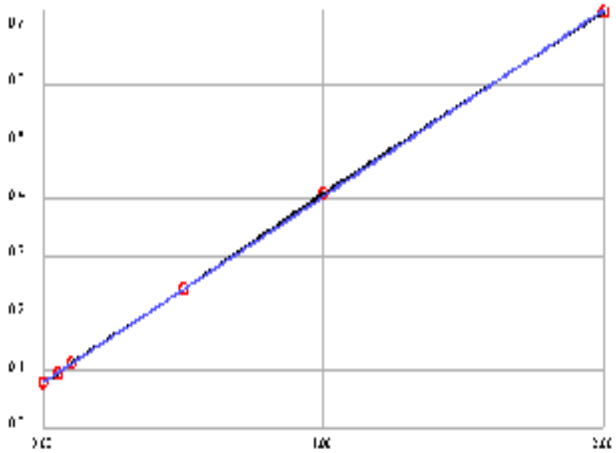
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3251x + 0.08
Correlation	.999935

Calibrant	Energy	Set	Conc
1	0.0789	0.0000	-0.0034
2	0.0950	0.0500	0.0461
3	0.1127	0.1000	0.1006
4	0.2417	0.5000	0.4974
5	0.4107	1.0000	1.0173
6	0.7276	2.0000	1.9921

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134314**
Client ID: **ICV**	Batch ID: **R134314**	TestNo: **SM4500-NO3**		Analysis Date: **6/4/2019**	SeqNo: **3401515**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.497	0.050	0.5000	0	99.5	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134314**
Client ID: **CCV**	Batch ID: **R134314**	TestNo: **SM4500-NO3**		Analysis Date: **6/4/2019**	SeqNo: **3401529**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.501	0.050	0.5000	0	100	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134314**
Client ID: **CCV**	Batch ID: **R134314**	TestNo: **SM4500-NO3**		Analysis Date: **6/4/2019**	SeqNo: **3401540**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.505	0.050	0.5000	0	101	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134314**
Client ID: **CCV**	Batch ID: **R134314**	TestNo: **SM4500-NO3**		Analysis Date: **6/4/2019**	SeqNo: **3401545**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.485	0.050	0.5000	0	96.9	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134314**
Client ID: **ICB**	Batch ID: **R134314**	TestNo: **SM4500-NO3**		Analysis Date: **6/4/2019**	SeqNo: **3401516**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134314**
Client ID: **CCB**	Batch ID: **R134314**	TestNo: **SM4500-NO3**		Analysis Date: **6/4/2019**	SeqNo: **3401530**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134314**
Client ID: **CCB**	Batch ID: **R134314**	TestNo: **SM4500-NO3**		Analysis Date: **6/4/2019**	SeqNo: **3401541**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134314**
Client ID: **CCB**	Batch ID: **R134314**	TestNo: **SM4500-NO3**		Analysis Date: **6/4/2019**	SeqNo: **3401546**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 06-04-2019 18:38
Time end: 06-04-2019 21:15

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	20:39:45	0.0009		0.0803
2	<BLANK>	20:40:45	-0.0080		0.0774
3	<CAL1>	20:41:40	-0.0034	[0]	0.0789
4	<CAL2>	20:42:35	0.0461	[0.05]	0.0950
5	<CAL3>	20:43:37	0.1006	[0.1]	0.1127
6	<CAL4>	20:44:31	0.4974	[0.5]	0.2417
7	<CAL5>	20:45:26	1.0173	[1]	0.4107
8	<CAL6>	20:46:22	1.9921	[2]	0.7276
9	,BLANK,BLANK,1, NOT REPORTED	20:47:22	0.0120		0.0839
10	,ICV,ICV,1,	20:48:17	0.4974		0.2417
11	,ICB,ICB,1,	20:49:13	-0.0037		0.0788
12	,MB-H2O,MBLK,1,	20:50:14	-0.0065		0.0779
13	,LCS-H2O,LCS,1,	20:51:08	0.5269		0.2513
14	,N035738-001C,SAMP,1,	20:52:04	0.3005		0.1777
15	,N035738-004C,SAMP,1,	20:53:06	0.0403		0.0931
16	,N035737-001B,SAMP,2,	20:54:00	0.6217		0.2821
17	,N035737-001BDUP,DUP,2,	20:54:55	0.6109		0.2786
18	,N035737-002B,SAMP,5,	20:55:51	0.4728		0.2337
19	,N035737-002BMS,MS,5,	20:56:52	0.9517		0.3894
20	,N035737-002BMSD,MSD,5,	20:57:46	1.0114		0.4088
21	,BLANK, NOT REPORTED	20:58:42	0.0074		0.0824
22	,CCV-1,CCV,1,	20:59:43	0.5011		0.2429
23	,CCB-1,CCB,1,	21:00:25	0.0018		0.0806
24	,N035738-010C,SAMP,1,	21:01:15	0.0070		0.0823
25	,N035738-012C,SAMP,1,	21:01:57	0.0101		0.0833
26	,N035738-002C,SAMP,5,	21:02:40	0.7496		0.3237

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035738-05C,SAMP,20,	21:03:30	0.7902		0.3369
28	,N035738-006C,SAMP,5,	21:04:12	0.4998		0.2425
29	,N035738-007C,SAMP,5,	21:04:55	0.5128		0.2467
30	,N035738-008C,SAMP,10,	21:05:43	0.5629		0.2630
31	,N035738-009C,SAMP,20,	21:06:27	0.4712		0.2332
32	,N035738-011C,SAMP,5,	21:07:09	0.4248		0.2181
33	,BLANK, NOT REPORTED	21:07:52	-0.0093		0.0770
34	,CCV-2,CCV,1,	21:08:41	0.5054		0.2443
35	,CCB-2,CCB,1,	21:09:23	-0.0117		0.0762
36	,N035738-013C,SAMP,2,	21:10:07	0.8265		0.3487
37	,N035738-014C,SAMP,50,	21:10:55	0.4174		0.2157
38	,N035738-015C,SAMP,10,	21:11:38	0.8290		0.3495
39	,BLANK, NOT REPORTED	21:12:20	-0.0086		0.0772
40	,CCV-3,CCV,1,	21:13:04	0.4845		0.2375
41	,CCB-3,CCB,1,	21:13:52	-0.0145		0.0753

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 6/4/2019
Time Analyzed: 6:38 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035737-001B		7.88							
N035737-002B		7.17							
N035738-001C		8.63							
N035738-002C		7.82							
N035738-004C		8.46							
N035738-005C		8.54							
N035738-006C		7.53							
N035738-007C		7.53							
N035738-008C		7.21							
N035738-009C		8.55							
N035738-010C		8.89							
N035738-011C		8.38							
N035738-012C		8.11							
N035738-013C		8.48							
N035738-014C		7.67							
N035738-015C		7.52							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73999
ASSET #: N035738

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/14/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.		X			X	
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Mo in N035738-001B-PS/MS/MSD failed, high bias. However, LCS passed criteria.
% Rec of Cr in N035738-001B-PS failed, high bias. However, LCS passed criteria.
Mn is OLR in N035738-004B. For dilution.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/3/2019

2nd Level Reviewer NS 7/3/2019 Date: ⌐

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 73999
ASSET #: N035738

Instrument ID: ICPMS-02
Analyst: HG
Date Analyzed: 7/2/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			~~X~~		X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.			X			X
24. LCS compounds within control limits.			X			X
25. MS/MSD, RPD's are within control limits			X			X
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

IS of Mn in ICSAB3 / ~~ICSA4~~ / ICSAB4 failed. However, sample is closed by ICSAB2, thus, sample is unaffected.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HSG Date: 7/3/2019

2nd Level Reviewer NS 7/3/2019 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Chromium concentration, in ug/L , in the original sample as follows:

Chromium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035738-001B** , the concentration in ug/L is calculated as follows:

Chromium , ug/L = 123.888 * 1 *(25 / 25)

Chromium , ug/L = 123.888

Reporting results in two significant figures,

Chromium , ug/L = 120

NS 7/3/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	1.92	15	PASS	0.1	23.18	15	NR!
Std2-0.5/5 ppb	ICAL	1	0.5	6.57	15	PASS	0.53	2.82	15	PASS
Std3-5/50 ppb	ICAL	1	5.11	1.075	15	PASS	5.16	1.55	15	PASS
Std4-10/100 ppb	ICAL	1	10.11	1.86	15	PASS	10.15	2.21	15	PASS
Std5-20/200 ppb	ICAL	1	20.076	1.65	15	PASS	20.35	0.84	15	PASS
Std6-40/400 ppb	ICAL	1	39.47	2.38	15	PASS	40.3	0.69	15	PASS
Std7-100/1000 ppb	ICAL	1	96.34	1.57	15	PASS	100.7	0.14	15	PASS
Std8-200/2000 ppb	ICAL	1	201.92	3.14	15	PASS	199.54	0.98	15	PASS
ICV	ICV	1	10.48	2.33	15	PASS	10.08	1.93	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.02	62.39	15	<PQL
LLICV	CCV1	1	1.029	1.87	20	PASS	0.1	19.15	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.042	22.97	15	<PQL
ICSAB1	ICSAB	1	19.46	2.053	15	PASS	20.82	0.72	15	PASS
LLICV	CCV1	1	1.037	2.71	20	PASS	0.12	4.85	20	PASS
CCV1	CCV	1	20.28	2.49	15	PASS	20.22	0.22	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.017	69.8	15	<PQL
CCV2	CCV	1	20.19	2.41	15	PASS	20.58	0.42	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.52	2.33	15	PASS	20.25	0.41	15	PASS
CCB3	CCB	1	0.21	6.016	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	19.97	2.29	15	PASS	19.97	1.57	15	PASS
CCB4	CCB	1	0.02	32.71	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.0049	292.06	15	<PQL	0.035	10.38	15	PASS
ICSAB2	ICSAB	1	19.41	2.052	15	PASS	20.78	0.58	15	PASS
CCV5	CCV	1	19.86	1.77	15	PASS	20.47	1.099	15	PASS
CCB5	CCB	1	0.09	16.56	15	<PQL	<0.000	N/A	15	<PQL
CCV6	CCV	1	19.96	2.33	15	PASS	20.19	0.92	15	PASS
CCB6	CCB	1	0.015	12.35	15	PASS	<0.000	N/A	15	<PQL
CCV7	CCV	1	19.82	2.2	15	PASS	20.23	0.63	15	PASS
CCB7	CCB	1	0.016	24.41	15	<PQL	0.0033	453.21	15	<PQL
ICSA3	ICSA	1	0.0048	180.61	15	<PQL	0.024	62.077	15	<PQL
ICSAB3	ICSAB	1	19.47	2.68	15	PASS	20.46	1.38	15	PASS
MB-73999	MBLK	1	0.21	35.71	15	<PQL	<0.000	N/A	15	<PQL
LCS-73999	LCS	1	9.81	1.97	15	PASS	10.39	1.86	15	PASS
N035738-001B	SAMP	1	123.89	2.25	15	PASS	8.76	1.94	15	PASS
N035738-001B	SAMP	5	25.059	1.16	15	PASS	1.77	1.82	15	PASS
N035738-001B	SAMP	25	5.25	3.84	15	PASS	0.37	6.25	15	PASS
N035738-001B-PS	PS	1	144.26	1.76	15	PASS	20.75	0.93	15	PASS
N035738-001B-PS	PS	5	27.92	2.3	15	PASS	4.019	2.046	15	PASS
N035738-001B-MS	MS	1	135.25	1.76	15	PASS	19.8	0.74	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035738-001B-MS	MS	5	27.86	2.57	15	PASS	4	1.083	15	PASS
N035738-001B-MSD	MSD	1	134.33	2.44	15	PASS	20.012	1.8	15	PASS
CCV8	CCV	1	20.017	2.46	15	PASS	20.014	0.96	15	PASS
CCB8	CCB	1	0.018	14.53	15	PASS	<0.000	N/A	15	<PQL
N035738-001B-MSD	MSD	5	28.043	2.2	15	PASS	4.0028	1.61	15	PASS
N035738-002B	SAMP	1	868.95	0.85	15	PASS	1.58	3.21	15	PASS
N035738-002B	SAMP	5	196.19	1.65	15	PASS	0.29	8.66	15	PASS
N035738-002B	SAMP	10	89.48	1.99	15	PASS	0.15	7.57	15	PASS
N035738-004B	SAMP	1	0.14	14.56	15	PASS	1.33	2.044	15	PASS
N035738-004B	SAMP	5	<0.000	N/A	15	<PQL	0.24	8.97	15	PASS
N035738-005B	SAMP	1	1577.55	2.25	15	PASS	35.65	0.51	15	PASS
N035738-005B	SAMP	5	343.027	0.67	15	PASS	7.14	2.46	15	PASS
N035738-005B	SAMP	25	64.84	1.74	15	PASS	1.41	3.35	15	PASS
N035738-006B	SAMP	1	117.78	2.45	15	PASS	4.45	1.88	15	PASS
CCV9	CCV	1	19.97	2.47	15	PASS	20.15	0.61	15	PASS
CCB9	CCB	1	0.05	2.74	15	PASS	<0.000	N/A	15	<PQL
ICSA4	ICSA	1	0.028	35.63	15	<PQL	0.031	36.9	15	<PQL
ICSAB4	ICSAB	1	19.15	2.31	15	PASS	20.23	1.24	15	PASS
N035738-006B	SAMP	5	24.51	1.86	15	PASS	0.92	6.27	15	PASS
N035738-007B	SAMP	1	117.58	2.017	15	PASS	4.48	1.46	15	PASS
N035738-007B	SAMP	5	23.92	2.019	15	PASS	0.95	2.7	15	PASS
N035738-008B	SAMP	1	14.88	1.68	15	PASS	2.73	3.51	15	PASS
N035738-008B	SAMP	5	3.33	3.61	15	PASS	0.56	3.91	15	PASS
N035738-009B	SAMP	1	5479.98	1.52	15	PASS	3.12	2.55	15	PASS
N035738-009B	SAMP	5	1196.12	1.45	15	PASS	0.61	0.87	15	PASS
N035738-009B	SAMP	50	123.89	2.99	15	PASS	0.046	32.027	15	<PQL
N035738-010B	SAMP	1	0.66	1.21	15	PASS	3.049	2.89	15	PASS
N035738-010B	SAMP	5	0.076	15.88	15	<PQL	0.56	4.39	15	PASS
CCV10	CCV	1	19.78	1.72	15	PASS	19.95	1.25	15	PASS
CCB10	CCB	1	0.066	15.47	15	<PQL	<0.000	N/A	15	<PQL
N035738-011B	SAMP	1	0.58	3.74	15	PASS	8.31	2.57	15	PASS
N035738-011B	SAMP	5	0.41	2.6	15	PASS	1.7	2.79	15	PASS
N035738-012B	SAMP	1	0.15	13.36	15	PASS	1.19	3.76	15	PASS
N035738-012B	SAMP	5	0.67	3.22	15	PASS	0.24	6.61	15	PASS
N035738-013B	SAMP	1	<0.000	N/A	15	<PQL	0.066	16.38	15	<PQL
N035738-013B	SAMP	5	0.026	27.16	15	<PQL	<0.000	N/A	15	<PQL
N035738-014B	SAMP	1	2304.16	1.29	15	PASS	1.85	2.68	15	PASS
N035738-014B	SAMP	5	502.61	1.7	15	PASS	0.35	3.37	15	PASS
N035738-014B	SAMP	25	100.34	3.26	15	PASS	0.05	27.44	15	<PQL
N035738-015B	SAMP	1	3178.45	1.55	15	PASS	4.14	0.51	15	PASS
CCV11	CCV	1	20.47	1.69	15	PASS	20.11	0.48	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB11	CCB	1	0.21	2.73	15	PASS	<0.000	N/A	15	<PQL
N035738-015B	SAMP	5	711.13	1.69	15	PASS	0.81	8.14	15	PASS
N035738-015B	SAMP	25	150.79	1.4	15	PASS	0.13	14.94	15	PASS
CCV12	CCV	1	20.044	2.33	15	PASS	20.067	0.48	15	PASS
CCB12	CCB	1	0.12	5.36	15	PASS	<0.000	N/A	15	<PQL
ICSA5	ICSA	1	0.067	5.88	15	PASS	0.022	94.5	15	<PQL
ICSAB5	ICSAB	1	19.29	1.63	15	PASS	20.26	1.58	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.083	49.022	15	<PQL	0.084	20.16	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.53	24.29	15	NR!	0.47	1.25	15	PASS
Std3-5/50 ppb	ICAL	1	5.13	3.53	15	PASS	4.86	4.16	15	PASS
Std4-10/100 ppb	ICAL	1	10.053	5.14	15	PASS	9.91	1.36	15	PASS
Std5-20/200 ppb	ICAL	1	20.11	2.36	15	PASS	20.082	1.47	15	PASS
Std6-40/400 ppb	ICAL	1	40.27	2.39	15	PASS	40.17	0.28	15	PASS
Std7-100/1000 ppb	ICAL	1	101.64	0.4	15	PASS	100.45	1.42	15	PASS
Std8-200/2000 ppb	ICAL	1	199.11	1.44	15	PASS	199.74	0.3	15	PASS
ICV	ICV	1	9.41	4.66	15	PASS	9.69	1.98	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.13	18.15	15	<PQL
LLICV	CCV1	1	0.52	29.45	20	NR!	0.52	2.65	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.046	28.087	15	<PQL
ICSAB1	ICSAB	1	19.59	2.62	15	PASS	21.44	1.069	15	PASS
LLICV	CCV1	1	0.52	5.78	20	PASS	0.57	3.62	20	PASS
CCV1	CCV	1	19.99	2.32	15	PASS	19.92	0.7	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.035	52.58	15	<PQL
CCV2	CCV	1	19.64	0.86	15	PASS	19.78	1.73	15	PASS
CCB2	CCB	1	0.0091	97.37	15	<PQL	0.036	26.65	15	<PQL
CCV3	CCV	1	19.48	2.91	15	PASS	19.88	0.94	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.02	85.78	15	<PQL
CCV4	CCV	1	19.88	2.3	15	PASS	20.16	0.6	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.048	27.14	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.026	55.71	15	<PQL
ICSAB2	ICSAB	1	20.09	1.66	15	PASS	21.52	0.94	15	PASS
CCV5	CCV	1	19.88	2.7	15	PASS	20.065	0.91	15	PASS
CCB5	CCB	1	0.01	137.5	15	<PQL	0.021	85.88	15	<PQL
CCV6	CCV	1	20.15	1.46	15	PASS	20.11	0.51	15	PASS
CCB6	CCB	1	0.0045	637.084	15	<PQL	0.05	34.67	15	<PQL
CCV7	CCV	1	20.65	2.29	15	PASS	20.15	1.87	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	0.017	59.97	15	<PQL
ICSA3	ICSA	1	0.0024	706.68	15	<PQL	0.022	84.35	15	<PQL
ICSAB3	ICSAB	1	19.68	3.89	15	PASS	21.72	1.22	15	PASS
MB-73999	MBLK	1	<0.000	0	15	PASS	0.03	20	15	<PQL
LCS-73999	LCS	1	10.18	3.78	15	PASS	10.53	2.14	15	PASS
N035738-001B	SAMP	1	2.72	6.39	15	PASS	59.83	1.16	15	PASS
N035738-001B	SAMP	5	0.57	6.71	15	PASS	11.59	1.19	15	PASS
N035738-001B	SAMP	25	0.12	24.14	15	<PQL	2.22	0.52	15	PASS
N035738-001B-PS	PS	1	14.32	5.56	15	PASS	77.83	1.45	15	PASS
N035738-001B-PS	PS	5	2.38	3.92	15	PASS	14.42	1.83	15	PASS
N035738-001B-MS	MS	1	13.43	9.12	15	PASS	74.089	1.26	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035738-001B-MS	MS	5	2.8	11.45	15	PASS	14.45	0.94	15	PASS
N035738-001B-MSD	MSD	1	13.24	3.27	15	PASS	74.23	1.71	15	PASS
CCV8	CCV	1	20.26	3.49	15	PASS	19.67	1.25	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	0.046	52.94	15	<PQL
N035738-001B-MSD	MSD	5	2.77	2.49	15	PASS	14.31	1.64	15	PASS
N035738-002B	SAMP	1	6.2	4.18	15	PASS	16.94	0.42	15	PASS
N035738-002B	SAMP	5	1.18	5.18	15	PASS	3.21	1.26	15	PASS
N035738-002B	SAMP	10	0.58	7.55	15	PASS	1.57	2.83	15	PASS
N035738-004B	SAMP	1	0.066	69.47	15	<PQL	45.67	0.88	15	PASS
N035738-004B	SAMP	5	<0.000	N/A	15	<PQL	8.95	1.12	15	PASS
N035738-005B	SAMP	1	31.81	3.019	15	PASS	6.34	3.13	15	PASS
N035738-005B	SAMP	5	6.18	4.71	15	PASS	1.23	2.51	15	PASS
N035738-005B	SAMP	25	1.2	19.095	15	NR!	0.23	6.8	15	PASS
N035738-006B	SAMP	1	2.048	13.39	15	PASS	53.88	0.72	15	PASS
CCV9	CCV	1	19.39	3.14	15	PASS	19.67	2.46	15	PASS
CCB9	CCB	1	<0.000	N/A	15	<PQL	0.031	42.39	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	0.03	48.26	15	<PQL
ICSAB4	ICSAB	1	19.84	1.34	15	PASS	21.5	0.48	15	PASS
N035738-006B	SAMP	5	0.47	22.3	15	<PQL	10.65	1.085	15	PASS
N035738-007B	SAMP	1	1.91	3.74	15	PASS	53.56	0.064	15	PASS
N035738-007B	SAMP	5	0.29	13.38	15	PASS	10.59	1.66	15	PASS
N035738-008B	SAMP	1	5.62	1.88	15	PASS	17.74	1.1	15	PASS
N035738-008B	SAMP	5	1.11	18.78	15	NR!	3.55	0.72	15	PASS
N035738-009B	SAMP	1	10.73	4.79	15	PASS	35.81	1.22	15	PASS
N035738-009B	SAMP	5	2.11	7.11	15	PASS	7.1	0.049	15	PASS
N035738-009B	SAMP	50	0.18	34.63	15	<PQL	0.63	1.73	15	PASS
N035738-010B	SAMP	1	0.047	84.49	15	<PQL	68.42	1.66	15	PASS
N035738-010B	SAMP	5	0.0064	564.46	15	<PQL	13.39	0.64	15	PASS
CCV10	CCV	1	19.35	3.29	15	PASS	20.058	0.84	15	PASS
CCB10	CCB	1	<0.000	N/A	15	<PQL	0.023	42.19	15	<PQL
N035738-011B	SAMP	1	2.44	3.33	15	PASS	18.68	2.079	15	PASS
N035738-011B	SAMP	5	0.57	5.71	15	PASS	3.73	1.22	15	PASS
N035738-012B	SAMP	1	0.0068	205.52	15	<PQL	42.46	0.6	15	PASS
N035738-012B	SAMP	5	0.0053	349.59	15	<PQL	8.096	2.035	15	PASS
N035738-013B	SAMP	1	<0.000	N/A	15	<PQL	10.42	1.27	15	PASS
N035738-013B	SAMP	5	<0.000	0	15	PASS	2.052	2.9	15	PASS
N035738-014B	SAMP	1	38.8	4.38	15	PASS	30.43	1.078	15	PASS
N035738-014B	SAMP	5	7.73	3.61	15	PASS	5.93	1.89	15	PASS
N035738-014B	SAMP	25	1.63	19.79	15	NR!	1.13	2.61	15	PASS
N035738-015B	SAMP	1	14.93	4.8	15	PASS	48.34	1.088	15	PASS
CCV11	CCV	1	19.81	3.83	15	PASS	20.1	0.35	15	PASS

PERCENT RSD SUMMARY: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB11	CCB	1	<0.000	N/A	15	<PQL	0.042	31.22	15	<PQL
N035738-015B	SAMP	5	3.061	4.000019	15	PASS	9.29	0.94	15	PASS
N035738-015B	SAMP	25	0.61	7.6	15	PASS	1.85	2.62	15	PASS
CCV12	CCV	1	20.026	0.57	15	PASS	19.9	1.34	15	PASS
CCB12	CCB	1	0.0062	352.59	15	<PQL	0.031	83.77	15	<PQL
ICSA5	ICSA	1	<0.000	N/A	15	<PQL	0.015	8.06	15	PASS
ICSAB5	ICSAB	1	19.6	1.83	15	PASS	21.39	1.59	15	PASS

PERCENT RSD SUMMARY: 190702A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.11	18.33	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.5	3.1	15	PASS
Std3-5/50 ppb	ICAL	1	5.2	0.14	15	PASS
Std4-10/100 ppb	ICAL	1	10.32	1.37	15	PASS
Std5-20/200 ppb	ICAL	1	20.94	0.3	15	PASS
Std6-40/400 ppb	ICAL	1	40.96	0.96	15	PASS
Std7-100/1000 ppb	ICAL	1	101.47	1.66	15	PASS
Std8-200/2000 ppb	ICAL	1	198.96	0.96	15	PASS
ICV	ICV	1	108.42	0.44	15	PASS
ICB	ICB	1	0.0056	38.6	15	<PQL
LLICV	CCV1	1	0.58	8.18	20	PASS
ICSA1	ICSA	1	0.14	57.73	15	<PQL
ICSAB1	ICSAB	1	20.71	1.013	15	PASS
CCV1	CCV	1	20.62	0.69	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL
N035738-004A	SAMP	25	31.36	0.73	15	PASS
CCV2	CCV	1	20.39	1.26	15	PASS
CCB2	CCB	1	0.0085	74.24	15	<PQL
CCV3	CCV	1	20.42	1.57	15	PASS
CCB3	CCB	1	0.0065	15.57	15	<PQL
ICSA2	ICSA	1	0.07	110.34	15	<PQL
ICSAB2	ICSAB	1	20.21	1.36	15	PASS
CCV4	CCV	1	20.63	1.27	15	PASS
CCB4	CCB	1	0.0049	220.18	15	<PQL
CCV5	CCV	1	20.56	1.27	15	PASS
CCB5	CCB	1	0.0074	122.27	15	<PQL
ICSA3	ICSA	1	0.1	21.037	15	<PQL
ICSAB3	ICSAB	1	20.072	1.92	15	PASS
CCV6	CCV	1	20.44	0.29	15	PASS
CCB6	CCB	1	0.00049	704.58	15	<PQL
CCV7	CCV	1	20.55	0.58	15	PASS
CCB7	CCB	1	0.00011	3827.058	15	<PQL
ICSA4	ICSA	1	0.15	21.013	15	<PQL
ICSAB4	ICSAB	1	20.079	1.86	15	PASS
ICSAB4	ICSAB	1	20.19	0.6	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614001.D	RINSE	RINSE	1	06/14/19 6:06 PM
B0614002.D	Cal Blank	IBLK	1	06/14/19 6:11 PM
B0614003.D	Std1-0.1/1 ppb	ICAL	1	06/14/19 6:16 PM
B0614004.D	Std2-0.5/5 ppb	ICAL	1	06/14/19 6:21 PM
B0614005.D	Std3-5/50 ppb	ICAL	1	06/14/19 6:26 PM
B0614006.D	Std4-10/100 ppb	ICAL	1	06/14/19 6:31 PM
B0614007.D	Std5-20/200 ppb	ICAL	1	06/14/19 6:36 PM
B0614008.D	Std6-40/400 ppb	ICAL	1	06/14/19 6:41 PM
B0614009.D	Std7-100/1000 ppb	ICAL	1	06/14/19 6:46 PM
B0614010.D	Std8-200/2000 ppb	ICAL	1	06/14/19 6:51 PM
B0614011.D	ICV	ICV	1	06/14/19 6:55 PM
B0614012.D	ICB	ICB	1	06/14/19 7:01 PM
B0614013.D	LLICV	CCV1	1	06/14/19 7:06 PM
B0614014.D	ICSA1	ICSA	1	06/14/19 7:11 PM
B0614015.D	ICSAB1	ICSAB	1	06/14/19 7:16 PM
B0614016.D	LLICV	CCV1	1	06/14/19 7:21 PM
B0614017.D	N035737-001E	SAMP	1	06/14/19 7:26 PM
B0614018.D	N035737-001E	SAMP	1	06/14/19 7:31 PM
B0614019.D	N035760-001E	SAMP	5	06/14/19 7:35 PM
B0614020.D	N035598-002D	SAMP	1	06/14/19 7:40 PM
B0614021.D	N035598-002D	SAMP	1	06/14/19 7:45 PM
B0614022.D	MB-73998	MBLK	1	06/14/19 7:49 PM
B0614023.D	LCS-73998	LCS	1	06/14/19 7:54 PM
B0614024.D	N036001-002A	SAMP	1	06/14/19 7:59 PM
B0614025.D	N036001-002A	SAMP	5	06/14/19 8:04 PM
B0614026.D	N036001-002A-PS	PS	1	06/14/19 8:09 PM
B0614027.D	CCV1	CCV	1	06/14/19 8:14 PM
B0614028.D	CCB1	CCB	1	06/14/19 8:19 PM
B0614029.D	N036001-002A-MS	MS	1	06/14/19 8:24 PM
B0614030.D	N036001-002A-MSD	MSD	1	06/14/19 8:29 PM
B0614031.D	N036001-002A	SAMP	25	06/14/19 8:34 PM
B0614032.D	N036001-002A-PS	PS	5	06/14/19 8:39 PM
B0614033.D	N036001-002A-MS	MS	5	06/14/19 8:44 PM
B0614034.D	N036001-002A-MSD	MSD	5	06/14/19 8:49 PM
B0614035.D	N035662-001D	SAMP	1	06/14/19 8:54 PM
B0614036.D	N035662-001D	SAMP	5	06/14/19 8:59 PM
B0614037.D	N035737-001D	SAMP	1	06/14/19 9:04 PM
B0614038.D	N035737-001D	SAMP	5	06/14/19 9:09 PM
B0614039.D	CCV2	CCV	1	06/14/19 9:13 PM
B0614040.D	CCB2	CCB	1	06/14/19 9:18 PM
B0614041.D	N035737-002D	SAMP	1	06/14/19 9:23 PM
B0614042.D	N035737-002D	SAMP	5	06/14/19 9:28 PM

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614043.D	N035760-001D	SAMP	5	06/14/19 9:33 PM
B0614044.D	N035760-001D	SAMP	25	06/14/19 9:38 PM
B0614045.D	N035705-004B	SAMP	1	06/14/19 9:43 PM
B0614046.D	N035705-005B	SAMP	1	06/14/19 9:48 PM
B0614047.D	MB-73997	MBLK	1	06/14/19 9:53 PM
B0614048.D	LCS-73997	LCS	1	06/14/19 9:58 PM
B0614049.D	N035705-014B	SAMP	1	06/14/19 10:03 PM
B0614050.D	N035705-014B	SAMP	5	06/14/19 10:08 PM
B0614051.D	CCV3	CCV	1	06/14/19 10:13 PM
B0614052.D	CCB3	CCB	1	06/14/19 10:18 PM
B0614053.D	N035705-014B	SAMP	50	06/14/19 10:23 PM
B0614054.D	N035705-015B	SAMP	1	06/14/19 10:28 PM
B0614055.D	N035705-015B	SAMP	5	06/14/19 10:32 PM
B0614056.D	N035705-015B-PS	PS	1	06/14/19 10:37 PM
B0614057.D	N035705-015B-MS	MS	1	06/14/19 10:42 PM
B0614058.D	N035705-015B-MSD	MSD	1	06/14/19 10:47 PM
B0614059.D	N035705-015B	SAMP	25	06/14/19 10:52 PM
B0614060.D	N035705-015B-PS	PS	5	06/14/19 10:57 PM
B0614061.D	N035705-015B-MS	MS	5	06/14/19 11:02 PM
B0614062.D	N035705-015B-MSD	MSD	5	06/14/19 11:07 PM
B0614063.D	CCV4	CCV	1	06/14/19 11:12 PM
B0614064.D	CCB4	CCB	1	06/14/19 11:17 PM
B0614065.D	ICSA2	ICSA	1	06/14/19 11:22 PM
B0614066.D	ICSAB2	ICSAB	1	06/14/19 11:27 PM
B0614067.D	N035712-002B	SAMP	1	06/14/19 11:32 PM
B0614068.D	N035712-004B	SAMP	1	06/14/19 11:37 PM
B0614069.D	N035712-004B	SAMP	5	06/14/19 11:42 PM
B0614070.D	N035712-006B	SAMP	1	06/14/19 11:47 PM
B0614071.D	N035712-006B	SAMP	5	06/14/19 11:51 PM
B0614072.D	N035712-007B	SAMP	1	06/14/19 11:56 PM
B0614073.D	N035712-007B	SAMP	5	06/15/19 12:01 AM
B0614074.D	N035712-008B	SAMP	1	06/15/19 12:06 AM
B0614075.D	N035712-008B	SAMP	5	06/15/19 12:11 AM
B0614076.D	N035712-009B	SAMP	1	06/15/19 12:16 AM
B0614077.D	CCV5	CCV	1	06/15/19 12:21 AM
B0614078.D	CCB5	CCB	1	06/15/19 12:26 AM
B0614079.D	N035712-009B	SAMP	5	06/15/19 12:31 AM
B0614080.D	N035712-009B	SAMP	10	06/15/19 12:36 AM
B0614081.D	N035712-010B	SAMP	1	06/15/19 12:41 AM
B0614082.D	N035712-010B	SAMP	5	06/15/19 12:46 AM
B0614083.D	N035712-011B	SAMP	1	06/15/19 12:51 AM
B0614084.D	N035712-011B	SAMP	5	06/15/19 12:56 AM

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614085.D	N035712-012B	SAMP	1	06/15/19 1:01 AM
B0614086.D	N035712-012B	SAMP	5	06/15/19 1:06 AM
B0614087.D	N035712-013B	SAMP	1	06/15/19 1:11 AM
B0614088.D	N035712-013B	SAMP	5	06/15/19 1:16 AM
B0614089.D	CCV6	CCV	1	06/15/19 1:20 AM
B0614090.D	CCB6	CCB	1	06/15/19 1:25 AM
B0614091.D	N035712-013B	SAMP	10	06/15/19 1:30 AM
B0614092.D	N035712-016B	SAMP	1	06/15/19 1:35 AM
B0614093.D	N035712-016B	SAMP	5	06/15/19 1:40 AM
B0614094.D	N035712-017B	SAMP	1	06/15/19 1:45 AM
B0614095.D	N035712-017B	SAMP	5	06/15/19 1:50 AM
B0614096.D	N035712-018B	SAMP	1	06/15/19 1:55 AM
B0614097.D	N035712-018B	SAMP	5	06/15/19 2:00 AM
B0614098.D	N035712-020B	SAMP	1	06/15/19 2:05 AM
B0614099.D	N035712-020B	SAMP	5	06/15/19 2:10 AM
B0614100.D	CCV7	CCV	1	06/15/19 2:15 AM
B0614101.D	CCB7	CCB	1	06/15/19 2:20 AM
B0614102.D	ICSA3	ICSA	1	06/15/19 2:25 AM
B0614103.D	ICSAB3	ICSAB	1	06/15/19 2:30 AM
B0614104.D	MB-73999	MBLK	1	06/15/19 2:35 AM
B0614105.D	LCS-73999	LCS	1	06/15/19 2:40 AM
B0614106.D	N035738-001B	SAMP	1	06/15/19 2:45 AM
B0614107.D	N035738-001B	SAMP	5	06/15/19 2:50 AM
B0614108.D	N035738-001B	SAMP	25	06/15/19 2:55 AM
B0614109.D	N035738-001B-PS	PS	1	06/15/19 3:00 AM
B0614110.D	N035738-001B-PS	PS	5	06/15/19 3:05 AM
B0614111.D	N035738-001B-MS	MS	1	06/15/19 3:10 AM
B0614112.D	N035738-001B-MS	MS	5	06/15/19 3:15 AM
B0614113.D	N035738-001B-MSD	MSD	1	06/15/19 3:19 AM
B0614114.D	CCV8	CCV	1	06/15/19 3:24 AM
B0614115.D	CCB8	CCB	1	06/15/19 3:29 AM
B0614116.D	N035738-001B-MSD	MSD	5	06/15/19 3:34 AM
B0614117.D	N035738-002B	SAMP	1	06/15/19 3:39 AM
B0614118.D	N035738-002B	SAMP	5	06/15/19 3:44 AM
B0614119.D	N035738-002B	SAMP	10	06/15/19 3:49 AM
B0614120.D	N035738-004B	SAMP	1	06/15/19 3:54 AM
B0614121.D	N035738-004B	SAMP	5	06/15/19 3:59 AM
B0614122.D	N035738-005B	SAMP	1	06/15/19 4:04 AM
B0614123.D	N035738-005B	SAMP	5	06/15/19 4:09 AM
B0614124.D	N035738-005B	SAMP	25	06/15/19 4:14 AM
B0614125.D	N035738-006B	SAMP	1	06/15/19 4:19 AM
B0614126.D	CCV9	CCV	1	06/15/19 4:24 AM

INJECTION LOG: 190614B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0614127.D	CCB9	CCB	1	06/15/19 4:29 AM
B0614128.D	ICSA4	ICSA	1	06/15/19 4:34 AM
B0614129.D	ICSAB4	ICSAB	1	06/15/19 4:39 AM
B0614130.D	N035738-006B	SAMP	5	06/15/19 4:44 AM
B0614131.D	N035738-007B	SAMP	1	06/15/19 4:48 AM
B0614132.D	N035738-007B	SAMP	5	06/15/19 4:53 AM
B0614133.D	N035738-008B	SAMP	1	06/15/19 4:58 AM
B0614134.D	N035738-008B	SAMP	5	06/15/19 5:03 AM
B0614135.D	N035738-009B	SAMP	1	06/15/19 5:08 AM
B0614136.D	N035738-009B	SAMP	5	06/15/19 5:13 AM
B0614137.D	N035738-009B	SAMP	50	06/15/19 5:18 AM
B0614138.D	N035738-010B	SAMP	1	06/15/19 5:23 AM
B0614139.D	N035738-010B	SAMP	5	06/15/19 5:28 AM
B0614140.D	CCV10	CCV	1	06/15/19 5:33 AM
B0614141.D	CCB10	CCB	1	06/15/19 5:38 AM
B0614142.D	N035738-011B	SAMP	1	06/15/19 5:43 AM
B0614143.D	N035738-011B	SAMP	5	06/15/19 5:47 AM
B0614144.D	N035738-012B	SAMP	1	06/15/19 5:52 AM
B0614145.D	N035738-012B	SAMP	5	06/15/19 5:57 AM
B0614146.D	N035738-013B	SAMP	1	06/15/19 6:02 AM
B0614147.D	N035738-013B	SAMP	5	06/15/19 6:07 AM
B0614148.D	N035738-014B	SAMP	1	06/15/19 6:12 AM
B0614149.D	N035738-014B	SAMP	5	06/15/19 6:17 AM
B0614150.D	N035738-014B	SAMP	25	06/15/19 6:22 AM
B0614151.D	N035738-015B	SAMP	1	06/15/19 6:27 AM
B0614152.D	CCV11	CCV	1	06/15/19 6:32 AM
B0614153.D	CCB11	CCB	1	06/15/19 6:37 AM
B0614154.D	N035738-015B	SAMP	5	06/15/19 6:42 AM
B0614155.D	N035738-015B	SAMP	25	06/15/19 6:47 AM
B0614156.D	CCV12	CCV	1	06/15/19 6:52 AM
B0614157.D	CCB12	CCB	1	06/15/19 6:57 AM
B0614158.D	ICSA5	ICSA	1	06/15/19 7:02 AM
B0614159.D	ICSAB5	ICSAB	1	06/15/19 7:07 AM

INJECTION LOG: 190702A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0702001.D	RINSE	RINSE	1	07/02/19 12:16 PM
A0702002.D	RINSE	RINSE	1	07/02/19 12:20 PM
A0702003.D	RINSE	RINSE	1	07/02/19 12:25 PM
A0702004.D	Cal Blank	IBLK	1	07/02/19 12:30 PM
A0702005.D	Std1-0.1/1 ppb	ICAL	1	07/02/19 12:35 PM
A0702006.D	Std2-0.5/5 ppb	ICAL	1	07/02/19 12:40 PM
A0702007.D	Std3-5/50 ppb	ICAL	1	07/02/19 12:45 PM
A0702008.D	Std4-10/100 ppb	ICAL	1	07/02/19 12:50 PM
A0702009.D	Std5-20/200 ppb	ICAL	1	07/02/19 12:55 PM
A0702010.D	Std6-40/400 ppb	ICAL	1	07/02/19 1:00 PM
A0702011.D	Std7-100/1000 ppb	ICAL	1	07/02/19 1:05 PM
A0702012.D	Std8-200/2000 ppb	ICAL	1	07/02/19 1:10 PM
A0702013.D	ICV	ICV	1	07/02/19 1:35 PM
A0702014.D	ICB	ICB	1	07/02/19 1:40 PM
A0702015.D	LLICV	CCV1	1	07/02/19 1:45 PM
A0702016.D	ICSA1	ICSA	1	07/02/19 1:50 PM
A0702017.D	ICSAB1	ICSAB	1	07/02/19 1:54 PM
A0702018.D	N035915-013A	SAMP	1	07/02/19 2:24 PM
A0702019.D	N035915-013B	SAMP	1	07/02/19 2:29 PM
A0702020.D	N035935-001A	SAMP	1	07/02/19 2:34 PM
A0702021.D	N035935-001B	SAMP	1	07/02/19 2:39 PM
A0702022.D	N035935-002A	SAMP	1	07/02/19 2:44 PM
A0702023.D	N035935-002B	SAMP	1	07/02/19 2:49 PM
A0702024.D	N035935-003A	SAMP	1	07/02/19 2:54 PM
A0702025.D	N035935-003B	SAMP	1	07/02/19 2:59 PM
A0702026.D	N035935-004A	SAMP	1	07/02/19 3:04 PM
A0702027.D	N035935-004B	SAMP	1	07/02/19 3:09 PM
A0702028.D	CCV1	CCV	1	07/02/19 3:14 PM
A0702029.D	CCB1	CCB	1	07/02/19 3:19 PM
A0702030.D	N035738-004A	SAMP	25	07/02/19 3:30 PM
A0702031.D	MB-74371	MBLK	1	07/02/19 3:35 PM
A0702032.D	LCS-74371	LCS	1	07/02/19 3:40 PM
A0702033.D	N036101-001B	SAMP	5	07/02/19 3:45 PM
A0702034.D	N036101-001B	SAMP	25	07/02/19 3:50 PM
A0702035.D	N036101-001B-PS	PS	5	07/02/19 3:55 PM
A0702036.D	N036101-001B-MS	MS	5	07/02/19 4:00 PM
A0702037.D	N036101-001B-MSD	MSD	5	07/02/19 4:05 PM
A0702038.D	N035995-001B	SAMP	5	07/02/19 4:10 PM
A0702039.D	N035995-002B	SAMP	5	07/02/19 4:15 PM
A0702040.D	CCV2	CCV	1	07/02/19 4:20 PM
A0702041.D	CCB2	CCB	1	07/02/19 4:25 PM
A0702042.D	N035995-003B	SAMP	5	07/02/19 4:30 PM

INJECTION LOG: 190702A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0702043.D	N035934-001A	SAMP	1	07/02/19 4:35 PM
A0702044.D	N035934-001A	SAMP	5	07/02/19 4:40 PM
A0702045.D	MB-74371	MBLK	1	07/02/19 4:50 PM
A0702046.D	N035995-001B	SAMP	1	07/02/19 4:59 PM
A0702047.D	N035995-002B	SAMP	1	07/02/19 5:04 PM
A0702048.D	N035995-003B	SAMP	1	07/02/19 5:09 PM
A0702049.D	N035934-001A	SAMP	25	07/02/19 5:14 PM
A0702050.D	MB-74410	MBLK	1	07/02/19 5:19 PM
A0702051.D	LCS-74410	LCS	1	07/02/19 5:23 PM
A0702052_190702A.D	CCV3	CCV	1	07/02/19 5:32 PM
A0702053_190702A.D	CCB3	CCB	1	07/02/19 5:37 PM
A0702054_190702A.D	ICSA2	ICSA	1	07/02/19 5:42 PM
A0702055_190702A.D	ICSAB2	ICSAB	1	07/02/19 5:47 PM
A0702056_190702A.D	MB-74410	MBLK	1	07/02/19 5:51 PM
A0702057_190702A.D	LCS-74410	LCS	1	07/02/19 5:56 PM
A0702058.D	N036286-001A	SAMP	1	07/02/19 6:08 PM
A0702059.D	N036286-001A	SAMP	5	07/02/19 6:13 PM
A0702060.D	N036286-001A-PS	PS	1	07/02/19 6:18 PM
A0702061.D	N036286-001A-MS	MS	1	07/02/19 6:23 PM
A0702062.D	N036286-001A-MSD	MSD	1	07/02/19 6:28 PM
A0702063.D	N036304-001D	SAMP	1	07/02/19 6:32 PM
A0702064.D	N036314-001A	SAMP	1	07/02/19 6:37 PM
A0702065.D	N036262-003C	SAMP	1	07/02/19 6:42 PM
A0702066.D	CCV4	CCV	1	07/02/19 6:47 PM
A0702067.D	CCB4	CCB	1	07/02/19 6:52 PM
A0702068.D	N036278-001K	SAMP	1	07/02/19 6:57 PM
A0702069.D	N036278-002K	SAMP	1	07/02/19 7:02 PM
A0702070.D	MB-74411	MBLK	1	07/02/19 7:07 PM
A0702071.D	LCS-74411	LCS	1	07/02/19 7:12 PM
A0702072.D	N036115-001B	SAMP	1	07/02/19 7:17 PM
A0702073.D	N036115-001B	SAMP	5	07/02/19 7:22 PM
A0702074.D	N036115-001B-PS	PS	1	07/02/19 7:27 PM
A0702075.D	N036115-001B-MS	MS	1	07/02/19 7:32 PM
A0702076.D	N036115-001B-MSD	MSD	1	07/02/19 7:37 PM
A0702077.D	N036115-002B	SAMP	1	07/02/19 7:42 PM
A0702078.D	CCV5	CCV	1	07/02/19 7:47 PM
A0702079.D	CCB5	CCB	1	07/02/19 7:52 PM
A0702080.D	ICSA3	ICSA	1	07/02/19 7:57 PM
A0702081.D	ICSAB3	ICSAB	1	07/02/19 8:02 PM
A0702082.D	N036115-003B	SAMP	1	07/02/19 8:07 PM
A0702083.D	N036115-004B	SAMP	1	07/02/19 8:12 PM
A0702084.D	N036115-005B	SAMP	1	07/02/19 8:17 PM

INJECTION LOG: 190702A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0702085.D	N036115-006B	SAMP	1	07/02/19 8:22 PM
A0702086.D	N036115-007B	SAMP	1	07/02/19 8:27 PM
A0702087.D	N036115-008B	SAMP	1	07/02/19 8:32 PM
A0702088.D	N036115-009B	SAMP	1	07/02/19 8:37 PM
A0702089.D	N036115-010B	SAMP	1	07/02/19 8:42 PM
A0702090.D	N036115-013B	SAMP	1	07/02/19 8:47 PM
A0702091.D	N036115-014B	SAMP	1	07/02/19 8:52 PM
A0702092.D	CCV6	CCV	1	07/02/19 8:57 PM
A0702093.D	CCB6	CCB	1	07/02/19 9:02 PM
A0702094.D	N036115-015B	SAMP	1	07/02/19 9:07 PM
A0702095.D	N036115-016B	SAMP	1	07/02/19 9:12 PM
A0702096.D	CCV7	CCV	1	07/02/19 9:17 PM
A0702097.D	CCB7	CCB	1	07/02/19 9:22 PM
A0702098.D	ICSA4	ICSA	1	07/02/19 9:27 PM
A0702099.D	ICSAB4	ICSAB	1	07/02/19 9:32 PM
A0702100.D	ICSAB4	ICSAB	1	07/02/19 9:42 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/24/2019 7:18:50**
Prep End Date: **5/24/2019 11:30:00**
Reviewed/ Date: _____
Initials/ Date: _____

Prep Batch **73999** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-5**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-73999	Aqueous		25	☐	0	0	25	1.000		
MB-73999	Aqueous		25	☐	0	0	25	1.000		
N035738-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-011B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **5/24/2019 7:18:50**
Prep End Date: **5/24/2019 11:30:00**
Reviewed/ Date: NS 7/3/2019
Initials/ Date: for
Prep Batch **73999** Prep Code: **3010_W_MSDI** Technician **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-5**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035738-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N035738-015B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Jun 2019 11:23:08 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	213841.00	0.00	
24 Mg	563643.00	0.00	
25 Mg	73874.10	0.00	
26 Mg	85617.90	0.00	
59 Co	664188.00	0.00	
115 In	969237.00	0.00	
206 Pb	292392.00	0.00	
207 Pb	252987.00	0.00	
208 Pb	627226.00	0.00	

RSD (%)

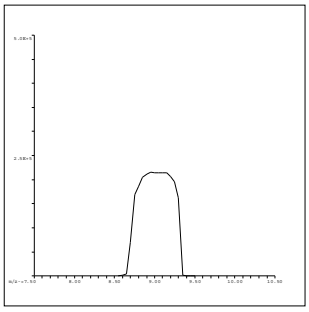
Element	Actual	Required	Flag
9 Be	0.78	5.00	
24 Mg	0.59	5.00	
25 Mg	0.18	5.00	
26 Mg	0.94	5.00	
59 Co	0.72	5.00	
115 In	0.53	5.00	
206 Pb	0.92	5.00	
207 Pb	0.65	5.00	
208 Pb	1.36	5.00	

Ion Ratio

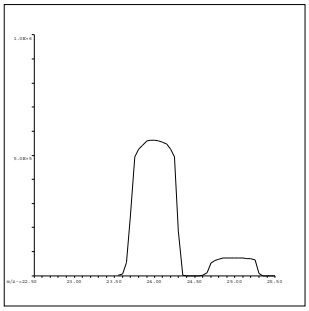
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

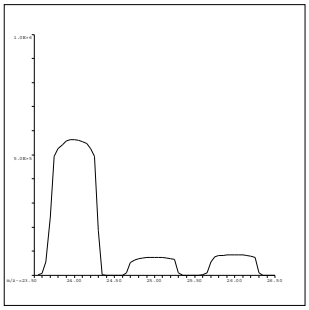
Element	Actual	Required	Flag



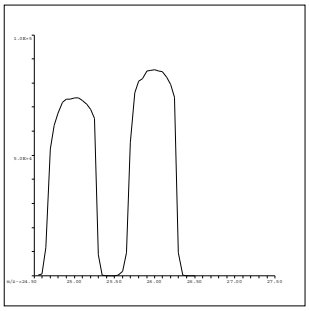
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



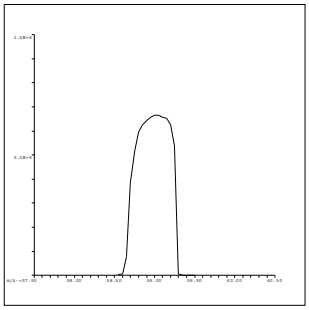
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



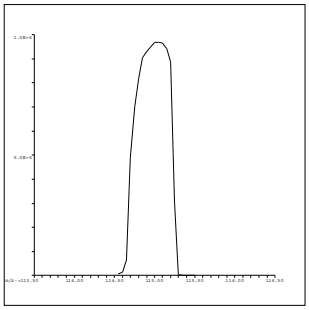
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



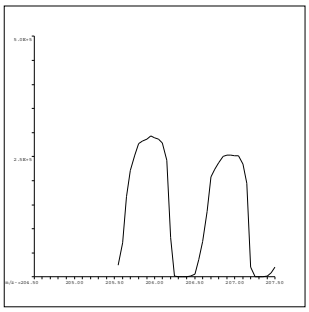
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



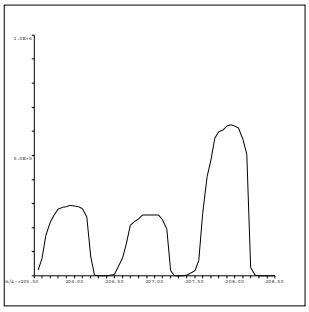
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



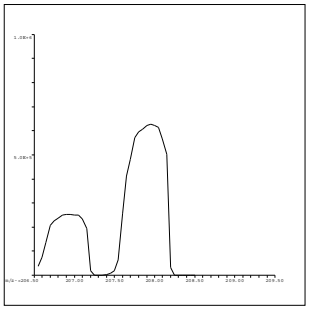
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

C:\ICPMH\1\7500\qctune.d

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 2 Jul 2019 10:17:51 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	63440.30	0.00	
24	Mg	157644.00	0.00	
25	Mg	21005.30	0.00	
26	Mg	24771.40	0.00	
59	Co	461604.00	0.00	
115	In	378594.00	0.00	
206	Pb	123307.00	0.00	
207	Pb	107596.00	0.00	
208	Pb	264641.00	0.00	

RSD (%)

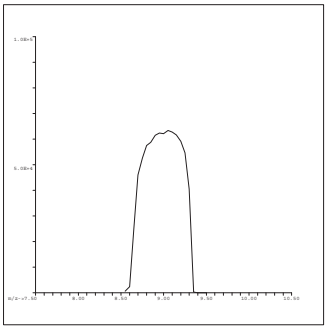
Element		Actual	Required	Flag
9	Be	1.28	5.00	
24	Mg	0.38	5.00	
25	Mg	0.75	5.00	
26	Mg	1.03	5.00	
59	Co	1.12	5.00	
115	In	0.68	5.00	
206	Pb	1.43	5.00	
207	Pb	2.14	5.00	
208	Pb	0.82	5.00	

Ion Ratio

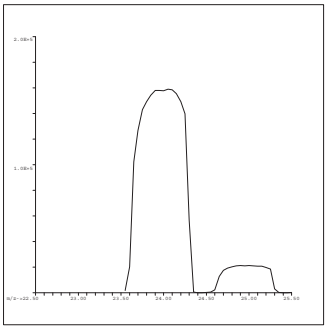
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

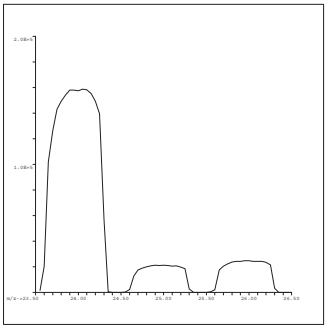
Element	Actual	Required	Flag



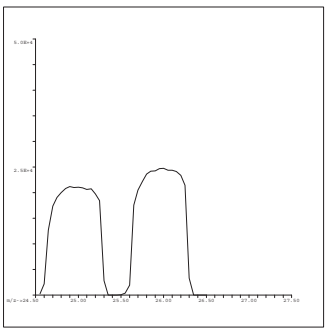
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



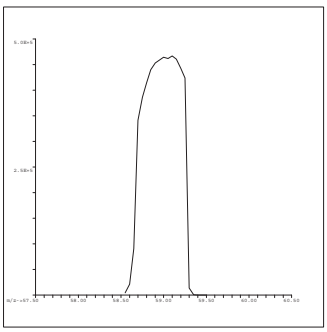
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



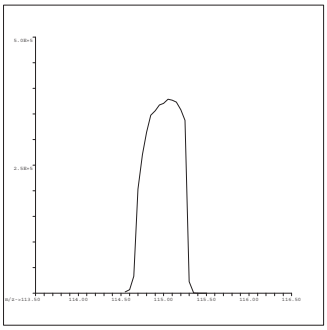
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



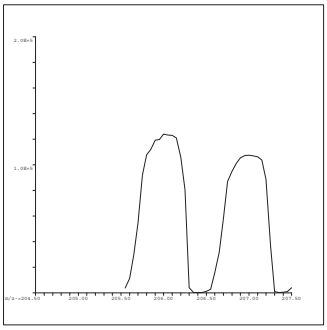
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



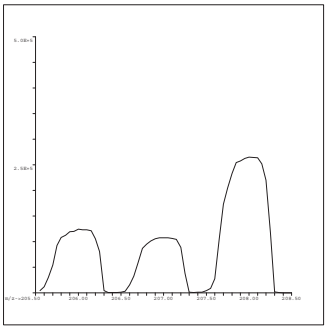
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



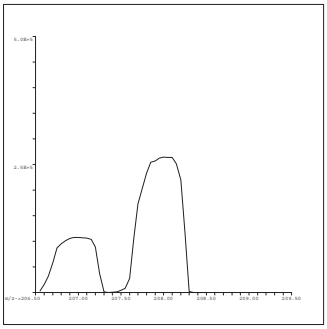
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.05
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190614B

Instrument ID: ICPMS-02

Analyte	Data File	B0614002.D	B0614003.D	B0614004.D	B0614005.D	B0614006.D	B0614007.D	B0614008.D	B0614009.D	B0614010.D	
	Acq. Date-Time	06/14/2019 06:11 PM	06/14/2019 06:16 PM	06/14/2019 06:21 PM	06/14/2019 06:26 PM	06/14/2019 06:31 PM	06/14/2019 06:36 PM	06/14/2019 06:41 PM	06/14/2019 06:46 PM	06/14/2019 06:51 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	138450.6		139281	140698.7	140059.2	141567.2	142028	142929	142399.1	
52 Cr [2]	CPS	428.7		5707.7	54695.5	107311.4	215067.6	423638.1	1040404.5	2170888.5	0.9998
72 Ge (ISTD) [1]	CPS	59802.7		59480.4	59760.5	59799.4	59876.4	59312	58353	57369.6	
78 Se [1]	CPS	6.7		117.8	1083.4	2118	4236.3	8392.5	20835.3	40117.3	1.0000
72 Ge (ISTD) [2]	CPS	100089.4	100231.7	100312.8	99723.9	99784	101369.6	100890.6	98839.5	96944.5	
75 As [2]	CPS	65.3	193.3	718.3	6399.6	12551.2	25473.8	50160.7	122689.5	238399.6	1.0000
103 Rh (ISTD) [2]	CPS	2810378.2		2794918.4	2819697.6	2807864.9	2797987.8	2774758.3	2735620.2	2679139.9	
95 Mo [2]	CPS	381.1		3284.9	30893	62272.9	125388.5	248363.8	611761.8	1190925.3	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190702A

Instrument ID: ICPMS-02

Analyte	Data File	A0702004.D	A0702006.D	A0702007.D	A0702008.D	A0702009.D	A0702010.D	A0702011.D	A0702012.D	
	Acq. Date-Time	07/02/2019 12:30 PM	07/02/2019 12:40 PM	07/02/2019 12:45 PM	07/02/2019 12:50 PM	07/02/2019 12:55 PM	07/02/2019 01:00 PM	07/02/2019 01:05 PM	07/02/2019 01:10 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	78901.7	81361.2	81677.3	83289.7	81887.2	82168.7	80822.1	79888.8	
55 Mn [2]	CPS	75.2	1547.9	15546.9	31412.1	62576.1	122732.6	298924.3	579320	0.9999

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413012**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.080	0.10	10.00	0	101	90	110				
Chromium	10.483	1.0	10.00	0	105	90	110				
Manganese	108.417	0.50	100.0	0	108	90	110				
Molybdenum	9.689	0.50	10.00	0	96.9	90	110				
Selenium	9.408	0.50	10.00	0	94.1	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ZZZZZZ**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413014**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.102	0.10	0.1000	0	102	80	120				
Chromium	1.029	1.0	1.000	0	103	80	120				
Manganese	0.551	0.50	0.5000	0	110	80	120				
Molybdenum	0.524	0.50	0.5000	0	105	80	120				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ZZZZZZ**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413017**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.516	0.50	0.5000	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.215	0.10	20.00	0	101	90	110				
Chromium	20.284	1.0	20.00	0	101	90	110				
Manganese	21.561	0.50	20.00	0	108	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413028**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Molybdenum	19.922	0.50	20.00	0	99.6	90	110				
Selenium	19.993	0.50	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413040**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.580	0.10	20.00	0	103	90	110				
Chromium	20.187	1.0	20.00	0	101	90	110				
Manganese	21.598	0.50	20.00	0	108	90	110				
Molybdenum	19.782	0.50	20.00	0	98.9	90	110				
Selenium	19.637	0.50	20.00	0	98.2	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413052**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.253	0.10	20.00	0	101	90	110				
Chromium	20.523	1.0	20.00	0	103	90	110				
Manganese	21.297	0.50	20.00	0	106	90	110				
Molybdenum	19.881	0.50	20.00	0	99.4	90	110				
Selenium	19.476	0.50	20.00	0	97.4	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.974	0.10	20.00	0	99.9	90	110				
Chromium	19.968	1.0	20.00	0	99.8	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.603	0.50	20.00	0	108	90	110				
Molybdenum	20.162	0.50	20.00	0	101	90	110				
Selenium	19.882	0.50	20.00	0	99.4	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.472	0.10	20.00	0	102	90	110				
Chromium	19.860	1.0	20.00	0	99.3	90	110				
Manganese	20.887	0.50	20.00	0	104	90	110				
Molybdenum	20.065	0.50	20.00	0	100	90	110				
Selenium	19.877	0.50	20.00	0	99.4	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413090**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.189	0.10	20.00	0	101	90	110				
Chromium	19.958	1.0	20.00	0	99.8	90	110				
Manganese	21.227	0.50	20.00	0	106	90	110				
Molybdenum	20.107	0.50	20.00	0	101	90	110				
Selenium	20.149	0.50	20.00	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.234	0.10	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413101**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.818	1.0	20.00	0	99.1	90	110				
Manganese	21.361	0.50	20.00	0	107	90	110				
Molybdenum	20.146	0.50	20.00	0	101	90	110				
Selenium	20.651	0.50	20.00	0	103	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.014	0.10	20.00	0	100	90	110				
Chromium	20.017	1.0	20.00	0	100	90	110				
Manganese	20.986	0.50	20.00	0	105	90	110				
Molybdenum	19.674	0.50	20.00	0	98.4	90	110				
Selenium	20.258	0.50	20.00	0	101	90	110				

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413127**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.146	0.10	20.00	0	101	90	110				
Chromium	19.969	1.0	20.00	0	99.8	90	110				
Manganese	21.109	0.50	20.00	0	106	90	110				
Molybdenum	19.669	0.50	20.00	0	98.3	90	110				
Selenium	19.394	0.50	20.00	0	97.0	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.953	0.10	20.00	0	99.8	90	110				
Chromium	19.775	1.0	20.00	0	98.9	90	110				
Manganese	21.376	0.50	20.00	0	107	90	110				
Molybdenum	20.058	0.50	20.00	0	100	90	110				
Selenium	19.351	0.50	20.00	0	96.8	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.107	0.10	20.00	0	101	90	110				
Chromium	20.472	1.0	20.00	0	102	90	110				
Manganese	21.561	0.50	20.00	0	108	90	110				
Molybdenum	20.100	0.50	20.00	0	101	90	110				
Selenium	19.812	0.50	20.00	0	99.1	90	110				

Sample ID **CCV12**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCV**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413157**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.067	0.10	20.00	0	100	90	110				
Chromium	20.044	1.0	20.00	0	100	90	110				
Manganese	21.499	0.50	20.00	0	107	90	110				
Molybdenum	19.896	0.50	20.00	0	99.5	90	110				
Selenium	20.026	0.50	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **ICV**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428064**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	108.416	0.50	100.0	0	108	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **ZZZZZZ**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.576	0.50	0.5000	0	115	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **CCV**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.619	0.50	20.00	0	103	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **CCV**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.392	0.50	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **CCV**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.422	0.50	20.00	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.483	1.0	10.00	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ZZZZZZ**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.029	1.0	1.000	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412879**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.284	1.0	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412891**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.187	1.0	20.00	0	101	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412903**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.523	1.0	20.00	0	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412915**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.968	1.0	20.00	0	99.8	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412929**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.860	1.0	20.00	0	99.3	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412941**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.958	1.0	20.00	0	99.8	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412952**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.818	1.0	20.00	0	99.1	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412966**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.017	1.0	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412978**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.969	1.0	20.00	0	99.8	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412992**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.775	1.0	20.00	0	98.9	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413004**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.472	1.0	20.00	0	102	90	110				

Sample ID **CCV12**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCV**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413008**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.044	1.0	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413013**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413029**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413041**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	0.212	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413079**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413091**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413102**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **CCB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	0.213	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB12** SampType: **CCB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **CCB** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413158**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **ICB**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428065**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **CCB**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428080**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **CCB**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428092**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **CCB**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412880**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412892**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412904**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.212	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412916**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412930**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412942**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412953**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412967**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412979**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412993**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413005**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.213	1.0									

Sample ID **CCB12**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **CCB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413009**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413015**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413016**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.824	0.10	20.00	0	104	80	120				
Chromium	19.461	1.0	20.00	0	97.3	80	120				
Manganese	17.819	0.50	20.00	0	89.1	80	120				
Molybdenum	21.445	0.50	20.00	0	107	80	120				
Selenium	19.587	0.50	20.00	0	97.9	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413066**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3413067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.783	0.10	20.00	0	104	80	120				
Chromium	19.415	1.0	20.00	0	97.1	80	120				
Manganese	17.715	0.50	20.00	0	88.6	80	120				
Molybdenum	21.517	0.50	20.00	0	108	80	120				
Selenium	20.090	0.50	20.00	0	100	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413103**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413104**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.464	0.10	20.00	0	102	80	120				
Chromium	19.473	1.0	20.00	0	97.4	80	120				
Manganese	17.732	0.50	20.00	0	88.7	80	120				
Molybdenum	21.715	0.50	20.00	0	109	80	120				
Selenium	19.675	0.50	20.00	0	98.4	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413129**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSAB**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413130**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.230	0.10	20.00	0	101	80	120				
Chromium	19.154	1.0	20.00	0	95.8	80	120				
Manganese	18.013	0.50	20.00	0	90.1	80	120				
Molybdenum	21.495	0.50	20.00	0	107	80	120				
Selenium	19.840	0.50	20.00	0	99.2	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134540**
Client ID: **ICSA**	Batch ID: **R134540**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413159**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Chromium	ND	1.0									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB5** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **ICSAB** Batch ID: **R134540** TestNo: **EPA 6020** Analysis Date: **6/15/2019** SeqNo: **3413160**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.259	0.10	20.00	0	101	80	120				
Chromium	19.288	1.0	20.00	0	96.4	80	120				
Manganese	18.121	0.50	20.00	0	90.6	80	120				
Molybdenum	21.392	0.50	20.00	0	107	80	120				
Selenium	19.603	0.50	20.00	0	98.0	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **ICSA**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428067**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **ICSAB**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428068**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.714	0.50	20.00	0	104	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **ICSA**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428105**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134867**
Client ID: **ICSAB**	Batch ID: **R134867**	TestNo: **EPA 6020**		Analysis Date: **7/2/2019**	SeqNo: **3428106**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.214	0.50	20.00	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.461	1.0	20.00	0	97.3	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412917**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/14/2019**	SeqNo: **3412918**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.415	1.0	20.00	0	97.1	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412954**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412955**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.473	1.0	20.00	0	97.4	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412980**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3412981**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.154	1.0	20.00	0	95.8	80	120				

Sample ID **ICSA5**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSA**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413010**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB5**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID: **ICSAB**	Batch ID: **R134539**	TestNo: **EPA 6020**		Analysis Date: **6/15/2019**	SeqNo: **3413011**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.288	1.0	20.00	0	96.4	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
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- E Value above quantitation range
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Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	138450.6	138450.6	100	PASS	70-125	100089.4	100089.4	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	139737.6	138450.6	100.93	PASS	70-125	100231.7	100089.4	100.14	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	139281	138450.6	100.6	PASS	70-125	100312.8	100089.4	100.22	PASS	70-125
Std3-5/50 ppb	ICAL	1	140698.7	138450.6	101.62	PASS	70-125	99723.9	100089.4	99.63	PASS	70-125
Std4-10/100 ppb	ICAL	1	140059.2	138450.6	101.16	PASS	70-125	99784	100089.4	99.69	PASS	70-125
Std5-20/200 ppb	ICAL	1	141567.2	138450.6	102.25	PASS	70-125	101369.6	100089.4	101.28	PASS	70-125
Std6-40/400 ppb	ICAL	1	142028	138450.6	102.58	PASS	70-125	100890.6	100089.4	100.8	PASS	70-125
Std7-100/1000 ppb	ICAL	1	142929	138450.6	103.23	PASS	70-125	98839.5	100089.4	98.75	PASS	70-125
Std8-200/2000 ppb	ICAL	1	142399.1	138450.6	102.85	PASS	70-125	96944.5	100089.4	96.86	PASS	70-125
ICV	ICV	1	139075.9	138450.6	100.45	PASS	70-125	104224	100089.4	104.13	PASS	70-125
ICB	ICB	1	132427.2	138450.6	95.65	PASS	70-125	95470	100089.4	95.38	PASS	70-125
LLICV	CCV1	1	141196.4	138450.6	101.98	PASS	70-125	101588.8	100089.4	101.5	PASS	70-125
ICSA1	ICSA	1	146642.8	138450.6	105.92	PASS	70-125	102172.1	100089.4	102.08	PASS	70-125
ICSAB1	ICSAB	1	151415.6	138450.6	109.36	PASS	70-125	103722.7	100089.4	103.63	PASS	70-125
LLICV	CCV1	1	166183.8	138450.6	120.03	PASS	70-125	116707.9	100089.4	116.6	PASS	70-125
CCV1	CCV	1	145774.4	138450.6	105.29	PASS	70-125	103415	100089.4	103.32	PASS	70-125
CCB1	CCB	1	139281.4	138450.6	100.6	PASS	70-125	100683.1	100089.4	100.59	PASS	70-125
CCV2	CCV	1	155012.9	138450.6	111.96	PASS	70-125	109701	100089.4	109.6	PASS	70-125
CCB2	CCB	1	147043.6	138450.6	106.21	PASS	70-125	105571.7	100089.4	105.48	PASS	70-125
CCV3	CCV	1	168712.9	138450.6	121.86	PASS	70-125	118984.1	100089.4	118.88	PASS	70-125
CCB3	CCB	1	161311.5	138450.6	116.51	PASS	70-125	114756.4	100089.4	114.65	PASS	70-125
CCV4	CCV	1	167841.9	138450.6	121.23	PASS	70-125	119025.4	100089.4	118.92	PASS	70-125
CCB4	CCB	1	160553	138450.6	115.96	PASS	70-125	113991.9	100089.4	113.89	PASS	70-125
ICSA2	ICSA	1	161591.2	138450.6	116.71	PASS	70-125	112913.1	100089.4	112.81	PASS	70-125
ICSAB2	ICSAB	1	162533.5	138450.6	117.39	PASS	70-125	112663.6	100089.4	112.56	PASS	70-125
CCV5	CCV	1	169686.1	138450.6	122.56	PASS	70-125	117788	100089.4	117.68	PASS	70-125
CCB5	CCB	1	158834.8	138450.6	114.72	PASS	70-125	113812.6	100089.4	113.71	PASS	70-125
CCV6	CCV	1	169729.1	138450.6	122.59	PASS	70-125	120279.1	100089.4	120.17	PASS	70-125
CCB6	CCB	1	160515.2	138450.6	115.94	PASS	70-125	115754.8	100089.4	115.65	PASS	70-125
CCV7	CCV	1	167680	138450.6	121.11	PASS	70-125	120095.1	100089.4	119.99	PASS	70-125
CCB7	CCB	1	156867.8	138450.6	113.3	PASS	70-125	114403.6	100089.4	114.3	PASS	70-125
ICSA3	ICSA	1	157262.6	138450.6	113.59	PASS	70-125	109908.5	100089.4	109.81	PASS	70-125
ICSAB3	ICSAB	1	155045.9	138450.6	111.99	PASS	70-125	109009.1	100089.4	108.91	PASS	70-125
MB-73999	MBLK	1	153229.9	138450.6	110.67	PASS	70-125	106708.6	100089.4	106.61	PASS	70-125
LCS-73999	LCS	1	166901.5	138450.6	120.55	PASS	70-125	115573	100089.4	115.47	PASS	70-125
N035738-001B	SAMP	1	150610.4	138450.6	108.78	PASS	70-125	94860.5	100089.4	94.78	PASS	70-125
N035738-001B	SAMP	5	161558.7	138450.6	116.69	PASS	70-125	109297.5	100089.4	109.2	PASS	70-125
N035738-001B	SAMP	25	163671.9	138450.6	118.22	PASS	70-125	116563	100089.4	116.46	PASS	70-125
N035738-001B-PS	PS	1	146846.8	138450.6	106.06	PASS	70-125	91074.3	100089.4	90.99	PASS	70-125
N035738-001B-PS	PS	5	163380.6	138450.6	118.01	PASS	70-125	111301.6	100089.4	111.2	PASS	70-125
N035738-001B-MS	MS	1	156501.9	138450.6	113.04	PASS	70-125	97367.6	100089.4	97.28	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035738-001B-MS	MS	5	166105.9	138450.6	119.97	PASS	70-125	112429.9	100089.4	112.33	PASS	70-125
N035738-001B-MSD	MSD	1	159072	138450.6	114.89	PASS	70-125	98902.7	100089.4	98.81	PASS	70-125
CCV8	CCV	1	142542.2	138450.6	102.96	PASS	70-125	102784.7	100089.4	102.69	PASS	70-125
CCB8	CCB	1	160924.2	138450.6	116.23	PASS	70-125	117585.1	100089.4	117.48	PASS	70-125
N035738-001B-MSD	MSD	5	154089.1	138450.6	111.3	PASS	70-125	106363.2	100089.4	106.27	PASS	70-125
N035738-002B	SAMP	1	157773.8	138450.6	113.96	PASS	70-125	100735.8	100089.4	100.65	PASS	70-125
N035738-002B	SAMP	5	157104.1	138450.6	113.47	PASS	70-125	109603.7	100089.4	109.51	PASS	70-125
N035738-002B	SAMP	10	154962.2	138450.6	111.93	PASS	70-125	110941.1	100089.4	110.84	PASS	70-125
N035738-004B	SAMP	1	150254.2	138450.6	108.53	PASS	70-125	91986.9	100089.4	91.9	PASS	70-125
N035738-004B	SAMP	5	167336.1	138450.6	120.86	PASS	70-125	113049.8	100089.4	112.95	PASS	70-125
N035738-005B	SAMP	1	158710.8	138450.6	114.63	PASS	70-125	105244.1	100089.4	105.15	PASS	70-125
N035738-005B	SAMP	5	164501.4	138450.6	118.82	PASS	70-125	116020.2	100089.4	115.92	PASS	70-125
N035738-005B	SAMP	25	166987.3	138450.6	120.61	PASS	70-125	120510.1	100089.4	120.4	PASS	70-125
N035738-006B	SAMP	1	158378.9	138450.6	114.39	PASS	70-125	98717.8	100089.4	98.63	PASS	70-125
CCV9	CCV	1	139442.8	138450.6	100.72	PASS	70-125	100665.6	100089.4	100.58	PASS	70-125
CCB9	CCB	1	160279.2	138450.6	115.77	PASS	70-125	116873.2	100089.4	116.77	PASS	70-125
ICSA4	ICSA	1	151926.7	138450.6	109.73	PASS	70-125	109489.2	100089.4	109.39	PASS	70-125
ICSAB4	ICSAB	1	152222.6	138450.6	109.95	PASS	70-125	107613.4	100089.4	107.52	PASS	70-125
N035738-006B	SAMP	5	156070.2	138450.6	112.73	PASS	70-125	108071	100089.4	107.97	PASS	70-125
N035738-007B	SAMP	1	155406.4	138450.6	112.25	PASS	70-125	96582.8	100089.4	96.5	PASS	70-125
N035738-007B	SAMP	5	164567.8	138450.6	118.86	PASS	70-125	111775	100089.4	111.68	PASS	70-125
N035738-008B	SAMP	1	167168	138450.6	120.74	PASS	70-125	112453.2	100089.4	112.35	PASS	70-125
N035738-008B	SAMP	5	160089.5	138450.6	115.63	PASS	70-125	115038.4	100089.4	114.94	PASS	70-125
N035738-009B	SAMP	1	155902	138450.6	112.6	PASS	70-125	105918.5	100089.4	105.82	PASS	70-125
N035738-009B	SAMP	5	155801.1	138450.6	112.53	PASS	70-125	113442.8	100089.4	113.34	PASS	70-125
N035738-009B	SAMP	50	154296.3	138450.6	111.45	PASS	70-125	113587.6	100089.4	113.49	PASS	70-125
N035738-010B	SAMP	1	144285.3	138450.6	104.21	PASS	70-125	93407	100089.4	93.32	PASS	70-125
N035738-010B	SAMP	5	164264.3	138450.6	118.64	PASS	70-125	113371.9	100089.4	113.27	PASS	70-125
CCV10	CCV	1	166807.4	138450.6	120.48	PASS	70-125	118677.3	100089.4	118.57	PASS	70-125
CCB10	CCB	1	156271.9	138450.6	112.87	PASS	70-125	113818.2	100089.4	113.72	PASS	70-125
N035738-011B	SAMP	1	150810	138450.6	108.93	PASS	70-125	104652	100089.4	104.56	PASS	70-125
N035738-011B	SAMP	5	153089.8	138450.6	110.57	PASS	70-125	111278.6	100089.4	111.18	PASS	70-125
N035738-012B	SAMP	1	137475.4	138450.6	99.3	PASS	70-125	83674.5	100089.4	83.6	PASS	70-125
N035738-012B	SAMP	5	159851.5	138450.6	115.46	PASS	70-125	106988	100089.4	106.89	PASS	70-125
N035738-013B	SAMP	1	166365	138450.6	120.16	PASS	70-125	112199.4	100089.4	112.1	PASS	70-125
N035738-013B	SAMP	5	169156.7	138450.6	122.18	PASS	70-125	119498.6	100089.4	119.39	PASS	70-125
N035738-014B	SAMP	1	156262.9	138450.6	112.87	PASS	70-125	105229.2	100089.4	105.14	PASS	70-125
N035738-014B	SAMP	5	155891.3	138450.6	112.6	PASS	70-125	112420.3	100089.4	112.32	PASS	70-125
N035738-014B	SAMP	25	157738.9	138450.6	113.93	PASS	70-125	116089.6	100089.4	115.99	PASS	70-125
N035738-015B	SAMP	1	142850.2	138450.6	103.18	PASS	70-125	91089.2	100089.4	91.008	PASS	70-125
CCV11	CCV	1	166620.9	138450.6	120.35	PASS	70-125	119808.3	100089.4	119.7	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB11	CCB	1	155413.1	138450.6	112.25	PASS	70-125	113253.5	100089.4	113.15	PASS	70-125
N035738-015B	SAMP	5	147051	138450.6	106.21	PASS	70-125	103530.8	100089.4	103.44	PASS	70-125
N035738-015B	SAMP	25	154666.4	138450.6	111.71	PASS	70-125	112167.7	100089.4	112.07	PASS	70-125
CCV12	CCV	1	152920.4	138450.6	110.45	PASS	70-125	110820	100089.4	110.72	PASS	70-125
CCB12	CCB	1	144513.1	138450.6	104.38	PASS	70-125	107406.3	100089.4	107.31	PASS	70-125
ICSA5	ICSA	1	141891.1	138450.6	102.49	PASS	70-125	102789.2	100089.4	102.7	PASS	70-125
ICSAB5	ICSAB	1	143194.2	138450.6	103.43	PASS	70-125	102275.4	100089.4	102.18	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	59802.7	59802.7	100	PASS	70-125	2810378.2	2810378.2	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	60700.5	59802.7	101.5	PASS	70-125	2833740.4	2810378.2	100.83	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	59480.4	59802.7	99.46	PASS	70-125	2794918.4	2810378.2	99.45	PASS	70-125
Std3-5/50 ppb	ICAL	1	59760.5	59802.7	99.93	PASS	70-125	2819697.6	2810378.2	100.33	PASS	70-125
Std4-10/100 ppb	ICAL	1	59799.4	59802.7	99.99	PASS	70-125	2807864.9	2810378.2	99.91	PASS	70-125
Std5-20/200 ppb	ICAL	1	59876.4	59802.7	100.12	PASS	70-125	2797987.8	2810378.2	99.56	PASS	70-125
Std6-40/400 ppb	ICAL	1	59312	59802.7	99.18	PASS	70-125	2774758.3	2810378.2	98.73	PASS	70-125
Std7-100/1000 ppb	ICAL	1	58353	59802.7	97.58	PASS	70-125	2735620.2	2810378.2	97.34	PASS	70-125
Std8-200/2000 ppb	ICAL	1	57369.6	59802.7	95.93	PASS	70-125	2679139.9	2810378.2	95.33	PASS	70-125
ICV	ICV	1	62428	59802.7	104.39	PASS	70-125	2936622.3	2810378.2	104.49	PASS	70-125
ICB	ICB	1	57017.3	59802.7	95.34	PASS	70-125	2715865.4	2810378.2	96.64	PASS	70-125
LLICV	CCV1	1	59898.5	59802.7	100.16	PASS	70-125	2883616.8	2810378.2	102.61	PASS	70-125
ICSA1	ICSA	1	57395.4	59802.7	95.97	PASS	70-125	2621897.4	2810378.2	93.29	PASS	70-125
ICSAB1	ICSAB	1	59298.7	59802.7	99.16	PASS	70-125	2638459.6	2810378.2	93.88	PASS	70-125
LLICV	CCV1	1	69272.1	59802.7	115.83	PASS	70-125	3202857.3	2810378.2	113.97	PASS	70-125
CCV1	CCV	1	60437.5	59802.7	101.06	PASS	70-125	2841939.5	2810378.2	101.12	PASS	70-125
CCB1	CCB	1	58158.1	59802.7	97.25	PASS	70-125	2814913.1	2810378.2	100.16	PASS	70-125
CCV2	CCV	1	64999.3	59802.7	108.69	PASS	70-125	2995397	2810378.2	106.58	PASS	70-125
CCB2	CCB	1	61705.6	59802.7	103.18	PASS	70-125	2877053.5	2810378.2	102.37	PASS	70-125
CCV3	CCV	1	68790.1	59802.7	115.03	PASS	70-125	3156407.1	2810378.2	112.31	PASS	70-125
CCB3	CCB	1	66441.6	59802.7	111.1	PASS	70-125	3055434.5	2810378.2	108.72	PASS	70-125
CCV4	CCV	1	69473.3	59802.7	116.17	PASS	70-125	3152833.2	2810378.2	112.19	PASS	70-125
CCB4	CCB	1	68825.9	59802.7	115.09	PASS	70-125	3070335	2810378.2	109.25	PASS	70-125
ICSA2	ICSA	1	63382.8	59802.7	105.99	PASS	70-125	2821550.8	2810378.2	100.4	PASS	70-125
ICSAB2	ICSAB	1	64598.9	59802.7	108.02	PASS	70-125	2772332.7	2810378.2	98.65	PASS	70-125
CCV5	CCV	1	69627.7	59802.7	116.43	PASS	70-125	3122760.1	2810378.2	111.12	PASS	70-125
CCB5	CCB	1	67877.6	59802.7	113.5	PASS	70-125	3012642	2810378.2	107.2	PASS	70-125
CCV6	CCV	1	71189.2	59802.7	119.04	PASS	70-125	3177418.2	2810378.2	113.06	PASS	70-125
CCB6	CCB	1	69603.6	59802.7	116.39	PASS	70-125	3086302.3	2810378.2	109.82	PASS	70-125
CCV7	CCV	1	72875.7	59802.7	121.86	PASS	70-125	3156500.7	2810378.2	112.32	PASS	70-125
CCB7	CCB	1	69569.3	59802.7	116.33	PASS	70-125	3035534	2810378.2	108.01	PASS	70-125
ICSA3	ICSA	1	64735.2	59802.7	108.25	PASS	70-125	2757892.8	2810378.2	98.13	PASS	70-125
ICSAB3	ICSAB	1	64054.8	59802.7	107.11	PASS	70-125	2690254.2	2810378.2	95.73	PASS	70-125
MB-73999	MBLK	1	63442	59802.7	106.09	PASS	70-125	2931301.1	2810378.2	104.3	PASS	70-125
LCS-73999	LCS	1	70527.8	59802.7	117.93	PASS	70-125	3041905.9	2810378.2	108.24	PASS	70-125
N035738-001B	SAMP	1	48176.6	59802.7	80.56	PASS	70-125	2108479.3	2810378.2	75.025	PASS	70-125
N035738-001B	SAMP	5	62346	59802.7	104.25	PASS	70-125	2648951.3	2810378.2	94.26	PASS	70-125
N035738-001B	SAMP	25	69379.6	59802.7	116.01	PASS	70-125	2924661.8	2810378.2	104.07	PASS	70-125
N035738-001B-PS	PS	1	44514	59802.7	74.43	PASS	70-125	2016515.5	2810378.2	71.75	PASS	70-125
N035738-001B-PS	PS	5	62811.9	59802.7	105.03	PASS	70-125	2686476.5	2810378.2	95.59	PASS	70-125
N035738-001B-MS	MS	1	47276.3	59802.7	79.054	PASS	70-125	2148247.2	2810378.2	76.44	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035738-001B-MS	MS	5	63860.2	59802.7	106.78	PASS	70-125	2730395.9	2810378.2	97.15	PASS	70-125
N035738-001B-MSD	MSD	1	48928.8	59802.7	81.82	PASS	70-125	2183858.3	2810378.2	77.71	PASS	70-125
CCV8	CCV	1	60483.1	59802.7	101.14	PASS	70-125	2800651.6	2810378.2	99.65	PASS	70-125
CCB8	CCB	1	71926.8	59802.7	120.27	PASS	70-125	3083972.4	2810378.2	109.74	PASS	70-125
N035738-001B-MSD	MSD	5	60685.1	59802.7	101.48	PASS	70-125	2591543.7	2810378.2	92.21	PASS	70-125
N035738-002B	SAMP	1	54209.9	59802.7	90.65	PASS	70-125	2366540.3	2810378.2	84.21	PASS	70-125
N035738-002B	SAMP	5	65423.3	59802.7	109.4	PASS	70-125	2742835.2	2810378.2	97.6	PASS	70-125
N035738-002B	SAMP	10	66262.3	59802.7	110.8	PASS	70-125	2777159.3	2810378.2	98.82	PASS	70-125
N035738-004B	SAMP	1	45591.4	59802.7	76.24	PASS	70-125	2090794.6	2810378.2	74.4	PASS	70-125
N035738-004B	SAMP	5	63290.3	59802.7	105.83	PASS	70-125	2724027.1	2810378.2	96.93	PASS	70-125
N035738-005B	SAMP	1	58403.5	59802.7	97.66	PASS	70-125	2478053	2810378.2	88.18	PASS	70-125
N035738-005B	SAMP	5	69594.8	59802.7	116.37	PASS	70-125	2860740.9	2810378.2	101.79	PASS	70-125
N035738-005B	SAMP	25	74077.8	59802.7	123.87	PASS	70-125	3016229.9	2810378.2	107.32	PASS	70-125
N035738-006B	SAMP	1	49186.4	59802.7	82.25	PASS	70-125	2240748.1	2810378.2	79.73	PASS	70-125
CCV9	CCV	1	59402.6	59802.7	99.33	PASS	70-125	2771760.7	2810378.2	98.63	PASS	70-125
CCB9	CCB	1	72154.8	59802.7	120.65	PASS	70-125	3103769.2	2810378.2	110.44	PASS	70-125
ICSA4	ICSA	1	64731.8	59802.7	108.24	PASS	70-125	2718529.2	2810378.2	96.73	PASS	70-125
ICSAB4	ICSAB	1	62714.7	59802.7	104.87	PASS	70-125	2628604.9	2810378.2	93.53	PASS	70-125
N035738-006B	SAMP	5	63469.9	59802.7	106.13	PASS	70-125	2658365.2	2810378.2	94.59	PASS	70-125
N035738-007B	SAMP	1	48916.6	59802.7	81.8	PASS	70-125	2203421.8	2810378.2	78.4	PASS	70-125
N035738-007B	SAMP	5	64412.9	59802.7	107.71	PASS	70-125	2722701	2810378.2	96.88	PASS	70-125
N035738-008B	SAMP	1	66147	59802.7	110.61	PASS	70-125	2729452.6	2810378.2	97.12	PASS	70-125
N035738-008B	SAMP	5	70940.7	59802.7	118.62	PASS	70-125	2895243.5	2810378.2	103.02	PASS	70-125
N035738-009B	SAMP	1	60594.7	59802.7	101.32	PASS	70-125	2575657.6	2810378.2	91.65	PASS	70-125
N035738-009B	SAMP	5	68810.4	59802.7	115.06	PASS	70-125	2823856.1	2810378.2	100.48	PASS	70-125
N035738-009B	SAMP	50	70698.3	59802.7	118.22	PASS	70-125	2957336.6	2810378.2	105.23	PASS	70-125
N035738-010B	SAMP	1	48447.5	59802.7	81.012	PASS	70-125	2136237.5	2810378.2	76.012	PASS	70-125
N035738-010B	SAMP	5	65840.3	59802.7	110.1	PASS	70-125	2739650.5	2810378.2	97.48	PASS	70-125
CCV10	CCV	1	73221.6	59802.7	122.44	PASS	70-125	3106996.1	2810378.2	110.55	PASS	70-125
CCB10	CCB	1	69904.2	59802.7	116.89	PASS	70-125	2974144.5	2810378.2	105.83	PASS	70-125
N035738-011B	SAMP	1	64829	59802.7	108.4	PASS	70-125	2654180.3	2810378.2	94.44	PASS	70-125
N035738-011B	SAMP	5	69580.1	59802.7	116.35	PASS	70-125	2877757.1	2810378.2	102.4	PASS	70-125
N035738-012B	SAMP	1	41077.4	59802.7	68.69	NR!	70-125	1878506.9	2810378.2	66.84	NR!	70-125
N035738-012B	SAMP	5	59585.2	59802.7	99.64	PASS	70-125	2599386.3	2810378.2	92.49	PASS	70-125
N035738-013B	SAMP	1	66112.5	59802.7	110.55	PASS	70-125	2772785.1	2810378.2	98.66	PASS	70-125
N035738-013B	SAMP	5	73076.5	59802.7	122.2	PASS	70-125	2998537.2	2810378.2	106.7	PASS	70-125
N035738-014B	SAMP	1	61302.8	59802.7	102.51	PASS	70-125	2566962.4	2810378.2	91.34	PASS	70-125
N035738-014B	SAMP	5	69036.9	59802.7	115.44	PASS	70-125	2805082.5	2810378.2	99.81	PASS	70-125
N035738-014B	SAMP	25	71626.9	59802.7	119.77	PASS	70-125	2962119.9	2810378.2	105.4	PASS	70-125
N035738-015B	SAMP	1	48903.5	59802.7	81.77	PASS	70-125	2123643.3	2810378.2	75.56	PASS	70-125
CCV11	CCV	1	73052.3	59802.7	122.16	PASS	70-125	3095579.4	2810378.2	110.15	PASS	70-125

INTERNAL STANDARD: 190614B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB11	CCB	1	70600.3	59802.7	118.06	PASS	70-125	2981586.1	2810378.2	106.09	PASS	70-125
N035738-015B	SAMP	5	60979.4	59802.7	101.97	PASS	70-125	2566231.1	2810378.2	91.31	PASS	70-125
N035738-015B	SAMP	25	67976.6	59802.7	113.67	PASS	70-125	2833800.3	2810378.2	100.83	PASS	70-125
CCV12	CCV	1	67700.6	59802.7	113.21	PASS	70-125	2945366.6	2810378.2	104.8	PASS	70-125
CCB12	CCB	1	66361.7	59802.7	110.97	PASS	70-125	2877090.8	2810378.2	102.37	PASS	70-125
ICSA5	ICSA	1	61420.1	59802.7	102.7	PASS	70-125	2588681.9	2810378.2	92.11	PASS	70-125
ICSAB5	ICSAB	1	61249.4	59802.7	102.42	PASS	70-125	2545753.3	2810378.2	90.58	PASS	70-125

INTERNAL STANDARD: 190702A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	78901.7	78901.7	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	81527.4	78901.7	103.33	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	81361.2	78901.7	103.12	PASS	70-125
Std3-5/50 ppb	ICAL	1	81677.3	78901.7	103.52	PASS	70-125
Std4-10/100 ppb	ICAL	1	83289.7	78901.7	105.56	PASS	70-125
Std5-20/200 ppb	ICAL	1	81887.2	78901.7	103.78	PASS	70-125
Std6-40/400 ppb	ICAL	1	82168.7	78901.7	104.14	PASS	70-125
Std7-100/1000 ppb	ICAL	1	80822.1	78901.7	102.43	PASS	70-125
Std8-200/2000 ppb	ICAL	1	79888.8	78901.7	101.25	PASS	70-125
ICV	ICV	1	81422.3	78901.7	103.19	PASS	70-125
ICB	ICB	1	83433.7	78901.7	105.74	PASS	70-125
LLICV	CCV1	1	89326.1	78901.7	113.21	PASS	70-125
ICSA1	ICSA	1	84255.2	78901.7	106.79	PASS	70-125
ICSAB1	ICSAB	1	88096.5	78901.7	111.65	PASS	70-125
CCV1	CCV	1	89778.6	78901.7	113.79	PASS	70-125
CCB1	CCB	1	87438.1	78901.7	110.82	PASS	70-125
N035738-004A	SAMP	25	85394.4	78901.7	108.23	PASS	70-125
CCV2	CCV	1	87947.6	78901.7	111.46	PASS	70-125
CCB2	CCB	1	85920.5	78901.7	108.9	PASS	70-125
CCV3	CCV	1	88782.8	78901.7	112.52	PASS	70-125
CCB3	CCB	1	83959.6	78901.7	106.41	PASS	70-125
ICSA2	ICSA	1	86786.1	78901.7	109.99	PASS	70-125
ICSAB2	ICSAB	1	91348.9	78901.7	115.78	PASS	70-125
CCV4	CCV	1	91407.2	78901.7	115.85	PASS	70-125
CCB4	CCB	1	91587.9	78901.7	116.08	PASS	70-125
CCV5	CCV	1	95006	78901.7	120.41	PASS	70-125
CCB5	CCB	1	92868.6	78901.7	117.7	PASS	70-125
ICSA3	ICSA	1	97353.9	78901.7	123.39	PASS	70-125
ICSAB3	ICSAB	1	102224.3	78901.7	129.56	NR!	70-125
CCV6	CCV	1	98414.4	78901.7	124.73	PASS	70-125
CCB6	CCB	1	95360.4	78901.7	120.86	PASS	70-125
CCV7	CCV	1	95409.4	78901.7	120.92	PASS	70-125
CCB7	CCB	1	92808.2	78901.7	117.63	PASS	70-125
ICSA4	ICSA	1	96694.3	78901.7	122.55	PASS	70-125
ICSAB4	ICSAB	1	102930.8	78901.7	130.45	NR!	70-125
ICSAB4	ICSAB	1	109170.7	78901.7	138.36	NR!	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035738
Test Method: EPA 6020
Analysis Date: 6/14/2019

Matrix: Groundwater
Batch No.: 73999

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn & Se. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035738-001B DT 5x	Arsenic	As	µg/L	8.832218	PASS	8.761882	0.80%	10
N035738-001B DT 5x	Manganese	Mn	µg/L	14.41591	NA	7.917315	82.08%	10
N035738-001B DT 5x	Molybdenum	Mo	µg/L	57.95513	PASS	59.82584	3.13%	10
N035738-001B DT 5x	Selenium	Se	µg/L	2.8324	NA	2.72024	4.12%	10
N035738-001B DT 5x	Chromium	Cr	µg/L	125.2952	PASS	123.8883	1.14%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035738-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134540**
Client ID: **ZZZZZZ** Batch ID: **73999** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/15/2019** SeqNo: **3413110**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.750	0.10	10.00	8.762	120	80	120				
Manganese	105.401	0.50	100.0	7.917	97.5	80	120				
Molybdenum	77.829	0.50	10.00	59.83	180	80	120				S
Selenium	14.318	0.50	10.00	2.720	116	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035738
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N035738-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134539**
Client ID:	**ZZZZZZ**	Batch ID: **73999**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/15/2019**	SeqNo: **3412961**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	144.258	1.0	10.00	123.9	204	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

June 19, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035761

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 23, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035761

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N035761-001, -002 and -013 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for sample N035761-003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035761
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035761-001A	MW-71-035-Q219	Groundwater	5/23/2019 3:45:00 PM	5/23/2019	6/19/2019
N035761-001B	MW-71-035-Q219	Groundwater	5/23/2019 3:45:00 PM	5/23/2019	6/19/2019
N035761-001C	MW-71-035-Q219	Groundwater	5/23/2019 3:45:00 PM	5/23/2019	6/19/2019
N035761-001D	MW-71-035-Q219	Groundwater	5/23/2019 3:45:00 PM	5/23/2019	6/19/2019
N035761-002A	MW-72BR-200-LF_S-Q219	Groundwater	5/23/2019 3:34:00 PM	5/23/2019	6/19/2019
N035761-002B	MW-72BR-200-LF_S-Q219	Groundwater	5/23/2019 3:34:00 PM	5/23/2019	6/19/2019
N035761-002C	MW-72BR-200-LF_S-Q219	Groundwater	5/23/2019 3:34:00 PM	5/23/2019	6/19/2019
N035761-002D	MW-72BR-200-LF_S-Q219	Groundwater	5/23/2019 3:34:00 PM	5/23/2019	6/19/2019
N035761-003A	MW-73-080-Q219	Groundwater	5/23/2019 3:18:00 PM	5/23/2019	6/19/2019
N035761-003B	MW-73-080-Q219	Groundwater	5/23/2019 3:18:00 PM	5/23/2019	6/19/2019
N035761-003C	MW-73-080-Q219	Groundwater	5/23/2019 3:18:00 PM	5/23/2019	6/19/2019
N035761-003D	MW-73-080-Q219	Groundwater	5/23/2019 3:18:00 PM	5/23/2019	6/19/2019
N035761-004A	MW-60BR-245-LF_D-Q219	Groundwater	5/23/2019 2:30:00 PM	5/23/2019	6/19/2019
N035761-004B	MW-60BR-245-LF_D-Q219	Groundwater	5/23/2019 2:30:00 PM	5/23/2019	6/19/2019
N035761-004C	MW-60BR-245-LF_D-Q219	Groundwater	5/23/2019 2:30:00 PM	5/23/2019	6/19/2019
N035761-004D	MW-60BR-245-LF_D-Q219	Groundwater	5/23/2019 2:30:00 PM	5/23/2019	6/19/2019
N035761-005A	MW-60BR-245-LF_S-Q219	Groundwater	5/23/2019 1:26:00 PM	5/23/2019	6/19/2019
N035761-005B	MW-60BR-245-LF_S-Q219	Groundwater	5/23/2019 1:26:00 PM	5/23/2019	6/19/2019
N035761-005C	MW-60BR-245-LF_S-Q219	Groundwater	5/23/2019 1:26:00 PM	5/23/2019	6/19/2019
N035761-005D	MW-60BR-245-LF_S-Q219	Groundwater	5/23/2019 1:26:00 PM	5/23/2019	6/19/2019
N035761-006A	MW-68-240-Q219	Groundwater	5/23/2019 11:08:00 AM	5/23/2019	6/19/2019
N035761-006B	MW-68-240-Q219	Groundwater	5/23/2019 11:08:00 AM	5/23/2019	6/19/2019
N035761-006C	MW-68-240-Q219	Groundwater	5/23/2019 11:08:00 AM	5/23/2019	6/19/2019
N035761-006D	MW-68-240-Q219	Groundwater	5/23/2019 11:08:00 AM	5/23/2019	6/19/2019
N035761-007A	MW-912-Q219	Groundwater	5/23/2019 11:18:00 AM	5/23/2019	6/19/2019
N035761-007B	MW-912-Q219	Groundwater	5/23/2019 11:18:00 AM	5/23/2019	6/19/2019
N035761-007C	MW-912-Q219	Groundwater	5/23/2019 11:18:00 AM	5/23/2019	6/19/2019
N035761-007D	MW-912-Q219	Groundwater	5/23/2019 11:18:00 AM	5/23/2019	6/19/2019
N035761-008A	MW-21-Q219	Groundwater	5/23/2019 2:20:00 PM	5/23/2019	6/19/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035761
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035761-008B	MW-21-Q219	Groundwater	5/23/2019 2:20:00 PM	5/23/2019	6/19/2019
N035761-008C	MW-21-Q219	Groundwater	5/23/2019 2:20:00 PM	5/23/2019	6/19/2019
N035761-008D	MW-21-Q219	Groundwater	5/23/2019 2:20:00 PM	5/23/2019	6/19/2019
N035761-009A	MW-725-Q219	Groundwater	5/23/2019 4:00:00 PM	5/23/2019	6/19/2019
N035761-010A	MW-61-110-Q219	Groundwater	5/23/2019 12:18:00 PM	5/23/2019	6/19/2019
N035761-010B	MW-61-110-Q219	Groundwater	5/23/2019 12:18:00 PM	5/23/2019	6/19/2019
N035761-010C	MW-61-110-Q219	Groundwater	5/23/2019 12:18:00 PM	5/23/2019	6/19/2019
N035761-010D	MW-61-110-Q219	Groundwater	5/23/2019 12:18:00 PM	5/23/2019	6/19/2019
N035761-011A	MW-723-Q219	Groundwater	5/23/2019 4:00:00 PM	5/23/2019	6/19/2019
N035761-012A	MW-724-Q219	Groundwater	5/23/2019 4:00:00 PM	5/23/2019	6/19/2019
N035761-013A	MW-48-Q219	Groundwater	5/23/2019 3:20:00 PM	5/23/2019	6/19/2019
N035761-013B	MW-48-Q219	Groundwater	5/23/2019 3:20:00 PM	5/23/2019	6/19/2019
N035761-013C	MW-48-Q219	Groundwater	5/23/2019 3:20:00 PM	5/23/2019	6/19/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-71-035-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_D-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 1:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-240-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-21-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-61-110-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 12:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-48-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID	N035761-004DDUP	SampType:	DUP	TestCode:	120.1_WPGE	Units:	umhos/cm	Prep Date:		RunNo:	134152
Client ID:	ZZZZZZ	Batch ID:	R134152	TestNo:	EPA 120.1			Analysis Date:	5/24/2019	SeqNo:	3396748

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16820.000	0.10						16800	0.119	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-71-035-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/24/2019 12:15 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/16/2019 08:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/24/2019 12:34 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/16/2019 09:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	34	0.17	1.0		µg/L	5	5/24/2019 10:39 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	35	0.65	5.0		µg/L	5	6/16/2019 10:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_D-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A** QC Batch: **R134179**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	68	0.33	2.0		µg/L	10	5/24/2019 03:15 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190616A** QC Batch: **74195**				PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	61	0.13	1.0		µg/L	1	6/16/2019 10:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 1:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A** QC Batch: **R134179**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	85	0.33	2.0		µg/L	10	5/24/2019 03:53 PM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190616A** QC Batch: **74195**				PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	74	0.13	1.0		µg/L	1	6/16/2019 10:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-240-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	2000	6.6	40		µg/L	200	5/24/2019 11:09 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	2000	3.2	25		µg/L	25	6/16/2019 10:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	1900	6.6	40		µg/L	200	5/24/2019 11:57 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	2100	3.2	25		µg/L	25	6/16/2019 11:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-21-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	6.5	0.17	1.0		µg/L	5	5/24/2019 12:53 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	6.7	0.13	1.0		µg/L	1	6/16/2019 11:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-725-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/24/2019 04:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-61-110-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 12:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	280	1.7	10		µg/L	50	5/24/2019 02:46 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	280	0.65	5.0		µg/L	5	6/16/2019 11:26 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-723-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/24/2019 04:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-724-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/24/2019 04:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-48-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/24/2019 01:12 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/16/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R134179	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134179
Client ID:	PBW	Batch ID:	R134179	TestNo:	EPA 218.6			Analysis Date:	5/24/2019	SeqNo:	3397832

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R134179	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134179
Client ID:	LCSW	Batch ID:	R134179	TestNo:	EPA 218.6			Analysis Date:	5/24/2019	SeqNo:	3397833

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.093	0.20	5.000	0	102	90	110				

Sample ID	N035759-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134179
Client ID:	ZZZZZZ	Batch ID:	R134179	TestNo:	EPA 218.6			Analysis Date:	5/24/2019	SeqNo:	3397835

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.201	1.0	5.000	0	104	90	110				

Sample ID	N035761-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134179
Client ID:	ZZZZZZ	Batch ID:	R134179	TestNo:	EPA 218.6			Analysis Date:	5/24/2019	SeqNo:	3397843

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.156	1.0	5.000	0	103	90	110				

Sample ID	N035761-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134179
Client ID:	ZZZZZZ	Batch ID:	R134179	TestNo:	EPA 218.6			Analysis Date:	5/24/2019	SeqNo:	3397845

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.303	1.0	5.000	0	106	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035761-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.442	1.0	5.000	6.454	99.8	90	110				

Sample ID **N035761-013AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.328	1.0	5.000	0	107	90	110				

Sample ID **N035761-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2962.140	40	1000	1958	100	90	110				

Sample ID **N035761-006AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2987.020	40	1000	1958	103	90	110	2962	0.836	20	

Sample ID **N035761-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	59.267	1.0	25.00	33.55	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035761-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2947.980	40	1000	1933	101	90	110				

Sample ID **N035761-010AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	527.020	10	250.0	283.2	97.5	90	110				

Sample ID **N035761-010ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	281.755	10						283.2	0.508	20	

Sample ID **N035761-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	118.474	2.0	50.00	67.86	101	90	110				

Sample ID **N035761-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	136.655	2.0	50.00	85.38	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N035761-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134179
Client ID:	ZZZZZZ	Batch ID:	R134179	TestNo:	EPA 218.6			Analysis Date:	5/24/2019	SeqNo:	3397866

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.977	0.20	1.000	0	97.6	90	110				

Sample ID	N035761-011AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134179
Client ID:	ZZZZZZ	Batch ID:	R134179	TestNo:	EPA 218.6			Analysis Date:	5/24/2019	SeqNo:	3397868

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.002	0.20	1.000	0	100	90	110				

Sample ID	N035761-012AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134179
Client ID:	ZZZZZZ	Batch ID:	R134179	TestNo:	EPA 218.6			Analysis Date:	5/24/2019	SeqNo:	3397870

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.025	0.20	1.000	0	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-74195	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	PBW	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413602

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-74195	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	LCSW	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413603

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.347	1.0	10.00	0	103	85	115				

Sample ID	N035761-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413609

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.441	1.0	10.00	0	84.4	75	125				

Sample ID	N035761-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413613

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.470	1.0	10.00	0	84.7	75	125	8.441	0.345	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-71-035-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.085	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	3.3	0.16	0.25		mg/L	5	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_D-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.22	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 1:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.22	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-240-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	4.3	0.16	0.25		mg/L	5	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	4.3	0.16	0.25		mg/L	5	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-21-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate			Analyst: **QBM**	
Nitrate/Nitrite as N	0.69	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-61-110-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 12:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.54	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134369	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	PBW	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402975		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050											

Sample ID	LCS-R134369	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	LCSW	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402976		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	0.466	0.050	0.5000	0	93.2	85	115						

Sample ID	N035761-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402980		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050						0	0	20			

Sample ID	N035761-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402982		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	5.853	0.25	2.500	3.263	104	75	125						

Sample ID	N035761-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402983		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	5.942	0.25	2.500	3.263	107	75	125	5.853	1.52	20			

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-71-035-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**	Analyst: **CEI**	
Arsenic	1.2	0.081	0.10		µg/L	1	6/16/2019 08:56 AM
Manganese	18	0.26	0.50		µg/L	1	6/16/2019 08:56 AM
Molybdenum	13	0.21	0.50		µg/L	1	6/16/2019 08:56 AM
Selenium	0.52	0.36	0.50		µg/L	1	6/16/2019 08:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Arsenic	13	0.081	0.10		µg/L	1	6/16/2019 09:51 AM
Manganese	210	1.3	2.5		µg/L	5	6/16/2019 09:56 AM
Molybdenum	76	0.21	0.50		µg/L	1	6/16/2019 09:51 AM
Selenium	ND	0.36	0.50		µg/L	1	6/16/2019 09:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Arsenic	1.8	0.081	0.10		µg/L	1	6/16/2019 10:01 AM
Manganese	5.7	1.3	2.5		µg/L	5	6/16/2019 10:06 AM
Molybdenum	30	0.21	0.50		µg/L	1	6/16/2019 10:01 AM
Selenium	4.3	0.36	0.50		µg/L	1	6/16/2019 10:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_D-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**	Analyst: **CEI**	
Arsenic	9.2	0.081	0.10		µg/L	1	6/16/2019 10:11 AM
Manganese	6.7	0.26	0.50		µg/L	1	6/16/2019 10:11 AM
Molybdenum	63	0.21	0.50		µg/L	1	6/16/2019 10:11 AM
Selenium	3.2	0.36	0.50		µg/L	1	6/16/2019 10:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 1:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**	Analyst: **CEI**	
Arsenic	8.7	0.081	0.10		µg/L	1	6/16/2019 10:21 AM
Manganese	6.7	0.26	0.50		µg/L	1	6/16/2019 10:21 AM
Molybdenum	59	0.21	0.50		µg/L	1	6/16/2019 10:21 AM
Selenium	2.7	0.36	0.50		µg/L	1	6/16/2019 10:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-240-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**	Analyst: **CEI**	
Arsenic	1.6	0.081	0.10		µg/L	1	6/16/2019 10:41 AM
Manganese	29	0.26	0.50		µg/L	1	6/16/2019 10:41 AM
Molybdenum	30	0.21	0.50		µg/L	1	6/16/2019 10:41 AM
Selenium	4.8	0.36	0.50		µg/L	1	6/16/2019 10:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**	Analyst: **CEI**	
Arsenic	1.7	0.081	0.10		µg/L	1	6/16/2019 10:56 AM
Manganese	29	0.26	0.50		µg/L	1	6/16/2019 10:56 AM
Molybdenum	31	0.21	0.50		µg/L	1	6/16/2019 10:56 AM
Selenium	4.7	0.36	0.50		µg/L	1	6/16/2019 10:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-21-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190616B** QC Batch: **74195**				PrepDate	**6/13/2019**	Analyst: **CEI**	
Molybdenum	59	0.21	0.50		µg/L	1	6/16/2019 11:11 AM
Selenium	13	0.36	0.50		µg/L	1	6/16/2019 11:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-61-110-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 12:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**				PrepDate	**6/13/2019**	Analyst: **CEI**
Arsenic	3.7	0.081	0.10		µg/L	1	6/16/2019 11:21 AM
Manganese	210	1.3	2.5		µg/L	5	6/16/2019 11:26 AM
Molybdenum	23	0.21	0.50		µg/L	1	6/16/2019 11:21 AM
Selenium	0.87	0.36	0.50		µg/L	1	6/16/2019 11:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-74195**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134542**
Client ID: **PBW**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-74195**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134542**
Client ID: **LCSW**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.416	0.10	10.00	0	104	85	115				
Manganese	106.811	0.50	100.0	0	107	85	115				
Molybdenum	10.202	0.50	10.00	0	102	85	115				
Selenium	10.225	0.50	10.00	0	102	85	115				

Sample ID **N035761-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134542**
Client ID: **ZZZZZZ**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413746**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.498	0.10	10.00	1.185	113	75	125				
Manganese	106.868	0.50	100.0	18.02	88.8	75	125				
Molybdenum	25.063	0.50	10.00	13.40	117	75	125				
Selenium	11.825	0.50	10.00	0.5160	113	75	125				

Sample ID **N035761-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134542**
Client ID: **ZZZZZZ**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.268	0.10	10.00	1.185	111	75	125	12.50	1.86	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035761-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134542
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413750

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.461	0.50	100.0	18.02	89.4	75	125	106.9	0.553	20	
Molybdenum	24.903	0.50	10.00	13.40	115	75	125	25.06	0.642	20	
Selenium	12.248	0.50	10.00	0.5160	117	75	125	11.82	3.51	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CHAIN OF CUSTODY RECORD

Page 1 of 2

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Specify: RWQCB
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Global ID:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		

QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:

Sample Receipt Condition: Y / N
1. Chilled
2. Headspace
3. Container Intact
4. Seal Present
5. IR number 2
6. Method of Cooling: ICE
Sample Temp: 2.8

Signature: Date: 5/23/19
I hereby authorize ASSET Labs to perform the tests indicated below.

Sampled By: Susan Mahan
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for

Signature: Date: 5/23/2019

Project Name: PG&E Topock - GMP
Project Number: RC000753.801D

Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035761 - 01	MW-71-035-Q219	5/23/2019	15:45		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	- 02	MW-72BR-200-LF_S-Q219	5/23/2019	15:34		X		X	X	X	X	X	X		X						E	4	P	BNS	
3	- 03	MW-73-080-Q210	5/23/2019	15:18		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	- 04	MW-60BR-245-LF_D-Q219	5/23/2019	14:30		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	- 05	MW-60BR-245-LF-S-Q219	5/23/2019	13:26		X		X	X	X	X	X	X		X						E	4	P	BNS	
6	- 06	MW-68-240-Q219	5/23/2019	11:08		X		X	X	X	X	X	X		X						E	4	P	BNS	
7	- 07	MW-912-Q219	5/23/2019	11:18		X		X	X	X	X	X	X		X						E	4	P	BNS	
8	- 08	MW-21-Q219	5/23/2019	14:20			X		X		X	X	X		X						E	5	P	BNS	
9	- 09	MW-725-Q219	5/23/2019	16:00		X															E	1	P	B	
10	- 10	MW-61-110-Q219	5/23/2019	12:18		X		X	X	X	X	X	X		X						E	4	P	BNS	

Relinquished by (Signature and Printed Name): Susan Mahan Date/Time: 5/23/19 1622
Relinquished by (Signature and Printed Name): JOHN (ICE) 5-23-19 Date/Time: 1622
Relinquished by (Signature and Printed Name): JOHN (ICE) 5/23/19 1847 Date/Time:
Relinquished by (Signature and Printed Name): Date/Time: 5/23/19 1847
Relinquished by (Signature and Printed Name): Date/Time:
Relinquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
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CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition (Y / N): 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present; 5. IR number; 6. Method of Cooling: ICE; Sample Temp: 2.0
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		
Signature: Date: 5/23/19	Sampled By: Nora Tay	Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid	Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: Date: 5/23/2019		
Project Number: RC000753.801D			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2. SO4, NH4, OH — 250 mL poly	Cr(VI) FF (E218.6) (NH4)2. SO4, NH4, OH — 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 — 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 — 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 — 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 — 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 — 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 — 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) — 1 liter poly	Specific Conductance (EPA 120.1) — 1 liter poly	Total Dissolved Solids (SM92540) — 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) — 1 liter poly	pH (SM4500-HB) — 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 — 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 — 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035761 - 11	MW-723-Q219	5/23/2019	16:00		X															E	1	P	8	
2	- 12	MW-724-Q219	5/23/2019	16:00		X															E	1	P	8	
3	- 13	MW-48-Q219	5/23/2019	15:20		X			X						X						E	3	P	BN	
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nora Tay	5/23/19 1622	JORDAN/Lbi	5-23-19 1622
JORDAN/Lbi	5/23/19 1847	[signature]	5/23/19 1847

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/23/2019	Workorder:	N035761
Rep sample Temp (Deg C):	2.8	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For: YRJ

Checklist Completed By: RM 5/28/2019

Reviewed By: LG 060419

Subject: Topock - ClientSampID Updates - N035761
From: Tina Rice <Tina.Rice@critigen.com>
Date: 5/28/2019, 4:11 PM
To: Yoandra Rodriguez <yoandra@assetlaboratories.com>
CC: "Laura.Madsen@arcadis.com" <Laura.Madsen@arcadis.com>

Hi Yoandra,

Could you please make the following corrections?

ClientSampID	Corrected ClientSampID
MW-60BR-245-LF-S-Q219	MW-60BR-245-LF_S-Q219
MW-73-080-Q210	MW-73-080-Q219

Thank you,
Tina

Tina Rice
Database Analyst

CRITIGEN

Tina.Rice@critigen.com
1 360 600 3562 Direct
1 360 600 3562 Mobile

critigen.com

ASSET Laboratories

WORK ORDER Summary

28-May-19

WorkOrder: N035761

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/23/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035761-001A	MW-71-035-Q219	5/23/2019 3:45:00 PM	6/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-001B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-001C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-001D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-002A	MW-72BR-200-LF_S-Q219	5/23/2019 3:34:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-002B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-002C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-002D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-003A	MW-73-080-Q219	5/23/2019 3:18:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-003B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-003C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-003D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-004A	MW-60BR-245-LF_D-Q219	5/23/2019 2:30:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-004B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-May-19

WorkOrder: N035761

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/23/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035761-004B	MW-60BR-245-LF_D-Q219	5/23/2019 2:30:00 PM	6/7/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-004C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-004D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-005A	MW-60BR-245-LF_S-Q219	5/23/2019 1:26:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-005B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-005C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-005D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-006A	MW-68-240-Q219	5/23/2019 11:08:00 AM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-006B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-006C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-006D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-007A	MW-912-Q219	5/23/2019 11:18:00 AM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-007B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-007C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-007D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

28-May-19

WorkOrder: N035761

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/23/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035761-008A	MW-21-Q219	5/23/2019 2:20:00 PM	6/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-008B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-008C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-008D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-009A	MW-725-Q219	5/23/2019 4:00:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-010A	MW-61-110-Q219	5/23/2019 12:18:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-010B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-010C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-010D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-011A	MW-723-Q219	5/23/2019 4:00:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-012A	MW-724-Q219		6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-013A	MW-48-Q219	5/23/2019 3:20:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-013B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-013C			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-014A	FOLDER	6/7/2019	6/7/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/7/2019		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories

WORK ORDER Summary

28-May-19

WorkOrder: N035761

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/23/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035761-014A	FOLDER	6/7/2019	6/7/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035761

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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June 19, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035761

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 23, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucas for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035761

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 218.6:

Dilution was necessary for samples N035761-001, -002 and -013 due to matrix interference. Samples were analyzed at lower dilution however matrix spike recovery and/or retention time criteria were not met indicating possible matrix interference. Samples were reported at dilution that meets matrix spike recovery limit and the detected peak within retention time window.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for sample N035761-003 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

ASSET Laboratories

Date: *19-Jun-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035761
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035761-001A	MW-71-035-Q219	Groundwater	5/23/2019 3:45:00 PM	5/23/2019	6/19/2019
N035761-001B	MW-71-035-Q219	Groundwater	5/23/2019 3:45:00 PM	5/23/2019	6/19/2019
N035761-001C	MW-71-035-Q219	Groundwater	5/23/2019 3:45:00 PM	5/23/2019	6/19/2019
N035761-001D	MW-71-035-Q219	Groundwater	5/23/2019 3:45:00 PM	5/23/2019	6/19/2019
N035761-002A	MW-72BR-200-LF_S-Q219	Groundwater	5/23/2019 3:34:00 PM	5/23/2019	6/19/2019
N035761-002B	MW-72BR-200-LF_S-Q219	Groundwater	5/23/2019 3:34:00 PM	5/23/2019	6/19/2019
N035761-002C	MW-72BR-200-LF_S-Q219	Groundwater	5/23/2019 3:34:00 PM	5/23/2019	6/19/2019
N035761-002D	MW-72BR-200-LF_S-Q219	Groundwater	5/23/2019 3:34:00 PM	5/23/2019	6/19/2019
N035761-003A	MW-73-080-Q219	Groundwater	5/23/2019 3:18:00 PM	5/23/2019	6/19/2019
N035761-003B	MW-73-080-Q219	Groundwater	5/23/2019 3:18:00 PM	5/23/2019	6/19/2019
N035761-003C	MW-73-080-Q219	Groundwater	5/23/2019 3:18:00 PM	5/23/2019	6/19/2019
N035761-003D	MW-73-080-Q219	Groundwater	5/23/2019 3:18:00 PM	5/23/2019	6/19/2019
N035761-004A	MW-60BR-245-LF_D-Q219	Groundwater	5/23/2019 2:30:00 PM	5/23/2019	6/19/2019
N035761-004B	MW-60BR-245-LF_D-Q219	Groundwater	5/23/2019 2:30:00 PM	5/23/2019	6/19/2019
N035761-004C	MW-60BR-245-LF_D-Q219	Groundwater	5/23/2019 2:30:00 PM	5/23/2019	6/19/2019
N035761-004D	MW-60BR-245-LF_D-Q219	Groundwater	5/23/2019 2:30:00 PM	5/23/2019	6/19/2019
N035761-005A	MW-60BR-245-LF_S-Q219	Groundwater	5/23/2019 1:26:00 PM	5/23/2019	6/19/2019
N035761-005B	MW-60BR-245-LF_S-Q219	Groundwater	5/23/2019 1:26:00 PM	5/23/2019	6/19/2019
N035761-005C	MW-60BR-245-LF_S-Q219	Groundwater	5/23/2019 1:26:00 PM	5/23/2019	6/19/2019
N035761-005D	MW-60BR-245-LF_S-Q219	Groundwater	5/23/2019 1:26:00 PM	5/23/2019	6/19/2019
N035761-006A	MW-68-240-Q219	Groundwater	5/23/2019 11:08:00 AM	5/23/2019	6/19/2019
N035761-006B	MW-68-240-Q219	Groundwater	5/23/2019 11:08:00 AM	5/23/2019	6/19/2019
N035761-006C	MW-68-240-Q219	Groundwater	5/23/2019 11:08:00 AM	5/23/2019	6/19/2019
N035761-006D	MW-68-240-Q219	Groundwater	5/23/2019 11:08:00 AM	5/23/2019	6/19/2019
N035761-007A	MW-912-Q219	Groundwater	5/23/2019 11:18:00 AM	5/23/2019	6/19/2019
N035761-007B	MW-912-Q219	Groundwater	5/23/2019 11:18:00 AM	5/23/2019	6/19/2019
N035761-007C	MW-912-Q219	Groundwater	5/23/2019 11:18:00 AM	5/23/2019	6/19/2019
N035761-007D	MW-912-Q219	Groundwater	5/23/2019 11:18:00 AM	5/23/2019	6/19/2019
N035761-008A	MW-21-Q219	Groundwater	5/23/2019 2:20:00 PM	5/23/2019	6/19/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035761
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035761-008B	MW-21-Q219	Groundwater	5/23/2019 2:20:00 PM	5/23/2019	6/19/2019
N035761-008C	MW-21-Q219	Groundwater	5/23/2019 2:20:00 PM	5/23/2019	6/19/2019
N035761-008D	MW-21-Q219	Groundwater	5/23/2019 2:20:00 PM	5/23/2019	6/19/2019
N035761-009A	MW-725-Q219	Groundwater	5/23/2019 4:00:00 PM	5/23/2019	6/19/2019
N035761-010A	MW-61-110-Q219	Groundwater	5/23/2019 12:18:00 PM	5/23/2019	6/19/2019
N035761-010B	MW-61-110-Q219	Groundwater	5/23/2019 12:18:00 PM	5/23/2019	6/19/2019
N035761-010C	MW-61-110-Q219	Groundwater	5/23/2019 12:18:00 PM	5/23/2019	6/19/2019
N035761-010D	MW-61-110-Q219	Groundwater	5/23/2019 12:18:00 PM	5/23/2019	6/19/2019
N035761-011A	MW-723-Q219	Groundwater	5/23/2019 4:00:00 PM	5/23/2019	6/19/2019
N035761-012A	MW-724-Q219	Groundwater	5/23/2019 4:00:00 PM	5/23/2019	6/19/2019
N035761-013A	MW-48-Q219	Groundwater	5/23/2019 3:20:00 PM	5/23/2019	6/19/2019
N035761-013B	MW-48-Q219	Groundwater	5/23/2019 3:20:00 PM	5/23/2019	6/19/2019
N035761-013C	MW-48-Q219	Groundwater	5/23/2019 3:20:00 PM	5/23/2019	6/19/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-71-035-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	14000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	15000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_D-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**		PrepDate				Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 1:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-240-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-21-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	12000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-61-110-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 12:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	16000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-48-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524B**	QC Batch: **R134152**			PrepDate			Analyst: **LR**
Specific Conductance	17000	0.10	0.10		umhos/cm	1	5/24/2019 11:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N035761-004DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **134152**
Client ID: **ZZZZZZ** Batch ID: **R134152** TestNo: **EPA 120.1** Analysis Date: **5/24/2019** SeqNo: **3396748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	16820.000	0.10						16800	0.119	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-71-035-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/24/2019 12:15 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/16/2019 08:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/24/2019 12:34 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/16/2019 09:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A** QC Batch: **R134179**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	34	0.17	1.0		µg/L	5	5/24/2019 10:39 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190616A** QC Batch: **74195**				PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	35	0.65	5.0		µg/L	5	6/16/2019 10:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_D-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A** QC Batch: **R134179**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	68	0.33	2.0		µg/L	10	5/24/2019 03:15 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190616A** QC Batch: **74195**				PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	61	0.13	1.0		µg/L	1	6/16/2019 10:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 1:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	85	0.33	2.0		µg/L	10	5/24/2019 03:53 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	74	0.13	1.0		µg/L	1	6/16/2019 10:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-240-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	2000	6.6	40		µg/L	200	5/24/2019 11:09 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	2000	3.2	25		µg/L	25	6/16/2019 10:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	1900	6.6	40		µg/L	200	5/24/2019 11:57 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	2100	3.2	25		µg/L	25	6/16/2019 11:06 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-21-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	6.5	0.17	1.0		µg/L	5	5/24/2019 12:53 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	6.7	0.13	1.0		µg/L	1	6/16/2019 11:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-725-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/24/2019 04:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-61-110-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 12:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	280	1.7	10		µg/L	50	5/24/2019 02:46 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	280	0.65	5.0		µg/L	5	6/16/2019 11:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-723-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/24/2019 04:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-724-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 4:00:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/24/2019 04:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-48-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190524A**	QC Batch: **R134179**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.17	1.0		µg/L	5	5/24/2019 01:12 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/16/2019 11:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	**MB-R134179**	SampType:	**MBLK**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**134179**
Client ID:	**PBW**	Batch ID:	**R134179**	TestNo:	**EPA 218.6**			Analysis Date:	**5/24/2019**	SeqNo:	**3397832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	**LCS-R134179**	SampType:	**LCS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**134179**
Client ID:	**LCSW**	Batch ID:	**R134179**	TestNo:	**EPA 218.6**			Analysis Date:	**5/24/2019**	SeqNo:	**3397833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.093	0.20	5.000	0	102	90	110				

Sample ID	**N035759-001AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**134179**
Client ID:	**ZZZZZZ**	Batch ID:	**R134179**	TestNo:	**EPA 218.6**			Analysis Date:	**5/24/2019**	SeqNo:	**3397835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.201	1.0	5.000	0	104	90	110				

Sample ID	**N035761-001AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**134179**
Client ID:	**ZZZZZZ**	Batch ID:	**R134179**	TestNo:	**EPA 218.6**			Analysis Date:	**5/24/2019**	SeqNo:	**3397843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.156	1.0	5.000	0	103	90	110				

Sample ID	**N035761-002AMS**	SampType:	**MS**	TestCode:	**218.6_WPGE**	Units:	**µg/L**	Prep Date:		RunNo:	**134179**
Client ID:	**ZZZZZZ**	Batch ID:	**R134179**	TestNo:	**EPA 218.6**			Analysis Date:	**5/24/2019**	SeqNo:	**3397845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.303	1.0	5.000	0	106	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035761-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11.442	1.0	5.000	6.454	99.8	90	110				

Sample ID **N035761-013AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.328	1.0	5.000	0	107	90	110				

Sample ID **N035761-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397852**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2962.140	40	1000	1958	100	90	110				

Sample ID **N035761-006AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2987.020	40	1000	1958	103	90	110	2962	0.836	20	

Sample ID **N035761-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	59.267	1.0	25.00	33.55	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035761-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2947.980	40	1000	1933	101	90	110				

Sample ID **N035761-010AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	527.020	10	250.0	283.2	97.5	90	110				

Sample ID **N035761-010ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	281.755	10						283.2	0.508	20	

Sample ID **N035761-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	118.474	2.0	50.00	67.86	101	90	110				

Sample ID **N035761-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397864**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	136.655	2.0	50.00	85.38	103	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035761-009AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.977	0.20	1.000	0	97.6	90	110				

Sample ID **N035761-011AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.002	0.20	1.000	0	100	90	110				

Sample ID **N035761-012AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.025	0.20	1.000	0	102	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **MB-74195**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134541**
Client ID: **PBW**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413602**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **LCS-74195**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134541**
Client ID: **LCSW**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413603**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.347	1.0	10.00	0	103	85	115				

Sample ID **N035761-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134541**
Client ID: **ZZZZZZ**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413609**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.441	1.0	10.00	0	84.4	75	125				

Sample ID **N035761-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134541**
Client ID: **ZZZZZZ**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413613**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.470	1.0	10.00	0	84.7	75	125	8.441	0.345	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-71-035-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.085	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	3.3	0.16	0.25		mg/L	5	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_D-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.22	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 1:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.22	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-240-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	4.3	0.16	0.25		mg/L	5	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate			Analyst: **QBM**	
Nitrate/Nitrite as N	4.3	0.16	0.25		mg/L	5	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-21-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate			Analyst: **QBM**	
Nitrate/Nitrite as N	0.69	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-61-110-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 12:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	0.54	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134369	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	PBW	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402975		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050											

Sample ID	LCS-R134369	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	LCSW	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402976		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	0.466	0.050	0.5000	0	93.2	85	115						

Sample ID	N035761-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402980		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050						0	0	20			

Sample ID	N035761-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402982		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	5.853	0.25	2.500	3.263	104	75	125						

Sample ID	N035761-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402983		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	5.942	0.25	2.500	3.263	107	75	125	5.853	1.52	20			

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-71-035-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:45:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Arsenic	1.2	0.081	0.10		µg/L	1	6/16/2019 08:56 AM
Manganese	18	0.26	0.50		µg/L	1	6/16/2019 08:56 AM
Molybdenum	13	0.21	0.50		µg/L	1	6/16/2019 08:56 AM
Selenium	0.52	0.36	0.50		µg/L	1	6/16/2019 08:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72BR-200-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:34:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**	Analyst: **CEI**	
Arsenic	13	0.081	0.10		µg/L	1	6/16/2019 09:51 AM
Manganese	210	1.3	2.5		µg/L	5	6/16/2019 09:56 AM
Molybdenum	76	0.21	0.50		µg/L	1	6/16/2019 09:51 AM
Selenium	ND	0.36	0.50		µg/L	1	6/16/2019 09:51 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-73-080-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 3:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Arsenic	1.8	0.081	0.10		µg/L	1	6/16/2019 10:01 AM
Manganese	5.7	1.3	2.5		µg/L	5	6/16/2019 10:06 AM
Molybdenum	30	0.21	0.50		µg/L	1	6/16/2019 10:01 AM
Selenium	4.3	0.36	0.50		µg/L	1	6/16/2019 10:01 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_D-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:30:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**	Analyst: **CEI**	
Arsenic	9.2	0.081	0.10		µg/L	1	6/16/2019 10:11 AM
Manganese	6.7	0.26	0.50		µg/L	1	6/16/2019 10:11 AM
Molybdenum	63	0.21	0.50		µg/L	1	6/16/2019 10:11 AM
Selenium	3.2	0.36	0.50		µg/L	1	6/16/2019 10:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-60BR-245-LF_S-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 1:26:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Arsenic	8.7	0.081	0.10		µg/L	1	6/16/2019 10:21 AM
Manganese	6.7	0.26	0.50		µg/L	1	6/16/2019 10:21 AM
Molybdenum	59	0.21	0.50		µg/L	1	6/16/2019 10:21 AM
Selenium	2.7	0.36	0.50		µg/L	1	6/16/2019 10:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-68-240-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:08:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**	Analyst: **CEI**	
Arsenic	1.6	0.081	0.10		µg/L	1	6/16/2019 10:41 AM
Manganese	29	0.26	0.50		µg/L	1	6/16/2019 10:41 AM
Molybdenum	30	0.21	0.50		µg/L	1	6/16/2019 10:41 AM
Selenium	4.8	0.36	0.50		µg/L	1	6/16/2019 10:41 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-912-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 11:18:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**				PrepDate	**6/13/2019**	Analyst: **CEI**
Arsenic	1.7	0.081	0.10		µg/L	1	6/16/2019 10:56 AM
Manganese	29	0.26	0.50		µg/L	1	6/16/2019 10:56 AM
Molybdenum	31	0.21	0.50		µg/L	1	6/16/2019 10:56 AM
Selenium	4.7	0.36	0.50		µg/L	1	6/16/2019 10:56 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-21-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 2:20:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**		Analyst: **CEI**
Molybdenum	59	0.21	0.50		µg/L	1	6/16/2019 11:11 AM
Selenium	13	0.36	0.50		µg/L	1	6/16/2019 11:11 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-61-110-Q219
Lab Order:	N035761	**Collection Date:**	5/23/2019 12:18:00 PM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035761-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate	**6/13/2019**	Analyst: **CEI**	
Arsenic	3.7	0.081	0.10		µg/L	1	6/16/2019 11:21 AM
Manganese	210	1.3	2.5		µg/L	5	6/16/2019 11:26 AM
Molybdenum	23	0.21	0.50		µg/L	1	6/16/2019 11:21 AM
Selenium	0.87	0.36	0.50		µg/L	1	6/16/2019 11:21 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **MB-74195**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134542**
Client ID: **PBW**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **LCS-74195**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134542**
Client ID: **LCSW**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.416	0.10	10.00	0	104	85	115				
Manganese	106.811	0.50	100.0	0	107	85	115				
Molybdenum	10.202	0.50	10.00	0	102	85	115				
Selenium	10.225	0.50	10.00	0	102	85	115				

Sample ID **N035761-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134542**
Client ID: **ZZZZZZ**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413746**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.498	0.10	10.00	1.185	113	75	125				
Manganese	106.868	0.50	100.0	18.02	88.8	75	125				
Molybdenum	25.063	0.50	10.00	13.40	117	75	125				
Selenium	11.825	0.50	10.00	0.5160	113	75	125				

Sample ID **N035761-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **6/13/2019**	RunNo: **134542**
Client ID: **ZZZZZZ**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.268	0.10	10.00	1.185	111	75	125	12.50	1.86	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035761-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **6/13/2019** RunNo: **134542**
Client ID: **ZZZZZZ** Batch ID: **74195** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/16/2019** SeqNo: **3413750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.461	0.50	100.0	18.02	89.4	75	125	106.9	0.553	20	
Molybdenum	24.903	0.50	10.00	13.40	115	75	125	25.06	0.642	20	
Selenium	12.248	0.50	10.00	0.5160	117	75	125	11.82	3.51	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD ☐, Geotracker ☐, Labspec ☐, Others ✓ Specify: RWQCB, Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE ☐, RWQCB ✓, CalTrans ☐, LEVEL III ☐, LEVEL IV ☐, Regulatory ☐, Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com, daniel.moore@critigen.com	Address:	Sample Receipt Condition: 1. Chilled Y ✓ N ☐; 2. Headspace ☐; 3. Container Intact ✓; 4. Seal Present ☐; 5. IR number 2; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330, Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#: SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200	Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:		Sample Temp: 2.0
Signature: Date: 5/23/19	Sampled By: Susan Mahan		Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - GMP	Signature: Date: 5/23/2019		
Project Number: RC000753.801D			

Matrix: Ground x, Sediment; Potable, Soil; NPDES, Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 2x250 mL poly	Dissolved Metals (6020AFF) Arsenic; HNO3 500 mL poly	Metals Dissolved (6020AFF) Cr; HNO3 500 mL poly	Dissolved Metals (SW6020A) FF Manganese; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Molybdenum; HNO3 500 mL poly	Dissolved metals (SW6020A) FF Selenium; HNO3 125 mL poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Bromide, Sulfate, Chloride (EPA 300.0) 1 liter poly	Specific Conductance (EPA 120.1) 1 liter poly	Total Dissolved Solids (SM92540) 1 liter poly	Alkalinity, Total as CaCO3 (SM2320B) 1 liter poly	pH (SM4500-HB) 1 liter poly	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 500 mL poly	Total Organic Carbon (SM5310C); H2SO4 3x40 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035761 - 01	MW-71-035-Q219	5/23/2019	15:45		X		X	X	X	X	X	X		X						E	4	P	BNS	
2	- 02	MW-72BR-200-LF_S-Q219	5/23/2019	15:34		X		X	X	X	X	X	X		X						E	4	P	BNS	
3	- 03	MW-73-080-Q210	5/23/2019	15:18		X		X	X	X	X	X	X		X						E	4	P	BNS	
4	- 04	MW-60BR-245-LF_D-Q219	5/23/2019	14:30		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	- 05	MW-60BR-245-LF-S-Q219	5/23/2019	13:26		X		X	X	X	X	X	X		X						E	4	P	BNS	
6	- 06	MW-68-240-Q219	5/23/2019	11:08		X		X	X	X	X	X	X		X						E	4	P	BNS	
7	- 07	MW-912-Q219	5/23/2019	11:18		X		X	X	X	X	X	X		X						E	4	P	BNS	
8	- 08	MW-21-Q219	5/23/2019	14:20			X		X		X	X	X		X						E	5	P	BNS	
9	- 09	MW-725-Q219	5/23/2019	16:00		X															E	1	P	B	
10	- 10	MW-61-110-Q219	5/23/2019	12:18		X		X	X	X	X	X	X		X						E	4	P	BNS	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Susan Mahan	5/23/19 1622	JOHN (ICE) 5-23-19	1622
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
JOHN (ICE) 5/23/19	1847		5/23/19 1847
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

- ☐ A = < 24 Hrs or Same Day TAT
- ☐ B = Next Workday
- ☐ C = 2 Workdays
- ☐ D = 3 Workdays
- ☒ E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis.
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B (NH4)2SO4/NH4OH		

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200 Fax:
Title: Scientist 1	Phone: 916-786-3302 Fax:	
Signature: Date: 5/23/19	Sampled By: Nora Tay	
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for	
Project Name: PG&E Topock - GMP	Signature: Date: 5/23/2019	
Project Number: RC000753.801D		

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

EDD Requirement		QA/QC	
Excel EDD		RTNE	
Geotracker		RWQCB	✓
Labspec		CalTrans	
Others	✓	LEVEL III	
Specify: RWQCB		LEVEL IV	
Global ID:		Regulatory	
		Specify State:	

Sample Receipt Condition

	Y	N
1. Chilled	✓	
2. Headspace		
3. Container Intact	✓	
4. Seal Present		
5. IR number		
6. Method of Cooling: ICE		
Sample Temp: 2.0		

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (6020AFF) Arsenic; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved Metals (SW6020A) FF Manganese; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Molybdenum; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Selenium; HNO3 (125 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, iron (EPA 200.7), HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035761 - 11	MW-723-Q219	5/23/2019	16:00		X															E	1	P	8	
2	- 12	MW-724-Q219	5/23/2019	16:00		X															E	1	P	8	
3	- 13	MW-48-Q219	5/23/2019	15:20		X			X						X						E	3	P	BN	
4																									
5																									
6																									
7																									
8																									
9																									
10																									

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nora Tay	5/23/19 1622	JORDAN/Lbi	5-23-19 1622
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
JORDAN/Lbi	5/23/19 1847		5/23/19 1847
Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

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9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/23/2019	Workorder:	N035761
Rep sample Temp (Deg C):	2.8	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For: YRJ

Checklist Completed By: RM 5/28/2019

Reviewed By: LG 060419

Subject: Topock - ClientSampID Updates - N035761
From: Tina Rice <Tina.Rice@critigen.com>
Date: 5/28/2019, 4:11 PM
To: Yoandra Rodriguez <yoandra@assetlaboratories.com>
CC: "Laura.Madsen@arcadis.com" <Laura.Madsen@arcadis.com>

Hi Yoandra,

Could you please make the following corrections?

ClientSampID	Corrected ClientSampID
MW-60BR-245-LF-S-Q219	MW-60BR-245-LF_S-Q219
MW-73-080-Q210	MW-73-080-Q219

Thank you,
Tina

Tina Rice
Database Analyst

CRITIGEN

Tina.Rice@critigen.com
1 360 600 3562 Direct
1 360 600 3562 Mobile

critigen.com

ASSET Laboratories

WORK ORDER Summary

28-May-19

WorkOrder: N035761

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/23/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035761-001A	MW-71-035-Q219	5/23/2019 3:45:00 PM	6/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-001B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-001C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-001D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-002A	MW-72BR-200-LF_S-Q219	5/23/2019 3:34:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-002B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-002C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-002D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-003A	MW-73-080-Q219	5/23/2019 3:18:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-003B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-003C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-003D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-004A	MW-60BR-245-LF_D-Q219	5/23/2019 2:30:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-004B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

28-May-19

WorkOrder: N035761

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/23/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035761-004B	MW-60BR-245-LF_D-Q219	5/23/2019 2:30:00 PM	6/7/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-004C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-004D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-005A	MW-60BR-245-LF_S-Q219	5/23/2019 1:26:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-005B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-005C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-005D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-006A	MW-68-240-Q219	5/23/2019 11:08:00 AM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-006B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-006C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-006D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-007A	MW-912-Q219	5/23/2019 11:18:00 AM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-007B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-007C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-007D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

WORK ORDER Summary

28-May-19

WorkOrder: N035761

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/23/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035761-008A	MW-21-Q219	5/23/2019 2:20:00 PM	6/7/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-008B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-008C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-008D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-009A	MW-725-Q219	5/23/2019 4:00:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-010A	MW-61-110-Q219	5/23/2019 12:18:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-010B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-010C			6/7/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035761-010D			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-011A	MW-723-Q219	5/23/2019 4:00:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-012A	MW-724-Q219		6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-013A	MW-48-Q219	5/23/2019 3:20:00 PM	6/7/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035761-013B			6/7/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/7/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035761-013C			6/7/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
N035761-014A	FOLDER	6/7/2019	6/7/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/7/2019		Folder	Folder	☐	☐	☐	LAB

WORK ORDER Summary

28-May-19

WorkOrder: N035761

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/23/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035761-014A	FOLDER	6/7/2019	6/7/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035761

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Ria Abes	EPA 218.6
Lilia Ramit	EPA 120.1

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134152 **Analyst:** LSR

ASSET #: N035761 **Date Analyzed:** 24-May

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			X
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			X
3. ICV within ± 15% of expected value.			X			X
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			X
5. CCV within ± 15% of expected value.			X			X
6. Calibration blanks run after ICV and CCV?			X			X
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			X
Sample Information						
8. All samples are within linear range.			X			X
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			X
11. LCS compounds within control limits.			X			X
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer Silvia Ramit Date: 5/30/2019

2nd Level Reviewer 6/13/2019 Date:

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 5/23/19 1130
Analyst: LEA CONTD

Standard	Std ID	Reading	Comments
9.56 µS/cm	CNV-181121A	9.70 @ 18.6C	% Rec: (90-110%)
1411	190425C	1419 @ 18.8C	
9965	190218B	9950 @ 18.8C	
100390	190218C	100400 @ 18.8C	

	Sample ID	Matrix	Reading	Comments
1	N035738-12D	H2O	20300 @ 18.2C	
2	12DDUP		20000 @ 17.9C	
3	13D		2260 @ 18.2C	
4	14D		3660 @ 18.1C	
5	15D		12630 @ 18.3C	
6				
7				
8				
9	1413 µS/cm	CNV-190313A	1437 @ 18.4C	
10	10000	B	9830 @ 18.9C	
Dup	99922	CNV-190111H	98500 @ 18.7C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 5/24/19 1110
Analyst: LSR

Julia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
9.56 µS/cm	CNV-181121A	9.71 @ 20.5C	% Rec: (90-110%)
1411	190425C	1419 @ 20.5C	
9965	190218B	9940 @ 20.3C	
100390	190218C	100200 @ 20.4C	

	Sample ID	Matrix	Reading	Comments
1	N035761-1D	H2O	14110 @ 19.2C	
2	2D		14700 @ 18.6C	STD CHECK
3	3D		11510 @ 18.8C	1413 CNV 190313A
4	4D		16800 @ 18.6C	= 1458 @ 19.5°C
5	4DDUP		16820 @ 18.4C	10000 CNV 190213B
6	5D		16190 @ 18.5C	= 9970 @ 19.9°C
7	6D		15930 @ 18.4C	99922 CNV 190111H
8	7D		15940 @ 18.4C	= 100800 @ 20.1°C
9	8D		11730 @ 18.5C	
10	10D		15960 @ 18.5C	
Dup	13C		17220 @ 18.4C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R134179
ASSET #: N035761

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 5/24/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments: Dilution was necessary in N035761-001A/002A/008A/013A due to matrix interference. RT failed for 001A/002A MS at 1X.

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 6/11/2019

2nd Level Reviewer: [signature] Date: 6/11/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035761-003A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 6.7109 * 5$$

$$Cr^{+6}, \mu g/L = 33.5545$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 34}$$

6/11/2019

ANALYSIS RUN LOG

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

jrba 5/11/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 5/11/2019

INJECTION LOG: 190524A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/24/19 8:50 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/24/19 9:01 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/24/19 9:10 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/24/19 9:20 AM	Reported
14	MB-R134179	MBLK	1	Hexavalent Chromium	05/24/19 9:29 AM	Reported
15	LCS-R134179	LCS	1	Hexavalent Chromium	05/24/19 9:39 AM	Reported
16	N035759-001A	SAMP	5	Hexavalent Chromium	05/24/19 9:48 AM	Reported
17	N035759-001AMS	MS	5	Hexavalent Chromium	05/24/19 9:58 AM	Reported
18	N035761-003A	SAMP	5	Hexavalent Chromium	05/24/19 10:39 AM	Reported
19	N035761-004A	SAMP	5	Hexavalent Chromium	05/24/19 10:50 AM	Not Reported
20	N035761-005A	SAMP	5	Hexavalent Chromium	05/24/19 11:00 AM	Not Reported
21	N035761-006A	SAMP	200	Hexavalent Chromium	05/24/19 11:09 AM	Reported
22	N035759-001A	SAMP	1	Hexavalent Chromium	05/24/19 11:19 AM	Not Reported
23	N035759-001AMS	MS	1	Hexavalent Chromium	05/24/19 11:28 AM	Not Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	05/24/19 11:38 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/24/19 11:47 AM	Reported
26	N035761-007A	SAMP	200	Hexavalent Chromium	05/24/19 11:57 AM	Reported
27	N035761-010A	SAMP	100	Hexavalent Chromium	05/24/19 12:06 PM	Not Reported
28	N035761-001A	SAMP	5	Hexavalent Chromium	05/24/19 12:15 PM	Reported
29	N035761-001AMS	MS	5	Hexavalent Chromium	05/24/19 12:25 PM	Reported
30	N035761-002A	SAMP	5	Hexavalent Chromium	05/24/19 12:34 PM	Reported
31	N035761-002AMS	MS	5	Hexavalent Chromium	05/24/19 12:44 PM	Reported
32	N035761-008A	SAMP	5	Hexavalent Chromium	05/24/19 12:53 PM	Reported
33	N035761-008AMS	MS	5	Hexavalent Chromium	05/24/19 1:03 PM	Reported
34	N035761-013A	SAMP	5	Hexavalent Chromium	05/24/19 1:12 PM	Reported
35	N035761-013AMS	MS	5	Hexavalent Chromium	05/24/19 1:22 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	05/24/19 1:31 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/24/19 1:41 PM	Reported
38	N035761-006AMS	MS	200	Hexavalent Chromium	05/24/19 1:50 PM	Reported
39	N035761-006AMSD	MSD	200	Hexavalent Chromium	05/24/19 1:59 PM	Reported
40	N035761-003AMS	MS	5	Hexavalent Chromium	05/24/19 2:09 PM	Reported
41	N035761-007AMS	MS	200	Hexavalent Chromium	05/24/19 2:18 PM	Reported
42	N035761-010A	SAMP	50	Hexavalent Chromium	05/24/19 2:46 PM	Reported

INJECTION LOG: 190524A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035761-010AMS	MS	50	Hexavalent Chromium	05/24/19 2:56 PM	Reported
44	N035761-010ADUP	DUP	50	Hexavalent Chromium	05/24/19 3:06 PM	Reported
45	N035761-004A	SAMP	10	Hexavalent Chromium	05/24/19 3:15 PM	Reported
46	N035761-004AMS	MS	10	Hexavalent Chromium	05/24/19 3:25 PM	Reported
47	CCV-4	CCV1	1	Hexavalent Chromium	05/24/19 3:34 PM	Reported
48	CCB-4	CCB	1	Hexavalent Chromium	05/24/19 3:44 PM	Reported
49	N035761-005A	SAMP	10	Hexavalent Chromium	05/24/19 3:53 PM	Reported
50	N035761-005AMS	MS	10	Hexavalent Chromium	05/24/19 4:03 PM	Reported
51	N035761-009A	SAMP	1	Hexavalent Chromium	05/24/19 4:12 PM	Reported
52	N035761-009AMS	MS	1	Hexavalent Chromium	05/24/19 4:22 PM	Reported
53	N035761-011A	SAMP	1	Hexavalent Chromium	05/24/19 4:31 PM	Reported
54	N035761-011AMS	MS	1	Hexavalent Chromium	05/24/19 4:40 PM	Reported
55	N035761-012A	SAMP	1	Hexavalent Chromium	05/24/19 4:50 PM	Reported
56	N035761-012AMS	MS	1	Hexavalent Chromium	05/24/19 4:59 PM	Reported
57	CCV-5	CCV	1	Hexavalent Chromium	05/24/19 5:09 PM	Reported
58	CCB-5	CCB	1	Hexavalent Chromium	05/24/19 5:18 PM	Reported
59	N035761-001A	SAMP	1	Hexavalent Chromium	05/24/19 5:28 PM	Not Reported
60	N035761-001AMS	MS	1	Hexavalent Chromium	05/24/19 5:37 PM	Not Reported
61	N035761-002A	SAMP	1	Hexavalent Chromium	05/24/19 5:47 PM	Not Reported
62	N035761-002AMS	MS	1	Hexavalent Chromium	05/24/19 5:56 PM	Not Reported
63	N035761-008A	SAMP	1	Hexavalent Chromium	05/24/19 6:06 PM	Not Reported
64	N035761-008AMS	MS	1	Hexavalent Chromium	05/24/19 6:15 PM	Not Reported
65	N035761-013A	SAMP	1	Hexavalent Chromium	05/24/19 6:25 PM	Not Reported
66	N035761-013AMS	MS	1	Hexavalent Chromium	05/24/19 6:34 PM	Not Reported
67	CCV-6	CCV1	1	Hexavalent Chromium	05/24/19 6:43 PM	Reported
68	CCB-6	CCB	1	Hexavalent Chromium	05/24/19 6:53 PM	Reported
69	BLANK	BLANK	1	Hexavalent Chromium	05/24/19 7:02 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190524A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**28/May/19 13:37:11**
No. of Injections:	**72**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/24/2019 08:50	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/24/2019 09:01	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/24/2019 09:10	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/24/2019 09:20	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/24/2019 09:29	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/24/2019 09:39	Finished	LCS @5ppb, IWST-190423B
16	N035759-001A,SAMF	7	1000	Unknown		05/24/2019 09:48	Finished	SAMP,2>10mL
17	N035759-001AMS,MS	8	1000	Unknown		05/24/2019 09:58	Finished	MS (1ppb), IWST-190423B,2>1
18	N035761-003A,SAMF	1	1000	Unknown		05/24/2019 10:39	Finished	SAMP,2>10mL
19	N035761-004A,SAMF	2	1000	Unknown		05/24/2019 10:50	Finished	SAMP,2>10mL
20	N035761-005A,SAMF	3	1000	Unknown		05/24/2019 11:00	Finished	SAMP,2>10mL
21	N035761-006A,SAMF	4	1000	Unknown		05/24/2019 11:09	Finished	SAMP,0.05>10mL
22	N035759-001A,SAMF	5	1000	Unknown		05/24/2019 11:19	Finished	SAMP,10mL
23	N035759-001AMS,MS	6	1000	Unknown		05/24/2019 11:28	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	7	1000	Unknown		05/24/2019 11:38	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	8	1000	Unknown		05/24/2019 11:47	Finished	CCB R190508A
26	N035761-007A,SAMF	9	1000	Unknown		05/24/2019 11:57	Finished	SAMP,0.05>10mL
27	N035761-010A,SAMF	10	1000	Unknown		05/24/2019 12:06	Finished	SAMP,0.1> 10mL
28	N035761-001A,SAMF	11	1000	Unknown		05/24/2019 12:15	Finished	SAMP,2> 10mL
29	N035761-001AMS,MS	12	1000	Unknown		05/24/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>1
30	N035761-002A,SAMF	13	1000	Unknown		05/24/2019 12:34	Finished	SAMP,2> 10mL
31	N035761-002AMS,MS	14	1000	Unknown		05/24/2019 12:44	Finished	MS (1ppb), IWST-190423B,2>1
32	N035761-008A,SAMF	15	1000	Unknown		05/24/2019 12:53	Finished	SAMP,2> 10mL
33	N035761-008AMS,MS	16	1000	Unknown		05/24/2019 13:03	Finished	MS (1ppb), IWST-190423B,2>1
34	N035761-013A,SAMF	17	1000	Unknown		05/24/2019 13:12	Finished	SAMP,2> 10mL
35	N035761-013AMS,MS	18	1000	Unknown		05/24/2019 13:22	Finished	MS (1ppb), IWST-190423B,2>1
36	CCV-3,CCV,1,	19	1000	Unknown		05/24/2019 13:31	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	20	1000	Unknown		05/24/2019 13:41	Finished	CCB R190508A
38	N035761-006AMS,MS	21	1000	Unknown		05/24/2019 13:50	Finished	MS (5ppb), IWST-190423B,0.0
39	N035761-006AMSD,M	22	1000	Unknown		05/24/2019 13:59	Finished	MSD (5ppb), IWST-190423B,0.
40	N035761-003AMS,MS	23	1000	Unknown		05/24/2019 14:09	Finished	MS (5ppb), IWST-190423B,2>1
41	N035761-007AMS,MS	24	1000	Unknown		05/24/2019 14:18	Finished	MS (5ppb), IWST-190423B,0.0
42	N035761-010A,SAMF	1	1000	Unknown		05/24/2019 14:46	Finished	SAMP,0.2> 10mL
43	N035761-010AMS,MS	2	1000	Unknown		05/24/2019 14:56	Finished	MS (5ppb), IWST-190423B,0.2
44	N035761-010ADUP,D	3	1000	Unknown		05/24/2019 15:06	Finished	DUP,0.2> 10mL
45	N035761-004A,SAMF	4	1000	Unknown		05/24/2019 15:15	Finished	SAMP,1> 10mL
46	N035761-004AMS,MS	5	1000	Unknown		05/24/2019 15:25	Finished	MS (5ppb), IWST-190423B,1>1
47	CCV-4,CCV1,1,	6	1000	Unknown		05/24/2019 15:34	Finished	CCV @10ppb, IWST-190423A
48	CCB-4,CCB,1,	7	1000	Unknown		05/24/2019 15:44	Finished	CCB R190508A
49	N035761-005A,SAMF	8	1000	Unknown		05/24/2019 15:53	Finished	SAMP,1> 10mL
50	N035761-005AMS,MS	9	1000	Unknown		05/24/2019 16:03	Finished	MS (5ppb), IWST-190423B,1>1
51	N035761-009A,SAMF	10	1000	Unknown		05/24/2019 16:12	Finished	SAMP, 10mL
52	N035761-009AMS,MS	11	1000	Unknown		05/24/2019 16:22	Finished	MS (1ppb), IWST-190423B,10
53	N035761-011A,SAMF	12	1000	Unknown		05/24/2019 16:31	Finished	SAMP, 10mL
54	N035761-011AMS,MS	13	1000	Unknown		05/24/2019 16:40	Finished	MS (1ppb), IWST-190423B,10
55	N035761-012A,SAMF	14	1000	Unknown		05/24/2019 16:50	Finished	SAMP, 10mL
56	N035761-012AMS,MS	15	1000	Unknown		05/24/2019 16:59	Finished	MS (1ppb), IWST-190423B,10
57	CCV-5,CCV,1,	16	1000	Unknown		05/24/2019 17:09	Finished	CCV @5ppb, IWST-190423A
58	CCB-5,CCB,1,	17	1000	Unknown		05/24/2019 17:18	Finished	CCB R190508A
59	N035761-001A,SAMF	18	1000	Unknown		05/24/2019 17:28	Finished	SAMP, 10mL
60	N035761-001AMS,MS	19	1000	Unknown		05/24/2019 17:37	Finished	MS (1ppb), IWST-190423B,10

61	N035761-002A,SAMP	20	1000	Unknown		05/24/2019 17:47	Finished	SAMP, 10mL
62	N035761-002AMS,MS	21	1000	Unknown		05/24/2019 17:56	Finished	MS (1ppb), IWST-190423B,10
63	N035761-008A,SAMP	22	1000	Unknown		05/24/2019 18:06	Finished	SAMP, 10mL
64	N035761-008AMS,MS	23	1000	Unknown		05/24/2019 18:15	Finished	MS (5ppb), IWST-190423B,10
65	N035761-013A,SAMP	24	1000	Unknown		05/24/2019 18:25	Finished	SAMP, 10mL
66	N035761-013AMS,MS	25	1000	Unknown		05/24/2019 18:34	Finished	MS (1ppb), IWST-190423B,10
67	CCV-6,CCV1,1,	26	1000	Unknown		05/24/2019 18:43	Finished	CCV @10ppb, IWST-190423A
68	CCB-6,CCB,1,	27	1000	Unknown		05/24/2019 18:53	Finished	CCB R190508A
69	BLANK	28	1000	Unknown		05/24/2019 19:02	Finished	BLANK
70	SHUTDOWN	29	1000	Unknown		05/24/2019 19:12	Finished	
71	Eluent: R190524B	30	1000	Unknown		n.a.	Finished	Eluent
72	PCR: R190524C	31	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 8/23/19
Time Prepared: 0921H
Prepared By: AMB

Reagent ID:
Sulfuric Acid: 100101
Diphenylcarbazide: CHV-190329A
NH4OH + NH4SO4 eluent: M905224A
NH4OH + NH4SO4 buffer: M905058A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	MW35738-14A	9.80	-	~50mL	~250mL		
2)	15A	9.55	-				
3)	16A	9.75	-				
4)	17A	9.74	-				
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 8/21/19
Time Prepared: 0954H
Prepared By: MA

8hr: 9.02
MW 4: 4.02
7: 7.02
10: 10.02

Reagent ID:
Sulfuric Acid: 100101
Diphenylcarbazide: CHV-190329A 6N NaOH M905329A
NH4OH + NH4SO4 eluent: M905244A B
NH4OH + NH4SO4 buffer: M905058A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	MW35755-10A	8.73	9.32	~250mL	~250mL	+9 drops NaOH	
2)	MW35761-1A	9.31	-				
3)	2A	9.58	-				
4)	3A	9.49	-				
5)	4A	9.57	-				
6)	5A	9.65	-				
7)	6A	9.54	-				
8)	7A	9.56	-				
9)	8A	9.18	9.41			+4 drops NaOH	1/2
10)	8A	9.14	9.39			+4 " "	2/2
11)	9A	9.68	-				
12)	10A	9.55	-				
13)	11A	9.69	-				
14)	12A	9.70	-				
15)	13A	9.57	-				

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 5/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2514	1.2615	2.5188	3.7985	5.0310	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ICV**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3397826**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.175	0.20	5.000	0	104	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3397827**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **CCV**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397829**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.010	0.20	5.000	0	100	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.201	0.20	0.2000	0	100	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397838**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.135	0.20	10.00	0	101	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **CCV**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397850**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.023	0.20	5.000	0	100	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.153	0.20	10.00	0	102	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **CCV**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.092	0.20	5.000	0	102	95	105				

Sample ID **CCV-6**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ZZZZZZ**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.146	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **ICB**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3397828**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **CCB**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **CCB**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **CCB**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **CCB**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **CCB**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397872**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-6**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134179**
Client ID: **CCB**	Batch ID: **R134179**	TestNo: **EPA 218.6**		Analysis Date: **5/24/2019**	SeqNo: **3397874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.731	
CCV-3	4.740	
CCV-4	4.731	
CCV-5	4.731	
CCV-6	4.740	

Average	4.736
Actual RT Window	4.656 - 4.816
Applied RT Window	4.536 - 4.936

MB-R134179	N.A.	N.A.
LCS-R134179	4.731	PASS
N035759-001A	N.A.	N.A.
N035759-001AMS	4.698	PASS
N035761-003A	4.698	PASS
N035761-004A	4.681	PASS
N035761-005A	4.681	PASS
N035761-006A	4.731	PASS
N035759-001A	N.A.	N.A.
N035759-001AMS	4.456	FAIL
N035761-007A	4.731	PASS
N035761-010A	4.731	PASS
N035761-001A	N.A.	N.A.
N035761-001AMS	4.690	PASS
N035761-002A	N.A.	N.A.
N035761-002AMS	4.690	PASS
N035761-008A	4.706	PASS
N035761-008AMS	4.698	PASS
N035761-013A	N.A.	N.A.
N035761-013AMS	4.681	PASS
N035761-006AMS	4.731	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.731	
CCV-3	4.740	
CCV-4	4.731	
CCV-5	4.731	
CCV-6	4.740	
Average	4.736	
Actual RT Window	4.656 - 4.816	
Applied RT Window	4.536 - 4.936	
N035761-006AMSD	4.740	PASS
N035761-003AMS	4.698	PASS
N035761-007AMS	4.731	PASS
N035761-010A	4.723	PASS
N035761-010AMS	4.731	PASS
N035761-010ADUP	4.731	PASS
N035761-004A	4.698	PASS
N035761-004AMS	4.706	PASS
N035761-005A	4.706	PASS
N035761-005AMS	4.706	PASS
N035761-009A	N.A.	N.A.
N035761-009AMS	4.731	PASS
N035761-011A	N.A.	N.A.
N035761-011AMS	4.731	PASS
N035761-012A	N.A.	N.A.
N035761-012AMS	4.740	PASS
N035761-001A	N.A.	N.A.
N035761-001AMS	4.423	FAIL
N035761-002A	N.A.	N.A.
N035761-002AMS	4.406	FAIL
N035761-008A	4.556	PASS
N035761-008AMS	4.548	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/24/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.740	
CCV-2	4.731	
CCV-3	4.740	
CCV-4	4.731	
CCV-5	4.731	
CCV-6	4.740	
Average	4.736	
Actual RT Window	4.656 - 4.816	
Applied RT Window	4.536 - 4.936	
N035761-013A	N.A.	N.A.
N035761-013AMS	N.A.	N.A.

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

rba 5/11/2019

5/15/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

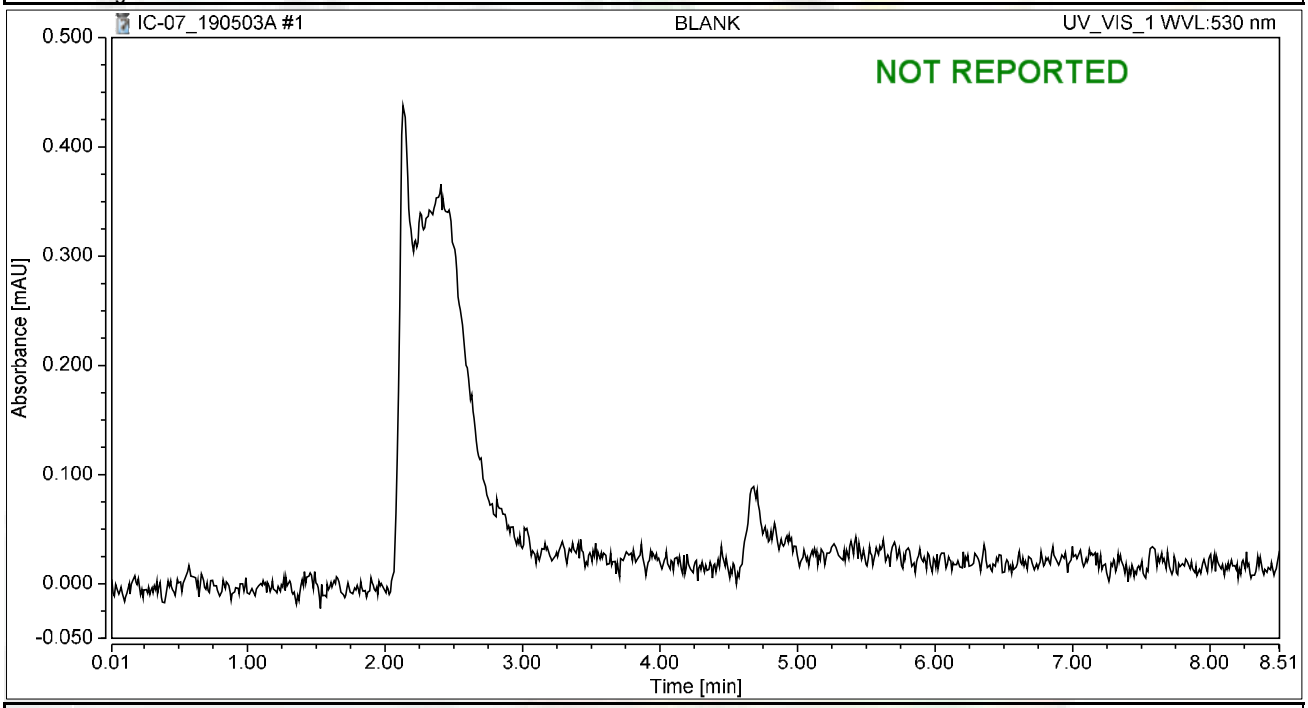
rba 5/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 09:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

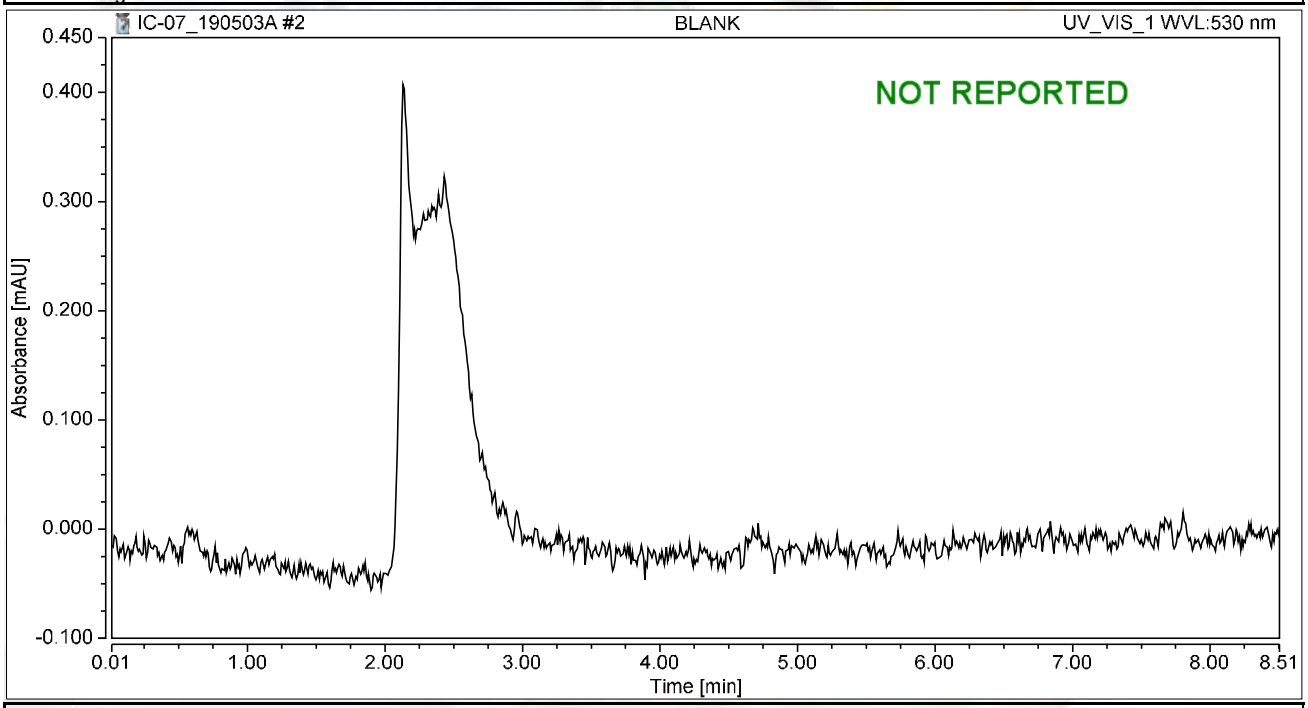
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

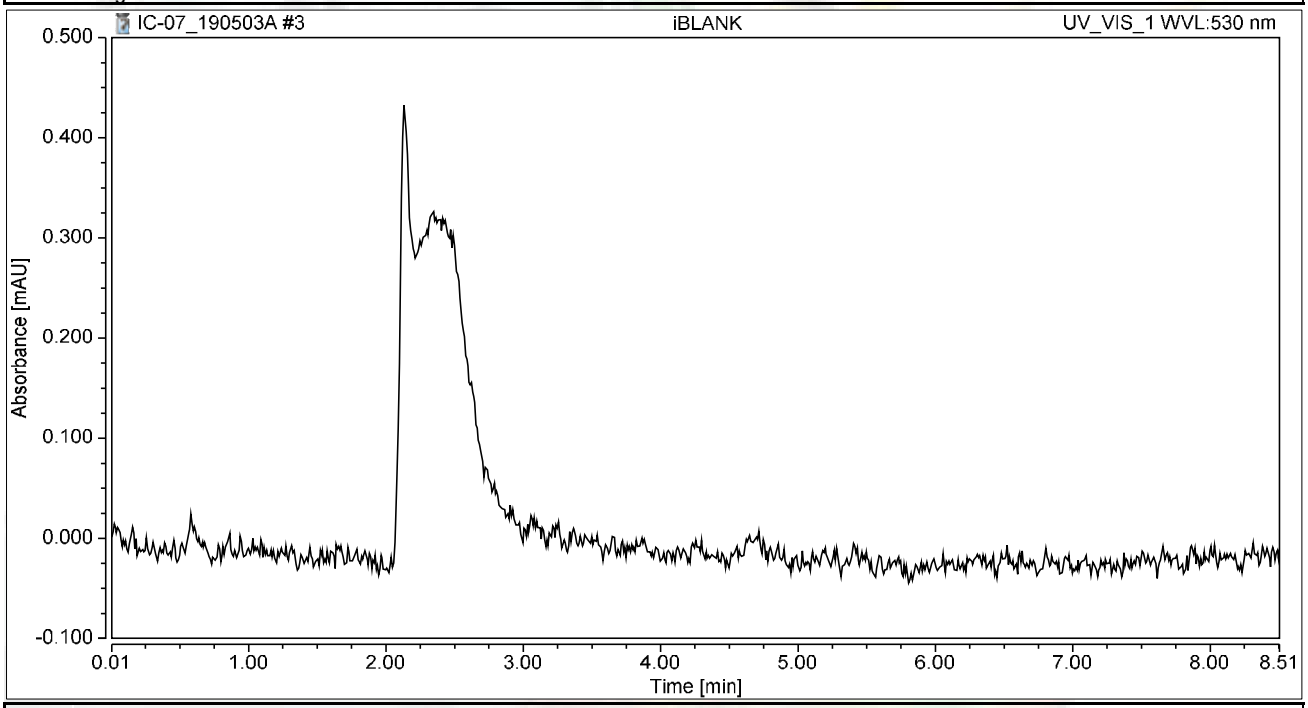
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

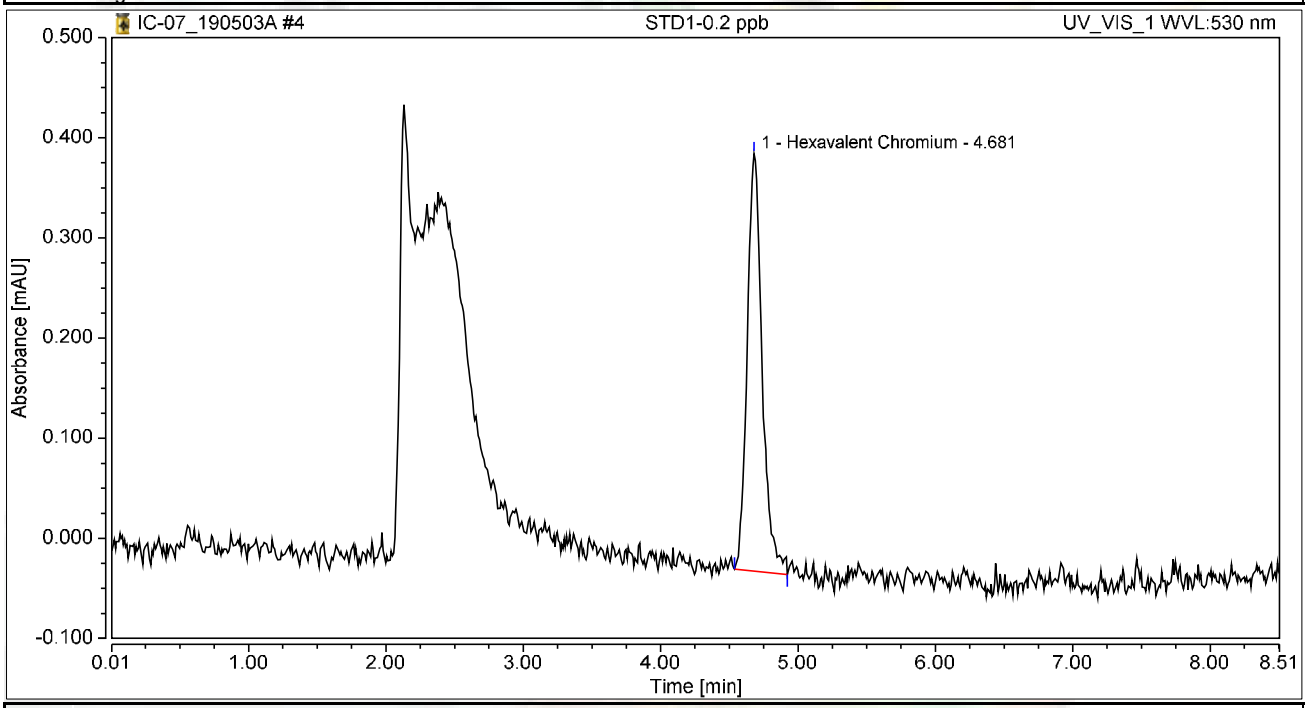
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

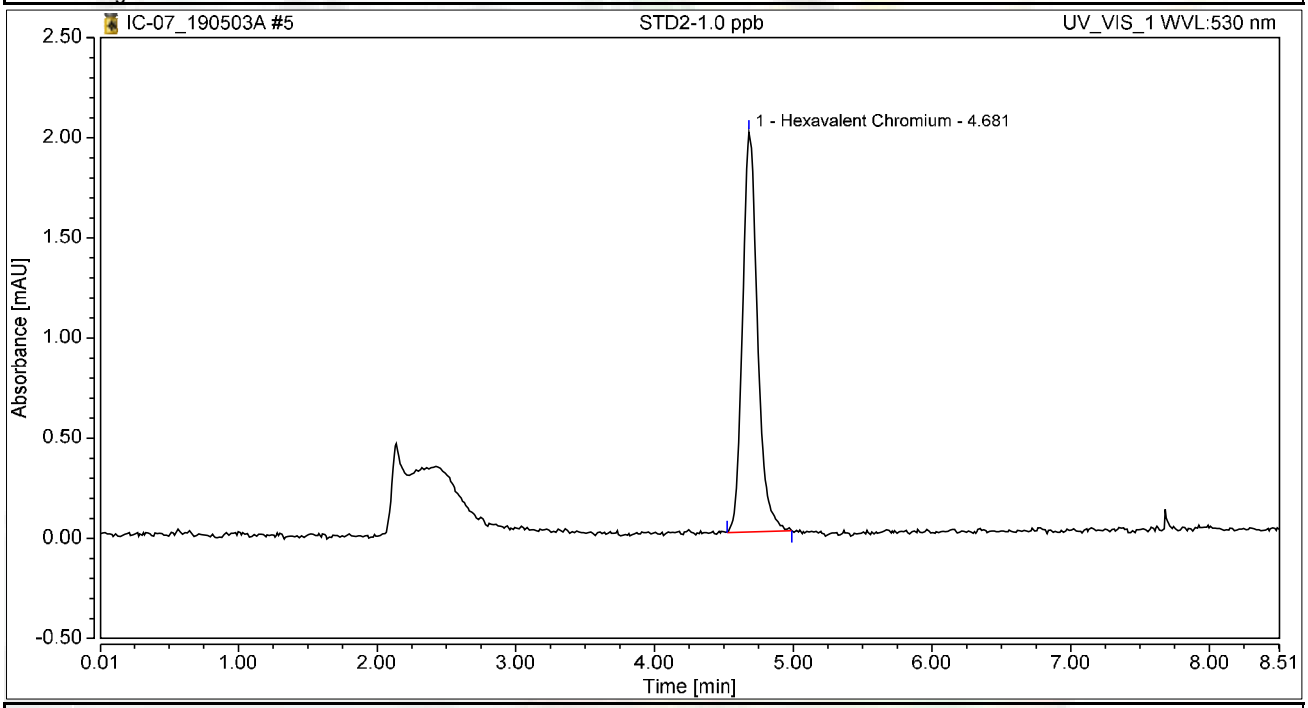
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.053	0.417	100.00	100.00	0.2092
Total:			**0.053**	**0.417**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

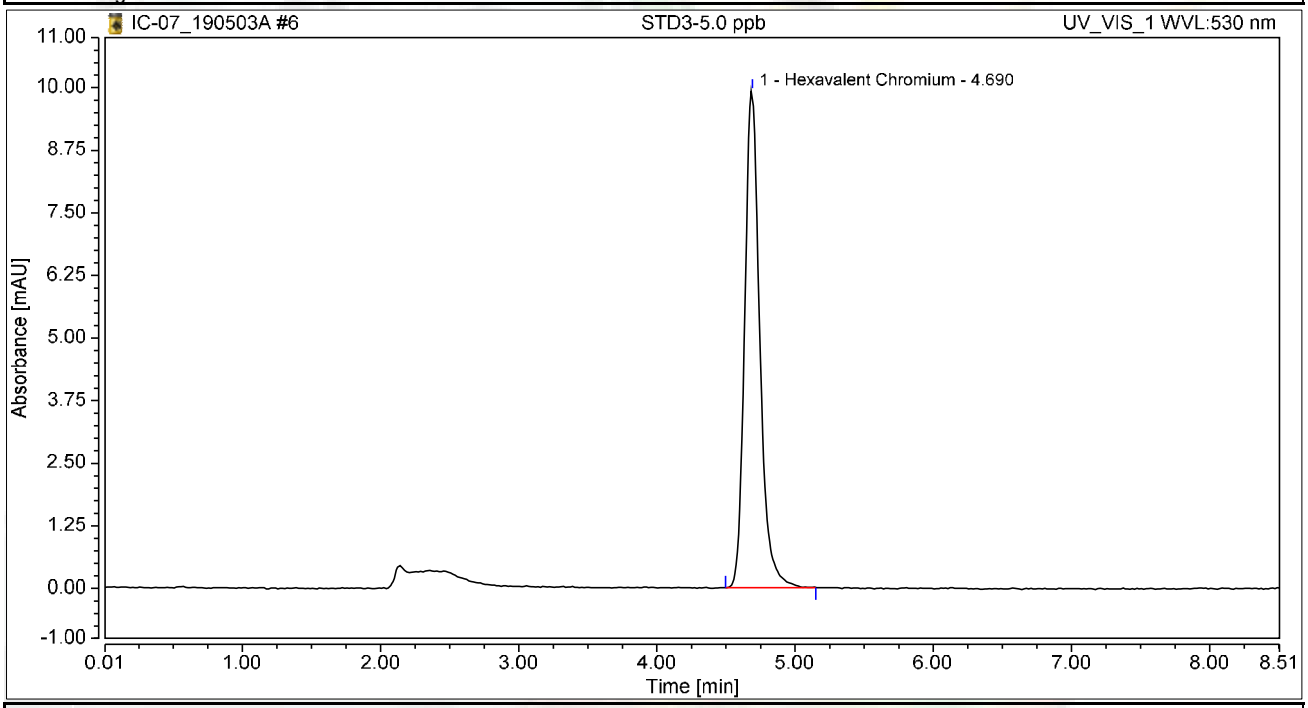
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.251	1.997	100.00	100.00	0.9971
Total:			**0.251**	**1.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

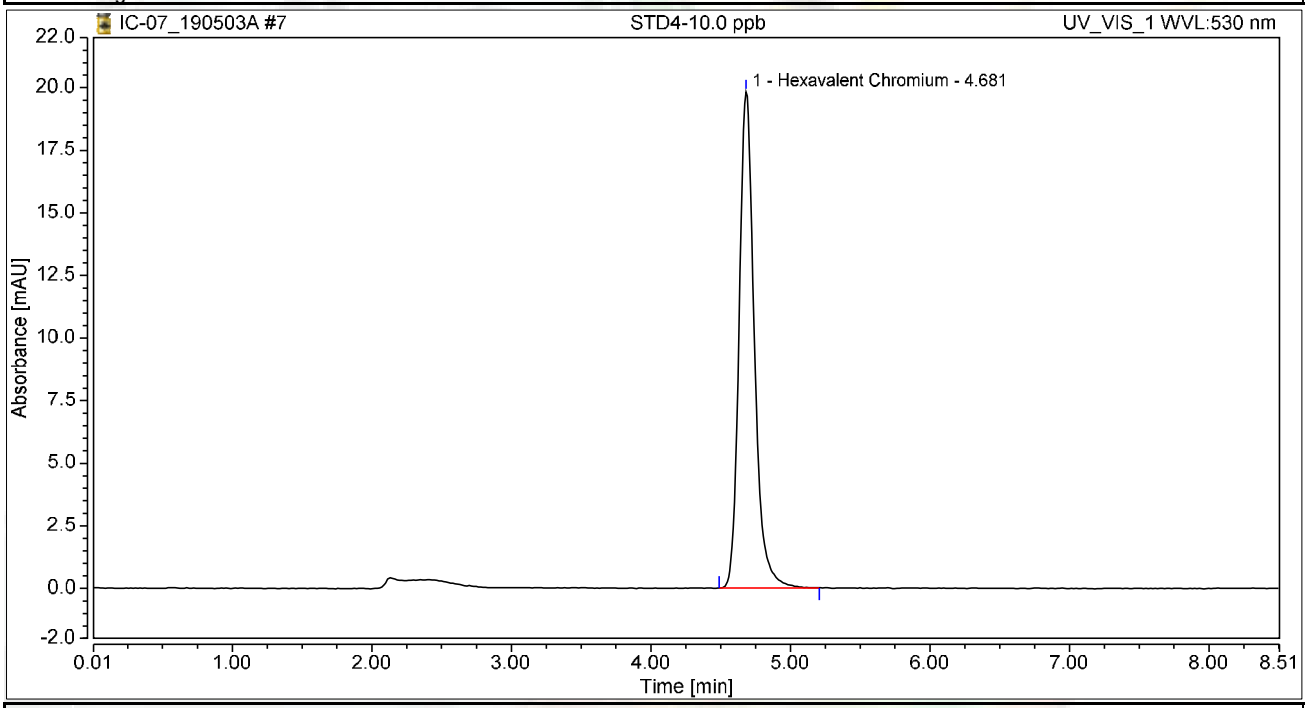
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.261	9.919	100.00	100.00	5.0034
Total:			**1.261**	**9.919**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

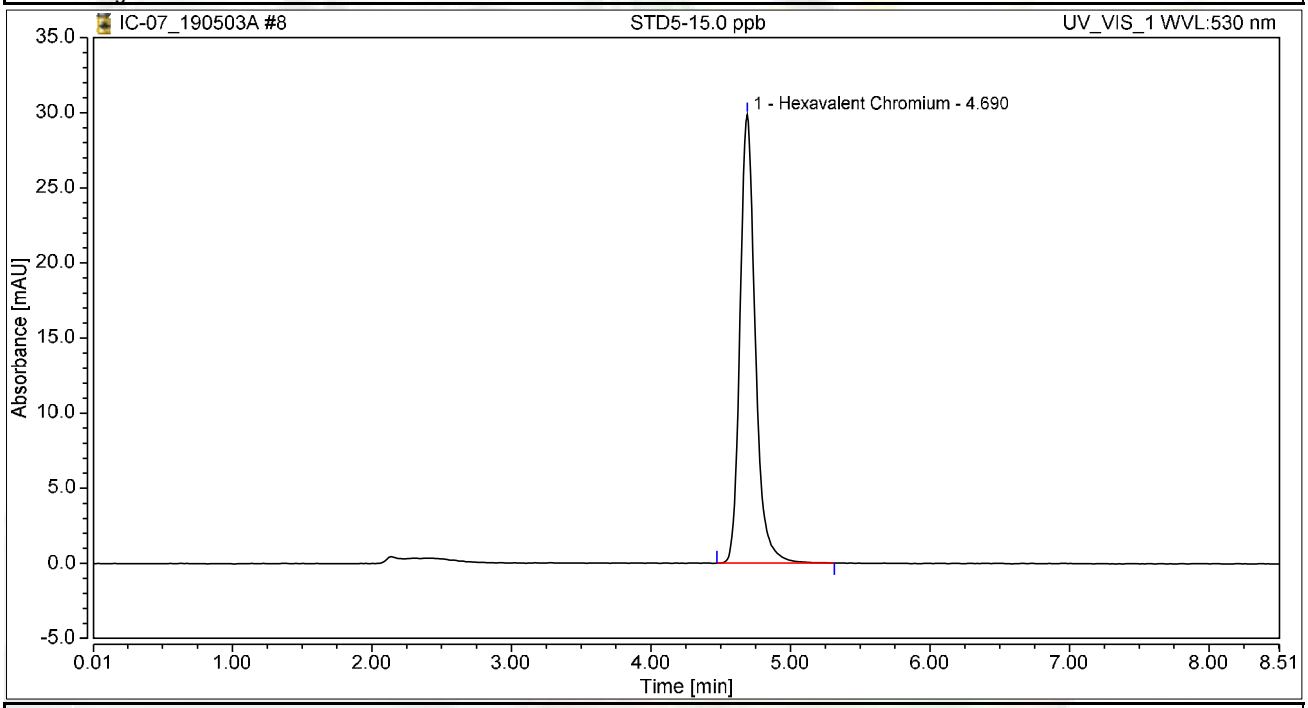
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	2.519	19.825	100.00	100.00	9.9901
Total:			**2.519**	**19.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

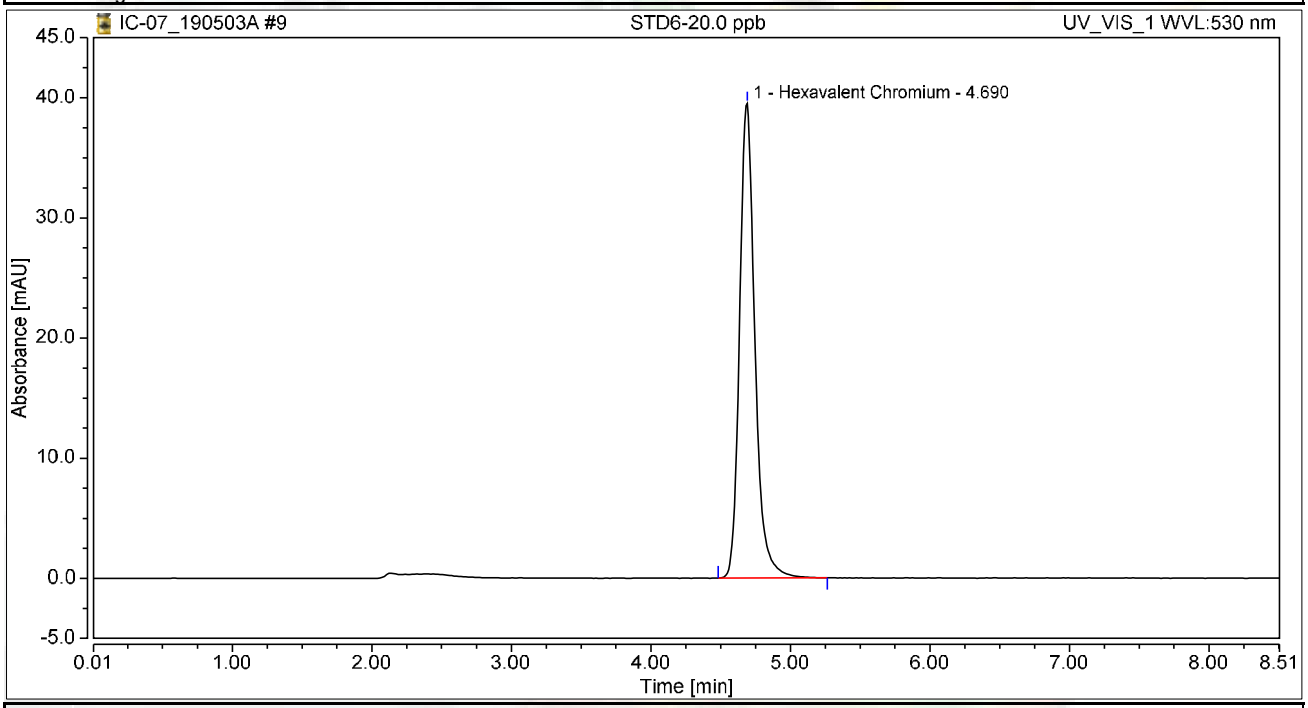
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.799	29.868	100.00	100.00	15.0660
Total:			**3.799**	**29.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



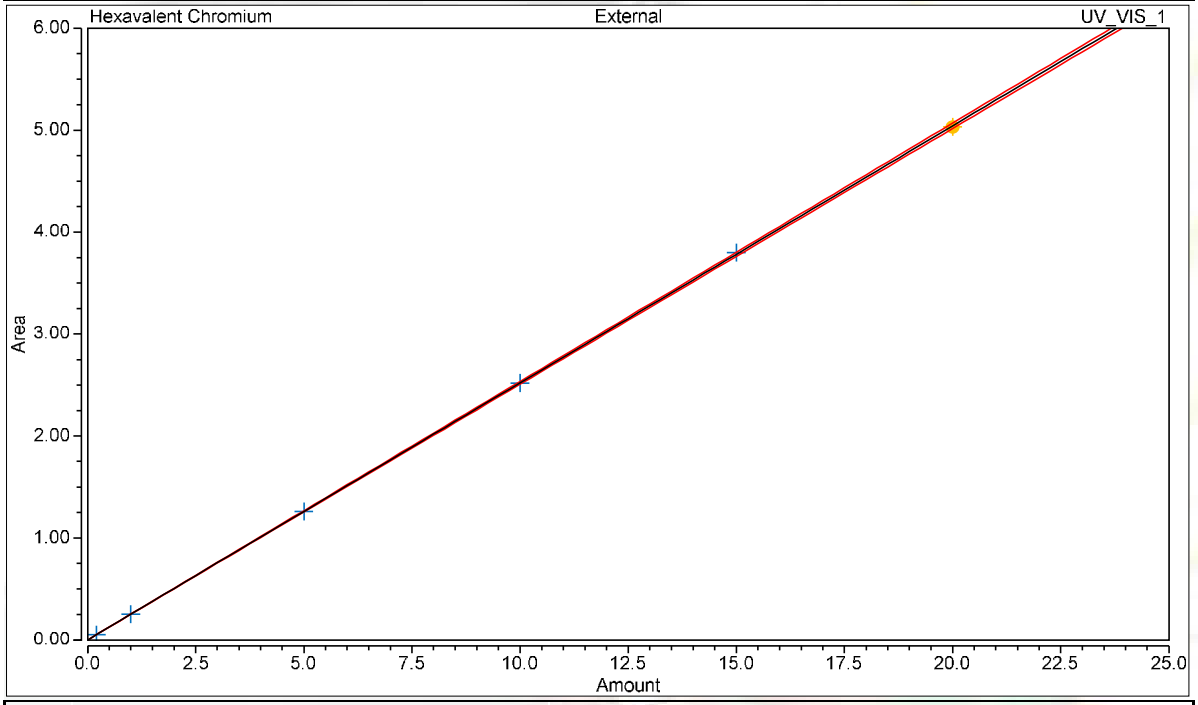
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	5.031	39.475	100.00	100.00	19.9546
Total:			**5.031**	**39.475**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2521
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

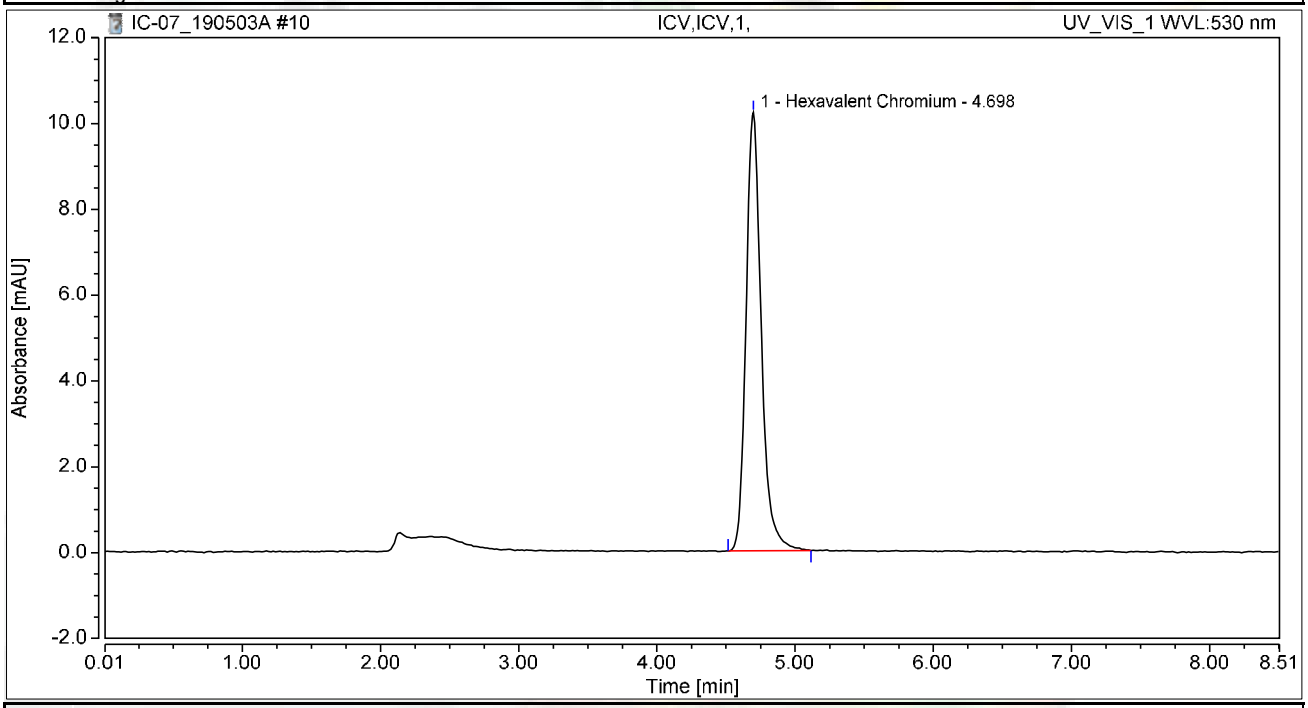
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.417
5	STD2-1.0 ppb	02	1.0000	0.2514	0.251	1.997
6	STD3-5.0 ppb	03	5.0000	1.2615	1.261	9.919
7	STD4-10.0 ppb	04	10.0000	2.5188	2.519	19.825
8	STD5-15.0 ppb	05	15.0000	3.7985	3.799	29.868
9	STD6-20.0 ppb	06	20.0000	5.0310	5.031	39.475

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

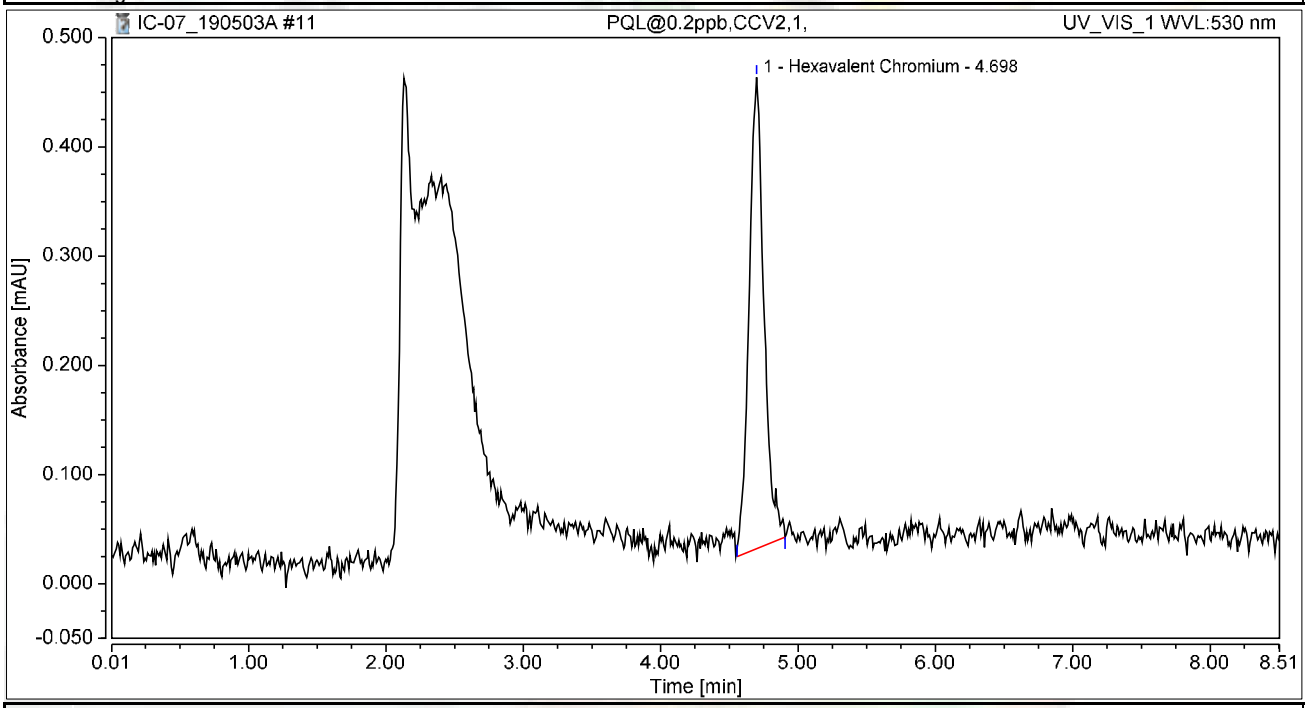
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.305	10.217	100.00	100.00	5.1753
Total:			**1.305**	**10.217**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

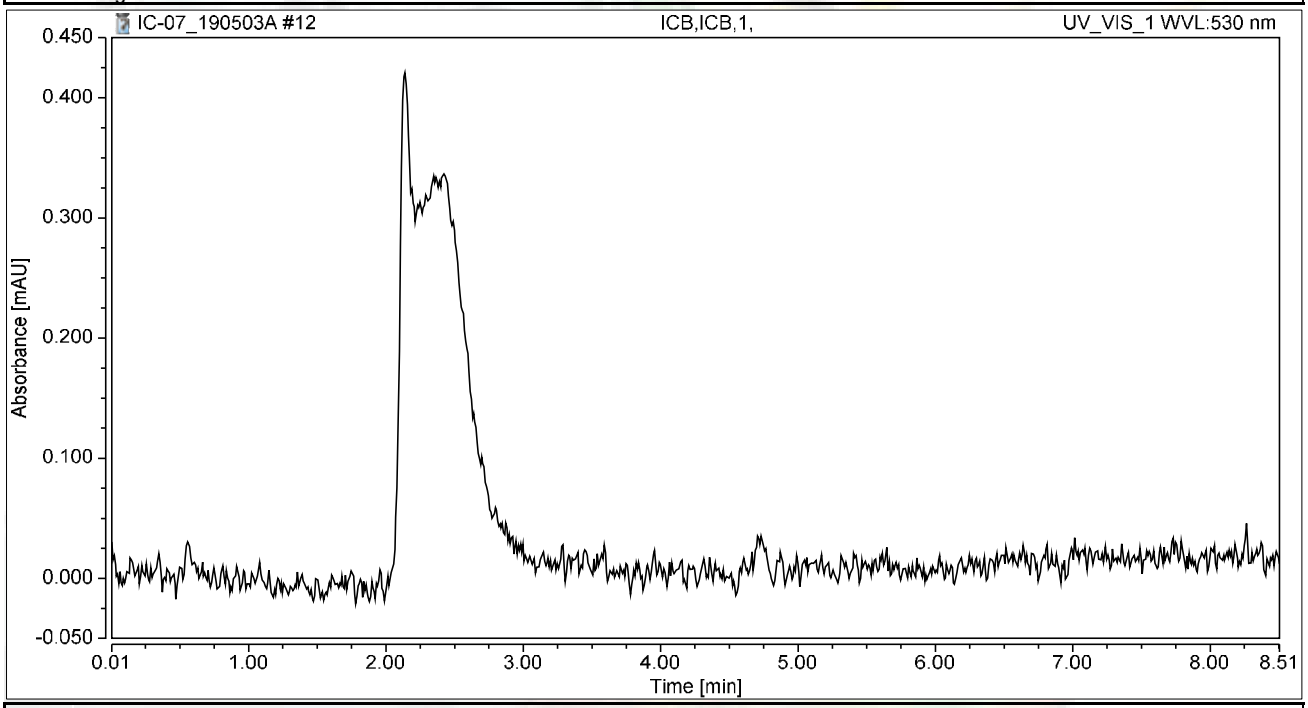
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.431	100.00	100.00	0.2143
Total:			**0.054**	**0.431**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190524A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/24/19 8:50 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	05/24/19 9:01 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/24/19 9:10 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	05/24/19 9:20 AM	Reported
14	MB-R134179	MBLK	1	Hexavalent Chromium	05/24/19 9:29 AM	Reported
15	LCS-R134179	LCS	1	Hexavalent Chromium	05/24/19 9:39 AM	Reported
16	N035759-001A	SAMP	5	Hexavalent Chromium	05/24/19 9:48 AM	Reported
17	N035759-001AMS	MS	5	Hexavalent Chromium	05/24/19 9:58 AM	Reported
18	N035761-003A	SAMP	5	Hexavalent Chromium	05/24/19 10:39 AM	Reported
19	N035761-004A	SAMP	5	Hexavalent Chromium	05/24/19 10:50 AM	Not Reported
20	N035761-005A	SAMP	5	Hexavalent Chromium	05/24/19 11:00 AM	Not Reported
21	N035761-006A	SAMP	200	Hexavalent Chromium	05/24/19 11:09 AM	Reported
22	N035759-001A	SAMP	1	Hexavalent Chromium	05/24/19 11:19 AM	Not Reported
23	N035759-001AMS	MS	1	Hexavalent Chromium	05/24/19 11:28 AM	Not Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	05/24/19 11:38 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	05/24/19 11:47 AM	Reported
26	N035761-007A	SAMP	200	Hexavalent Chromium	05/24/19 11:57 AM	Reported
27	N035761-010A	SAMP	100	Hexavalent Chromium	05/24/19 12:06 PM	Not Reported
28	N035761-001A	SAMP	5	Hexavalent Chromium	05/24/19 12:15 PM	Reported
29	N035761-001AMS	MS	5	Hexavalent Chromium	05/24/19 12:25 PM	Reported
30	N035761-002A	SAMP	5	Hexavalent Chromium	05/24/19 12:34 PM	Reported
31	N035761-002AMS	MS	5	Hexavalent Chromium	05/24/19 12:44 PM	Reported
32	N035761-008A	SAMP	5	Hexavalent Chromium	05/24/19 12:53 PM	Reported
33	N035761-008AMS	MS	5	Hexavalent Chromium	05/24/19 1:03 PM	Reported
34	N035761-013A	SAMP	5	Hexavalent Chromium	05/24/19 1:12 PM	Reported
35	N035761-013AMS	MS	5	Hexavalent Chromium	05/24/19 1:22 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	05/24/19 1:31 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	05/24/19 1:41 PM	Reported
38	N035761-006AMS	MS	200	Hexavalent Chromium	05/24/19 1:50 PM	Reported
39	N035761-006AMSD	MSD	200	Hexavalent Chromium	05/24/19 1:59 PM	Reported
40	N035761-003AMS	MS	5	Hexavalent Chromium	05/24/19 2:09 PM	Reported
41	N035761-007AMS	MS	200	Hexavalent Chromium	05/24/19 2:18 PM	Reported
42	N035761-010A	SAMP	50	Hexavalent Chromium	05/24/19 2:46 PM	Reported

INJECTION LOG: 190524A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N035761-010AMS	MS	50	Hexavalent Chromium	05/24/19 2:56 PM	Reported
44	N035761-010ADUP	DUP	50	Hexavalent Chromium	05/24/19 3:06 PM	Reported
45	N035761-004A	SAMP	10	Hexavalent Chromium	05/24/19 3:15 PM	Reported
46	N035761-004AMS	MS	10	Hexavalent Chromium	05/24/19 3:25 PM	Reported
47	CCV-4	CCV1	1	Hexavalent Chromium	05/24/19 3:34 PM	Reported
48	CCB-4	CCB	1	Hexavalent Chromium	05/24/19 3:44 PM	Reported
49	N035761-005A	SAMP	10	Hexavalent Chromium	05/24/19 3:53 PM	Reported
50	N035761-005AMS	MS	10	Hexavalent Chromium	05/24/19 4:03 PM	Reported
51	N035761-009A	SAMP	1	Hexavalent Chromium	05/24/19 4:12 PM	Reported
52	N035761-009AMS	MS	1	Hexavalent Chromium	05/24/19 4:22 PM	Reported
53	N035761-011A	SAMP	1	Hexavalent Chromium	05/24/19 4:31 PM	Reported
54	N035761-011AMS	MS	1	Hexavalent Chromium	05/24/19 4:40 PM	Reported
55	N035761-012A	SAMP	1	Hexavalent Chromium	05/24/19 4:50 PM	Reported
56	N035761-012AMS	MS	1	Hexavalent Chromium	05/24/19 4:59 PM	Reported
57	CCV-5	CCV	1	Hexavalent Chromium	05/24/19 5:09 PM	Reported
58	CCB-5	CCB	1	Hexavalent Chromium	05/24/19 5:18 PM	Reported
59	N035761-001A	SAMP	1	Hexavalent Chromium	05/24/19 5:28 PM	Not Reported
60	N035761-001AMS	MS	1	Hexavalent Chromium	05/24/19 5:37 PM	Not Reported
61	N035761-002A	SAMP	1	Hexavalent Chromium	05/24/19 5:47 PM	Not Reported
62	N035761-002AMS	MS	1	Hexavalent Chromium	05/24/19 5:56 PM	Not Reported
63	N035761-008A	SAMP	1	Hexavalent Chromium	05/24/19 6:06 PM	Not Reported
64	N035761-008AMS	MS	1	Hexavalent Chromium	05/24/19 6:15 PM	Not Reported
65	N035761-013A	SAMP	1	Hexavalent Chromium	05/24/19 6:25 PM	Not Reported
66	N035761-013AMS	MS	1	Hexavalent Chromium	05/24/19 6:34 PM	Not Reported
67	CCV-6	CCV1	1	Hexavalent Chromium	05/24/19 6:43 PM	Reported
68	CCB-6	CCB	1	Hexavalent Chromium	05/24/19 6:53 PM	Reported
69	BLANK	BLANK	1	Hexavalent Chromium	05/24/19 7:02 PM	Not Reported

rba 6/4/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190524A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**28/May/19 13:37:11**
No. of Injections:	**72**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/24/2019 08:50	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		05/24/2019 09:01	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		05/24/2019 09:10	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		05/24/2019 09:20	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		05/24/2019 09:29	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		05/24/2019 09:39	Finished	LCS @5ppb, IWST-190423B
16	N035759-001A,SAMF	7	1000	Unknown		05/24/2019 09:48	Finished	SAMP,2>10mL
17	N035759-001AMS,MS	8	1000	Unknown		05/24/2019 09:58	Finished	MS (1ppb), IWST-190423B,2>1
18	N035761-003A,SAMF	1	1000	Unknown		05/24/2019 10:39	Finished	SAMP,2>10mL
19	N035761-004A,SAMF	2	1000	Unknown		05/24/2019 10:50	Finished	SAMP,2>10mL
20	N035761-005A,SAMF	3	1000	Unknown		05/24/2019 11:00	Finished	SAMP,2>10mL
21	N035761-006A,SAMF	4	1000	Unknown		05/24/2019 11:09	Finished	SAMP,0.05>10mL
22	N035759-001A,SAMF	5	1000	Unknown		05/24/2019 11:19	Finished	SAMP,10mL
23	N035759-001AMS,MS	6	1000	Unknown		05/24/2019 11:28	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	7	1000	Unknown		05/24/2019 11:38	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	8	1000	Unknown		05/24/2019 11:47	Finished	CCB R190508A
26	N035761-007A,SAMF	9	1000	Unknown		05/24/2019 11:57	Finished	SAMP,0.05>10mL
27	N035761-010A,SAMF	10	1000	Unknown		05/24/2019 12:06	Finished	SAMP,0.1> 10mL
28	N035761-001A,SAMF	11	1000	Unknown		05/24/2019 12:15	Finished	SAMP,2> 10mL
29	N035761-001AMS,MS	12	1000	Unknown		05/24/2019 12:25	Finished	MS (1ppb), IWST-190423B,2>1
30	N035761-002A,SAMF	13	1000	Unknown		05/24/2019 12:34	Finished	SAMP,2> 10mL
31	N035761-002AMS,MS	14	1000	Unknown		05/24/2019 12:44	Finished	MS (1ppb), IWST-190423B,2>1
32	N035761-008A,SAMF	15	1000	Unknown		05/24/2019 12:53	Finished	SAMP,2> 10mL
33	N035761-008AMS,MS	16	1000	Unknown		05/24/2019 13:03	Finished	MS (1ppb), IWST-190423B,2>1
34	N035761-013A,SAMF	17	1000	Unknown		05/24/2019 13:12	Finished	SAMP,2> 10mL
35	N035761-013AMS,MS	18	1000	Unknown		05/24/2019 13:22	Finished	MS (1ppb), IWST-190423B,2>1
36	CCV-3,CCV,1,	19	1000	Unknown		05/24/2019 13:31	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	20	1000	Unknown		05/24/2019 13:41	Finished	CCB R190508A
38	N035761-006AMS,MS	21	1000	Unknown		05/24/2019 13:50	Finished	MS (5ppb), IWST-190423B,0.0
39	N035761-006AMSD,M	22	1000	Unknown		05/24/2019 13:59	Finished	MSD (5ppb), IWST-190423B,0.
40	N035761-003AMS,MS	23	1000	Unknown		05/24/2019 14:09	Finished	MS (5ppb), IWST-190423B,2>1
41	N035761-007AMS,MS	24	1000	Unknown		05/24/2019 14:18	Finished	MS (5ppb), IWST-190423B,0.0
42	N035761-010A,SAMF	1	1000	Unknown		05/24/2019 14:46	Finished	SAMP,0.2> 10mL
43	N035761-010AMS,MS	2	1000	Unknown		05/24/2019 14:56	Finished	MS (5ppb), IWST-190423B,0.2
44	N035761-010ADUP,D	3	1000	Unknown		05/24/2019 15:06	Finished	DUP,0.2> 10mL
45	N035761-004A,SAMF	4	1000	Unknown		05/24/2019 15:15	Finished	SAMP,1> 10mL
46	N035761-004AMS,MS	5	1000	Unknown		05/24/2019 15:25	Finished	MS (5ppb), IWST-190423B,1>1
47	CCV-4,CCV1,1,	6	1000	Unknown		05/24/2019 15:34	Finished	CCV @10ppb, IWST-190423A
48	CCB-4,CCB,1,	7	1000	Unknown		05/24/2019 15:44	Finished	CCB R190508A
49	N035761-005A,SAMF	8	1000	Unknown		05/24/2019 15:53	Finished	SAMP,1> 10mL
50	N035761-005AMS,MS	9	1000	Unknown		05/24/2019 16:03	Finished	MS (5ppb), IWST-190423B,1>1
51	N035761-009A,SAMF	10	1000	Unknown		05/24/2019 16:12	Finished	SAMP, 10mL
52	N035761-009AMS,MS	11	1000	Unknown		05/24/2019 16:22	Finished	MS (1ppb), IWST-190423B,10
53	N035761-011A,SAMF	12	1000	Unknown		05/24/2019 16:31	Finished	SAMP, 10mL
54	N035761-011AMS,MS	13	1000	Unknown		05/24/2019 16:40	Finished	MS (1ppb), IWST-190423B,10
55	N035761-012A,SAMF	14	1000	Unknown		05/24/2019 16:50	Finished	SAMP, 10mL
56	N035761-012AMS,MS	15	1000	Unknown		05/24/2019 16:59	Finished	MS (1ppb), IWST-190423B,10
57	CCV-5,CCV,1,	16	1000	Unknown		05/24/2019 17:09	Finished	CCV @5ppb, IWST-190423A
58	CCB-5,CCB,1,	17	1000	Unknown		05/24/2019 17:18	Finished	CCB R190508A
59	N035761-001A,SAMF	18	1000	Unknown		05/24/2019 17:28	Finished	SAMP, 10mL
60	N035761-001AMS,MS	19	1000	Unknown		05/24/2019 17:37	Finished	MS (1ppb), IWST-190423B,10

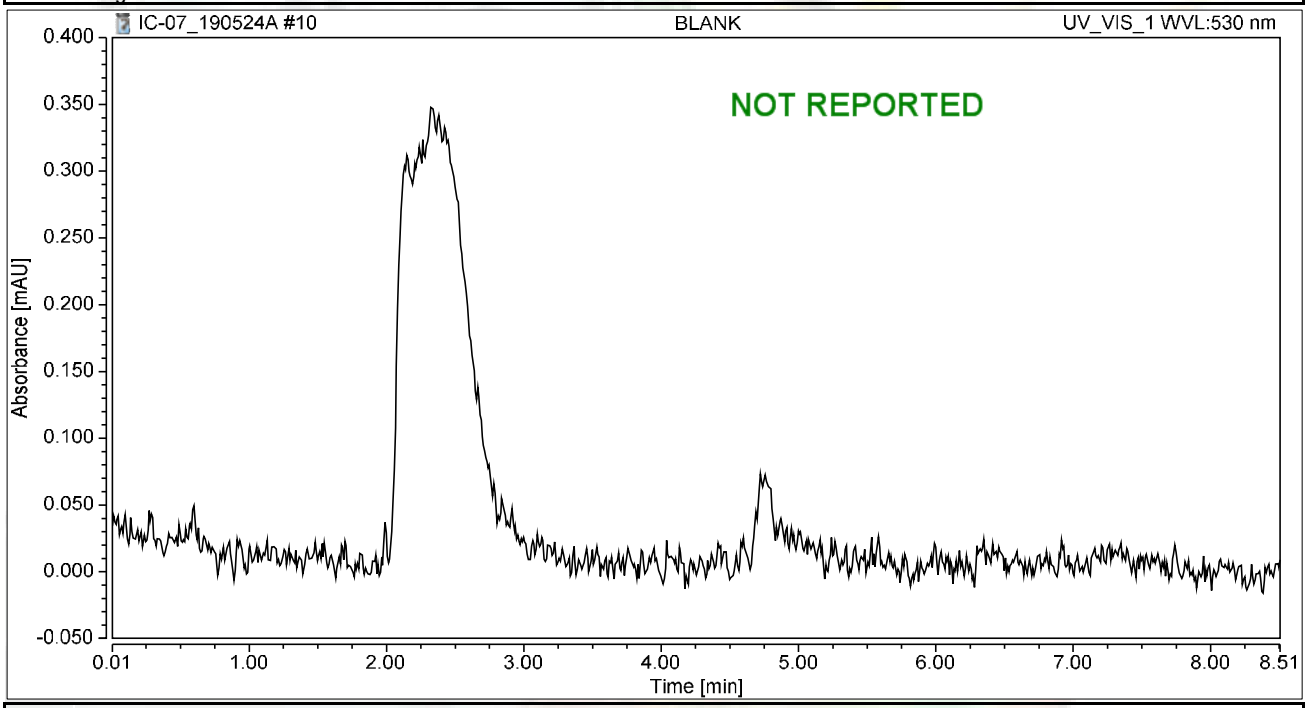
61	N035761-002A,SAMP	20	1000	Unknown		05/24/2019 17:47	Finished	SAMP, 10mL
62	N035761-002AMS,MS	21	1000	Unknown		05/24/2019 17:56	Finished	MS (1ppb), IWST-190423B,10
63	N035761-008A,SAMP	22	1000	Unknown		05/24/2019 18:06	Finished	SAMP, 10mL
64	N035761-008AMS,MS	23	1000	Unknown		05/24/2019 18:15	Finished	MS (5ppb), IWST-190423B,10
65	N035761-013A,SAMP	24	1000	Unknown		05/24/2019 18:25	Finished	SAMP, 10mL
66	N035761-013AMS,MS	25	1000	Unknown		05/24/2019 18:34	Finished	MS (1ppb), IWST-190423B,10
67	CCV-6,CCV1,1,	26	1000	Unknown		05/24/2019 18:43	Finished	CCV @10ppb, IWST-190423A
68	CCB-6,CCB,1,	27	1000	Unknown		05/24/2019 18:53	Finished	CCB R190508A
69	BLANK	28	1000	Unknown		05/24/2019 19:02	Finished	BLANK
70	SHUTDOWN	29	1000	Unknown		05/24/2019 19:12	Finished	
71	Eluent: R190524B	30	1000	Unknown		n.a.	Finished	Eluent
72	PCR: R190524C	31	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 08:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

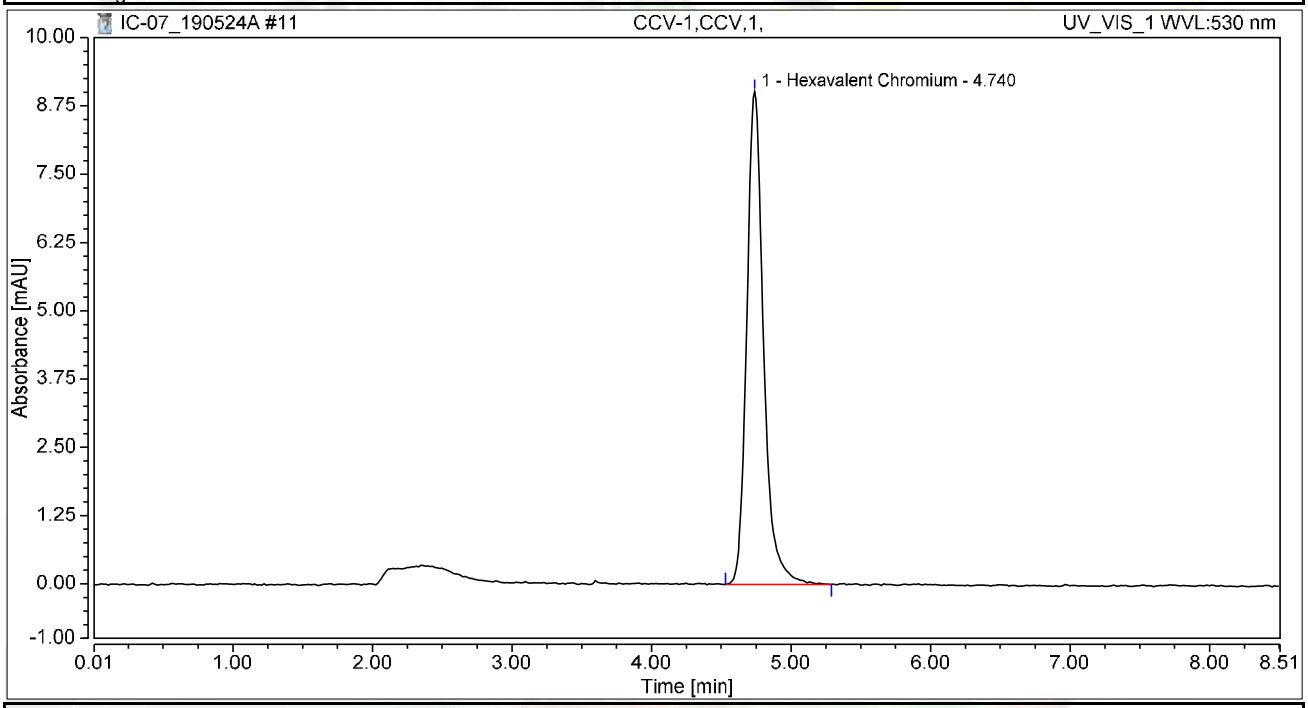
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 09:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

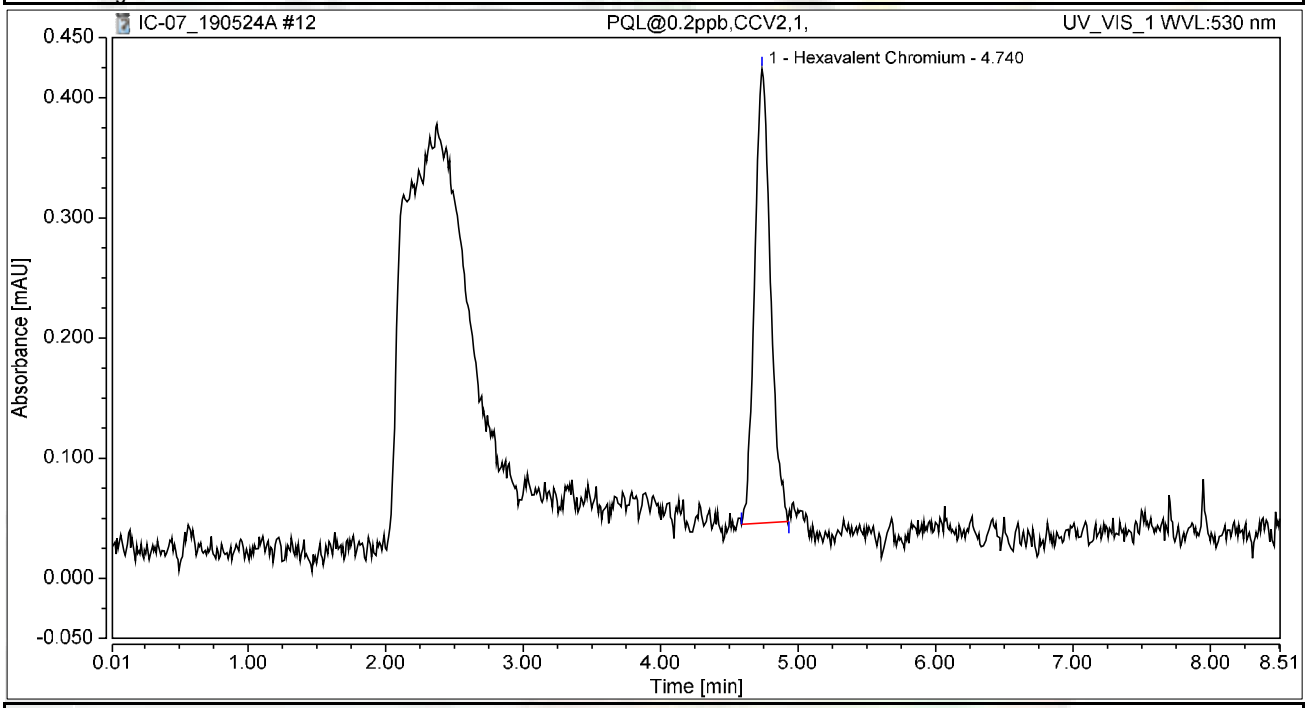
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.263	9.027	100.00	100.00	5.0103
Total:			**1.263**	**9.027**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 09:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

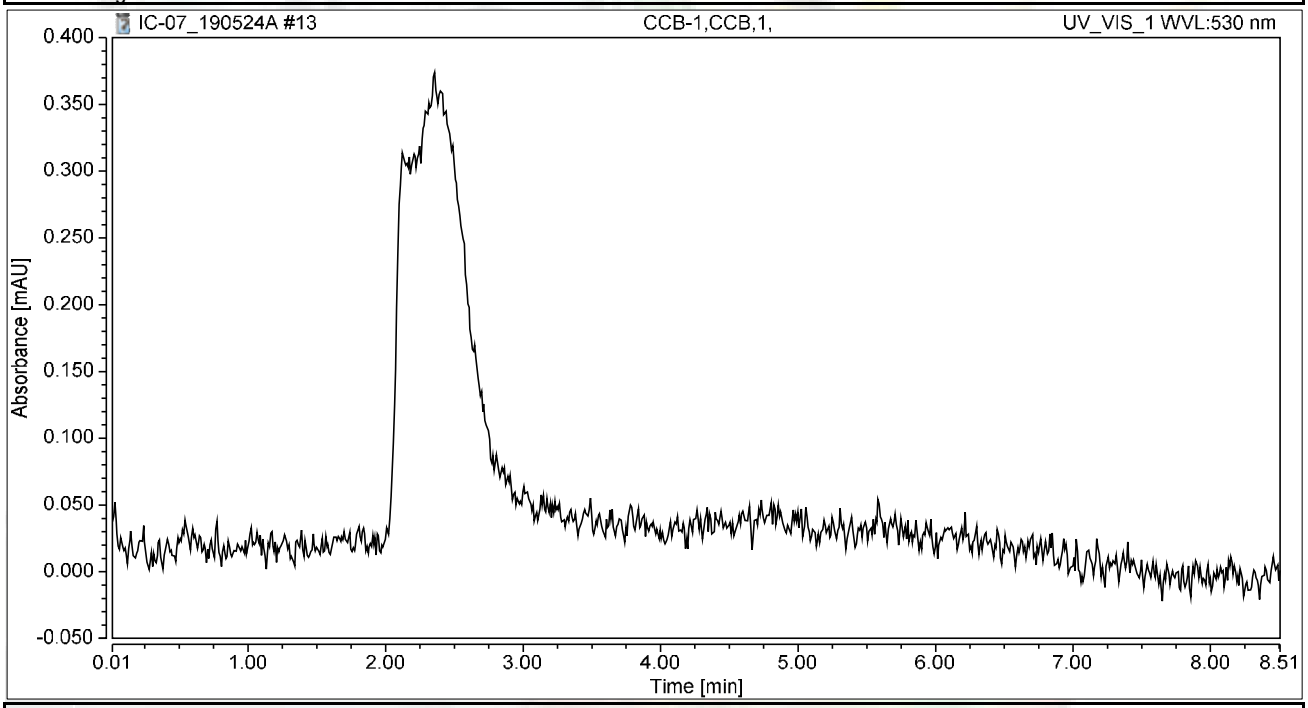
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.051	0.378	100.00	100.00	0.2005
Total:			**0.051**	**0.378**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 09:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

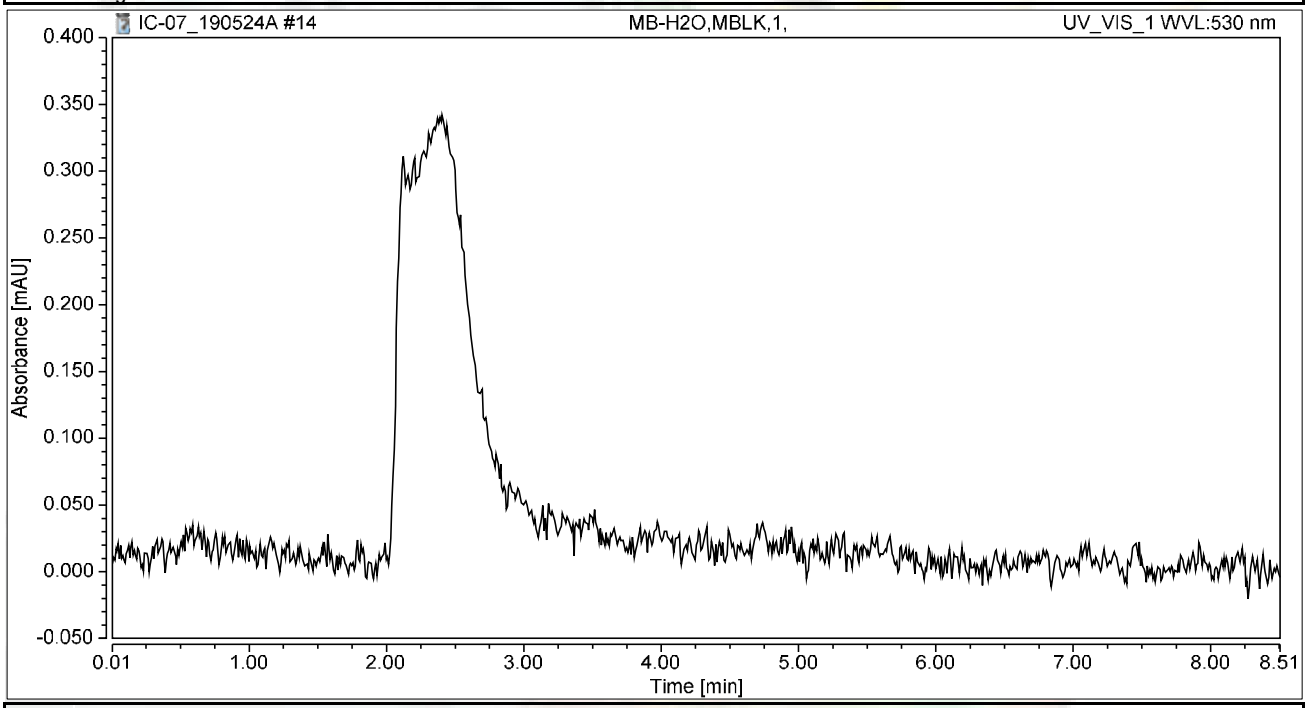
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 09:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

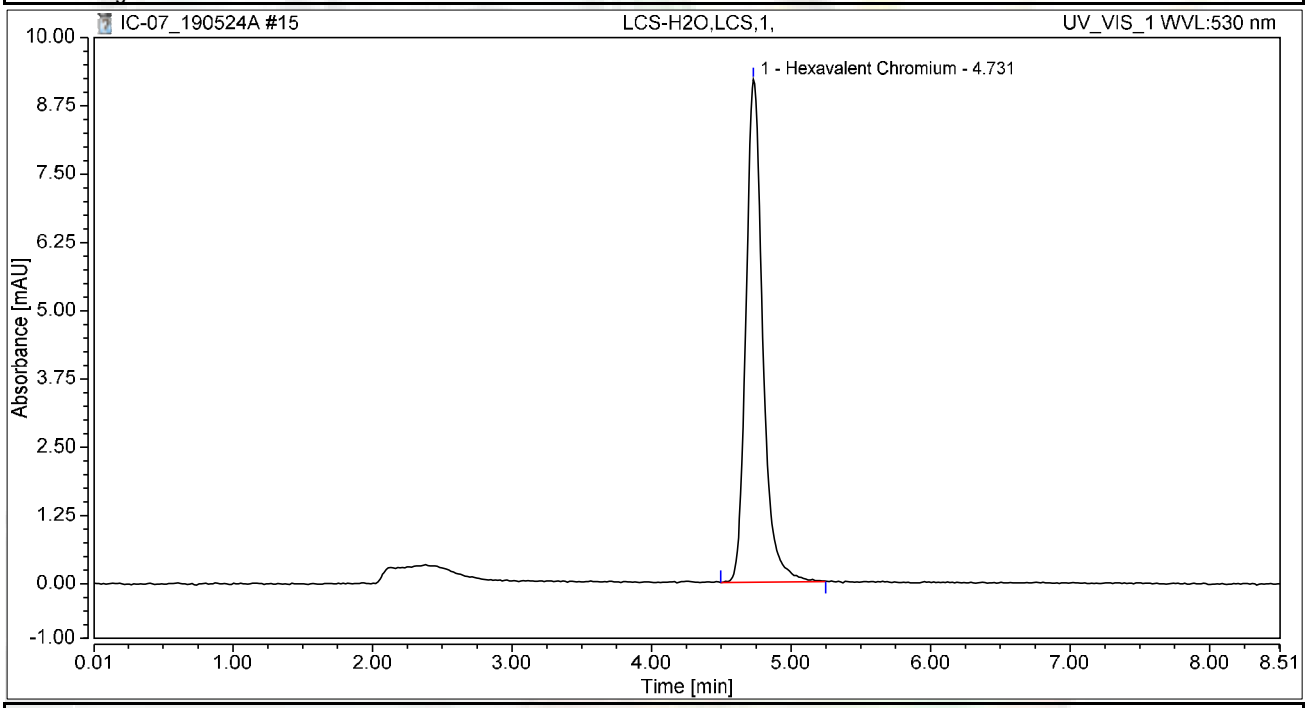
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 09:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

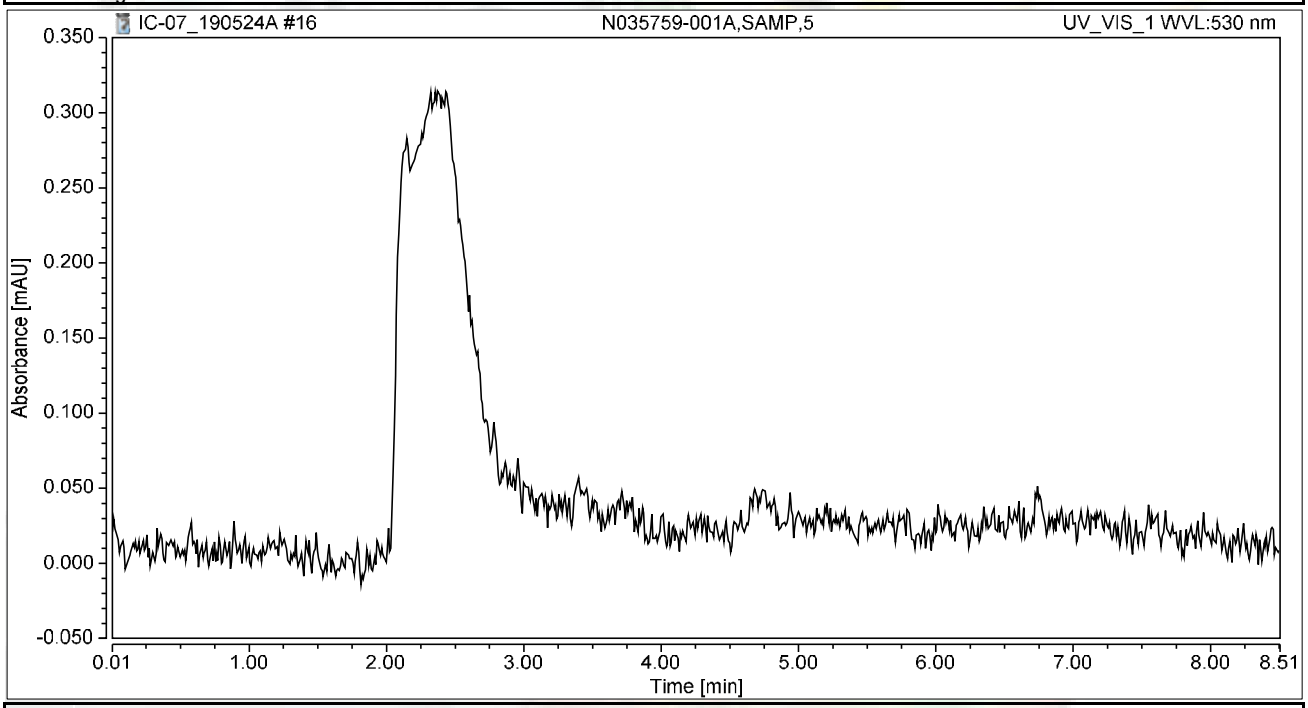
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.284	9.200	100.00	100.00	5.0932
Total:			**1.284**	**9.200**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035759-001A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 09:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

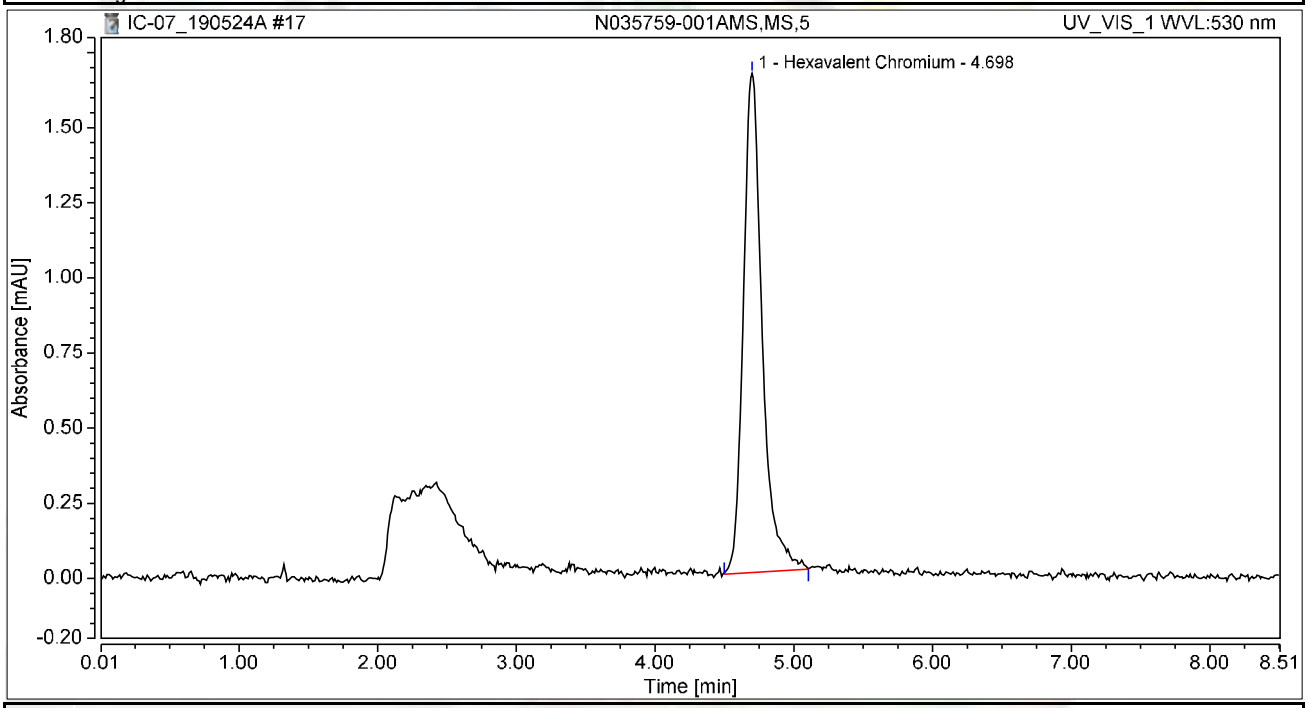
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035759-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 09:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

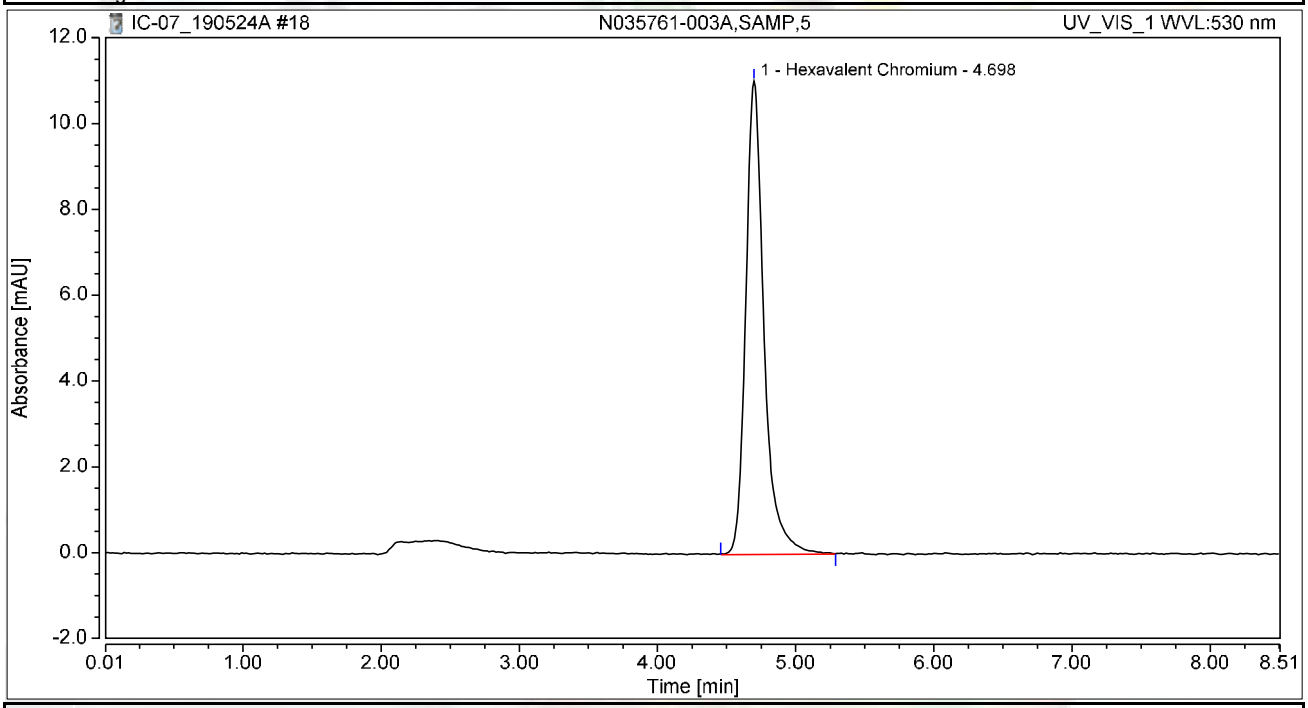
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.262	1.662	100.00	100.00	1.0402
Total:			**0.262**	**1.662**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-003A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 10:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

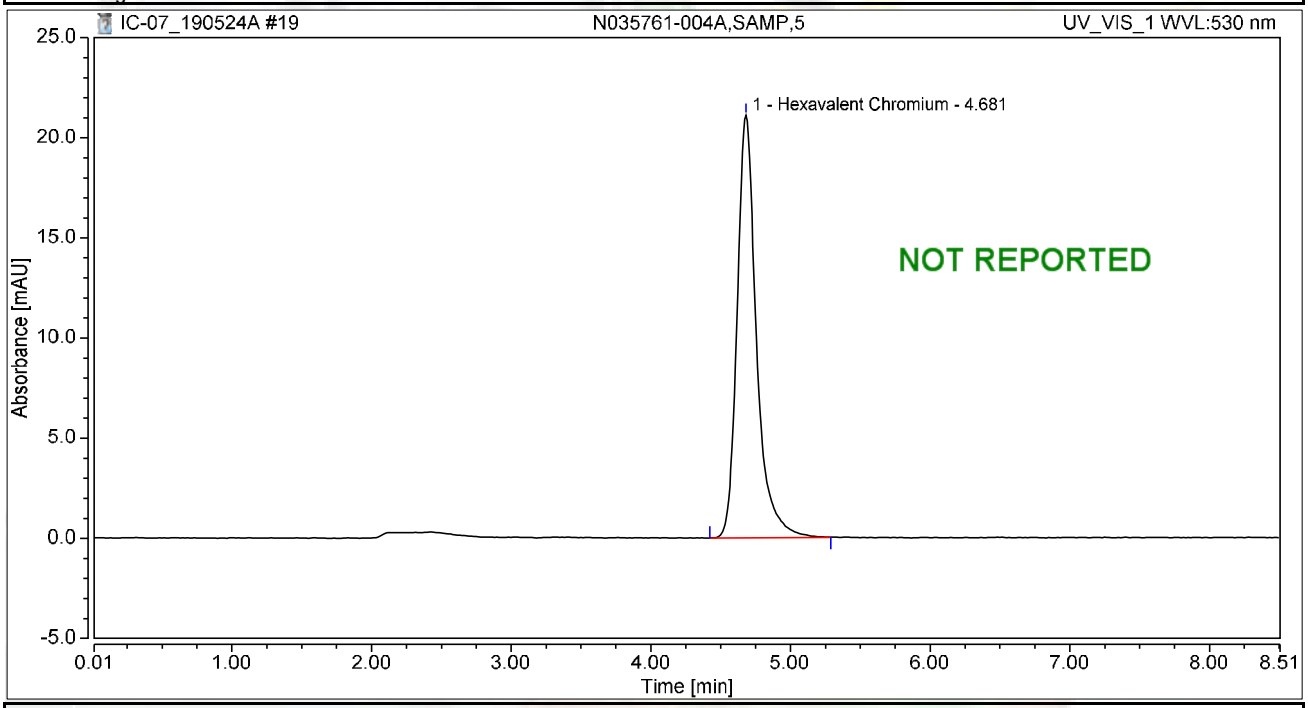
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.692	11.025	100.00	100.00	6.7109
Total:			**1.692**	**11.025**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-004A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

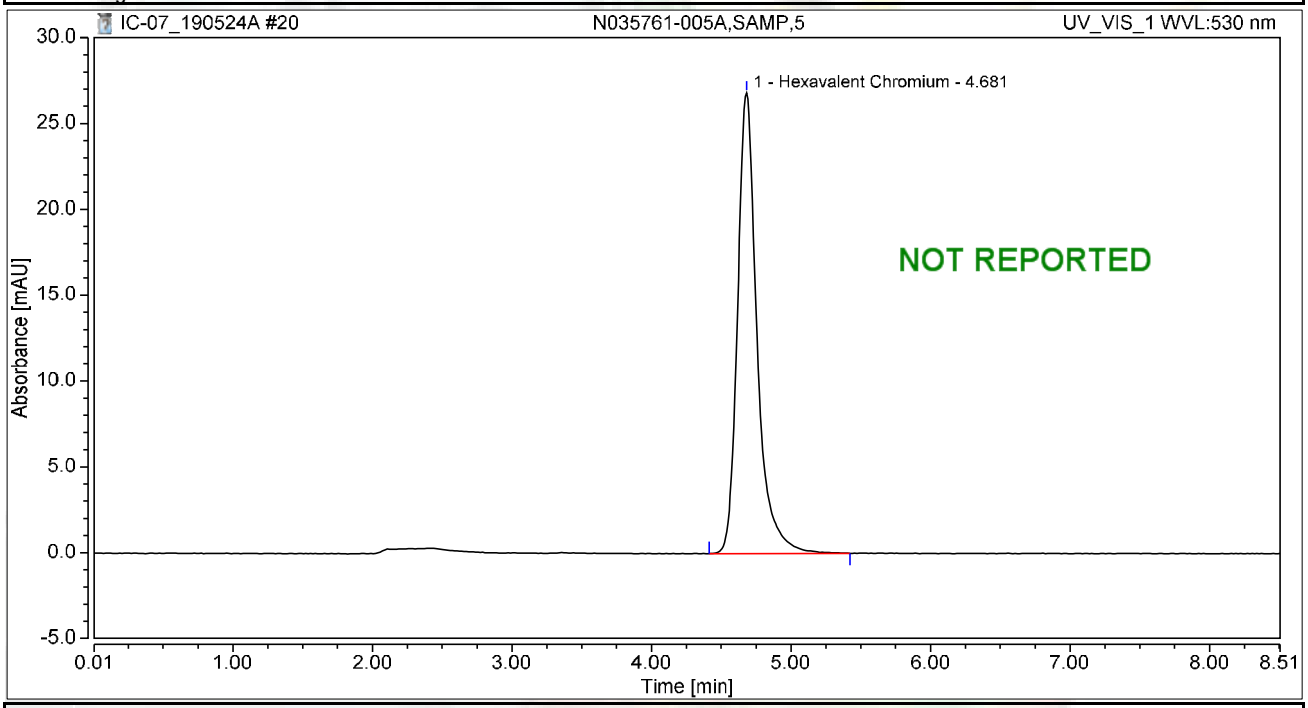
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	3.390	21.093	100.00	100.00	13.4447
Total:			**3.390**	**21.093**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-005A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

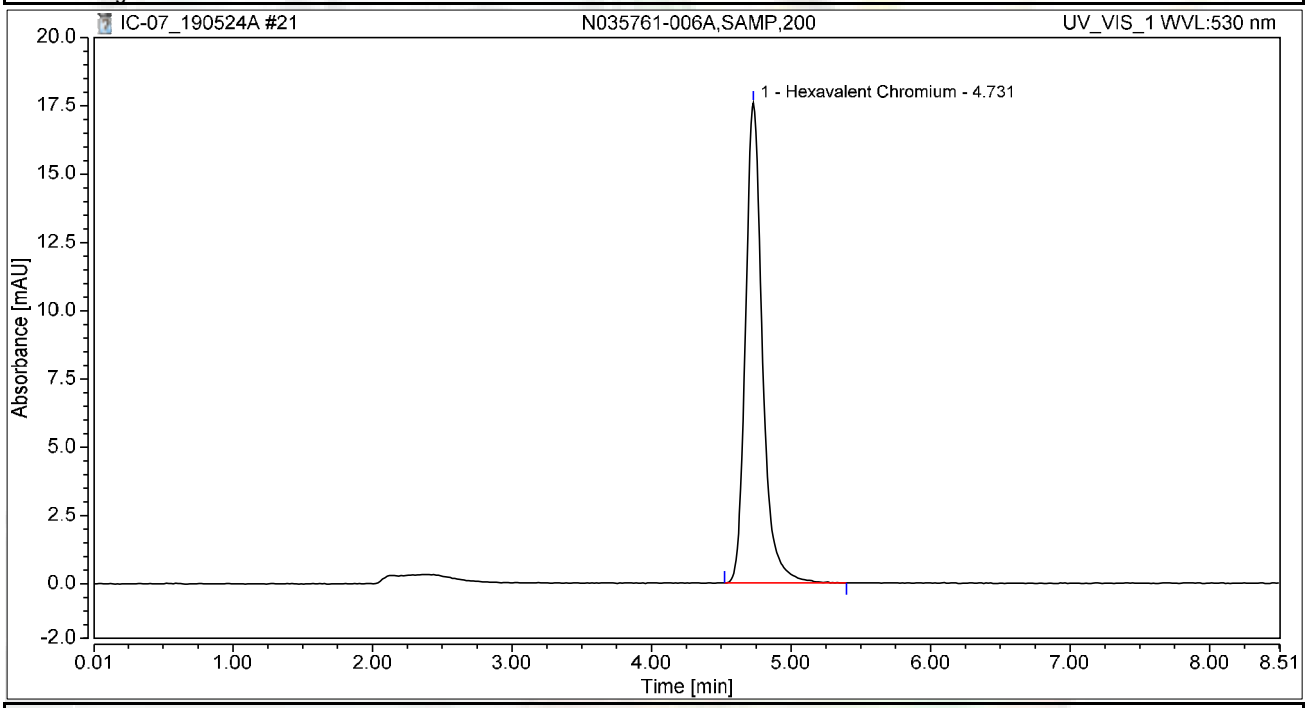
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	4.336	26.832	100.00	100.00	17.1988
Total:			**4.336**	**26.832**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-006A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

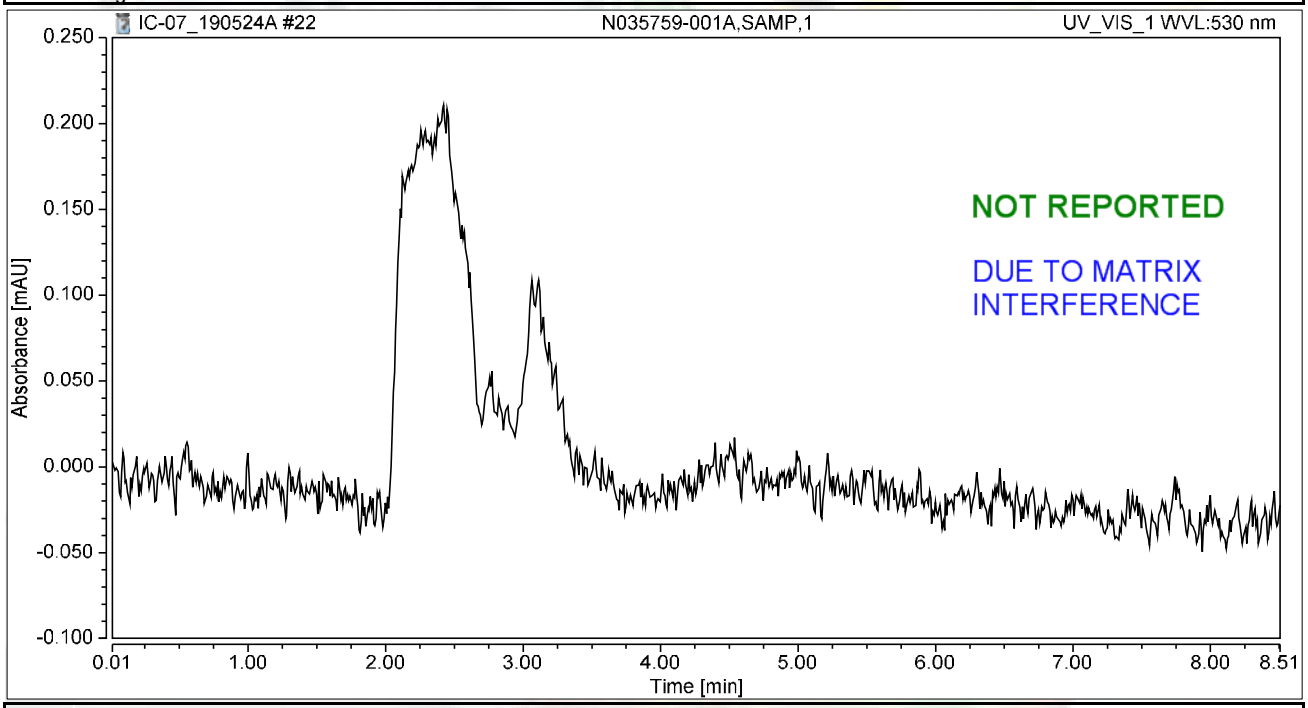
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.468	17.578	100.00	100.00	9.7900
Total:			**2.468**	**17.578**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035759-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

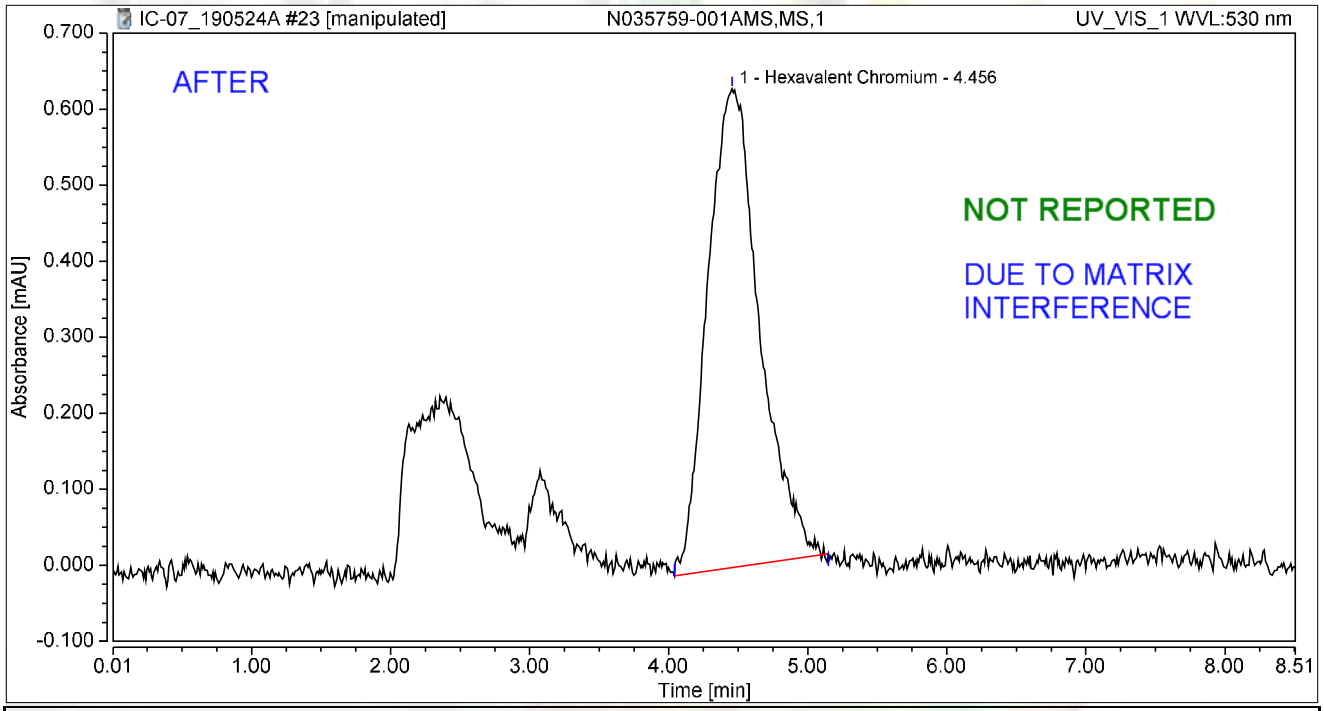
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035759-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 11:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.456	0.273	0.630	100.00	100.00	1.0819
Total:			**0.273**	**0.630**	**100.00**	**100.00**	

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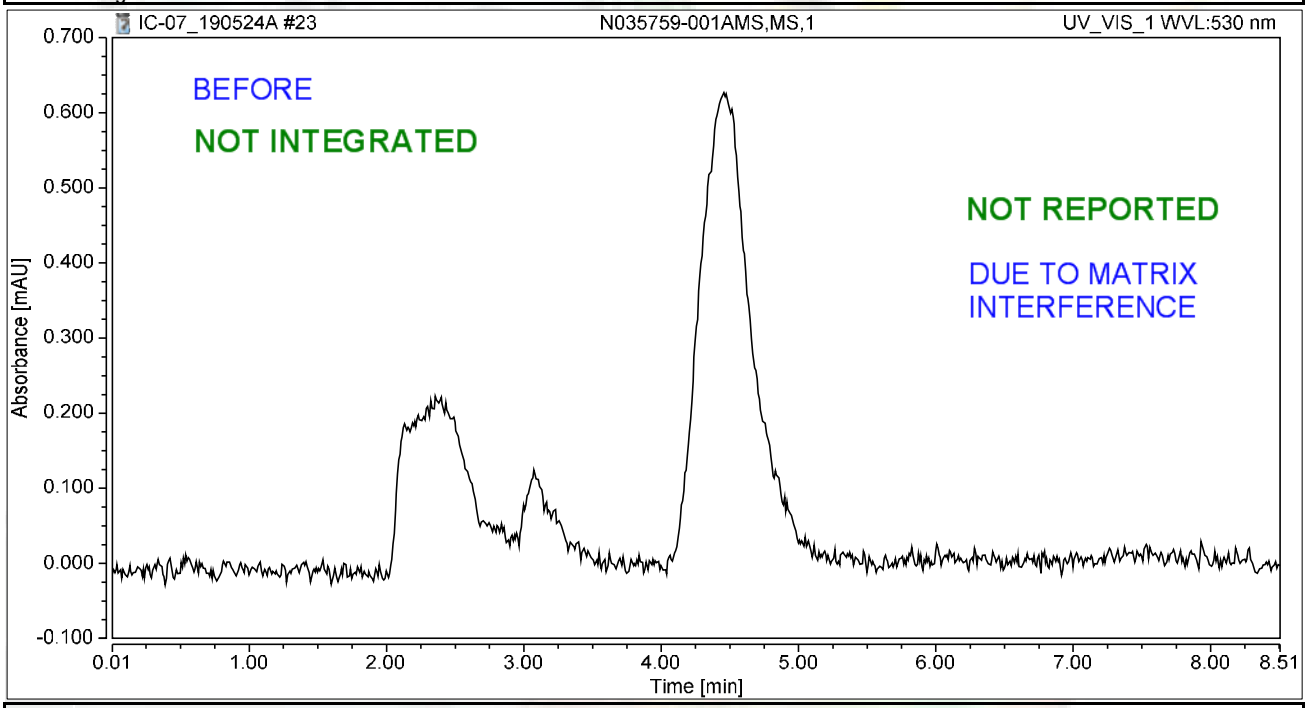
Chromatogram and Results

Injection Details

Injection Name:	**N035759-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 11:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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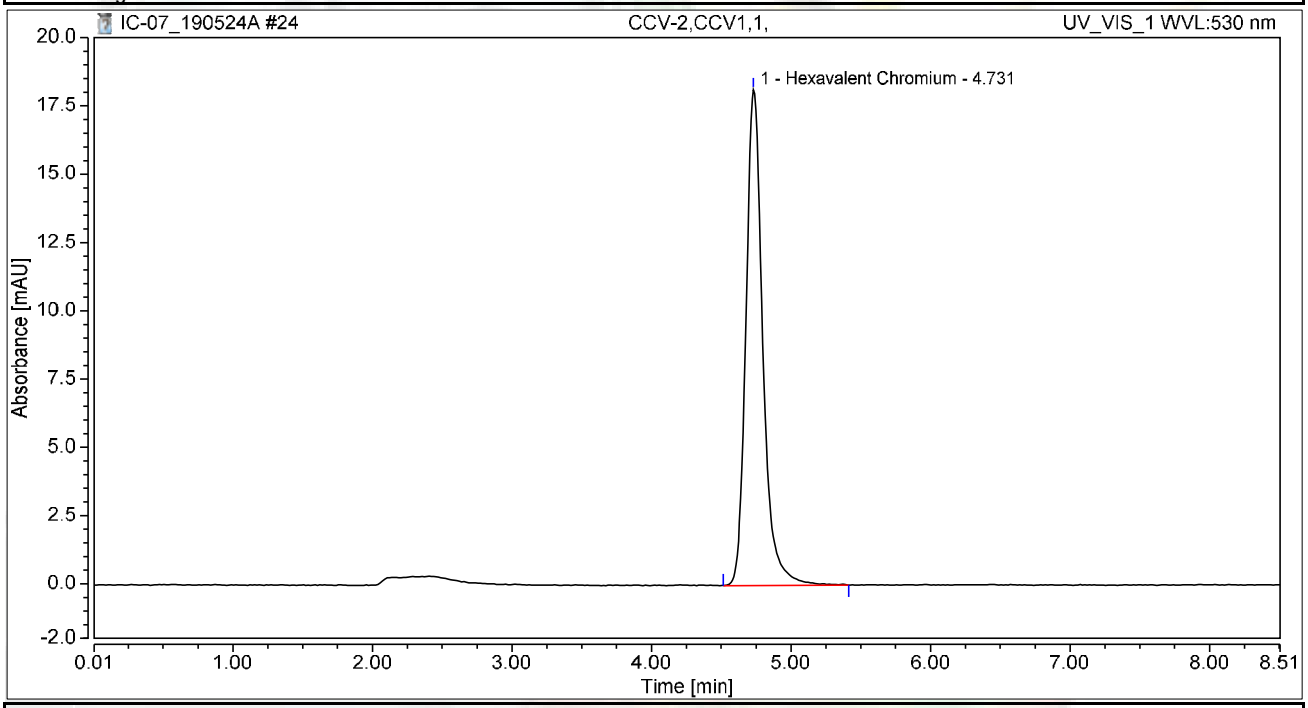
Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

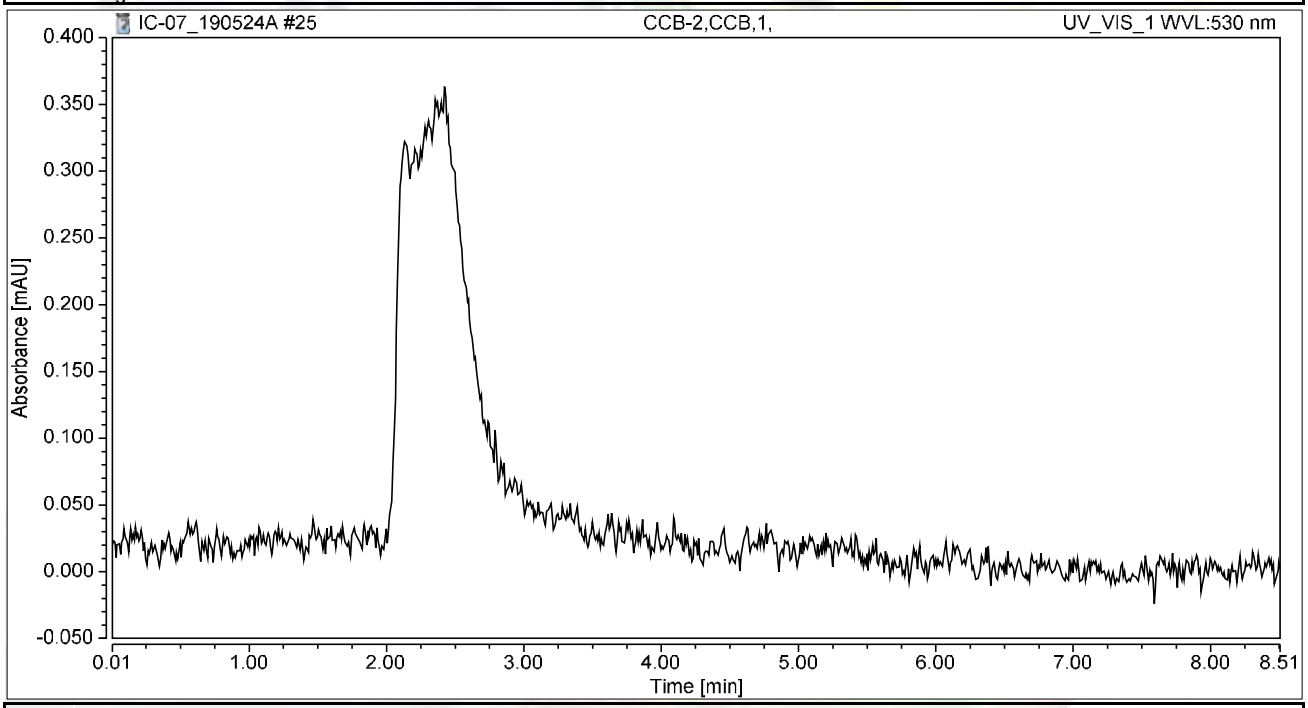
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.555	18.161	100.00	100.00	10.1348
Total:			**2.555**	**18.161**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 11:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

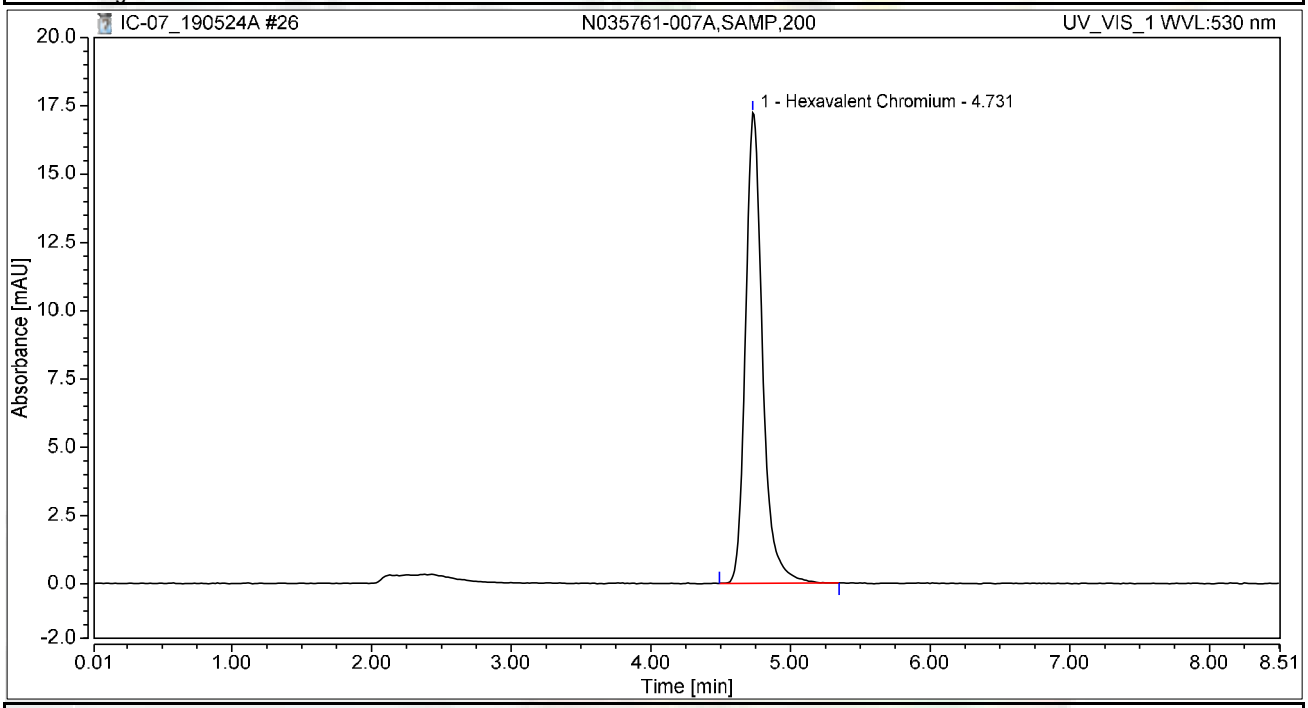
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-007A,SAMP,200**	*Run Time (min):*	**8.49**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

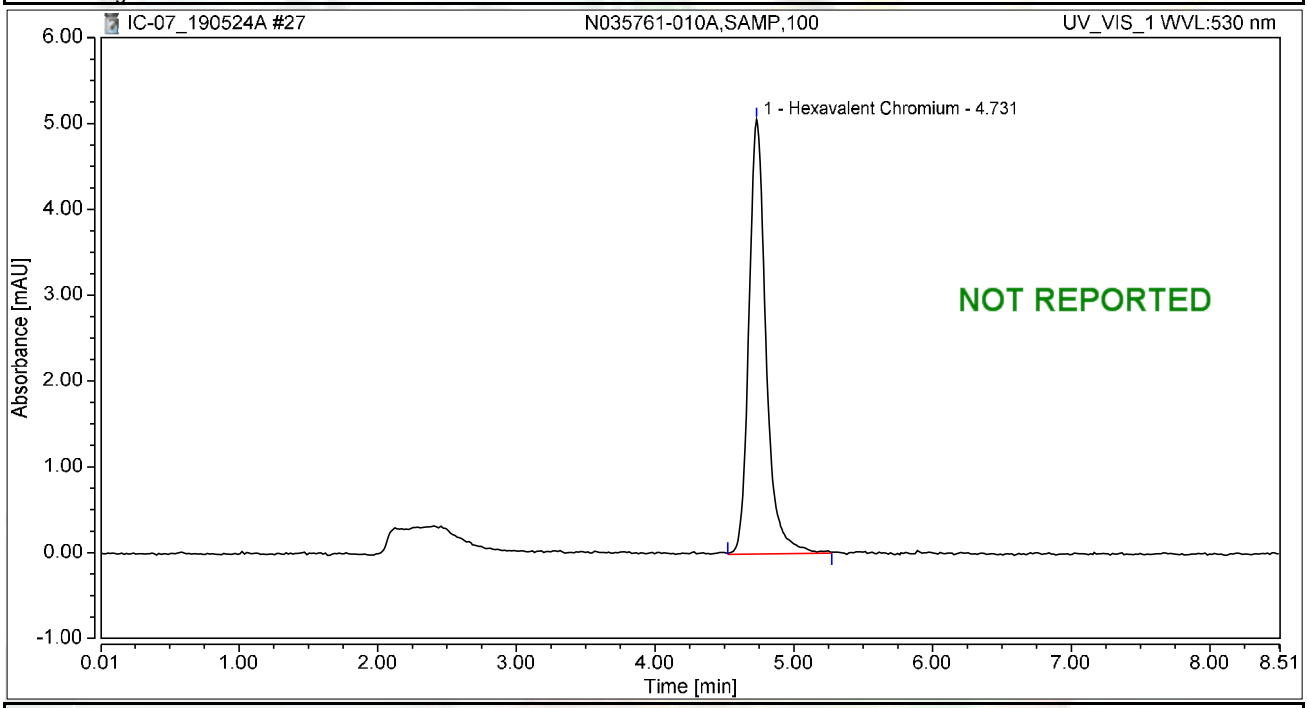
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.437	17.239	100.00	100.00	9.6670
Total:			**2.437**	**17.239**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-010A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 12:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

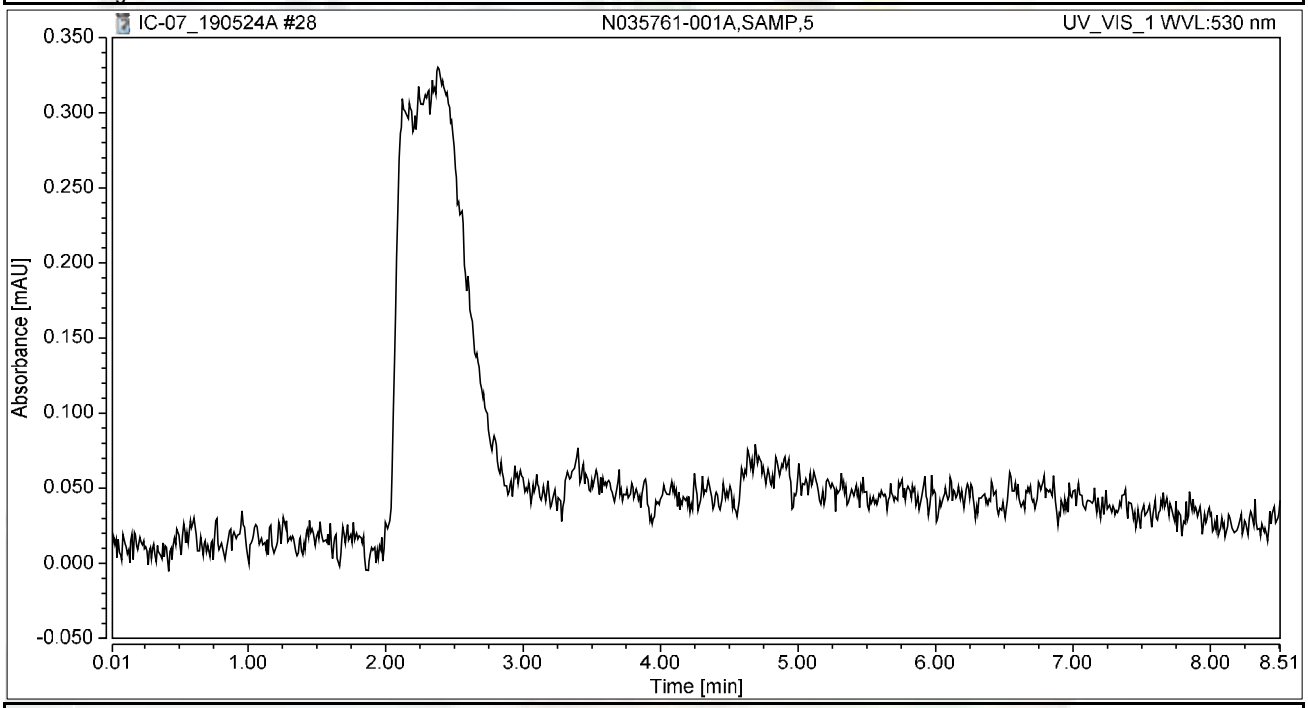
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.723	5.059	100.00	100.00	2.8682
Total:			**0.723**	**5.059**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-001A,SAMP,5**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 12:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

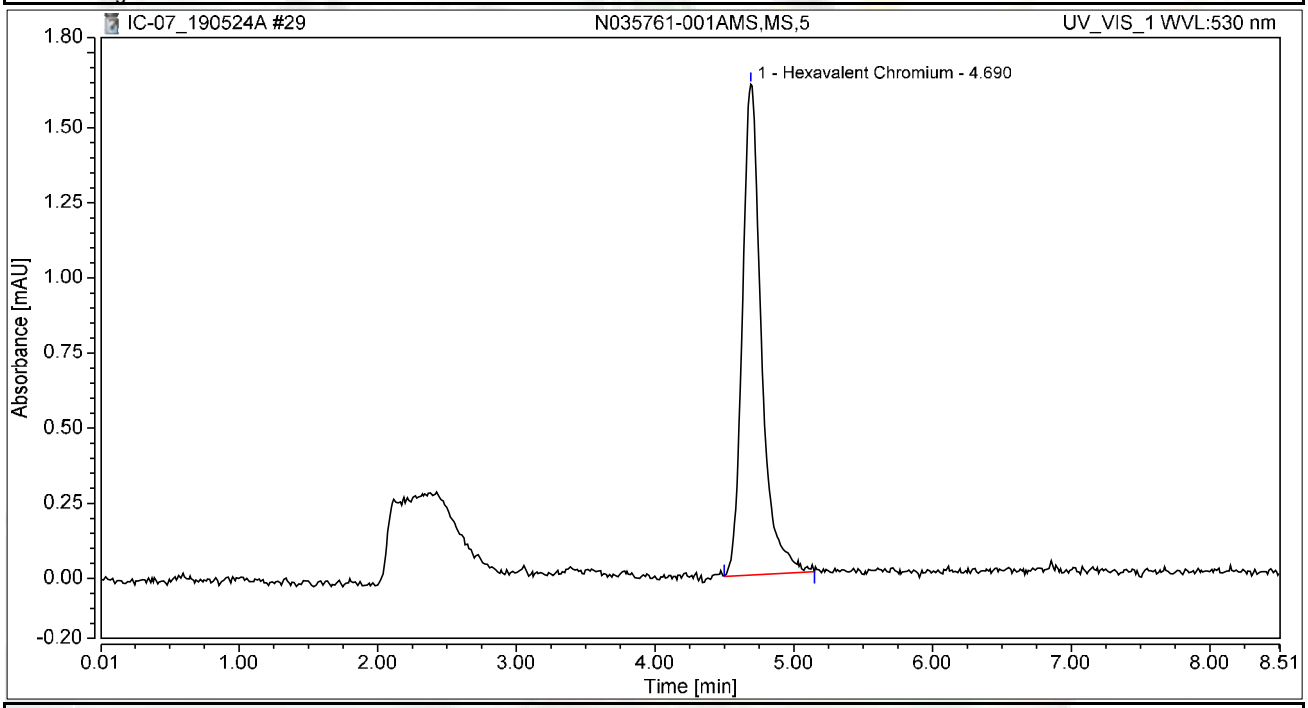
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-001AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 12:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

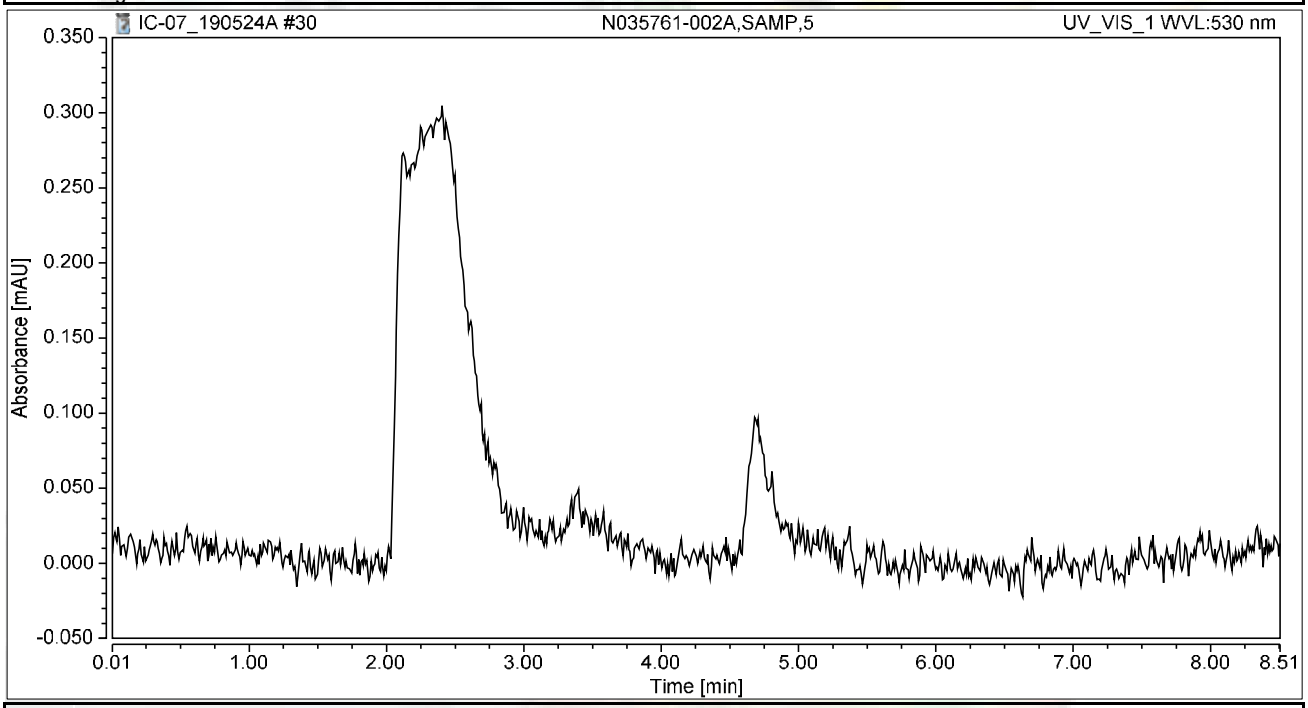
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.260	1.633	100.00	100.00	1.0312
Total:			**0.260**	**1.633**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-002A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 12:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

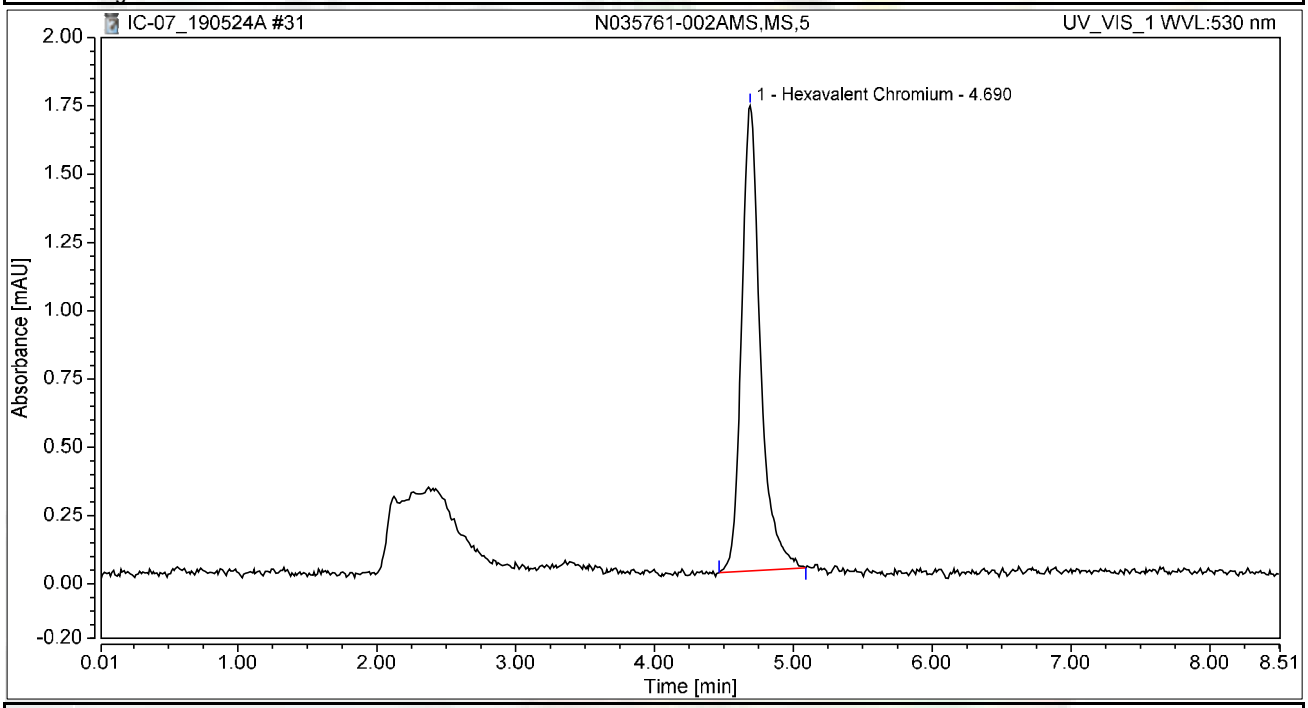
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-002AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 12:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

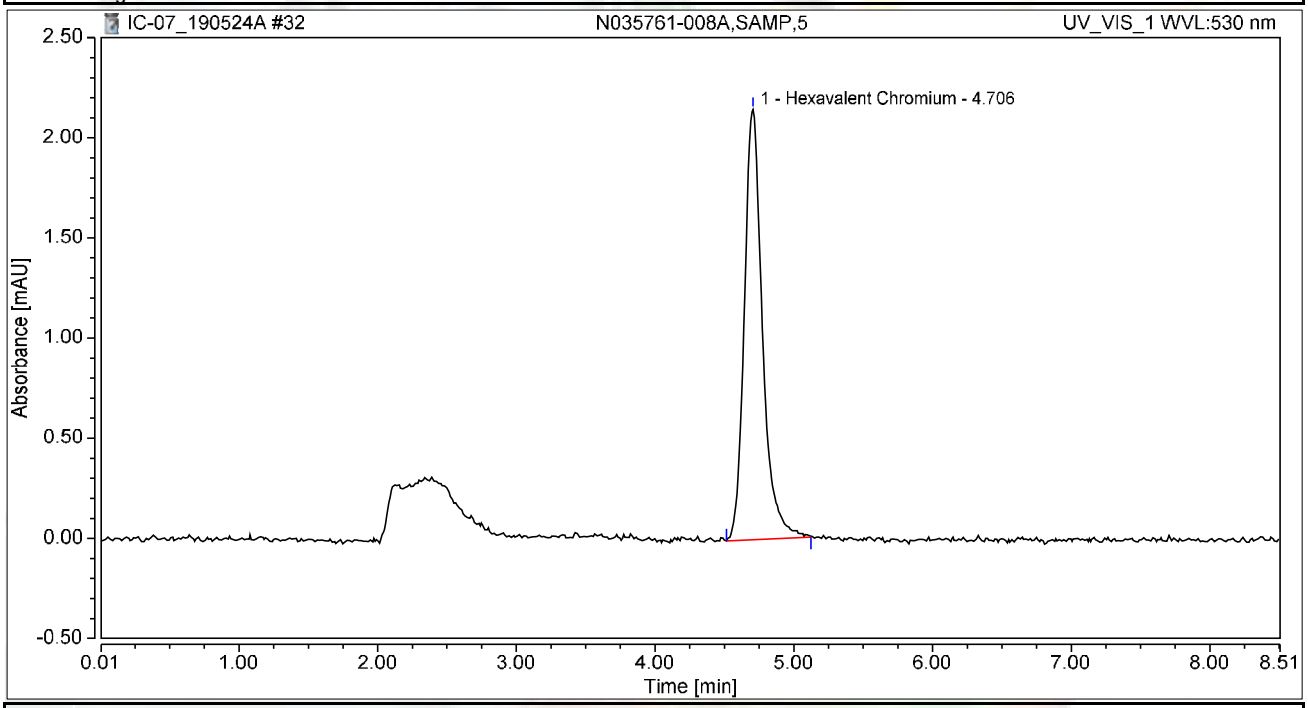
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	0.267	1.704	100.00	100.00	1.0606
Total:			**0.267**	**1.704**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-008A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 12:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

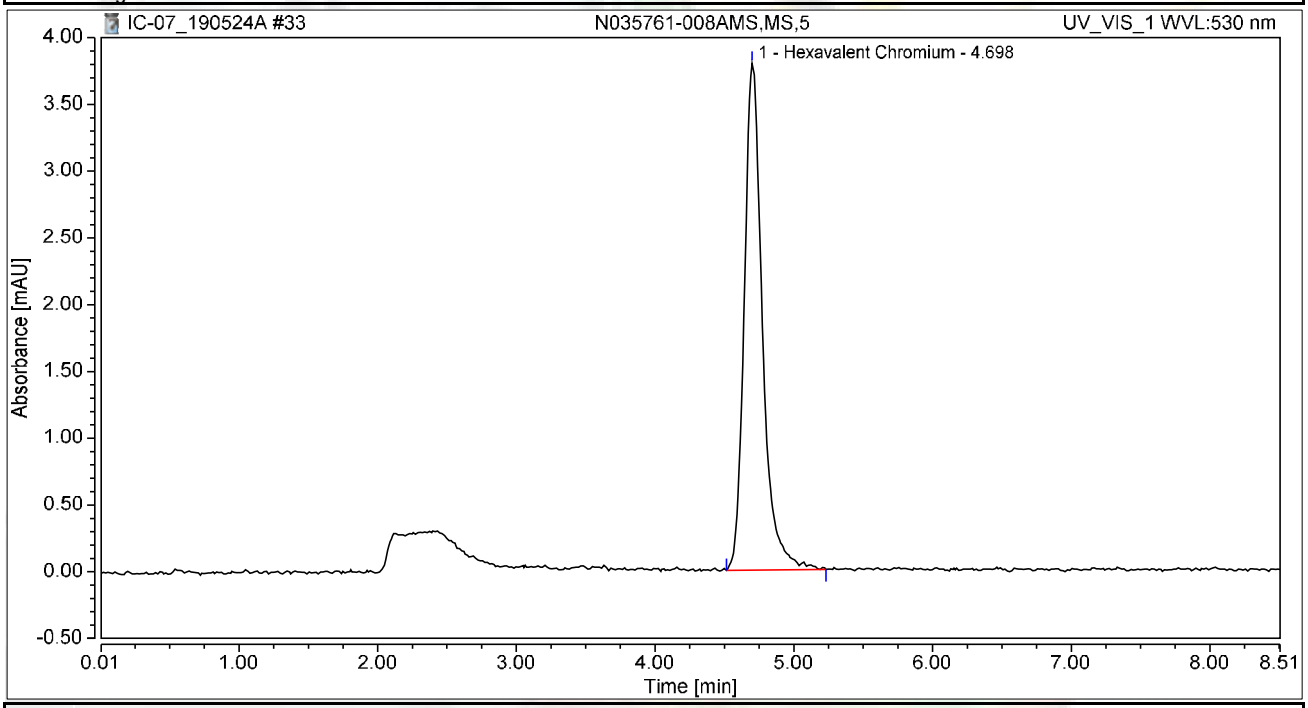
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.325	2.149	100.00	100.00	1.2907
Total:			**0.325**	**2.149**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-008AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 13:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

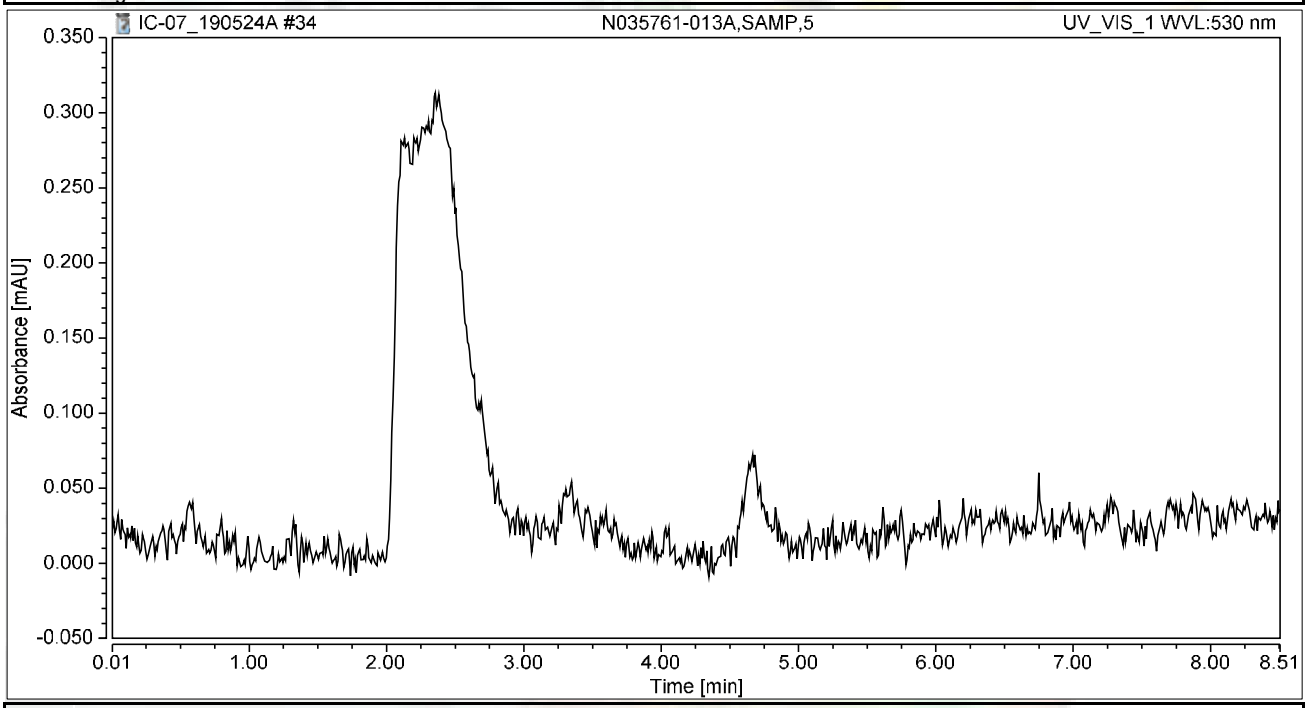
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.577	3.796	100.00	100.00	2.2883
Total:			**0.577**	**3.796**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-013A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 13:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

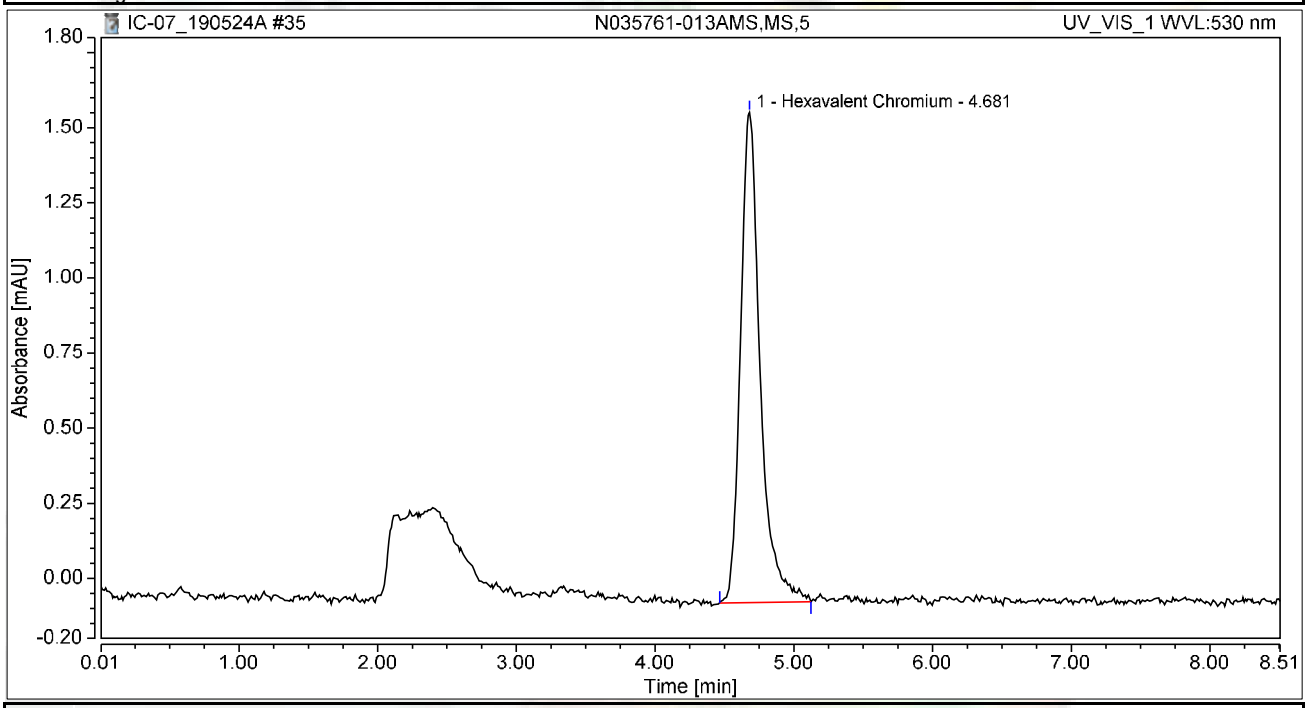
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-013AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 13:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

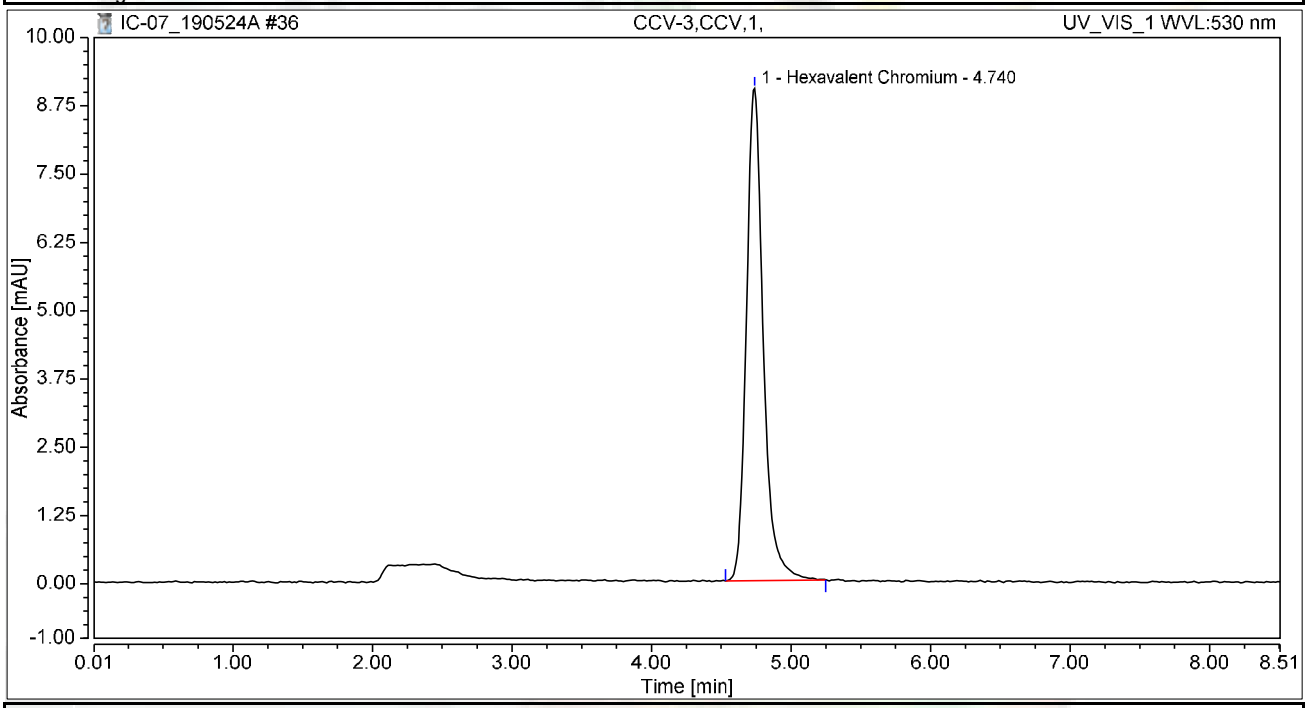
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.269	1.632	100.00	100.00	1.0656
Total:			**0.269**	**1.632**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 13:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

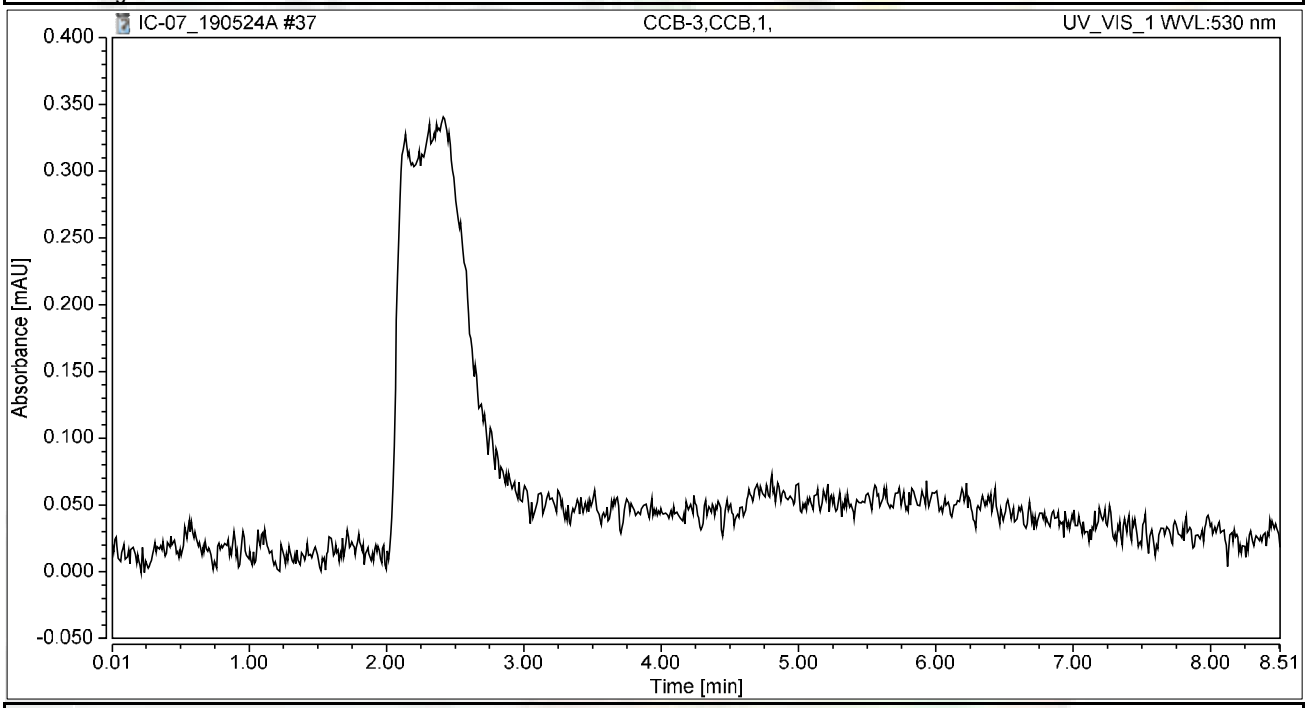
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.266	9.009	100.00	100.00	5.0229
Total:			**1.266**	**9.009**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 13:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

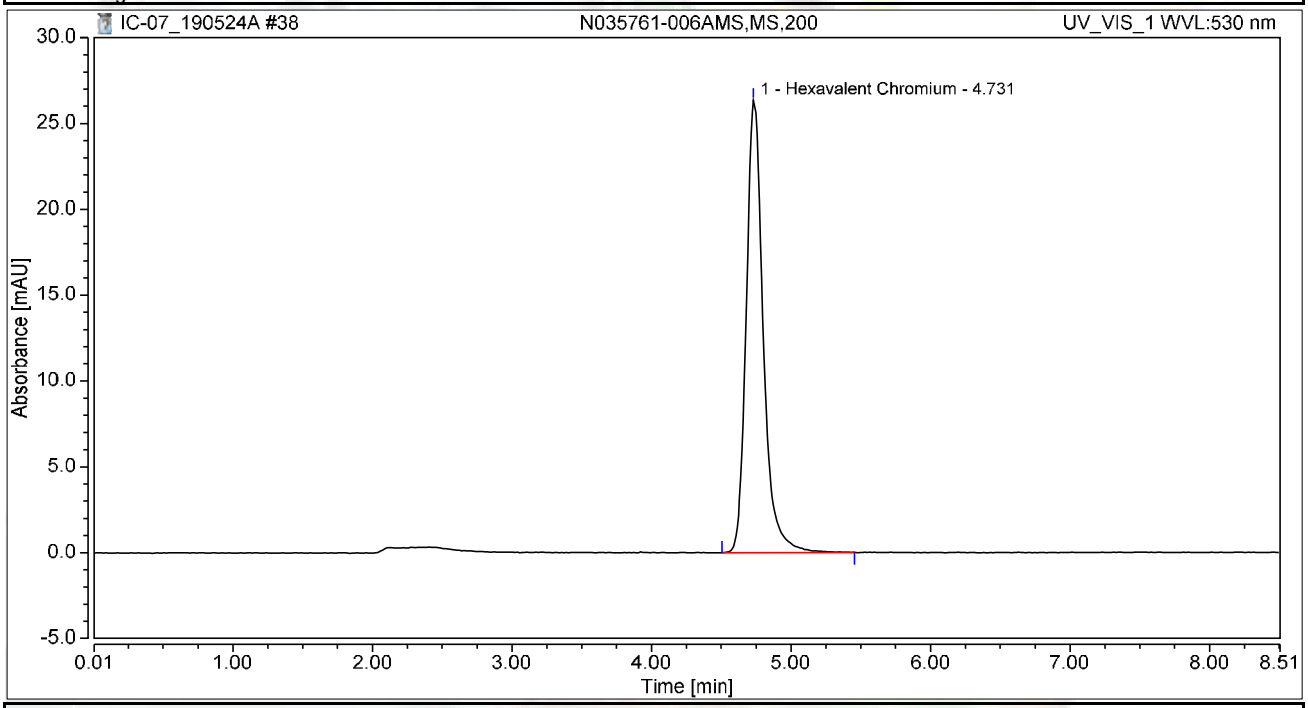
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-006AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 13:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

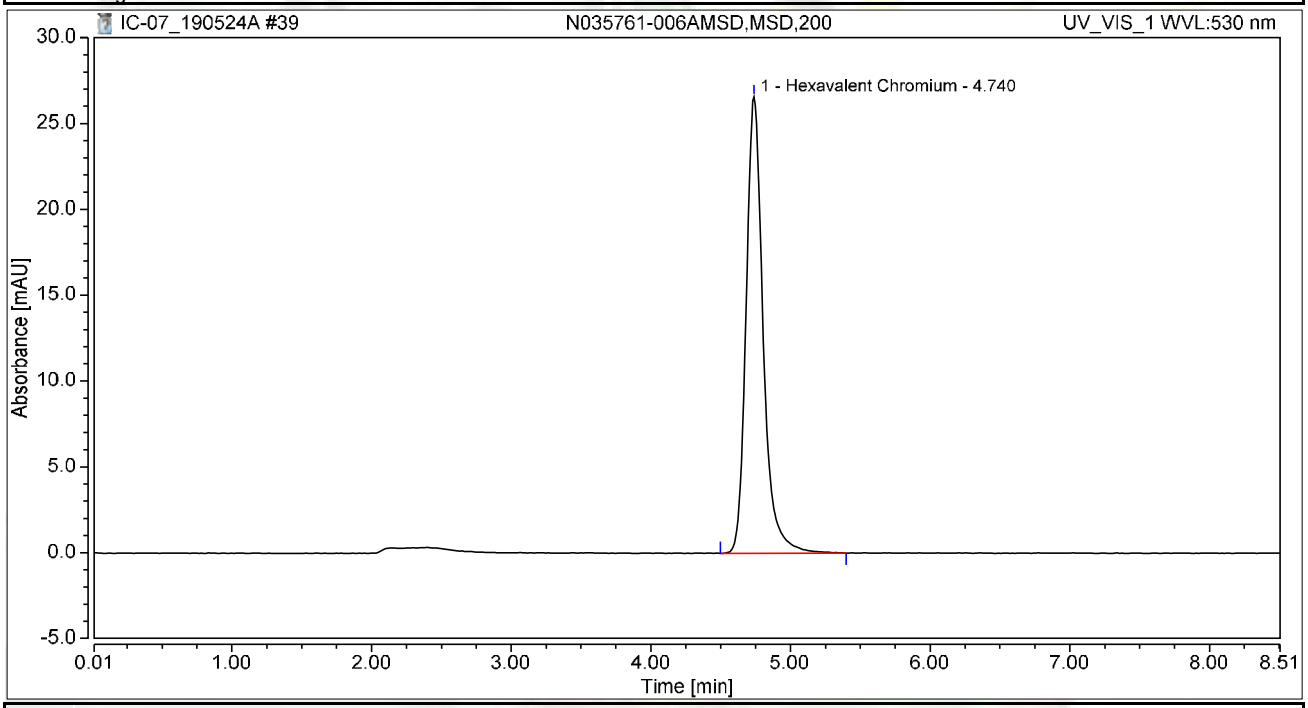
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.734	26.364	100.00	100.00	14.8107
Total:			**3.734**	**26.364**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-006AMSD,MSD,200**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 13:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

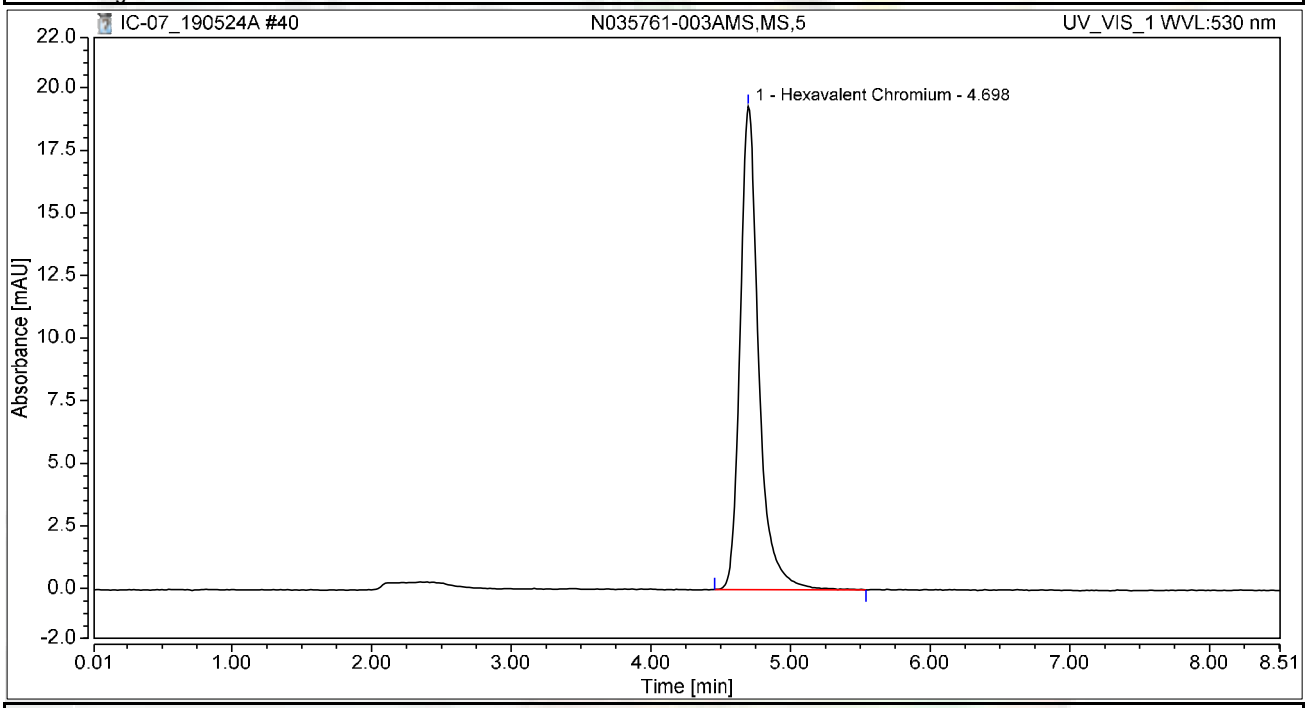
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.766	26.577	100.00	100.00	14.9351
Total:			**3.766**	**26.577**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-003AMS,MS,5**	*Run Time (min):*	**8.49**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 14:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

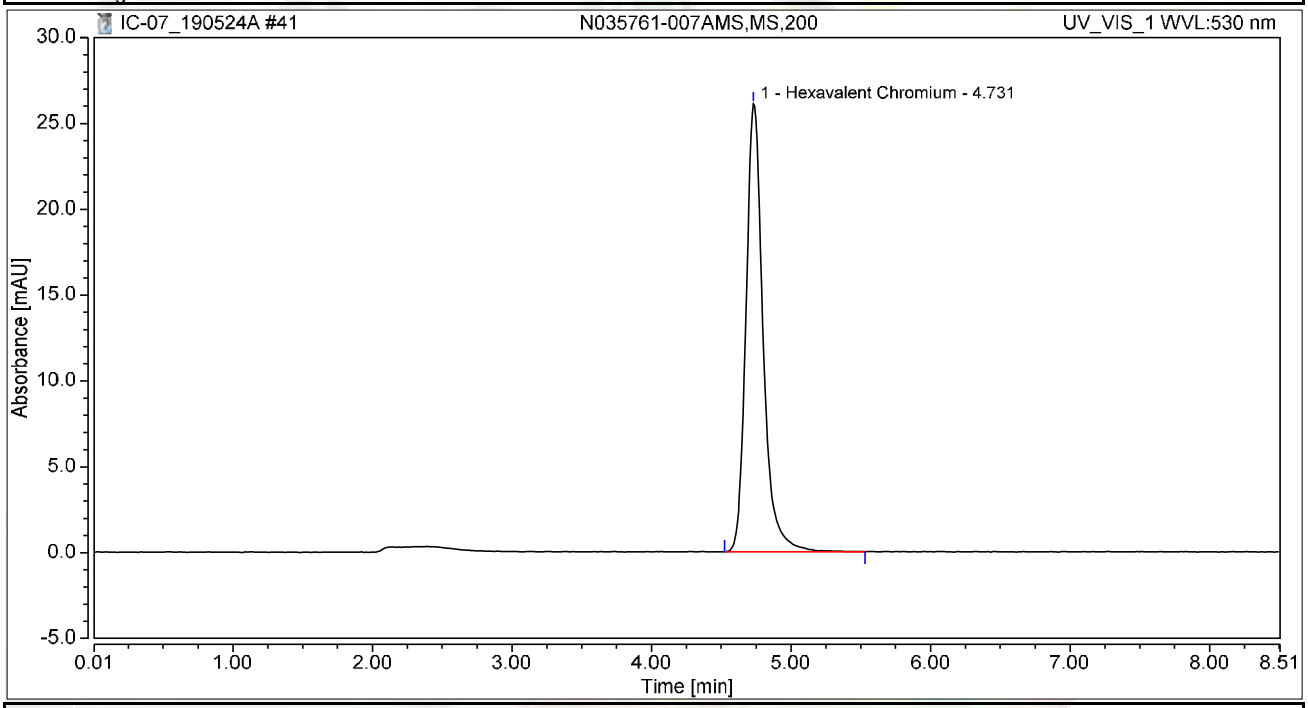
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	2.989	19.300	100.00	100.00	11.8533
Total:			**2.989**	**19.300**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-007AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 14:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

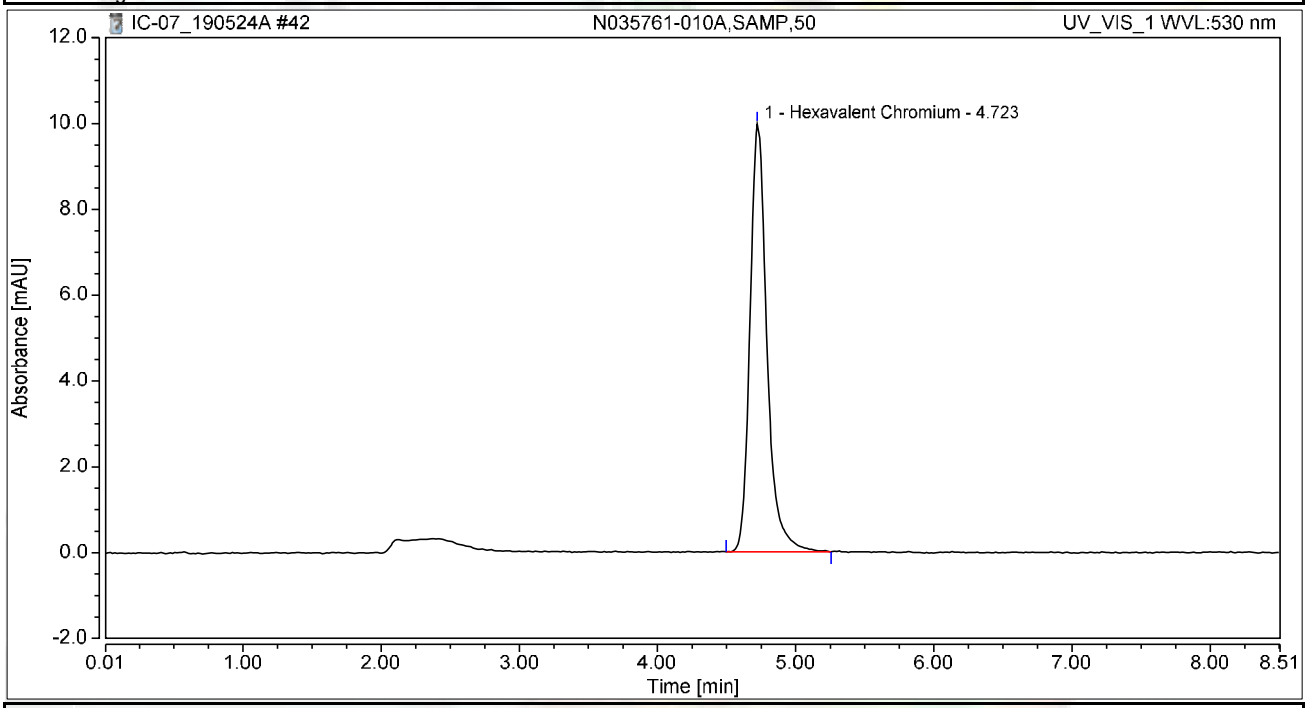
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.716	26.101	100.00	100.00	14.7399
Total:			**3.716**	**26.101**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-010A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 14:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

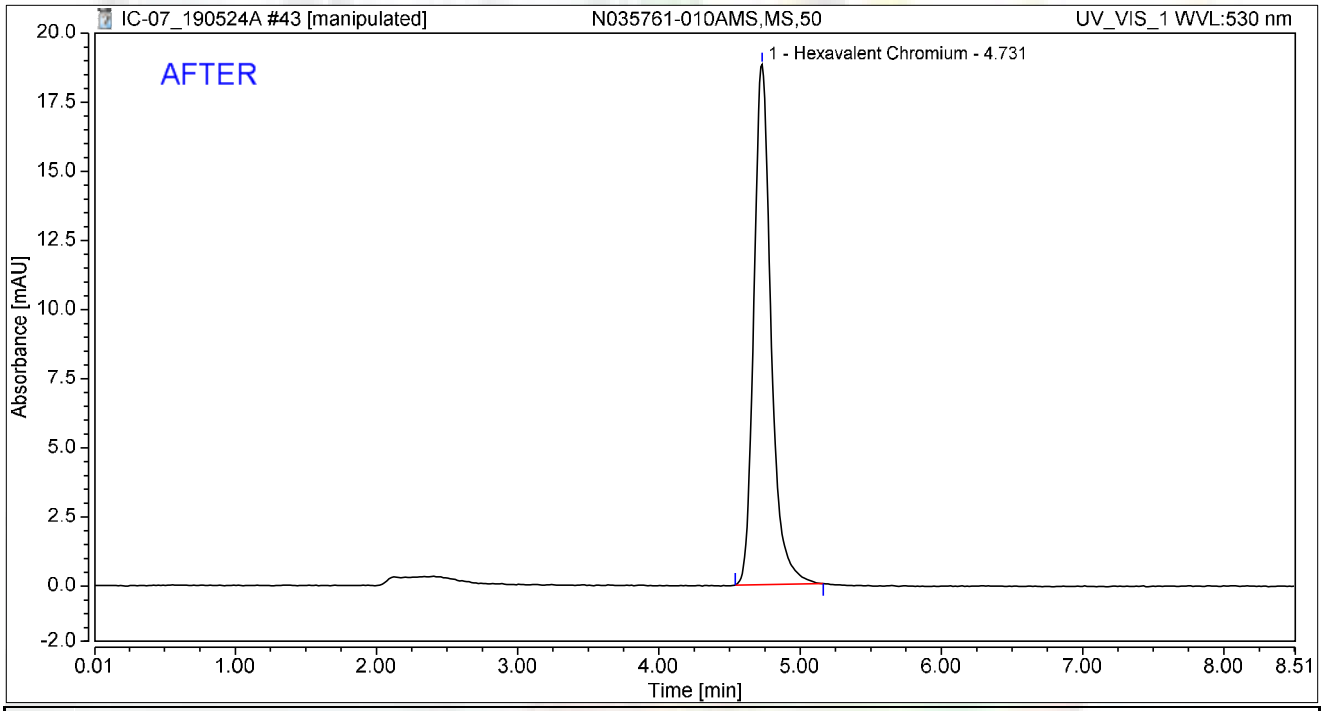
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.428	9.979	100.00	100.00	5.6638
Total:			**1.428**	**9.979**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-010AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 14:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.657	18.807	100.00	100.00	10.5404
Total:			**2.657**	**18.807**	**100.00**	**100.00**	

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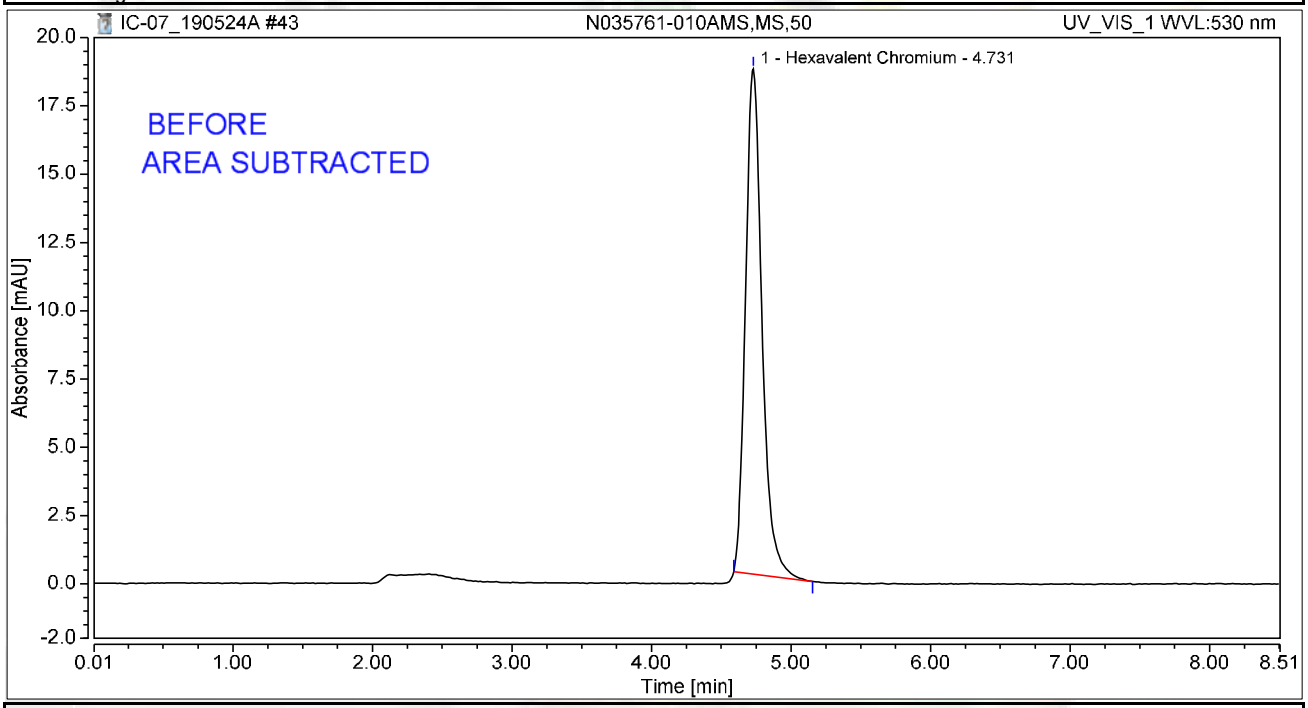
Chromatogram and Results

Injection Details

Injection Name:	**N035761-010AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 14:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.534	18.497	100.00	100.00	10.0494
Total:			**2.534**	**18.497**	**100.00**	**100.00**	

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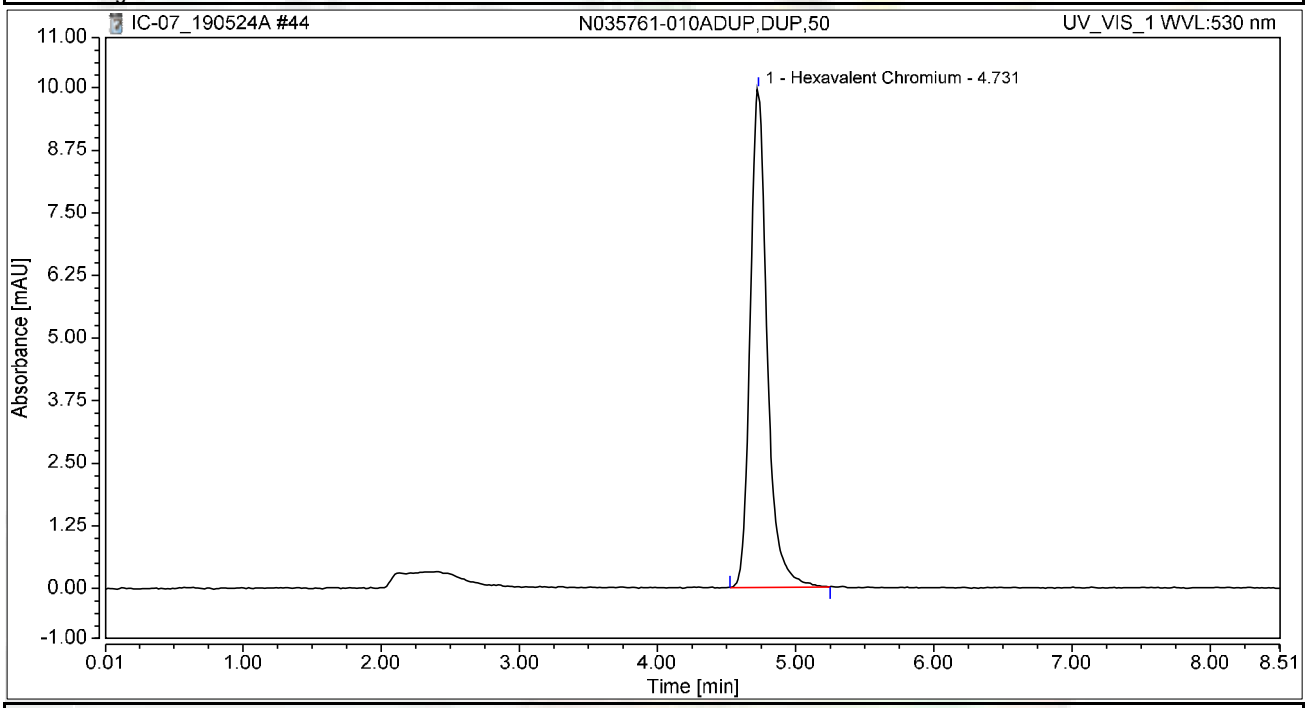
Chromatogram and Results

Injection Details

Injection Name:	**N035761-010ADUP,DUP,50**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 15:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

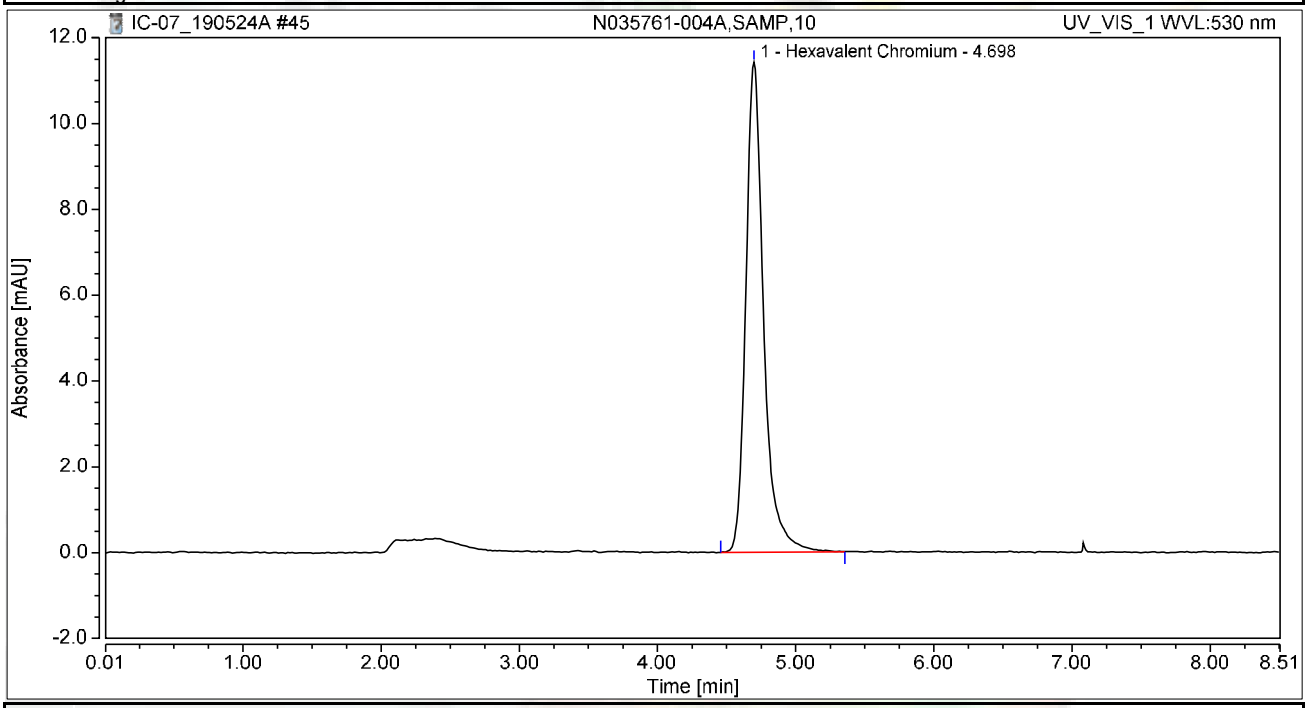
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.421	9.954	100.00	100.00	5.6351
Total:			**1.421**	**9.954**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-004A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 15:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

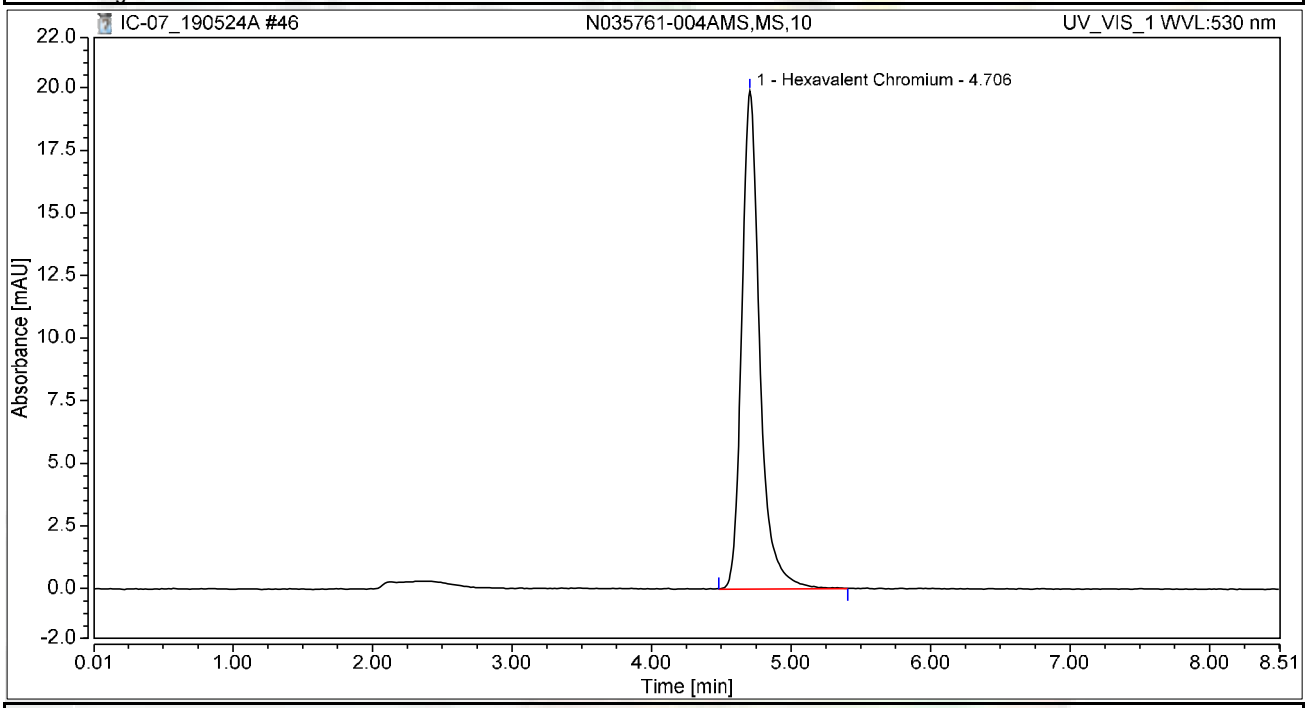
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.711	11.416	100.00	100.00	6.7860
Total:			**1.711**	**11.416**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-004AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 15:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

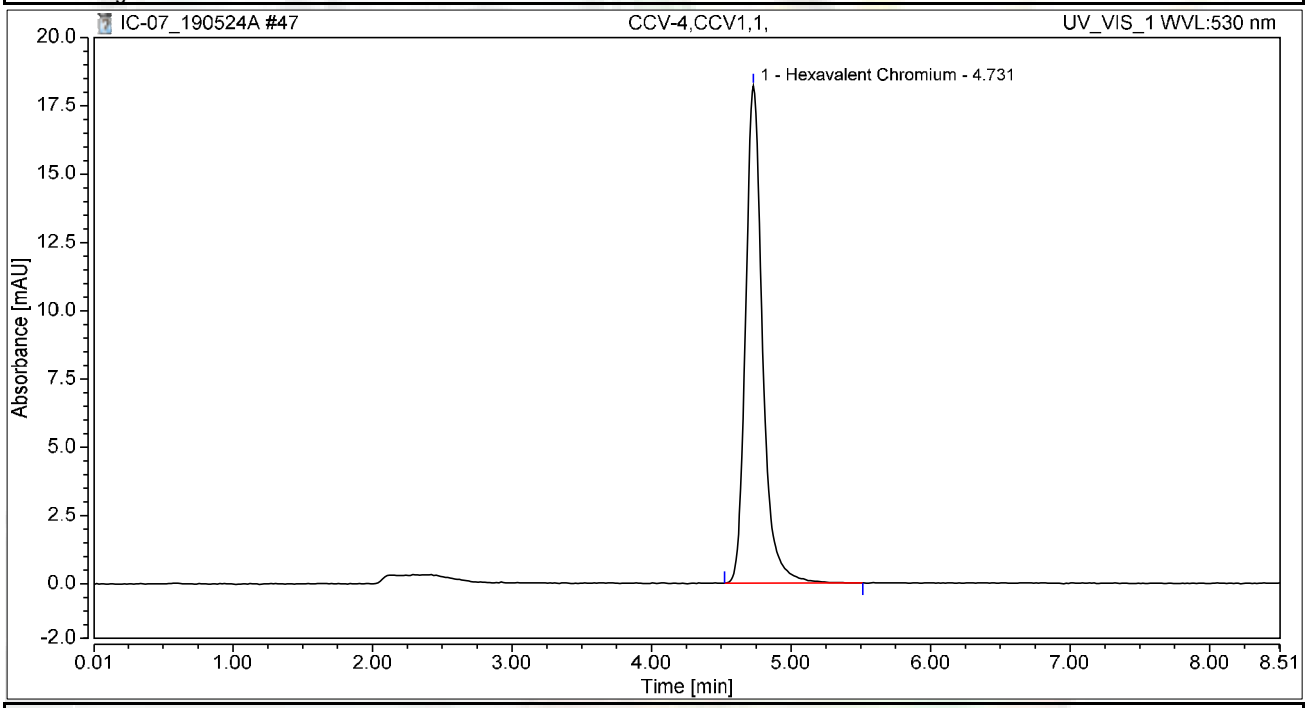
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.987	19.899	100.00	100.00	11.8474
Total:			**2.987**	**19.899**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 15:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

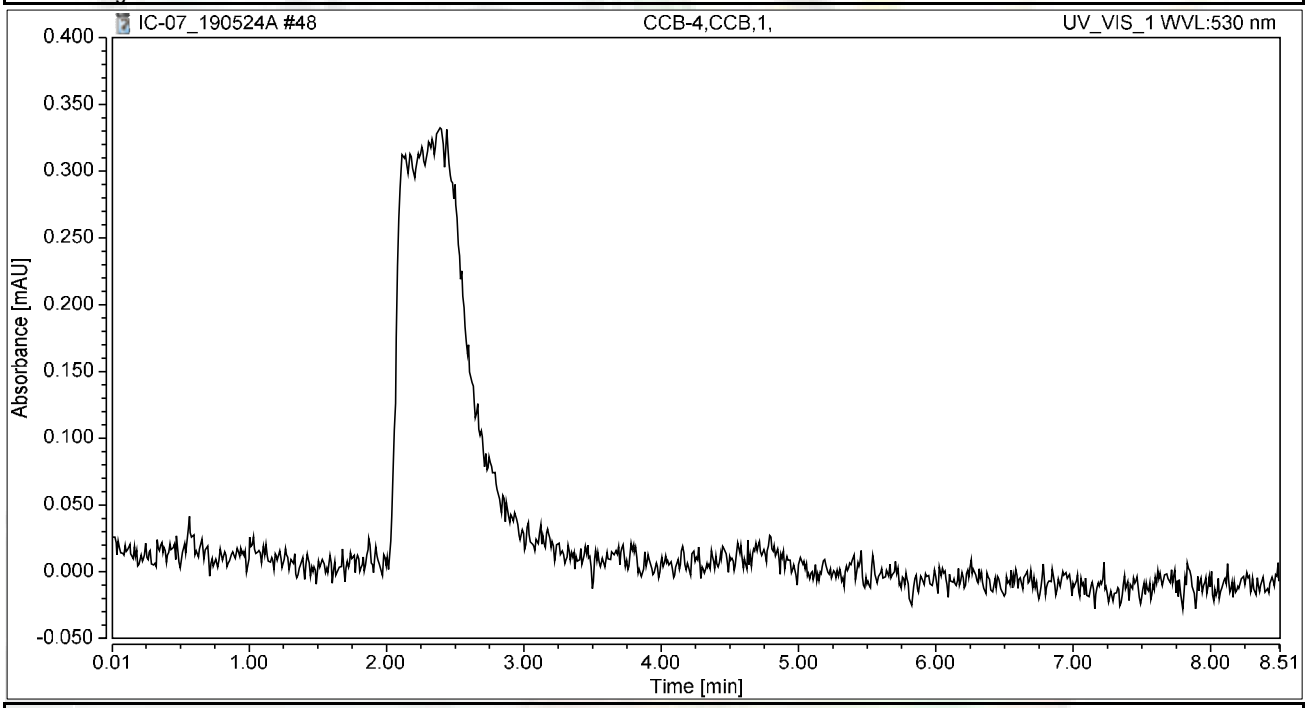
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.560	18.212	100.00	100.00	10.1528
Total:			**2.560**	**18.212**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 15:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

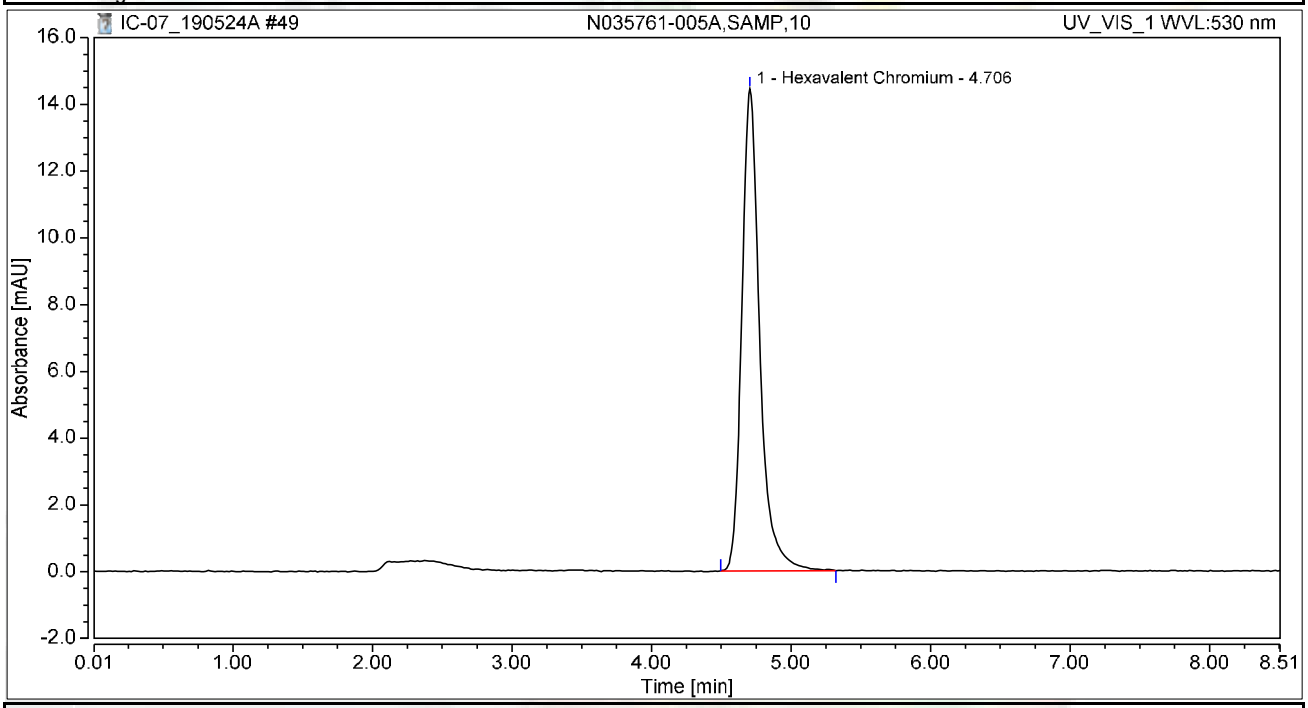
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-005A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 15:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

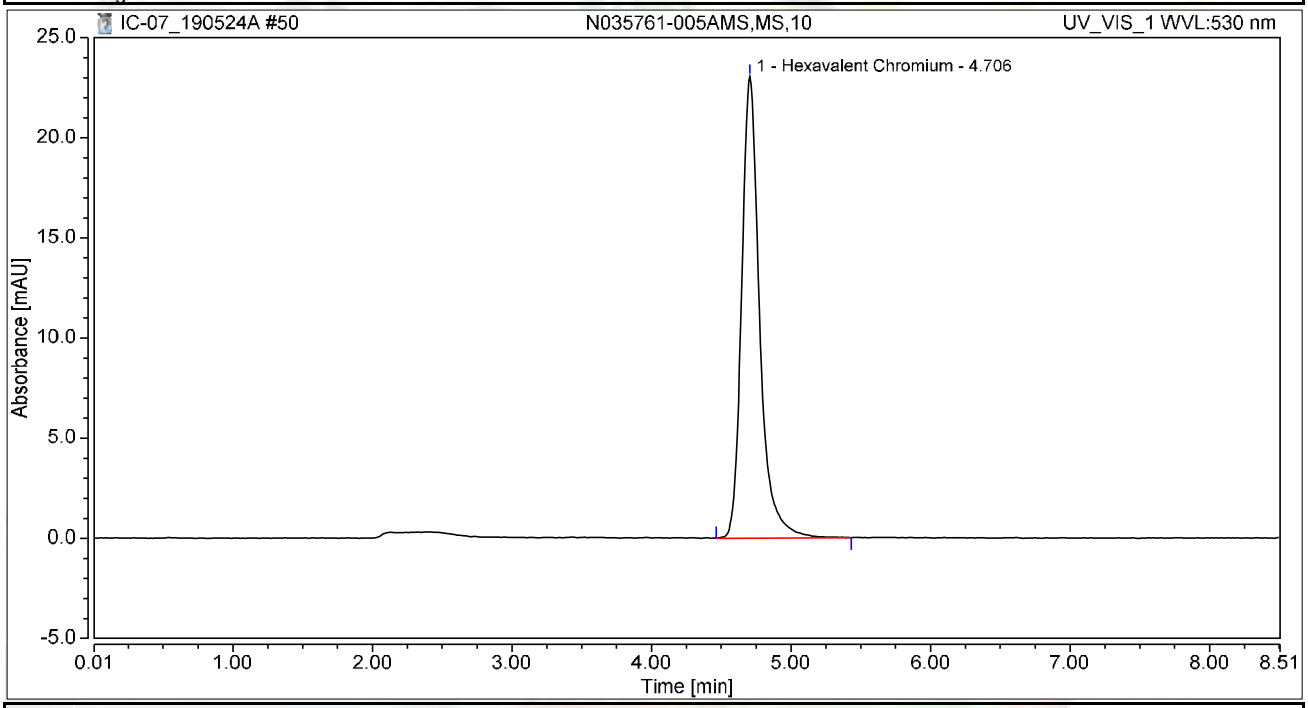
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.153	14.440	100.00	100.00	8.5383
Total:			**2.153**	**14.440**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-005AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 16:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

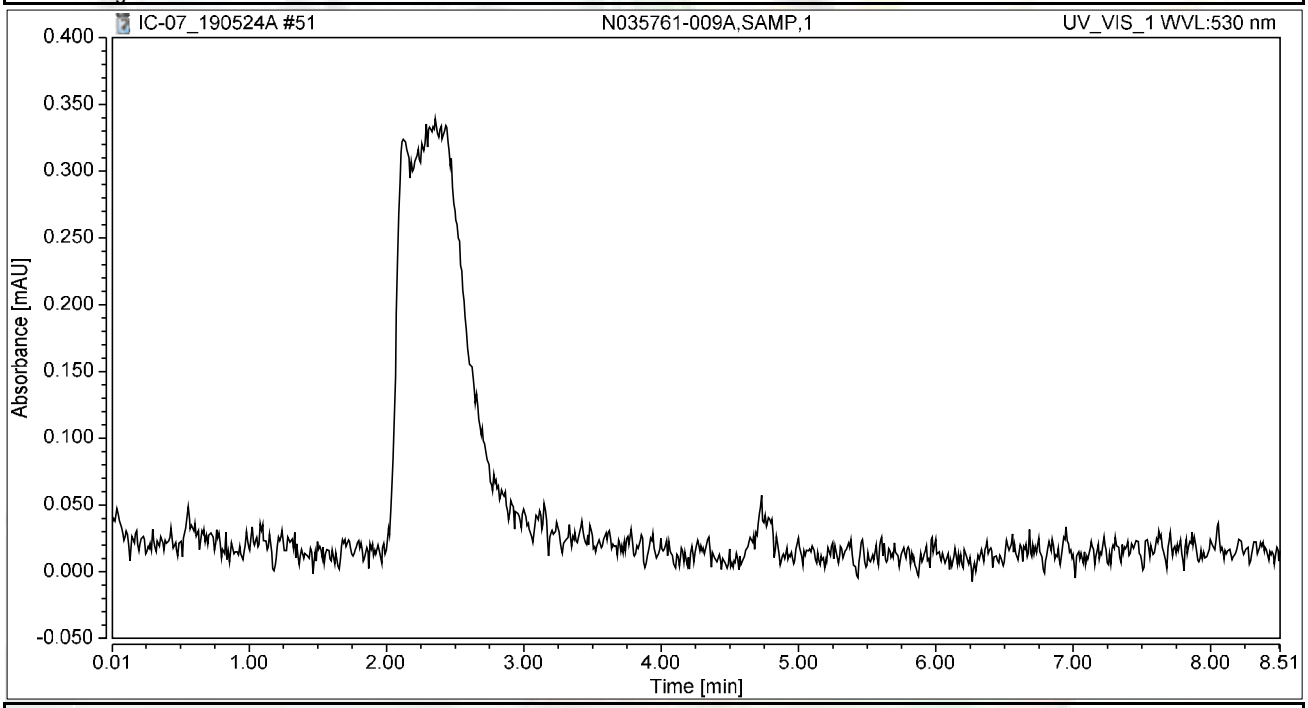
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	3.445	23.044	100.00	100.00	13.6655
Total:			**3.445**	**23.044**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-009A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 16:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

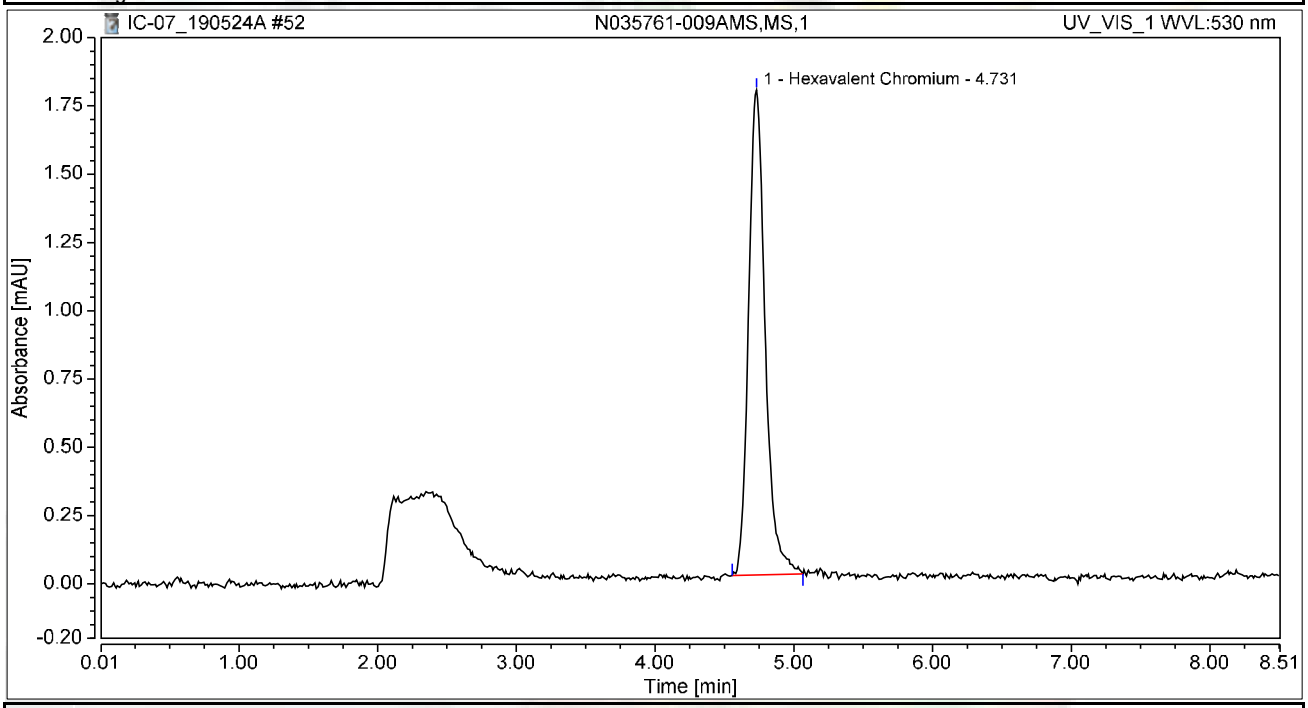
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-009AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 16:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

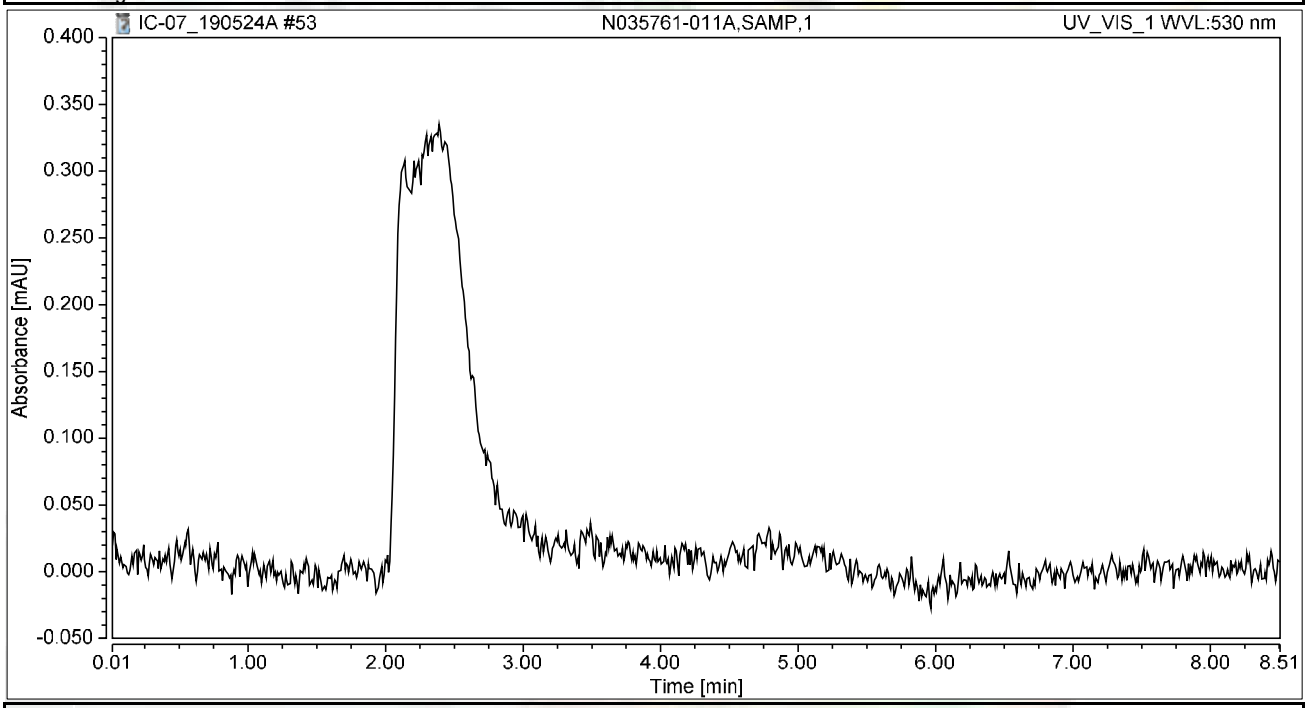
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.246	1.776	100.00	100.00	0.9765
Total:			**0.246**	**1.776**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-011A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 16:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

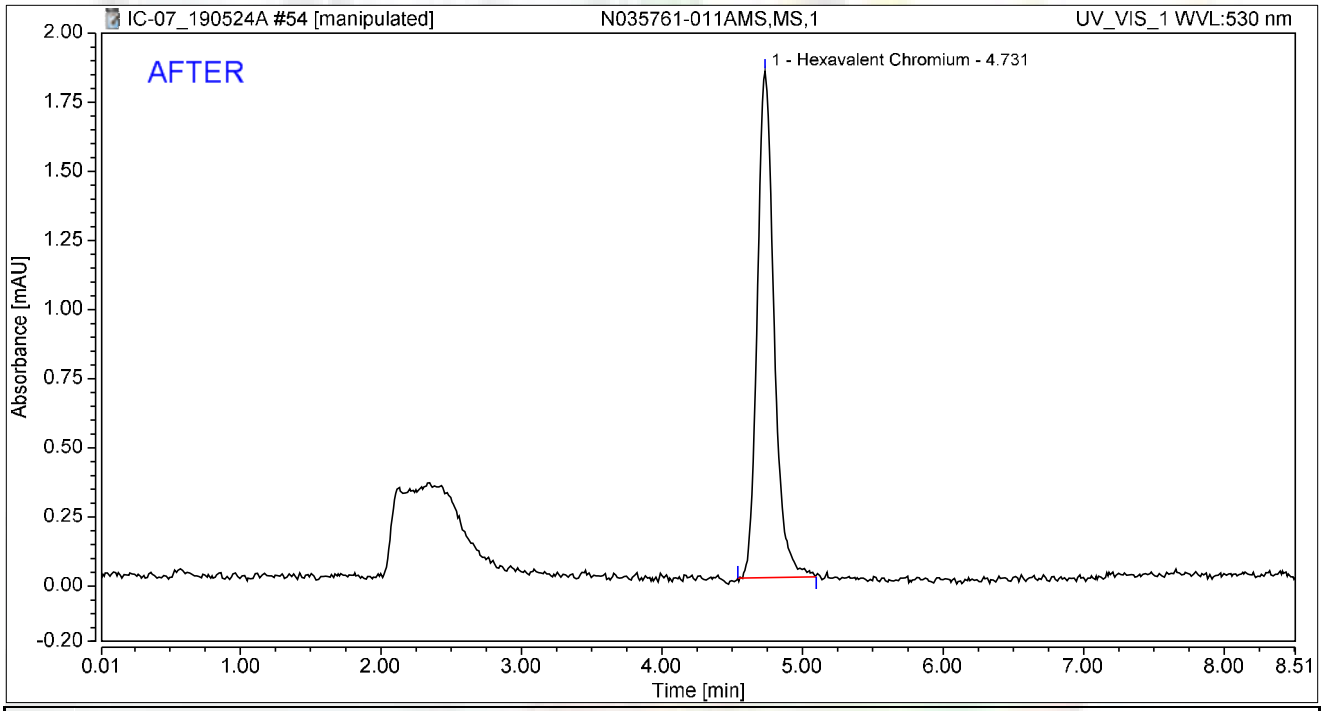
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-011AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 16:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.253	1.831	100.00	100.00	1.0023
Total:			**0.253**	**1.831**	**100.00**	**100.00**	

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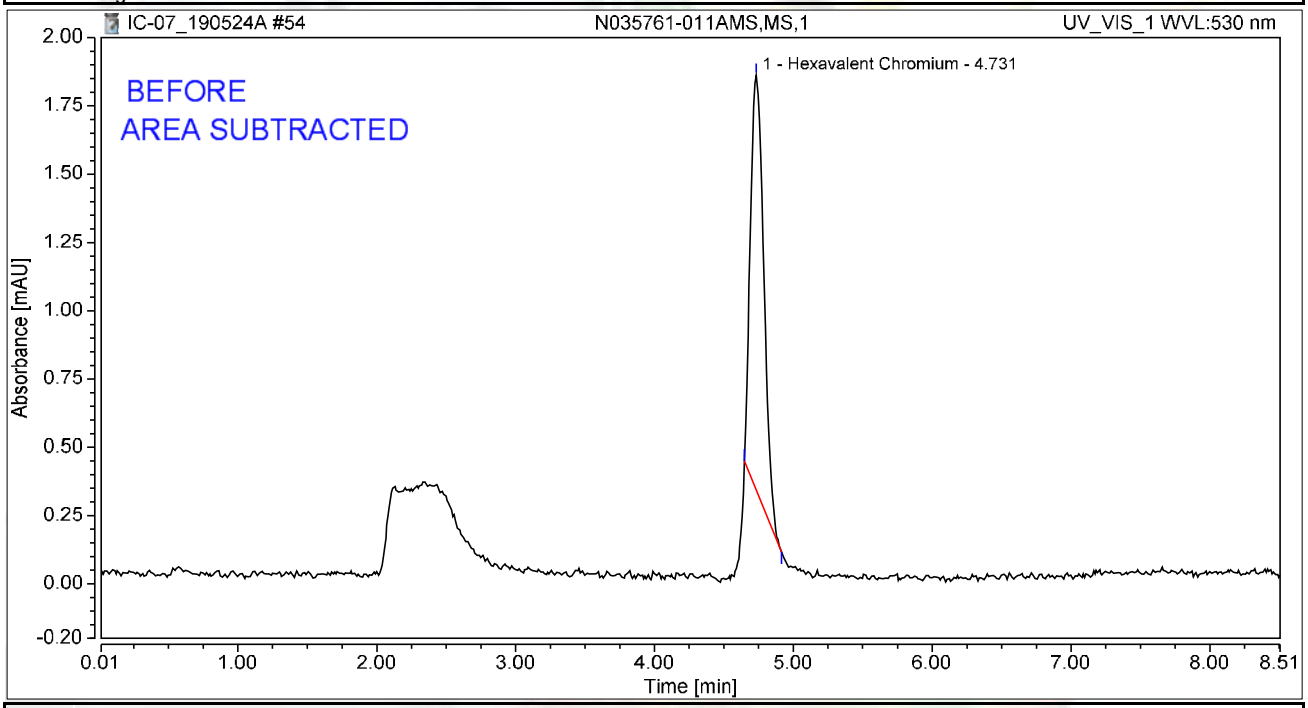
Chromatogram and Results

Injection Details

Injection Name:	**N035761-011AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 16:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.170	1.516	100.00	100.00	0.6758
Total:			**0.170**	**1.516**	**100.00**	**100.00**	

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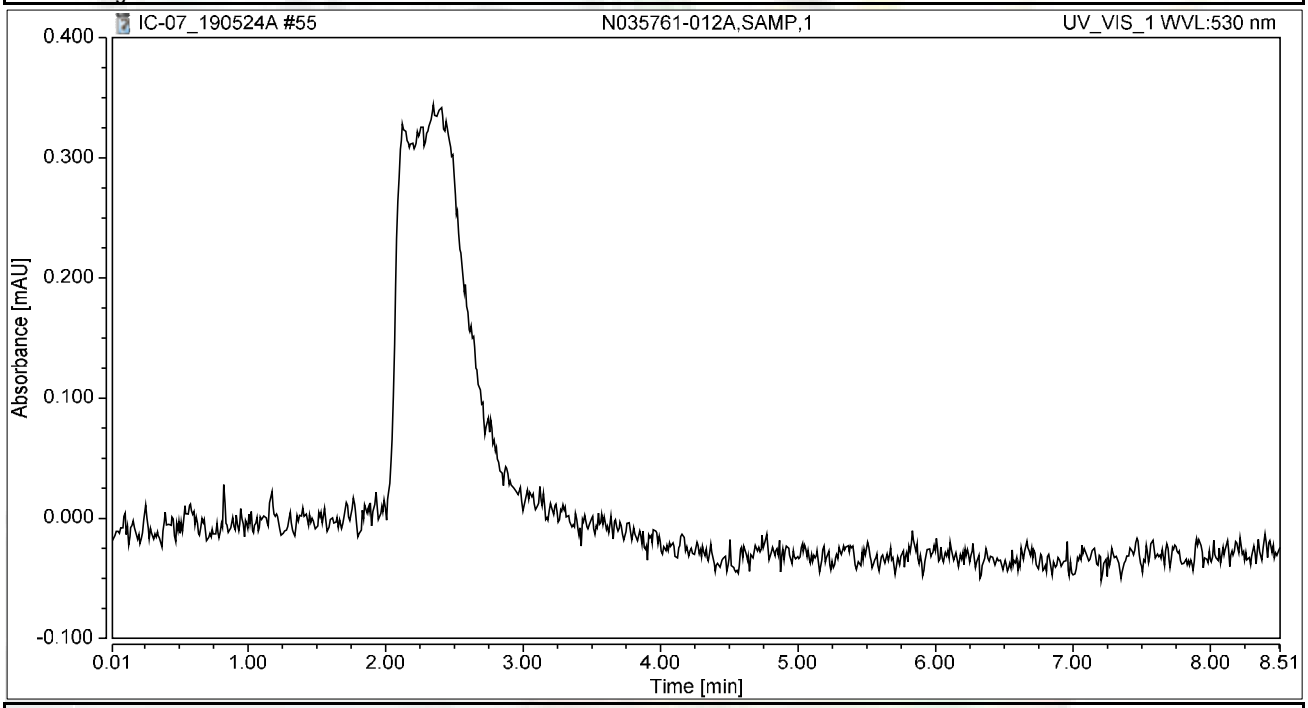
Chromatogram and Results

Injection Details

Injection Name:	**N035761-012A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 16:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

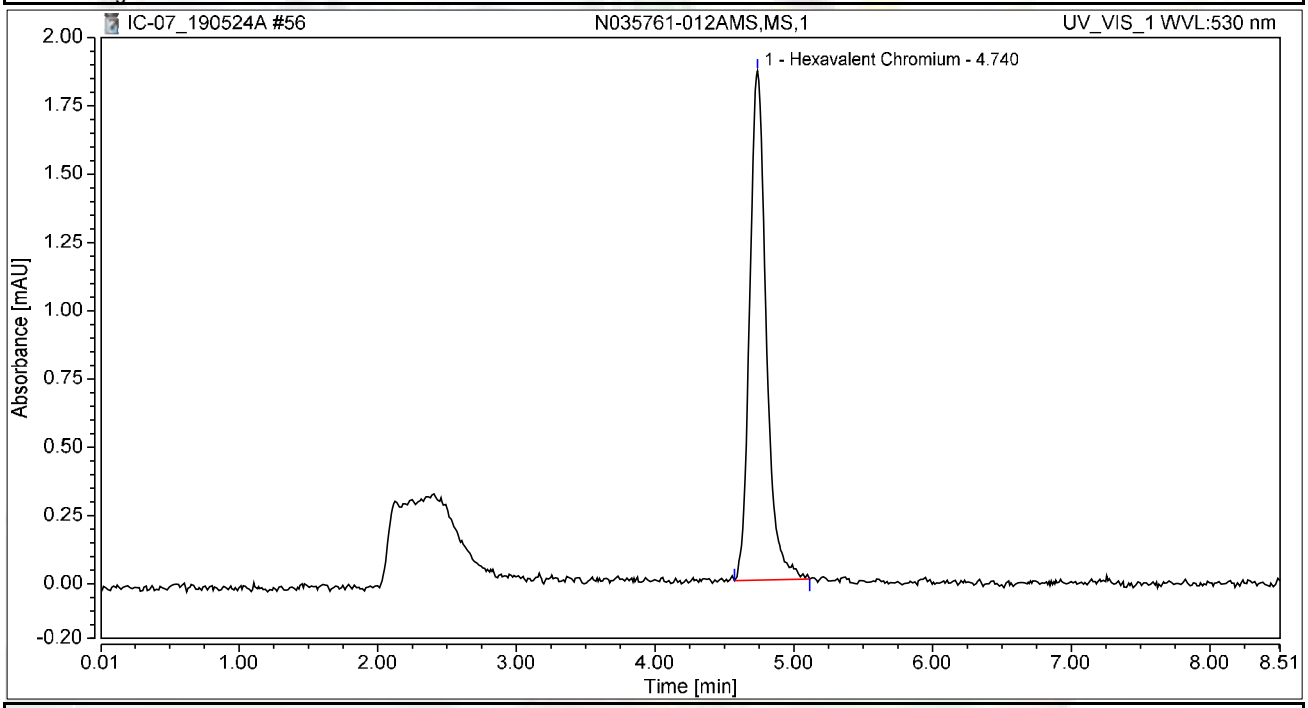
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-012AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 16:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

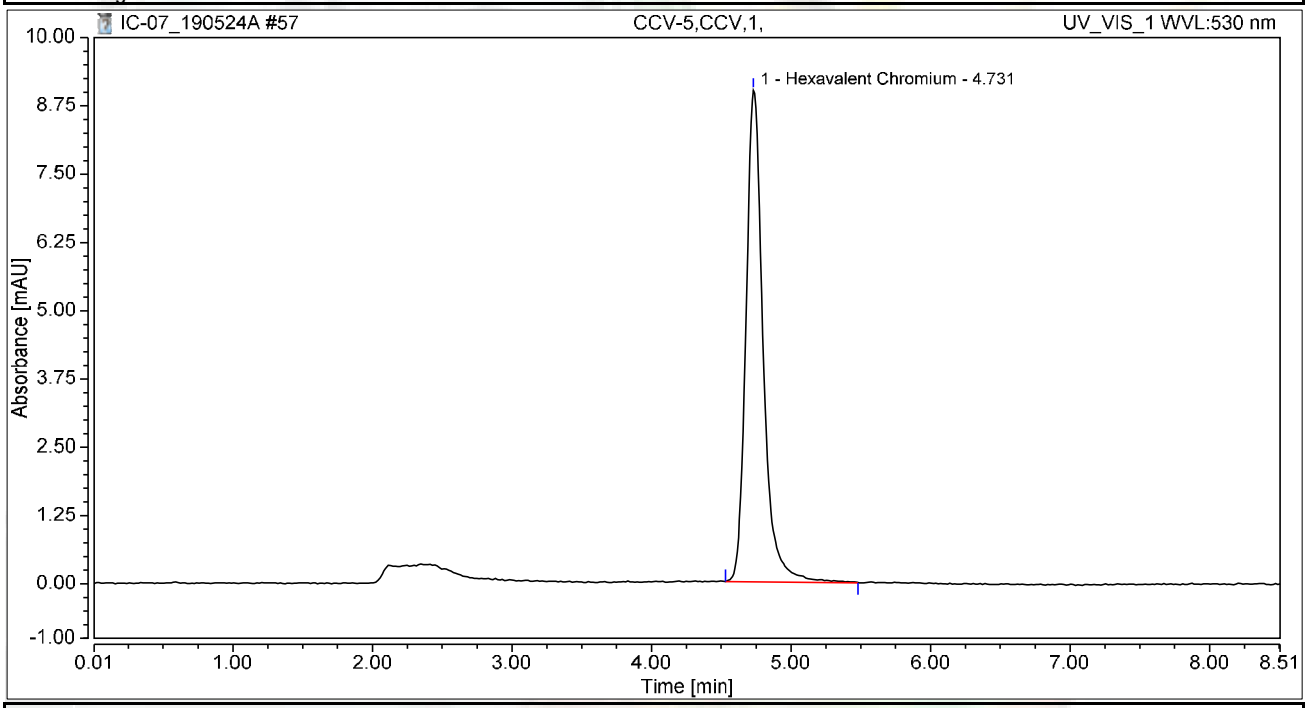
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.258	1.865	100.00	100.00	1.0245
Total:			**0.258**	**1.865**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 17:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

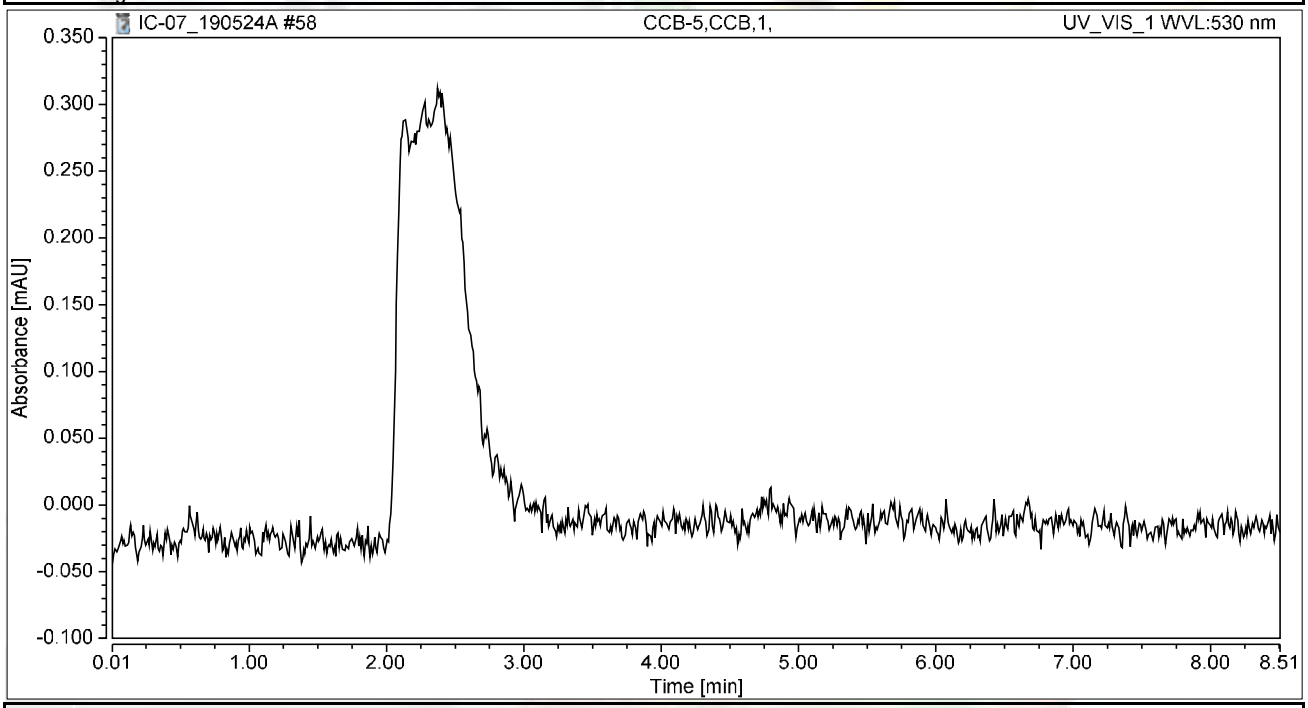
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.284	8.998	100.00	100.00	5.0918
Total:			**1.284**	**8.998**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 17:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

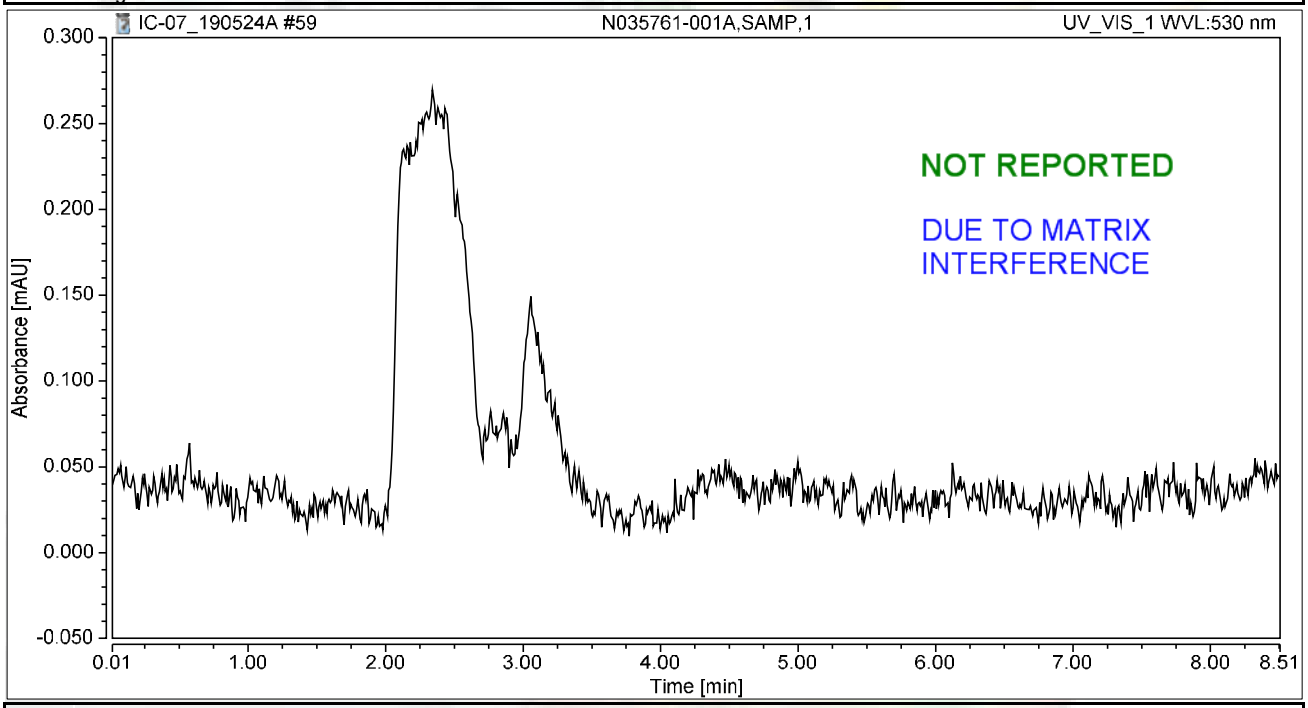
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 17:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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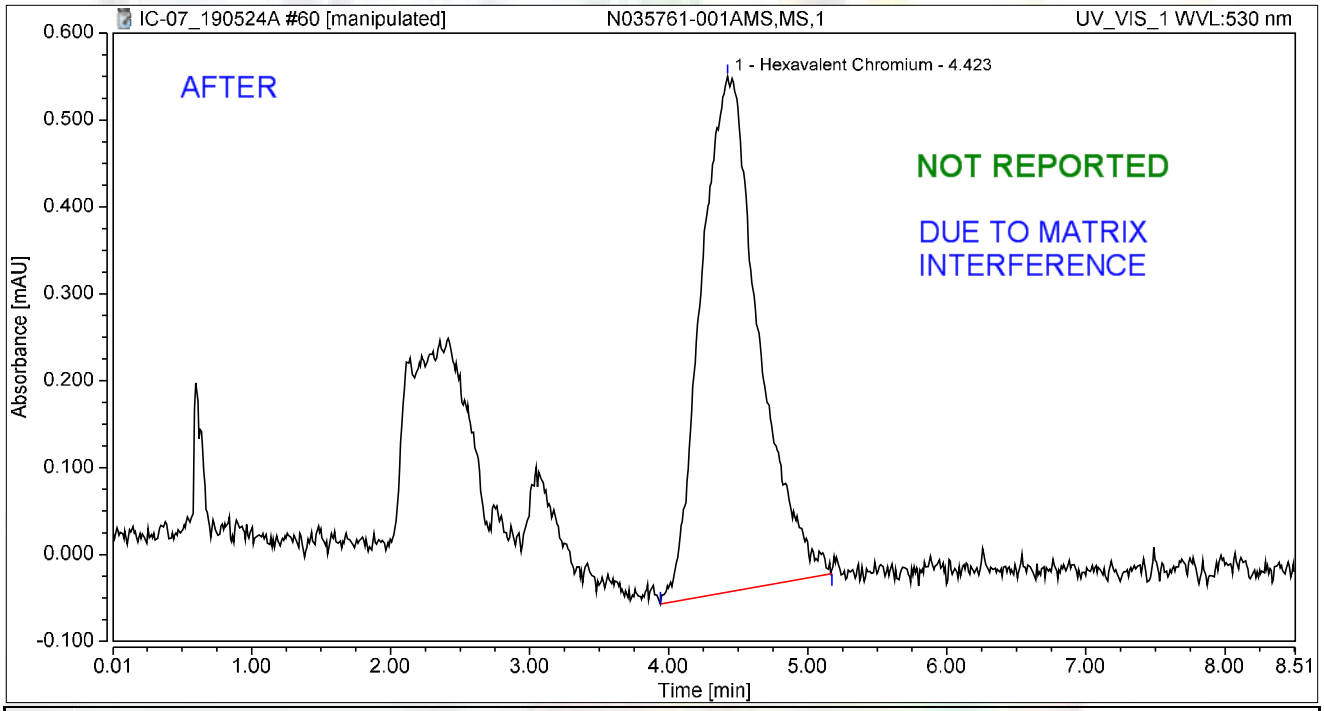
Chromatogram and Results

Injection Details

Injection Name:	**N035761-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 17:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.423	0.284	0.593	100.00	100.00	1.1263
Total:			**0.284**	**0.593**	**100.00**	**100.00**	

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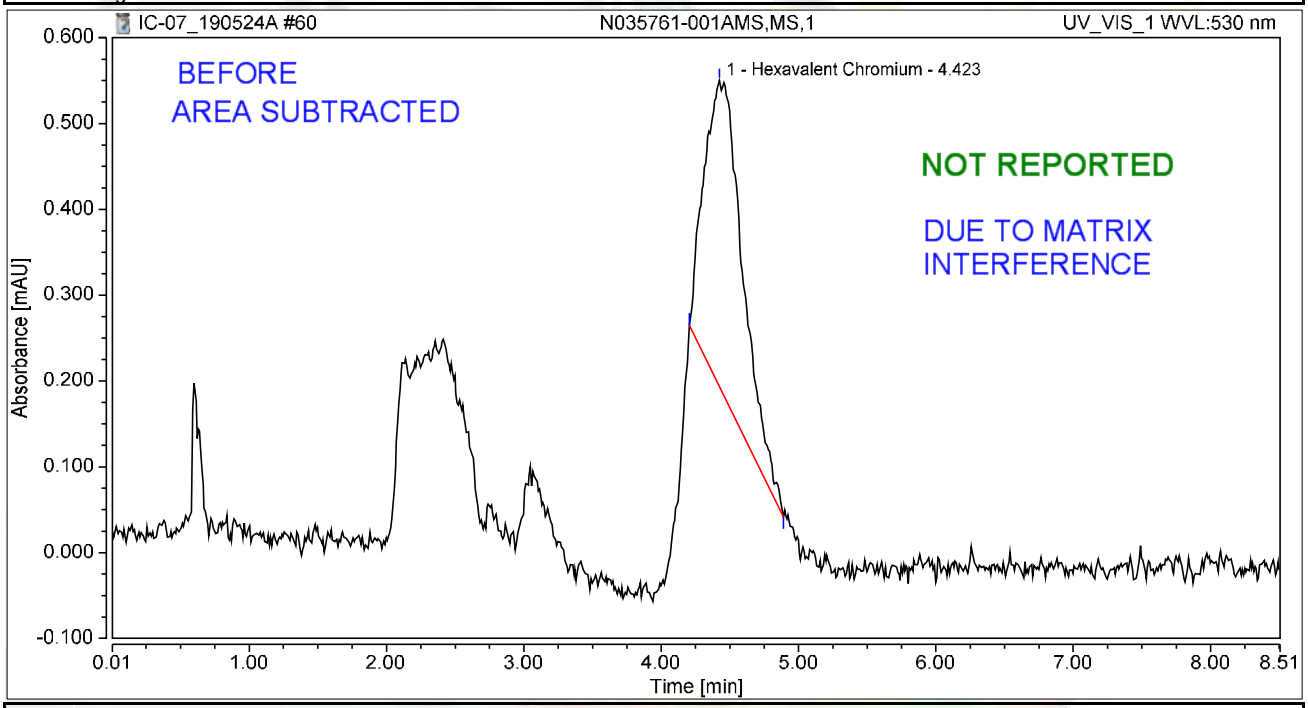
Chromatogram and Results

Injection Details

Injection Name:	**N035761-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 17:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.423	0.117	0.356	100.00	100.00	0.4629
Total:			**0.117**	**0.356**	**100.00**	**100.00**	

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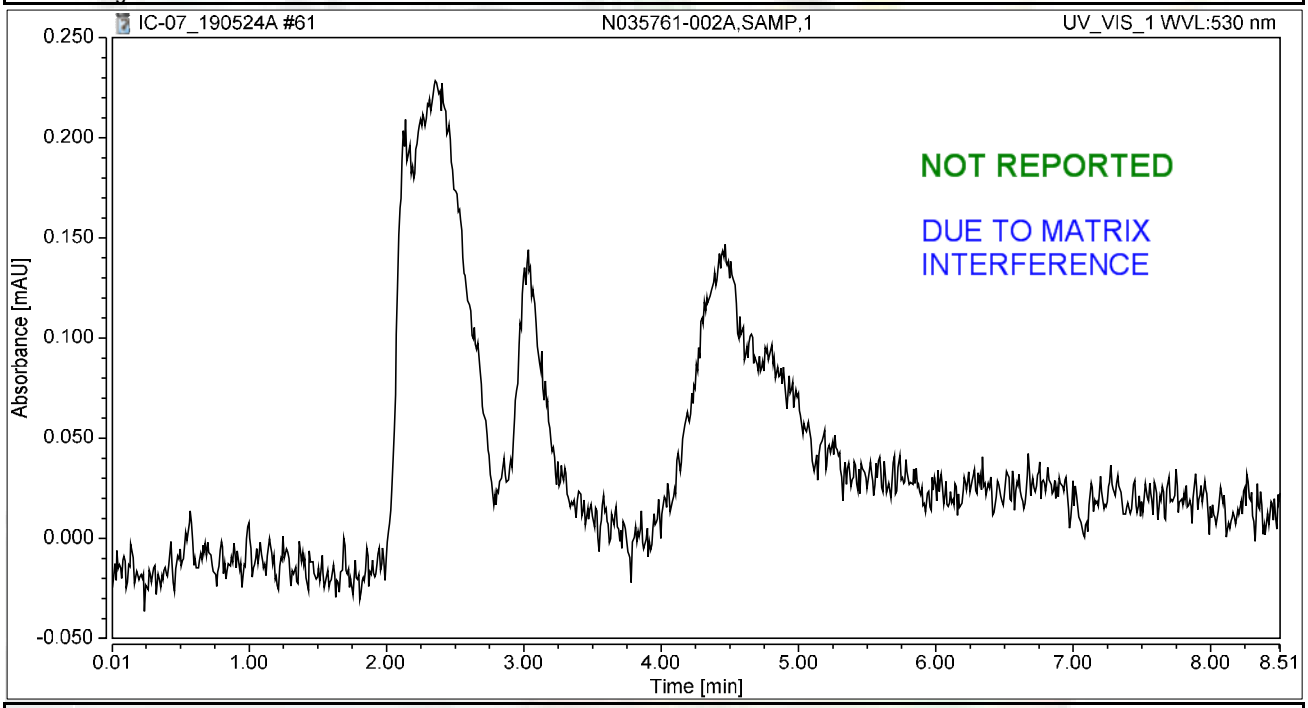
Chromatogram and Results

Injection Details

Injection Name:	**N035761-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 17:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

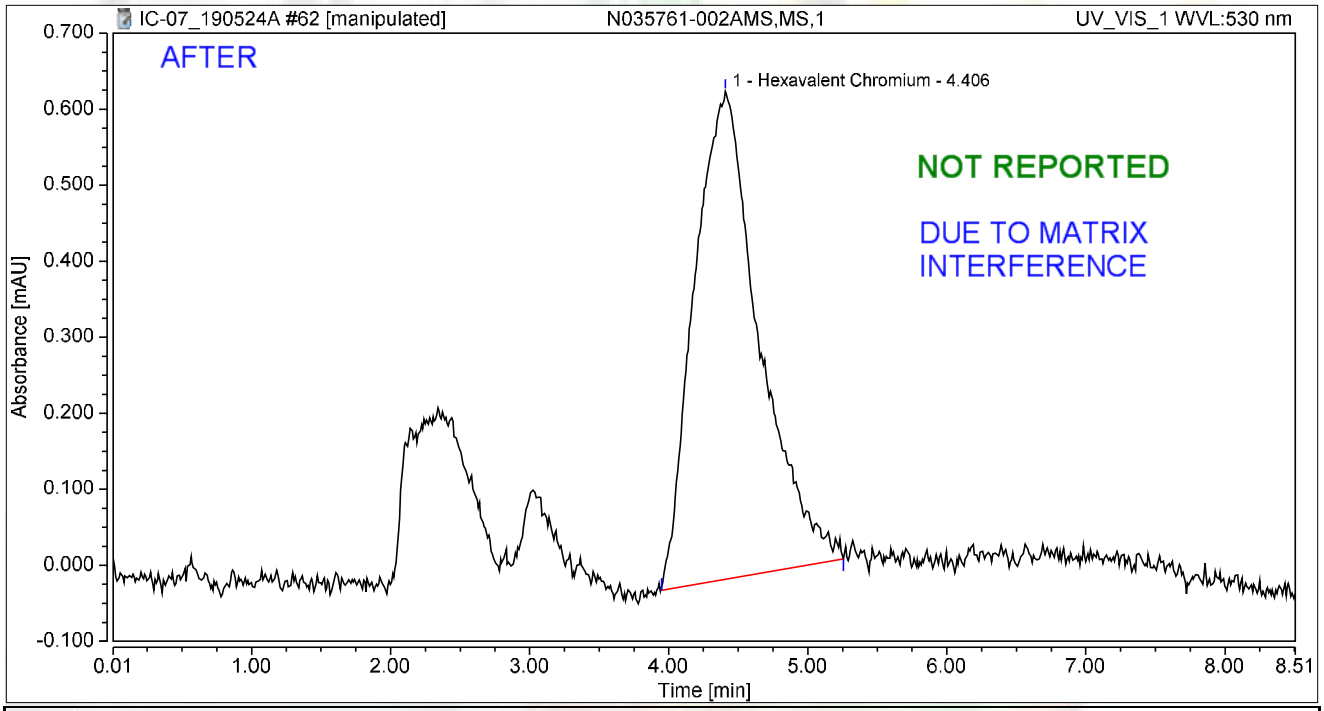
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 17:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.406	0.348	0.642	100.00	100.00	1.3784
Total:			**0.348**	**0.642**	**100.00**	**100.00**	

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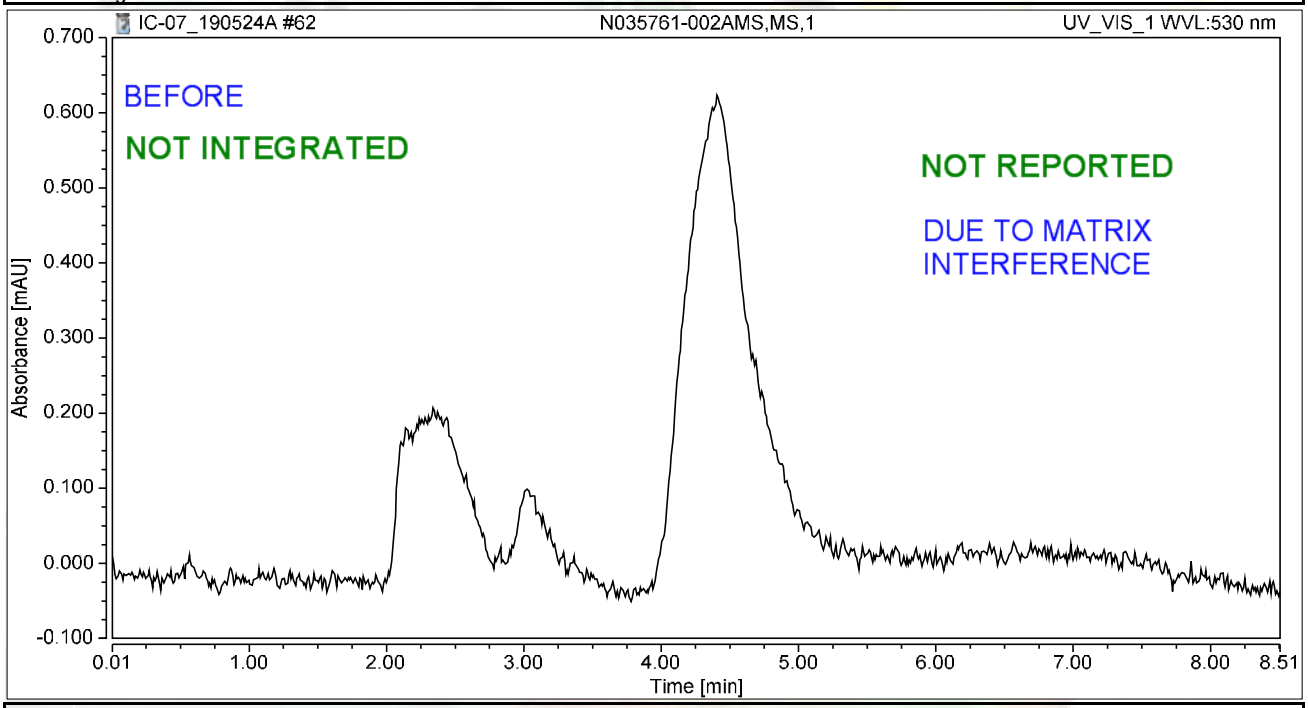
Chromatogram and Results

Injection Details

Injection Name:	**N035761-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 17:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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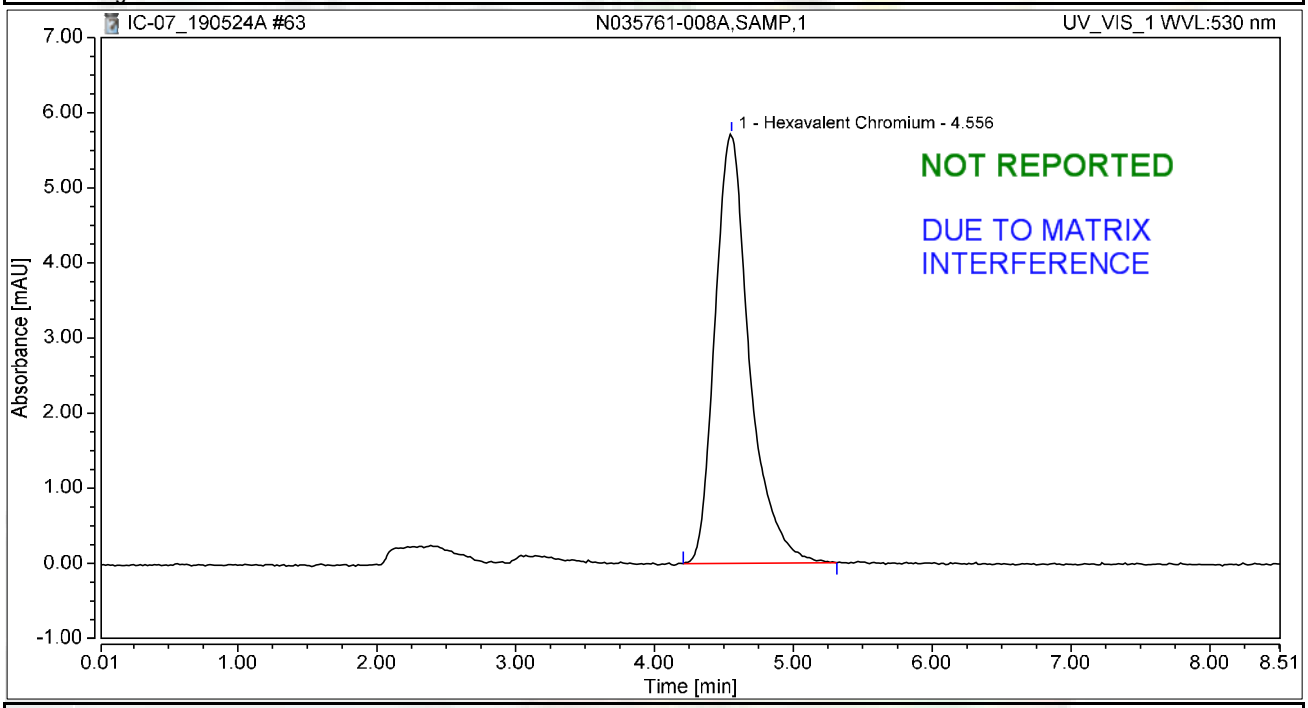
Chromatogram and Results

Injection Details

Injection Name:	**N035761-008A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 18:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.556	1.645	5.714	100.00	100.00	6.5246
Total:			**1.645**	**5.714**	**100.00**	**100.00**	

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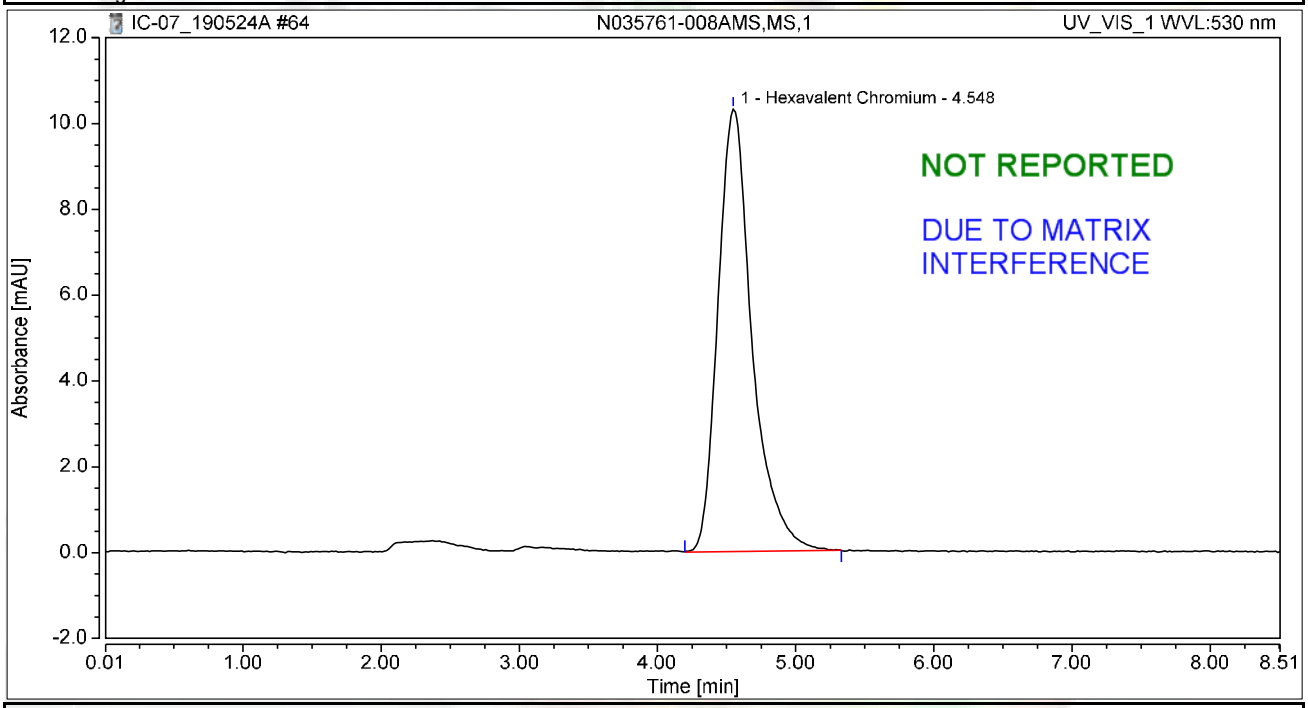
Chromatogram and Results

Injection Details

Injection Name:	**N035761-008AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 18:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.548	2.953	10.311	100.00	100.00	11.7118
Total:			**2.953**	**10.311**	**100.00**	**100.00**	

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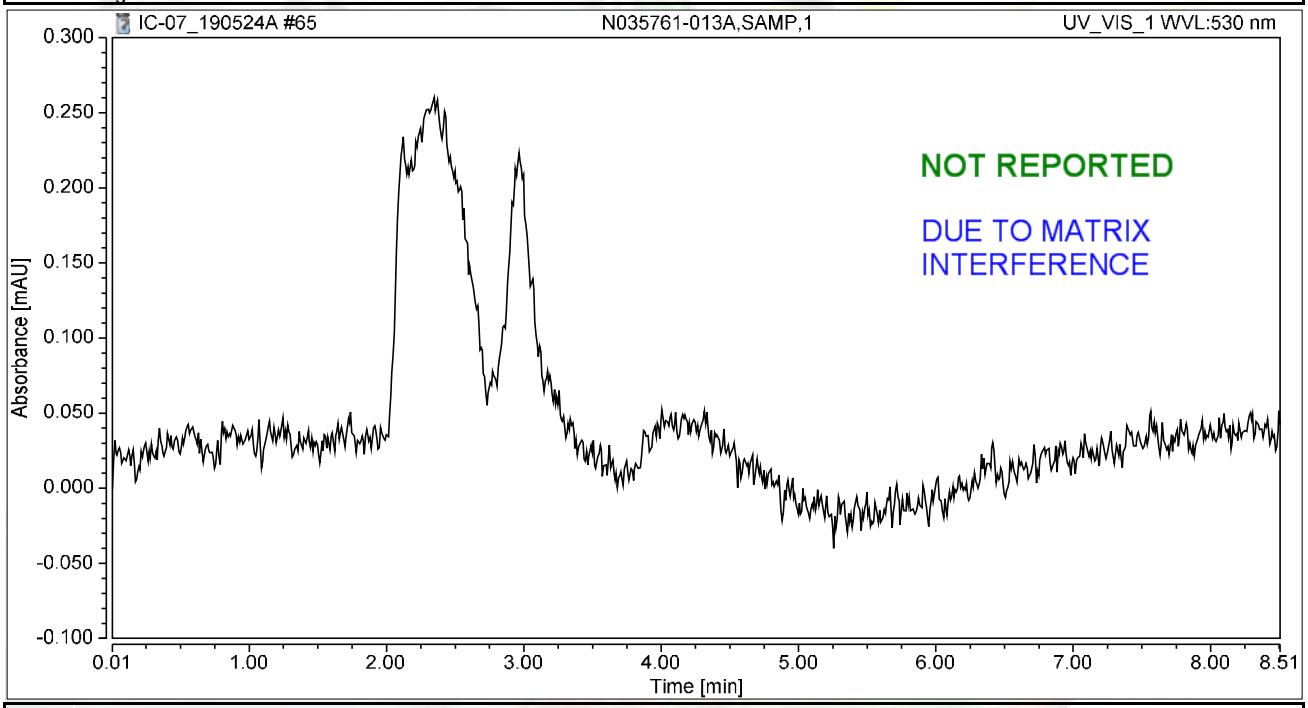
Chromatogram and Results

Injection Details

Injection Name:	**N035761-013A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 18:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

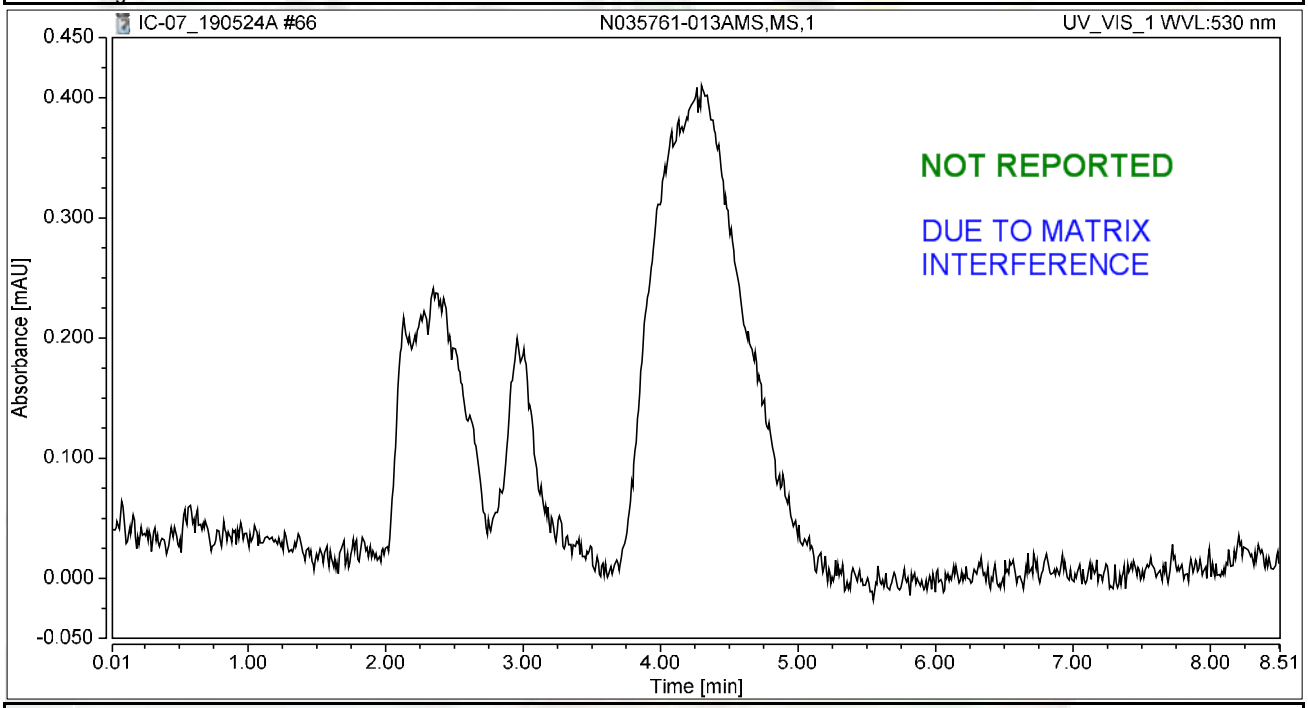
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035761-013AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 18:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

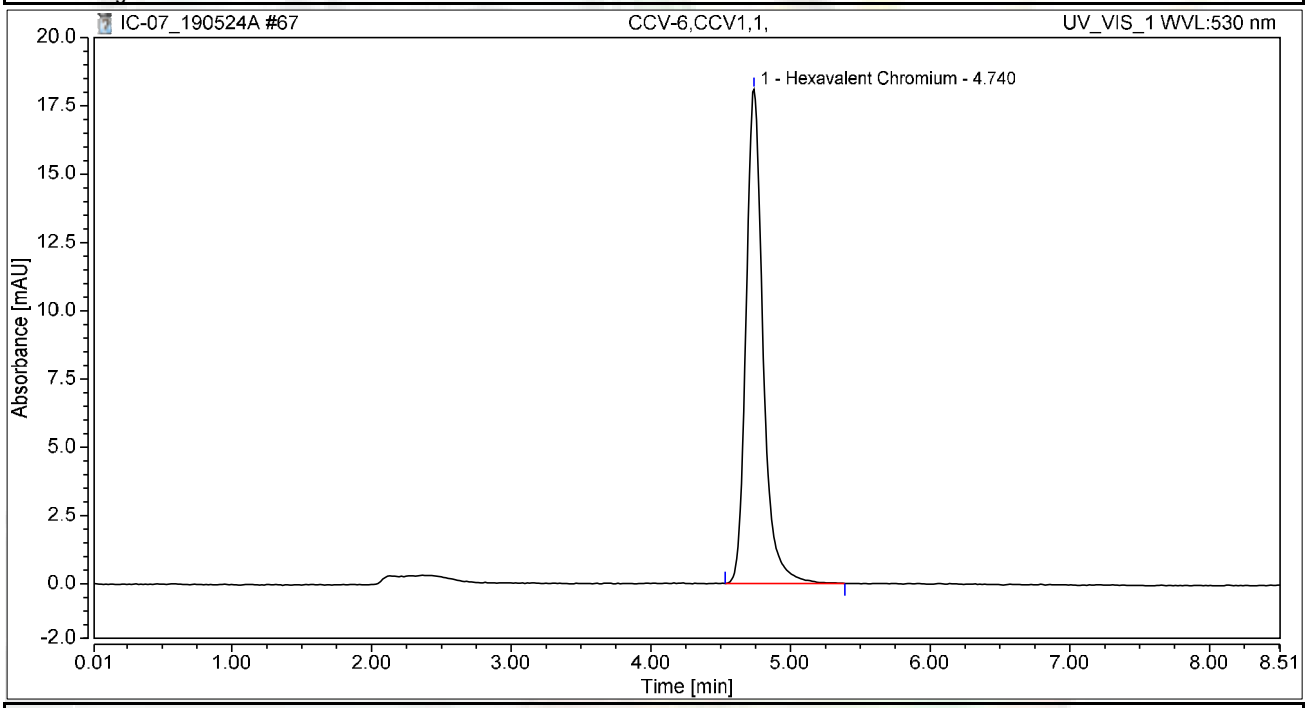
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-6,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 18:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

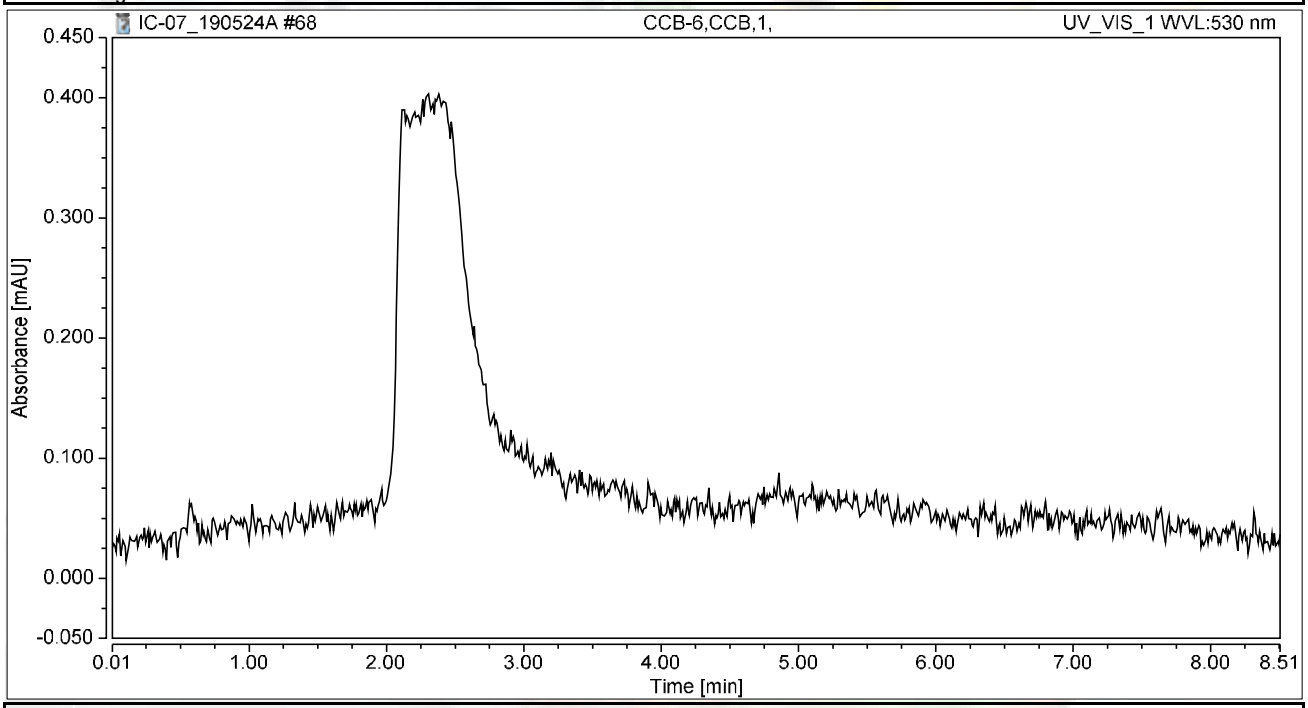
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.558	18.091	100.00	100.00	10.1461
Total:			**2.558**	**18.091**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-6,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 18:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

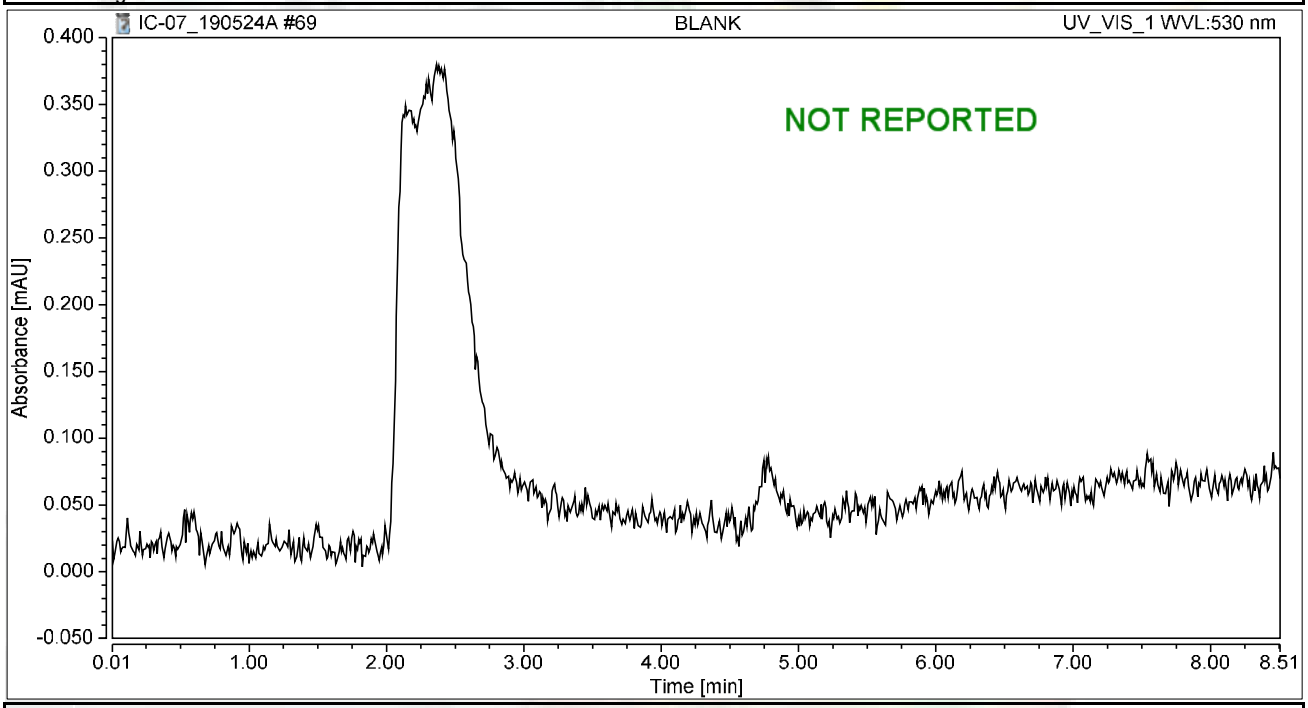
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**24/May/19 19:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134369 **Analyst:** QBM

ASSET #: N035760, N035761, N035779 **Date Analyzed:** 6/6/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 6/18/2019

2nd Level Reviewer NS Date: 6/18/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N035761-001C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.0851	*	1
	=	0.0851	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 0.085 mg/L

NS 6/19/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

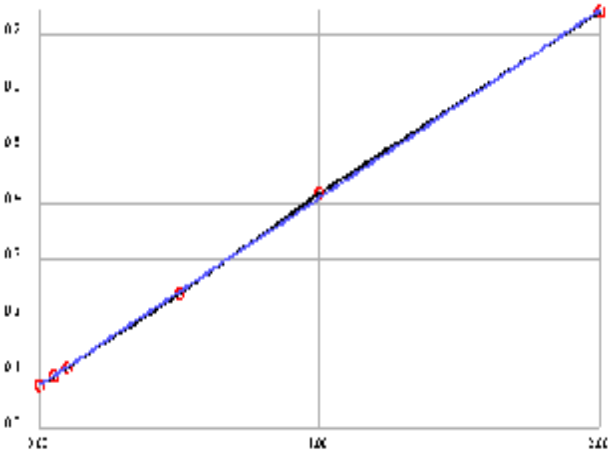
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3346x + 0.0757
Correlation	.999841

Calibrant	Energy	Set	Conc
1	0.0759	0.0000	0.0005
2	0.0922	0.0500	0.0493
3	0.1074	0.1000	0.0947
4	0.2394	0.5000	0.4891
5	0.4193	1.0000	1.0268
6	0.7415	2.0000	1.9896

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **ICV**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402973**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.508	0.050	0.5000	0	102	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCV**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402984**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.4	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCV**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.513	0.050	0.5000	0	103	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCV**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3403002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.461	0.050	0.5000	0	92.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **ICB**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402974**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCB**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCB**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402996**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCB**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3403003**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 06-06-2019 18:30
Time end: 06-06-2019 21:14

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	20:36:48	0.0017		0.0763
2	<BLANK>	20:37:42	0.0002		0.0758
3	<CAL1>	20:38:43	0.0005	[0]	0.0759
4	<CAL2>	20:39:38	0.0493	[0.05]	0.0922
5	<CAL3>	20:40:34	0.0947	[0.1]	0.1074
6	<CAL4>	20:41:34	0.4891	[0.5]	0.2394
7	<CAL5>	20:42:30	1.0268	[1]	0.4193
8	<CAL6>	20:43:25	1.9896	[2]	0.7415
9	,BLANK,BLANK,1, NOT REPORTED	20:44:19	0.0194		0.0822
10	,ICV,ICV,1,	20:45:21	0.5080		0.2457
11	,ICB,ICB,1,	20:46:16	0.0053		0.0775
12	,MB-H2O,MBLK,1,	20:47:12	0.0002		0.0758
13	,LCS-H2O,LCS,1,	20:48:12	0.4658		0.2316
14	,N035760-001B,SAMP,1,	20:49:08	0.0340		0.0871
15	,N035761-001C,SAMP,1,	20:50:03	0.0851		0.1042
16	,N035761-002C,SAMP,1,	20:51:03	0.0265		0.0846
17	,N035761-002CDUP,DUP,1,	20:51:59	0.0242		0.0838
18	,N035761-003C,SAMP,5,	20:52:54	0.6526		0.2941
19	,N035761-003CMS,MS,5,	20:53:50	1.1705		0.4674
20	,N035761-003CMSD,MSD,5,	20:54:50	1.1884		0.4734
21	,BLANK, NOT REPORTED	20:55:46	0.0092		0.0788
22	,CCV-1,CCV,1,	20:56:41	0.4721		0.2337
23	,CCB-1,CCB,1,	20:57:41	-0.0021		0.0750
24	,N035761-004C,SAMP,1,	20:58:37	0.2196		0.1492
25	,N035761-005C,SAMP,1,	20:59:20	0.2217		0.1499
26	,N035761-010C,SAMP,1,	21:00:09	0.5429		0.2574

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035779-006C,SAMP,1,	21:00:52	0.3693		0.1993
28	,N035761-006C,SAMP,5,	21:01:40	0.8657		0.3654
29	,N035761-007C,SAMP,5,	21:02:24	0.8588		0.3631
30	,N035761-008C,SAMP,1,	21:03:07	0.6876		0.3058
31	,N035779-001C,SAMP,20,	21:03:49	0.7318		0.3206
32	,N035779-002C,SAMP,10,	21:04:33	0.8732		0.3679
33	,BLANK, NOT REPORTED	21:05:21	-0.0004		0.0756
34	,CCV-2,CCV,1,	21:06:04	0.5125		0.2472
35	,CCB-2,CCB,1,	21:06:52	-0.0063		0.0736
36	,N035779-003C,SAMP,10,	21:07:36	0.7859		0.3387
37	,N035779-004C,SAMP,20,	21:08:18	0.5399		0.2564
38	,N035779-005C,SAMP,20,	21:09:01	0.5316		0.2536
39	,N035779-007C,SAMP,5,	21:09:45	0.4025		0.2104
40	,N035779-008C,SAMP,5,	21:10:33	0.4730		0.2340
41	,BLANK, NOT REPORTED	21:11:16	-0.0087		0.0728
42	,CCV-3,CCV,1,	21:12:04	0.4614		0.2301
43	,CCB-3,CCB,1,	21:12:47	-0.0132		0.0713

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 6/6/2019
Time Analyzed: 6:30 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035760-001B		7.41							
N035761-001C		8.00							
N035761-002C		7.70							
N035761-003C		8.16							
N035761-004C		8.09							
N035761-005C		8.26							
N035761-006C		8.80							
N035761-007C		8.60							
N035761-008C		7.77							
N035761-010C		8.66							
N035779-001C		7.16							
N035779-002C		7.21							
N035779-003C		8.35							
N035779-004C		7.99							
N035779-005C		7.46							
N035779-006C		7.05							
N035779-007C		8.36							
N035779-008C		8.25							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74195
ASSET #: N035761

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 4/16/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of As in LLICV failed. However, % Recovery passed criteria.
% Rec of Mo in N035761-001B-PS failed, ~~low~~ high bias. However, LCS passed criteria.
Dilution test for Mn failed. However, PS passed criteria.
Dilution was necessary for some analytes on sample N035761-003B due to failing IS. Possibly due to matrix interference. Analytes reported where IS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 6/19/2019
2nd Level Reviewer NS Date: 6/19/2019

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035761-001B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 18.0213 * 1 *(25 / 25)

Manganese , ug/L = 18.0213

Reporting results in two significant figures,

Manganese , ug/L = 18

NS 6/19/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.085	13.49	15	PASS	0.16	18.038	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.48	6.57	15	PASS	0.57	2.94	15	PASS
Std3-5/50 ppb	ICAL	1	5.28	5.6	15	PASS	5.53	2.7	15	PASS
Std4-10/100 ppb	ICAL	1	10.096	4.37	15	PASS	10.67	3.34	15	PASS
Std5-20/200 ppb	ICAL	1	19.92	3.3	15	PASS	20.87	4.049	15	PASS
Std6-40/400 ppb	ICAL	1	39.43	2.99	15	PASS	41.053	3.6	15	PASS
Std7-100/1000 ppb	ICAL	1	95.093	1.68	15	PASS	99.31	1.68	15	PASS
Std8-200/2000 ppb	ICAL	1	202.56	2.83	15	PASS	191.83	2.067	15	PASS
ICV	ICV	1	9.015	2.032	15	PASS	91.67	1.74	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	0.94	5.97	20	PASS	0.49	8.051	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.65	3.63	15	PASS	17.74	3.69	15	PASS
LLICV	CCV1	1	0.96	4.38	20	PASS	0.48	1	20	PASS
MB-74195	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-74195	LCS	1	10.35	2.85	15	PASS	106.81	3.62	15	PASS
N035761-001B	SAMP	1	<0.000	N/A	15	<PQL	18.021	2.46	15	PASS
N035761-001B	SAMP	5	<0.000	N/A	15	<PQL	4.081	3.85	15	PASS
N035761-001B	SAMP	25	<0.000	N/A	15	<PQL	0.85	3.57	15	PASS
N035761-001B-PS	PS	1	9.72	0.85	15	PASS	106.67	3.95	15	PASS
N035761-001B-PS	PS	5	1.87	3.73	15	PASS	24.52	2.39	15	PASS
N035761-001B-MS	MS	1	8.44	1.81	15	PASS	106.87	1.9	15	PASS
N035761-001B-MS	MS	5	1.83	2.8	15	PASS	24.15	2.57	15	PASS
CCV1	CCV	1	19.98	3.92	15	PASS	20.25	3.5	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035761-001B-MSD	MSD	1	8.47	2.27	15	PASS	107.46	0.9	15	PASS
N035761-001B-MSD	MSD	5	1.81	5.39	15	PASS	24.029	2.86	15	PASS
N035761-002B	SAMP	1	0.45	3.06	15	PASS	182.92	2.93	15	PASS
N035761-002B	SAMP	5	<0.000	N/A	15	<PQL	41.91	2.73	15	PASS
N035761-003B	SAMP	1	31.097	3.61	15	PASS	5.42	4.31	15	PASS
N035761-003B	SAMP	5	7.043	3.81	15	PASS	1.13	5.83	15	PASS
N035761-004B	SAMP	1	61.27	2.72	15	PASS	6.68	2.45	15	PASS
N035761-004B	SAMP	5	13.68	3.4	15	PASS	2.5	2.61	15	PASS
N035761-005B	SAMP	1	73.9	2.78	15	PASS	6.73	3.67	15	PASS
N035761-005B	SAMP	5	16.62	4.35	15	PASS	2.43	4.82	15	PASS
CCV2	CCV	1	20.43	3.64	15	PASS	21.097	3.24	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035761-006B	SAMP	1	1829.81	2.46	15	PASS	28.73	2.96	15	PASS
N035761-006B	SAMP	5	422.7	3.089	15	PASS	7.43	4.00095	15	PASS
N035761-006B	SAMP	25	79.56	3.033	15	PASS	1.57	2.87	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035761-007B	SAMP	1	1823.73	1.68	15	PASS	28.88	2.12	15	PASS
N035761-007B	SAMP	5	427.65	3.25	15	PASS	7.87	3.87	15	PASS
N035761-007B	SAMP	25	82.64	3.85	15	PASS	1.57	2.43	15	PASS
N035761-008B	SAMP	1	6.7	1.71	15	PASS	177.25	2.88	15	PASS
N035761-008B	SAMP	5	1.48	3.85	15	PASS	40.55	3.37	15	PASS
N035761-010B	SAMP	1	280.94	2.33	15	PASS	186.17	2.0089	15	PASS
N035761-010B	SAMP	5	55.4	3.28	15	PASS	42.054	3.38	15	PASS
CCV3	CCV	1	20.042	3.14	15	PASS	20.68	3.72	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035761-013B	SAMP	1	0.33	12.67	15	PASS	4.84	0.91	15	PASS
N035761-013B	SAMP	5	<0.000	N/A	15	<PQL	1.95	3.61	15	PASS
N035779-001B	SAMP	1	2365.33	2.97	15	PASS	0.33	7.9	15	PASS
N035779-001B	SAMP	5	531.47	5.11	15	PASS	0.049	50.15	15	<PQL
N035779-001B	SAMP	25	96.63	3.45	15	PASS	<0.000	N/A	15	<PQL
N035779-002B	SAMP	1	1850.18	2.37	15	PASS	<0.000	N/A	15	<PQL
N035779-002B	SAMP	5	404.83	4.84	15	PASS	<0.000	N/A	15	<PQL
N035779-002B	SAMP	25	73.85	3.81	15	PASS	0.16	7.51	15	PASS
N035779-003B	SAMP	1	1379.13	1.9	15	PASS	<0.000	N/A	15	<PQL
N035779-003B	SAMP	5	301.49	2.78	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.45	4.5	15	PASS	21.097	3.17	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.65	4.43	15	PASS	17.52	3.39	15	PASS
N035779-003B	SAMP	10	150.88	4.29	15	PASS	<0.000	N/A	15	<PQL
N035779-004B	SAMP	1	6037.062	2	15	PASS	1.69	3.73	15	PASS
N035779-004B	SAMP	5	1335.29	3.017	15	PASS	0.31	8	15	PASS
N035779-004B	SAMP	50	135.28	4.84	15	PASS	<0.000	N/A	15	<PQL
N035779-005B	SAMP	1	5822.14	2.22	15	PASS	2.2	0.85	15	PASS
N035779-005B	SAMP	5	1280.23	3.2	15	PASS	0.43	9.61	15	PASS
N035779-005B	SAMP	50	136.9	3.45	15	PASS	<0.000	N/A	15	<PQL
N035779-006B	SAMP	1	50.99	2.041	15	PASS	77.059	1.77	15	PASS
N035779-006B	SAMP	5	11.41	4.41	15	PASS	18.069	3.72	15	PASS
N035779-007B	SAMP	1	21.61	1.7	15	PASS	0.3	12.25	15	PASS
CCV5	CCV	1	21.12	3.9	15	PASS	21.83	5.0095	15	PASS
CCB5	CCB	1	0.0087	492.1	15	<PQL	<0.000	N/A	15	<PQL
N035779-007B	SAMP	5	4.65	2.95	15	PASS	0.0091	72.07	15	<PQL
N035779-008B	SAMP	1	24.28	1.5	15	PASS	1.31	2.81	15	PASS
N035779-008B	SAMP	5	5.54	1.88	15	PASS	0.16	14.47	15	PASS
N035811-001A	SAMP	1	<0.000	N/A	15	<PQL	180.84	1.49	15	PASS
N035828-001A	SAMP	1	<0.000	N/A	15	<PQL	506.96	2.97	15	PASS
CCV6	CCV	1	19.91	2.98	15	PASS	20.69	2.3	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB6	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	20.19	3.89	15	PASS	21.42	2.55	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV8	CCV	1	19.67	3.34	15	PASS	21.52	3.43	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.24	4.097	15	PASS	18.48	3.3	15	PASS
CCV9	CCV	1	19.58	2.83	15	PASS	20.67	2.4	15	PASS
CCB9	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV10	CCV	1	19.7	1.71	15	PASS	21.055	2.33	15	PASS
CCB10	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV11	CCV	1	19.95	3.4	15	PASS	21.11	4.11	15	PASS
CCB11	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	19.14	2.094	15	PASS	18.57	2.037	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	20.011	15	NR!	0.083	61.058	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.56	6.43	15	PASS	0.53	7.66	15	PASS
Std3-5/50 ppb	ICAL	1	5.22	3.088	15	PASS	4.83	8.081	15	PASS
Std4-10/100 ppb	ICAL	1	10.4	1.22	15	PASS	10.21	7.71	15	PASS
Std5-20/200 ppb	ICAL	1	20.48	1.35	15	PASS	20.71	4.79	15	PASS
Std6-40/400 ppb	ICAL	1	40.77	0.82	15	PASS	40.96	3.043	15	PASS
Std7-100/1000 ppb	ICAL	1	100.33	0.39	15	PASS	100.67	1.12	15	PASS
Std8-200/2000 ppb	ICAL	1	199.61	1.22	15	PASS	199.39	2.00036	15	PASS
ICV	ICV	1	10.46	1.45	15	PASS	10.62	5.028	15	PASS
ICB	ICB	1	0.011	49.27	15	<PQL	0.035	50.083	15	<PQL
LLICV	CCV1	1	0.13	8.51	20	PASS	0.56	15.53	20	PASS
ICSA1	ICSA	1	0.044	10.17	15	PASS	0.032	33.55	15	<PQL
ICSAB1	ICSAB	1	20.53	0.82	15	PASS	20.42	2.27	15	PASS
LLICV	CCV1	1	0.12	27.34	20	FAIL NR!	0.59	17.5	20	PASS
MB-74195	MBLK	1	0.0054	92.47	15	<PQL	0.006	173.21	15	<PQL
LCS-74195	LCS	1	10.42	0.9	15	PASS	10.23	4.9	15	PASS
N035761-001B	SAMP	1	1.19	1.99	15	PASS	0.52	13.13	15	PASS
N035761-001B	SAMP	5	0.25	2.74	15	PASS	0.056	67.68	15	<PQL
N035761-001B	SAMP	25	0.059	14.54	15	PASS	0.0056	173.21	15	<PQL
N035761-001B-PS	PS	1	12.38	0.8	15	PASS	12.24	4.37	15	PASS
N035761-001B-PS	PS	5	2.54	2.9	15	PASS	2.29	7.15	15	PASS
N035761-001B-MS	MS	1	12.5	1.37	15	PASS	11.82	5.35	15	PASS
N035761-001B-MS	MS	5	2.57	2.54	15	PASS	2.073	6.93	15	PASS
CCV1	CCV	1	20.4	0.9	15	PASS	20.85	6.84	15	PASS
CCB1	CCB	1	0.011	22.49	15	<PQL	0.017	173.21	15	<PQL
N035761-001B-MSD	MSD	1	12.27	2.48	15	PASS	12.25	5.1	15	PASS
N035761-001B-MSD	MSD	5	2.52	1.024	15	PASS	2.43	14.14	15	PASS
N035761-002B	SAMP	1	13.052	2.13	15	PASS	0.016	173.21	15	<PQL
N035761-002B	SAMP	5	2.69	1.4	15	PASS	0.023	86.61	15	<PQL
N035761-003B	SAMP	1	1.82	4.31	15	PASS	4.33	5.91	15	PASS
N035761-003B	SAMP	5	0.42	3.63	15	PASS	0.96	24.85	15	NR!
N035761-004B	SAMP	1	9.19	0.76	15	PASS	3.24	14.98	15	PASS
N035761-004B	SAMP	5	1.9	4.57	15	PASS	0.66	14.52	15	PASS
N035761-005B	SAMP	1	8.68	1.63	15	PASS	2.69	8.48	15	PASS
N035761-005B	SAMP	5	1.77	2.0028	15	PASS	0.63	14.79	15	PASS
CCV2	CCV	1	20.16	0.38	15	PASS	21.049	2.21	15	PASS
CCB2	CCB	1	0.019	61.5	15	<PQL	0.01	173.21	15	<PQL
N035761-006B	SAMP	1	1.63	1.073	15	PASS	4.81	9.27	15	PASS
N035761-006B	SAMP	5	0.34	7.29	15	PASS	0.96	5.53	15	PASS
N035761-006B	SAMP	25	0.081	20.53	15	<PQL	0.21	33.47	15	<PQL

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035761-007B	SAMP	1	1.66	2.58	15	PASS	4.65	6.72	15	PASS
N035761-007B	SAMP	5	0.36	3.063	15	PASS	1.0082	11.3	15	PASS
N035761-007B	SAMP	25	0.08	1	15	PASS	0.28	12.32	15	PASS
N035761-008B	SAMP	1	14.21	0.72	15	PASS	13.34	3.081	15	PASS
N035761-008B	SAMP	5	2.82	1.91	15	PASS	2.63	3.22	15	PASS
N035761-010B	SAMP	1	3.72	2.64	15	PASS	0.87	11.69	15	PASS
N035761-010B	SAMP	5	0.75	4.34	15	PASS	0.17	36.2	15	<PQL
CCV3	CCV	1	20.41	0.66	15	PASS	21.53	4.79	15	PASS
CCB3	CCB	1	0.024	15.46	15	<PQL	0.016	1.34	15	PASS
N035761-013B	SAMP	1	1.82	5.035	15	PASS	0.2	84.46	15	<PQL
N035761-013B	SAMP	5	0.4	11.91	15	PASS	0.077	54.038	15	<PQL
N035779-001B	SAMP	1	1.75	6.59	15	PASS	14.27	4.75	15	PASS
N035779-001B	SAMP	5	0.36	6.6	15	PASS	2.62	21.67	15	NR!
N035779-001B	SAMP	25	0.078	17.47	15	<PQL	0.55	31.39	15	NR!
N035779-002B	SAMP	1	2.87	1.086	15	PASS	7.075	0.89	15	PASS
N035779-002B	SAMP	5	0.57	2.8	15	PASS	1.32	10.96	15	PASS
N035779-002B	SAMP	25	0.13	12.025	15	PASS	0.31	34.74	15	<PQL
N035779-003B	SAMP	1	1.82	5.12	15	PASS	6.014	9.49	15	PASS
N035779-003B	SAMP	5	0.36	5.054	15	PASS	1.36	9.78	15	PASS
CCV4	CCV	1	20.38	1.82	15	PASS	21.49	3.035	15	PASS
CCB4	CCB	1	0.014	67.55	15	<PQL	0.034	86.65	15	<PQL
ICSA2	ICSA	1	0.023	16.48	15	<PQL	0.025	86.67	15	<PQL
ICSAB2	ICSAB	1	19.91	0.68	15	PASS	21.57	3.026	15	PASS
N035779-003B	SAMP	10	0.2	5.28	15	PASS	0.64	11.45	15	PASS
N035779-004B	SAMP	1	4.63	3.38	15	PASS	34.083	3.26	15	PASS
N035779-004B	SAMP	5	0.92	2.55	15	PASS	6.81	6.8	15	PASS
N035779-004B	SAMP	50	0.086	30.57	15	<PQL	0.57	18.57	15	NR!
N035779-005B	SAMP	1	4.53	4.36	15	PASS	35.88	3.52	15	PASS
N035779-005B	SAMP	5	0.89	6.16	15	PASS	6.5	6.84	15	PASS
N035779-005B	SAMP	50	0.088	17.24	15	<PQL	0.7	13.4	15	PASS
N035779-006B	SAMP	1	10.25	1.94	15	PASS	1.09	5.18	15	PASS
N035779-006B	SAMP	5	2.028	5.057	15	PASS	0.24	36.31	15	<PQL
N035779-007B	SAMP	1	1.31	1.35	15	PASS	1.47	17.062	15	NR!
CCV5	CCV	1	20.21	1.0035	15	PASS	20.78	1.76	15	PASS
CCB5	CCB	1	0.017	14.46	15	PASS	0.0063	173.21	15	<PQL
N035779-007B	SAMP	5	0.26	13.84	15	PASS	0.26	22.014	15	<PQL
N035779-008B	SAMP	1	0.82	3.32	15	PASS	1.23	19.57	15	NR!
N035779-008B	SAMP	5	0.18	5.13	15	PASS	0.24	33.79	15	<PQL
N035811-001A	SAMP	1	0.55	5.72	15	PASS	1.029	8.68	15	PASS
N035828-001A	SAMP	1	0.25	7.37	15	PASS	0.22	44.15	15	<PQL
CCV6	CCV	1	20.24	0.11	15	PASS	20.86	4.95	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB6	CCB	1	0.026	47.38	15	<PQL	0.024	41.18	15	<PQL
CCV7	CCV	1	20.074	2.87	15	PASS	20.42	2.08	15	PASS
CCB7	CCB	1	0.036	30.46	15	<PQL	0.026	113.52	15	<PQL
CCV8	CCV	1	19.88	1.77	15	PASS	20.54	3.74	15	PASS
CCB8	CCB	1	0.028	26.96	15	<PQL	0.07	91.47	15	<PQL
ICSA3	ICSA	1	0.032	4.94	15	PASS	0.03	124.1	15	<PQL
ICSAB3	ICSAB	1	20.11	1.4	15	PASS	19.92	3.9	15	PASS
CCV9	CCV	1	19.81	1.1	15	PASS	20.27	5.19	15	PASS
CCB9	CCB	1	0.027	31.16	15	<PQL	0.054	142.44	15	<PQL
CCV10	CCV	1	19.96	1.35	15	PASS	20.66	3.097	15	PASS
CCB10	CCB	1	0.027	35.24	15	<PQL	0	N/A	15	<PQL
CCV11	CCV	1	20.074	1.84	15	PASS	20.87	3.61	15	PASS
CCB11	CCB	1	0.031	32.69	15	<PQL	0.026	173.21	15	<PQL
ICSA4	ICSA	1	0.027	66.1	15	<PQL	0.0057	173.21	15	<PQL
ICSAB4	ICSAB	1	20.027	0.54	15	PASS	19.41	2.27	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.46	5.62	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.5	8.64	15	PASS
Std3-5/50 ppb	ICAL	1	4.98	1	15	PASS
Std4-10/100 ppb	ICAL	1	9.9	0.79	15	PASS
Std5-20/200 ppb	ICAL	1	20.16	2.48	15	PASS
Std6-40/400 ppb	ICAL	1	40.14	1.38	15	PASS
Std7-100/1000 ppb	ICAL	1	100.31	1.17	15	PASS
Std8-200/2000 ppb	ICAL	1	199.81	1.39	15	PASS
ICV	ICV	1	10.28	2.037	15	PASS
ICB	ICB	1	0.089	15.067	15	<PQL
LLICV	CCV1	1	0.55	2.18	20	PASS
ICSA1	ICSA	1	0.12	15.34	15	<PQL
ICSAB1	ICSAB	1	20.99	1.17	15	PASS
LLICV	CCV1	1	0.56	3.65	20	PASS
MB-74195	MBLK	1	0.057	16.13	15	<PQL
LCS-74195	LCS	1	10.2	0.54	15	PASS
N035761-001B	SAMP	1	13.4	1.83	15	PASS
N035761-001B	SAMP	5	2.57	1.065	15	PASS
N035761-001B	SAMP	25	0.53	1.99	15	PASS
N035761-001B-PS	PS	1	25.85	1.15	15	PASS
N035761-001B-PS	PS	5	5.098	1.83	15	PASS
N035761-001B-MS	MS	1	25.063	1.16	15	PASS
N035761-001B-MS	MS	5	4.93	2.028	15	PASS
CCV1	CCV	1	19.56	0.62	15	PASS
CCB1	CCB	1	0.1	4.96	15	PASS
N035761-001B-MSD	MSD	1	24.9	1.57	15	PASS
N035761-001B-MSD	MSD	5	5.073	2.11	15	PASS
N035761-002B	SAMP	1	76.077	0.46	15	PASS
N035761-002B	SAMP	5	14.61	0.66	15	PASS
N035761-003B	SAMP	1	29.89	1.67	15	PASS
N035761-003B	SAMP	5	5.79	0.68	15	PASS
N035761-004B	SAMP	1	63.28	1.41	15	PASS
N035761-004B	SAMP	5	12.21	1.5	15	PASS
N035761-005B	SAMP	1	59.041	1.24	15	PASS
N035761-005B	SAMP	5	11.57	0.03	15	PASS
CCV2	CCV	1	19.82	0.4	15	PASS
CCB2	CCB	1	0.12	6.57	15	PASS
N035761-006B	SAMP	1	29.9	0.94	15	PASS
N035761-006B	SAMP	5	6.085	0.82	15	PASS
N035761-006B	SAMP	25	1.22	0.7	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035761-007B	SAMP	1	30.59	0.79	15	PASS
N035761-007B	SAMP	5	6.18	3.15	15	PASS
N035761-007B	SAMP	25	1.25	2.041	15	PASS
N035761-008B	SAMP	1	58.78	1.63	15	PASS
N035761-008B	SAMP	5	11.54	0.7	15	PASS
N035761-010B	SAMP	1	23.28	1.93	15	PASS
N035761-010B	SAMP	5	4.47	3.25	15	PASS
CCV3	CCV	1	19.77	0.79	15	PASS
CCB3	CCB	1	0.095	11.69	15	PASS
N035761-013B	SAMP	1	10.28	2.97	15	PASS
N035761-013B	SAMP	5	2.0051	1.67	15	PASS
N035779-001B	SAMP	1	15.42	1.68	15	PASS
N035779-001B	SAMP	5	3.015	1.72	15	PASS
N035779-001B	SAMP	25	0.59	0.78	15	PASS
N035779-002B	SAMP	1	34.87	0.51	15	PASS
N035779-002B	SAMP	5	6.7	2.38	15	PASS
N035779-002B	SAMP	25	1.4	1.14	15	PASS
N035779-003B	SAMP	1	3.68	1.021	15	PASS
N035779-003B	SAMP	5	0.74	2.025	15	PASS
CCV4	CCV	1	19.63	0.57	15	PASS
CCB4	CCB	1	0.088	9.75	15	PASS
ICSA2	ICSA	1	0.037	9.22	15	PASS
ICSAB2	ICSAB	1	20.73	1.52	15	PASS
N035779-003B	SAMP	10	0.43	12.77	15	PASS
N035779-004B	SAMP	1	41.52	0.66	15	PASS
N035779-004B	SAMP	5	8.16	1.47	15	PASS
N035779-004B	SAMP	50	0.82	0.26	15	PASS
N035779-005B	SAMP	1	40.029	0.66	15	PASS
N035779-005B	SAMP	5	7.93	1.39	15	PASS
N035779-005B	SAMP	50	0.82	4.24	15	PASS
N035779-006B	SAMP	1	85.45	0.33	15	PASS
N035779-006B	SAMP	5	16.87	2.24	15	PASS
N035779-007B	SAMP	1	11.12	1.34	15	PASS
CCV5	CCV	1	18.46	2.29	15	PASS
CCB5	CCB	1	0.12	14.94	15	PASS
N035779-007B	SAMP	5	2.16	3.54	15	PASS
N035779-008B	SAMP	1	18.78	2.0094	15	PASS
N035779-008B	SAMP	5	3.65	1.51	15	PASS
N035811-001A	SAMP	1	60.34	0.8	15	PASS
N035828-001A	SAMP	1	78.78	0.44	15	PASS
CCV6	CCV	1	19.29	0.8	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
CCB6	CCB	1	0.12	10.28	15	PASS
CCV7	CCV	1	19.42	1.16	15	PASS
CCB7	CCB	1	0.12	7.44	15	PASS
CCV8	CCV	1	19.21	2.57	15	PASS
CCB8	CCB	1	0.12	1.85	15	PASS
ICSA3	ICSA	1	0.066	7.92	15	PASS
ICSAB3	ICSAB	1	20.47	1.58	15	PASS
CCV9	CCV	1	19.24	0.78	15	PASS
CCB9	CCB	1	0.11	14.65	15	PASS
CCV10	CCV	1	19.31	0.76	15	PASS
CCB10	CCB	1	0.11	7.017	15	PASS
CCV11	CCV	1	19.3	1.17	15	PASS
CCB11	CCB	1	0.13	12.95	15	PASS
ICSA4	ICSA	1	0.066	10.46	15	PASS
ICSAB4	ICSAB	1	20.63	0.6	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190616A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0616001.D	RINSE	RINSE	1	06/16/19 7:09 AM
A0616002.D	Cal Blank	IBLK	1	06/16/19 7:14 AM
A0616003.D	Std1-0.1/1 ppb	ICAL	1	06/16/19 7:19 AM
A0616004.D	Std2-0.5/5 ppb	ICAL	1	06/16/19 7:24 AM
A0616005.D	Std3-5/50 ppb	ICAL	1	06/16/19 7:29 AM
A0616006.D	Std4-10/100 ppb	ICAL	1	06/16/19 7:34 AM
A0616007.D	Std5-20/200 ppb	ICAL	1	06/16/19 7:39 AM
A0616008.D	Std6-40/400 ppb	ICAL	1	06/16/19 7:44 AM
A0616009.D	Std7-100/1000 ppb	ICAL	1	06/16/19 7:49 AM
A0616010.D	Std8-200/2000 ppb	ICAL	1	06/16/19 7:54 AM
A0616011.D	ICV	ICV	1	06/16/19 8:11 AM
A0616012.D	ICB	ICB	1	06/16/19 8:16 AM
A0616013.D	LLICV	CCV1	1	06/16/19 8:21 AM
A0616014.D	ICSA1	ICSA	1	06/16/19 8:26 AM
A0616015.D	ICSAB1	ICSAB	1	06/16/19 8:31 AM
A0616016.D	LLICV	CCV1	1	06/16/19 8:36 AM
A0616017.D	LCS-74196	LCS	1	06/16/19 8:41 AM
A0616018.D	MB-74195	MBLK	1	06/16/19 8:46 AM
A0616019.D	LCS-74195	LCS	1	06/16/19 8:51 AM
A0616020.D	N035761-001B	SAMP	1	06/16/19 8:56 AM
A0616021.D	N035761-001B	SAMP	5	06/16/19 9:01 AM
A0616022.D	N035761-001B	SAMP	25	06/16/19 9:06 AM
A0616023.D	N035761-001B-PS	PS	1	06/16/19 9:11 AM
A0616024.D	N035761-001B-PS	PS	5	06/16/19 9:16 AM
A0616025.D	N035761-001B-MS	MS	1	06/16/19 9:21 AM
A0616026.D	N035761-001B-MS	MS	5	06/16/19 9:26 AM
A0616027.D	CCV1	CCV	1	06/16/19 9:31 AM
A0616028.D	CCB1	CCB	1	06/16/19 9:36 AM
A0616029.D	N035761-001B-MSD	MSD	1	06/16/19 9:41 AM
A0616030.D	N035761-001B-MSD	MSD	5	06/16/19 9:46 AM
A0616031.D	N035761-002B	SAMP	1	06/16/19 9:51 AM
A0616032.D	N035761-002B	SAMP	5	06/16/19 9:56 AM
A0616033.D	N035761-003B	SAMP	1	06/16/19 10:01 AM
A0616034.D	N035761-003B	SAMP	5	06/16/19 10:06 AM
A0616035.D	N035761-004B	SAMP	1	06/16/19 10:11 AM
A0616036.D	N035761-004B	SAMP	5	06/16/19 10:16 AM
A0616037.D	N035761-005B	SAMP	1	06/16/19 10:21 AM
A0616038.D	N035761-005B	SAMP	5	06/16/19 10:26 AM
A0616039.D	CCV2	CCV	1	06/16/19 10:31 AM
A0616040.D	CCB2	CCB	1	06/16/19 10:36 AM
A0616041.D	N035761-006B	SAMP	1	06/16/19 10:41 AM
A0616042.D	N035761-006B	SAMP	5	06/16/19 10:46 AM

INJECTION LOG: 190616A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0616043.D	N035761-006B	SAMP	25	06/16/19 10:51 AM
A0616044.D	N035761-007B	SAMP	1	06/16/19 10:56 AM
A0616045.D	N035761-007B	SAMP	5	06/16/19 11:01 AM
A0616046.D	N035761-007B	SAMP	25	06/16/19 11:06 AM
A0616047.D	N035761-008B	SAMP	1	06/16/19 11:11 AM
A0616048.D	N035761-008B	SAMP	5	06/16/19 11:16 AM
A0616049.D	N035761-010B	SAMP	1	06/16/19 11:21 AM
A0616050.D	N035761-010B	SAMP	5	06/16/19 11:26 AM
A0616051.D	CCV3	CCV	1	06/16/19 11:30 AM
A0616052.D	CCB3	CCB	1	06/16/19 11:35 AM
A0616053.D	N035761-013B	SAMP	1	06/16/19 11:40 AM
A0616054.D	N035761-013B	SAMP	5	06/16/19 11:45 AM
A0616055.D	N035779-001B	SAMP	1	06/16/19 11:50 AM
A0616056.D	N035779-001B	SAMP	5	06/16/19 11:55 AM
A0616057.D	N035779-001B	SAMP	25	06/16/19 12:00 PM
A0616058.D	N035779-002B	SAMP	1	06/16/19 12:05 PM
A0616059.D	N035779-002B	SAMP	5	06/16/19 12:10 PM
A0616060.D	N035779-002B	SAMP	25	06/16/19 12:15 PM
A0616061.D	N035779-003B	SAMP	1	06/16/19 12:20 PM
A0616062.D	N035779-003B	SAMP	5	06/16/19 12:25 PM
A0616063.D	CCV4	CCV	1	06/16/19 12:30 PM
A0616064.D	CCB4	CCB	1	06/16/19 12:35 PM
A0616065.D	ICSA2	ICSA	1	06/16/19 12:41 PM
A0616066.D	ICSAB2	ICSAB	1	06/16/19 12:45 PM
A0616067.D	N035779-003B	SAMP	10	06/16/19 12:51 PM
A0616068.D	N035779-004B	SAMP	1	06/16/19 12:56 PM
A0616069.D	N035779-004B	SAMP	5	06/16/19 1:01 PM
A0616070.D	N035779-004B	SAMP	50	06/16/19 1:06 PM
A0616071.D	N035779-005B	SAMP	1	06/16/19 1:11 PM
A0616072.D	N035779-005B	SAMP	5	06/16/19 1:16 PM
A0616073.D	N035779-005B	SAMP	50	06/16/19 1:21 PM
A0616074.D	N035779-006B	SAMP	1	06/16/19 1:26 PM
A0616075.D	N035779-006B	SAMP	5	06/16/19 1:31 PM
A0616076.D	N035779-007B	SAMP	1	06/16/19 1:36 PM
A0616077.D	CCV5	CCV	1	06/16/19 1:41 PM
A0616078.D	CCB5	CCB	1	06/16/19 1:46 PM
A0616079.D	N035779-007B	SAMP	5	06/16/19 1:51 PM
A0616080.D	N035779-008B	SAMP	1	06/16/19 1:56 PM
A0616081.D	N035779-008B	SAMP	5	06/16/19 2:01 PM
A0616082.D	N035811-001A	SAMP	1	06/16/19 2:06 PM
A0616083.D	N035828-001A	SAMP	1	06/16/19 2:11 PM
A0616084.D	MB-74201	MBLK	1	06/16/19 2:16 PM

INJECTION LOG: 190616A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0616085.D	LCS-74201	LCS	1	06/16/19 2:21 PM
A0616086.D	N035913-001B	SAMP	1	06/16/19 2:26 PM
A0616087.D	N035913-001B	SAMP	5	06/16/19 2:31 PM
A0616088.D	N035913-001B	SAMP	25	06/16/19 2:36 PM
A0616090.D	CCV6	CCV	1	06/16/19 2:41 PM
A0616091.D	CCB6	CCB	1	06/16/19 2:46 PM
A0616092.D	N035913-001B-PS	PS	1	06/16/19 2:51 PM
A0616093.D	N035913-001B-PS	PS	5	06/16/19 2:56 PM
A0616094.D	N035913-001B-MS	MS	1	06/16/19 3:01 PM
A0616095.D	N035913-001B-MS	MS	5	06/16/19 3:06 PM
A0616096.D	N035913-001B-MSD	MSD	1	06/16/19 3:11 PM
A0616097.D	N035913-001B-MSD	MSD	5	06/16/19 3:16 PM
A0616098.D	N035913-002B	SAMP	1	06/16/19 3:21 PM
A0616099.D	N035913-002B	SAMP	5	06/16/19 3:26 PM
A0616100.D	N035913-003B	SAMP	1	06/16/19 3:31 PM
A0616101.D	N035913-003B	SAMP	5	06/16/19 3:36 PM
A0616102.D	CCV7	CCV	1	06/16/19 3:41 PM
A0616103.D	CCB7	CCB	1	06/16/19 3:46 PM
A0616104.D	N035913-004B	SAMP	1	06/16/19 3:51 PM
A0616105.D	N035913-004B	SAMP	5	06/16/19 3:56 PM
A0616106.D	N035913-005B	SAMP	1	06/16/19 4:01 PM
A0616107.D	N035913-005B	SAMP	5	06/16/19 4:06 PM
A0616108.D	N035913-006B	SAMP	1	06/16/19 4:11 PM
A0616109.D	N035913-006B	SAMP	5	06/16/19 4:16 PM
A0616110.D	N035913-007B	SAMP	1	06/16/19 4:21 PM
A0616111.D	N035913-007B	SAMP	5	06/16/19 4:26 PM
A0616112.D	N035913-008B	SAMP	1	06/16/19 4:31 PM
A0616113.D	N035913-008B	SAMP	5	06/16/19 4:36 PM
A0616114.D	CCV8	CCV	1	06/16/19 4:41 PM
A0616115.D	CCB8	CCB	1	06/16/19 4:46 PM
A0616116.D	ICSA3	ICSA	1	06/16/19 4:54 PM
A0616117.D	ICSAB3	ICSAB	1	06/16/19 4:56 PM
A0616118.D	N035914-004B	SAMP	1	06/16/19 5:02 PM
A0616119.D	N035915-001B	SAMP	1	06/16/19 5:07 PM
A0616120.D	N035915-001B	SAMP	5	06/16/19 5:12 PM
A0616121.D	N035915-002B	SAMP	1	06/16/19 5:17 PM
A0616122.D	N035915-002B	SAMP	5	06/16/19 5:22 PM
A0616123.D	N035915-003B	SAMP	1	06/16/19 5:27 PM
A0616124.D	N035915-003B	SAMP	5	06/16/19 5:32 PM
A0616125.D	N035915-004B	SAMP	1	06/16/19 5:37 PM
A0616126.D	N035915-004B	SAMP	5	06/16/19 5:42 PM
A0616127.D	N035915-005B	SAMP	1	06/16/19 5:47 PM

INJECTION LOG: 190616A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0616128.D	CCV9	CCV	1	06/16/19 5:53 PM
A0616129.D	CCB9	CCB	1	06/16/19 5:58 PM
A0616130.D	N035915-005B	SAMP	5	06/16/19 6:03 PM
A0616131.D	N035915-006B	SAMP	1	06/16/19 6:08 PM
A0616132.D	N035915-006B	SAMP	5	06/16/19 6:13 PM
A0616133.D	N035915-007B	SAMP	1	06/16/19 6:18 PM
A0616134.D	N035915-007B	SAMP	5	06/16/19 6:23 PM
A0616135.D	N035915-008B	SAMP	1	06/16/19 6:28 PM
A0616136.D	N035915-008B	SAMP	5	06/16/19 6:33 PM
A0616137.D	N035915-009B	SAMP	1	06/16/19 6:38 PM
A0616138.D	N035915-009B	SAMP	5	06/16/19 6:43 PM
A0616139.D	N035915-010B	SAMP	1	06/16/19 6:48 PM
A0616140.D	CCV10	CCV	1	06/16/19 6:53 PM
A0616141.D	CCB10	CCB	1	06/16/19 6:58 PM
A0616142.D	N035915-010B	SAMP	5	06/16/19 7:03 PM
A0616143.D	N035915-009B	SAMP	1	06/16/19 7:08 PM
A0616144.D	N035915-010B	SAMP	1	06/16/19 7:13 PM
A0616146.D	CCV11	CCV	1	06/16/19 7:19 PM
A0616147.D	CCB11	CCB	1	06/16/19 7:24 PM
A0616148.D	ICSA4	ICSA	1	06/16/19 7:28 PM
A0616149.D	ICSAB4	ICSAB	1	06/16/19 7:34 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/13/2019 1:02:46 P**
Prep End Date: **6/13/2019 5:30:00 P**
Reviewed/ Date: NS 6/24/2019
Initials/ Date: for
Prep Batch **74195** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-3**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74195	Aqueous		25	☐	0	0	25	1.000		
MB-74195	Aqueous		25	☐	0	0	25	1.000		
N035761-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-013B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/13/2019 1:02:46 P**
Prep End Date: **6/13/2019 5:30:00 P**
Reviewed/ Date: NS 6/24/2019
Initials/ Date: for
Prep Batch **74195** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-3**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035779-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035811-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035828-001A	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 16 Jun 2019 06:40:56 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	148733.00	0.00	
24	Mg	636809.00	0.00	
25	Mg	82462.10	0.00	
26	Mg	94284.00	0.00	
59	Co	619636.00	0.00	
115	In	1031940.00	0.00	
206	Pb	295470.00	0.00	
207	Pb	260257.00	0.00	
208	Pb	635106.00	0.00	

RSD (%)

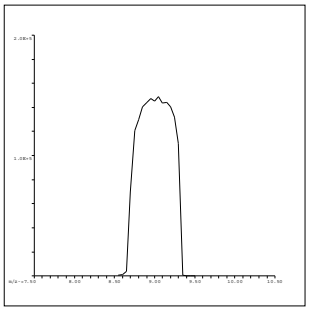
Element		Actual	Required	Flag
9	Be	0.61	5.00	
24	Mg	0.88	5.00	
25	Mg	0.63	5.00	
26	Mg	0.95	5.00	
59	Co	0.55	5.00	
115	In	0.77	5.00	
206	Pb	1.44	5.00	
207	Pb	1.25	5.00	
208	Pb	1.03	5.00	

Ion Ratio

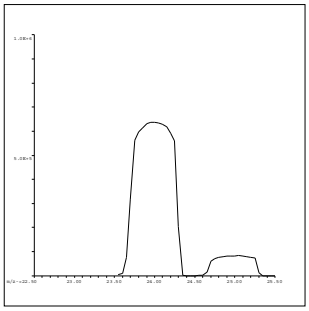
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

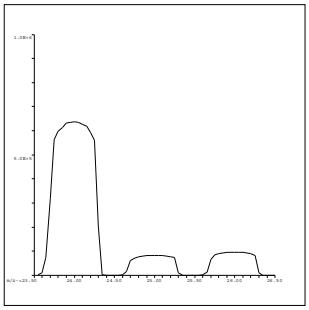
Element		Actual	Required	Flag



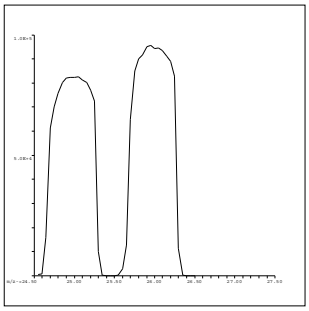
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



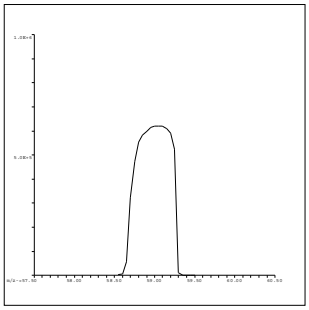
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



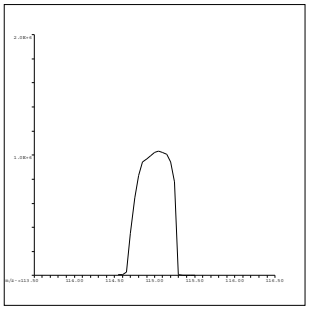
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



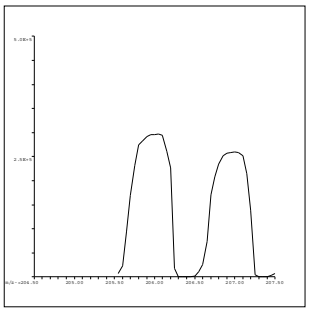
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



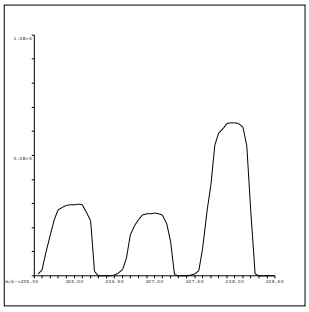
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



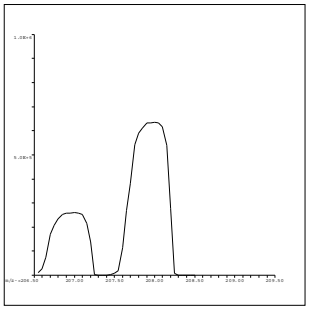
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190616A

Instrument ID: ICPMS-02

Analyte	Data File	A0616002.D	A0616003.D	A0616004.D	A0616005.D	A0616006.D	A0616007.D	A0616008.D	A0616009.D	A0616010.D	
	Acq. Date-Time	06/16/2019 07:14 AM	06/16/2019 07:19 AM	06/16/2019 07:24 AM	06/16/2019 07:29 AM	06/16/2019 07:34 AM	06/16/2019 07:39 AM	06/16/2019 07:44 AM	06/16/2019 07:49 AM	06/16/2019 07:54 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	109276.7		108540.1	109625.9	113355.8	113986.1	114340.4	116418.5	117394.7	
55 Mn [2]	CPS	789.5		3424.3	26676.4	52434.3	102262.5	201025.1	494292.9	961882.3	0.9999
52 Cr [2]	CPS	1588.8		5697.7	47136	91820.7	180528.9	356928.4	874559.4	1876060.7	0.9996
72 Ge (ISTD) [1]	CPS	59818.6		61201.4	61295.2	61194.5	60435.4	60507.8	60233.2	59755.1	
78 Se [1]	CPS	0		107.8	982.3	2074.7	4154.1	8226.9	20131.1	39552.6	1.0000
72 Ge (ISTD) [2]	CPS	87685.5	89383.6	88044.6	89111	89504.5	88182.3	88427.5	88154	86829	
75 As [2]	CPS	27.1	162.7	634.2	5761.1	11487.7	22270.9	44429.4	108961.2	213498.8	1.0000
103 Rh (ISTD) [2]	CPS	2445745.7		2439595.8	2446848.2	2469555.4	2426141.7	2433231.8	2390638.7	2361257.9	
95 Mo [2]	CPS	25.6		2705.9	26693.1	53571.7	107148	213931.4	525231.4	1033350.4	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **ICV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.460	0.10	10.00	0	105	90	110				
Manganese	91.666	0.50	100.0	0	91.7	90	110				
Molybdenum	10.278	0.50	10.00	0	103	90	110				
Selenium	10.619	0.50	10.00	0	106	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **ZZZZZZ**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.115	0.10	0.1000	0	115	80	120				
Manganese	0.482	0.50	0.5000	0	96.3	80	120				
Molybdenum	0.564	0.50	0.5000	0	113	80	120				
Selenium	0.593	0.50	0.5000	0	119	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.399	0.10	20.00	0	102	90	110				
Manganese	20.250	0.50	20.00	0	101	90	110				
Molybdenum	19.564	0.50	20.00	0	97.8	90	110				
Selenium	20.850	0.50	20.00	0	104	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.159	0.10	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **CCV** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.097	0.50	20.00	0	105	90	110				
Molybdenum	19.824	0.50	20.00	0	99.1	90	110				
Selenium	21.049	0.50	20.00	0	105	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **CCV** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.414	0.10	20.00	0	102	90	110				
Manganese	20.676	0.50	20.00	0	103	90	110				
Molybdenum	19.769	0.50	20.00	0	98.8	90	110				
Selenium	21.533	0.50	20.00	0	108	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **CCV** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.375	0.10	20.00	0	102	90	110				
Manganese	21.097	0.50	20.00	0	105	90	110				
Molybdenum	19.633	0.50	20.00	0	98.2	90	110				
Selenium	21.495	0.50	20.00	0	107	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **CCV** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413798**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.206	0.10	20.00	0	101	90	110				
Manganese	21.832	0.50	20.00	0	109	90	110				
Molybdenum	18.461	0.50	20.00	0	92.3	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413798**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.784	0.50	20.00	0	104	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413810**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.245	0.10	20.00	0	101	90	110				
Manganese	20.689	0.50	20.00	0	103	90	110				
Molybdenum	19.291	0.50	20.00	0	96.5	90	110				
Selenium	20.856	0.50	20.00	0	104	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.074	0.10	20.00	0	100	90	110				
Manganese	21.425	0.50	20.00	0	107	90	110				
Molybdenum	19.418	0.50	20.00	0	97.1	90	110				
Selenium	20.421	0.50	20.00	0	102	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.876	0.10	20.00	0	99.4	90	110				
Manganese	21.518	0.50	20.00	0	108	90	110				
Molybdenum	19.214	0.50	20.00	0	96.1	90	110				
Selenium	20.541	0.50	20.00	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.806	0.10	20.00	0	99.0	90	110				
Manganese	20.667	0.50	20.00	0	103	90	110				
Molybdenum	19.240	0.50	20.00	0	96.2	90	110				
Selenium	20.268	0.50	20.00	0	101	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.956	0.10	20.00	0	99.8	90	110				
Manganese	21.055	0.50	20.00	0	105	90	110				
Molybdenum	19.307	0.50	20.00	0	96.5	90	110				
Selenium	20.660	0.50	20.00	0	103	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.074	0.10	20.00	0	100	90	110				
Manganese	21.108	0.50	20.00	0	106	90	110				
Molybdenum	19.297	0.50	20.00	0	96.5	90	110				
Selenium	20.868	0.50	20.00	0	104	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.015	1.0	10.00	0	90.1	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ZZZZZZ**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.938	1.0	1.000	0	93.8	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.984	1.0	20.00	0	99.9	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.429	1.0	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.042	1.0	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.451	1.0	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413661**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.117	1.0	20.00	0	106	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.908	1.0	20.00	0	99.5	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.187	1.0	20.00	0	101	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.669	1.0	20.00	0	98.3	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.575	1.0	20.00	0	97.9	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413723**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.700	1.0	20.00	0	98.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541~~R134~~**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.953	1.0	20.00	0	99.8	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **ICB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413785**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413596**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413698**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSA** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413735**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSAB** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.527	0.10	20.00	0	103	80	120				
Manganese	17.735	0.50	20.00	0	88.7	80	120				
Molybdenum	20.991	0.50	20.00	0	105	80	120				
Selenium	20.419	0.50	20.00	0	102	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSA** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413786**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSAB** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413787**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.906	0.10	20.00	0	99.5	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSAB** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413787**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.516	0.50	20.00	0	87.6	80	120				
Molybdenum	20.732	0.50	20.00	0	104	80	120				
Selenium	21.567	0.50	20.00	0	108	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSA** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSAB** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.114	0.10	20.00	0	101	80	120				
Manganese	18.476	0.50	20.00	0	92.4	80	120				
Molybdenum	20.472	0.50	20.00	0	102	80	120				
Selenium	19.917	0.50	20.00	0	99.6	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSA** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **ICSA**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **ICSAB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.027	0.10	20.00	0	100	80	120				
Manganese	18.573	0.50	20.00	0	92.9	80	120				
Molybdenum	20.635	0.50	20.00	0	103	80	120				
Selenium	19.409	0.50	20.00	0	97.0	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSA**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSAB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413599**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.653	1.0	20.00	0	98.3	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSA**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSAB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.648	1.0	20.00	0	98.2	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSA**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSAB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.240	1.0	20.00	0	96.2	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSA**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSAB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.142	1.0	20.00	0	95.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	109276.7	109276.7	100	PASS	70-125	87685.5	87685.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	109682.5	109276.7	100.37	PASS	70-125	89383.6	87685.5	101.94	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	108540.1	109276.7	99.33	PASS	70-125	88044.6	87685.5	100.41	PASS	70-125
Std3-5/50 ppb	ICAL	1	109625.9	109276.7	100.32	PASS	70-125	89111	87685.5	101.63	PASS	70-125
Std4-10/100 ppb	ICAL	1	113355.8	109276.7	103.73	PASS	70-125	89504.5	87685.5	102.07	PASS	70-125
Std5-20/200 ppb	ICAL	1	113986.1	109276.7	104.31	PASS	70-125	88182.3	87685.5	100.57	PASS	70-125
Std6-40/400 ppb	ICAL	1	114340.4	109276.7	104.63	PASS	70-125	88427.5	87685.5	100.85	PASS	70-125
Std7-100/1000 ppb	ICAL	1	116418.5	109276.7	106.54	PASS	70-125	88154	87685.5	100.53	PASS	70-125
Std8-200/2000 ppb	ICAL	1	117394.7	109276.7	107.43	PASS	70-125	86829	87685.5	99.023	PASS	70-125
ICV	ICV	1	116311.2	109276.7	106.44	PASS	70-125	81336.3	87685.5	92.76	PASS	70-125
ICB	ICB	1	103364.7	109276.7	94.59	PASS	70-125	83934.5	87685.5	95.72	PASS	70-125
LLICV	CCV1	1	114844.7	109276.7	105.1	PASS	70-125	92084.6	87685.5	105.02	PASS	70-125
ICSA1	ICSA	1	110288.7	109276.7	100.93	PASS	70-125	84796.4	87685.5	96.71	PASS	70-125
ICSAB1	ICSAB	1	110623.8	109276.7	101.23	PASS	70-125	84752.6	87685.5	96.66	PASS	70-125
LLICV	CCV1	1	125515.6	109276.7	114.86	PASS	70-125	98257.8	87685.5	112.06	PASS	70-125
MB-74195	MBLK	1	106723.2	109276.7	97.66	PASS	70-125	84909	87685.5	96.83	PASS	70-125
LCS-74195	LCS	1	101403.1	109276.7	92.79	PASS	70-125	81298.7	87685.5	92.72	PASS	70-125
N035761-001B	SAMP	1	111272.5	109276.7	101.83	PASS	70-125	73530.5	87685.5	83.86	PASS	70-125
N035761-001B	SAMP	5	113498	109276.7	103.86	PASS	70-125	85561.2	87685.5	97.58	PASS	70-125
N035761-001B	SAMP	25	118331.2	109276.7	108.29	PASS	70-125	93238.4	87685.5	106.33	PASS	70-125
N035761-001B-PS	PS	1	118809	109276.7	108.72	PASS	70-125	79210.8	87685.5	90.34	PASS	70-125
N035761-001B-PS	PS	5	124273.9	109276.7	113.72	PASS	70-125	91490.8	87685.5	104.34	PASS	70-125
N035761-001B-MS	MS	1	126091.6	109276.7	115.39	PASS	70-125	81665.8	87685.5	93.13	PASS	70-125
N035761-001B-MS	MS	5	126838.1	109276.7	116.07	PASS	70-125	93491	87685.5	106.62	PASS	70-125
CCV1	CCV	1	128244.1	109276.7	117.36	PASS	70-125	96805.7	87685.5	110.4	PASS	70-125
CCB1	CCB	1	121247.2	109276.7	110.95	PASS	70-125	94634	87685.5	107.92	PASS	70-125
N035761-001B-MSD	MSD	1	123816.2	109276.7	113.31	PASS	70-125	82138.1	87685.5	93.67	PASS	70-125
N035761-001B-MSD	MSD	5	128977.1	109276.7	118.03	PASS	70-125	94923.8	87685.5	108.25	PASS	70-125
N035761-002B	SAMP	1	126111.5	109276.7	115.41	PASS	70-125	83039.5	87685.5	94.7	PASS	70-125
N035761-002B	SAMP	5	135170.6	109276.7	123.7	PASS	70-125	99232	87685.5	113.17	PASS	70-125
N035761-003B	SAMP	1	136731.5	109276.7	125.12	NR!	70-125	90308.1	87685.5	102.99	PASS	70-125
N035761-003B	SAMP	5	134124.6	109276.7	122.74	PASS	70-125	100307.5	87685.5	114.39	PASS	70-125
N035761-004B	SAMP	1	129991.2	109276.7	118.96	PASS	70-125	85380	87685.5	97.37	PASS	70-125
N035761-004B	SAMP	5	133462	109276.7	122.13	PASS	70-125	97876.5	87685.5	111.62	PASS	70-125
N035761-005B	SAMP	1	131555	109276.7	120.39	PASS	70-125	86641.5	87685.5	98.81	PASS	70-125
N035761-005B	SAMP	5	134284.5	109276.7	122.88	PASS	70-125	98499.1	87685.5	112.33	PASS	70-125
CCV2	CCV	1	135736.2	109276.7	124.21	PASS	70-125	106742	87685.5	121.73	PASS	70-125
CCB2	CCB	1	128574.8	109276.7	117.66	PASS	70-125	103156.5	87685.5	117.64	PASS	70-125
N035761-006B	SAMP	1	124862.7	109276.7	114.26	PASS	70-125	83482.7	87685.5	95.21	PASS	70-125
N035761-006B	SAMP	5	134050.6	109276.7	122.67	PASS	70-125	98055.4	87685.5	111.83	PASS	70-125
N035761-006B	SAMP	25	134382.1	109276.7	122.97	PASS	70-125	104934.9	87685.5	119.67	PASS	70-125

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035761-007B	SAMP	1	131283.7	109276.7	120.14	PASS	70-125	86002.2	87685.5	98.08	PASS	70-125
N035761-007B	SAMP	5	136016.2	109276.7	124.47	PASS	70-125	99591.1	87685.5	113.58	PASS	70-125
N035761-007B	SAMP	25	131870.2	109276.7	120.68	PASS	70-125	103921.5	87685.5	118.52	PASS	70-125
N035761-008B	SAMP	1	134045	109276.7	122.67	PASS	70-125	87878.8	87685.5	100.22	PASS	70-125
N035761-008B	SAMP	5	137157	109276.7	125.51	NR!	70-125	100910.5	87685.5	115.08	PASS	70-125
N035761-010B	SAMP	1	124875.7	109276.7	114.27	PASS	70-125	82189	87685.5	93.73	PASS	70-125
N035761-010B	SAMP	5	133346.5	109276.7	122.03	PASS	70-125	98777.3	87685.5	112.65	PASS	70-125
CCV3	CCV	1	134805.5	109276.7	123.36	PASS	70-125	104156.7	87685.5	118.78	PASS	70-125
CCB3	CCB	1	124644.1	109276.7	114.06	PASS	70-125	99973.5	87685.5	114.01	PASS	70-125
N035761-013B	SAMP	1	117398.9	109276.7	107.43	PASS	70-125	78482.6	87685.5	89.5	PASS	70-125
N035761-013B	SAMP	5	131725.8	109276.7	120.54	PASS	70-125	96103.5	87685.5	109.6	PASS	70-125
N035779-001B	SAMP	1	130849.9	109276.7	119.74	PASS	70-125	90559.4	87685.5	103.28	PASS	70-125
N035779-001B	SAMP	5	129664.6	109276.7	118.66	PASS	70-125	99157.3	87685.5	113.08	PASS	70-125
N035779-001B	SAMP	25	131240.2	109276.7	120.1	PASS	70-125	102280.7	87685.5	116.64	PASS	70-125
N035779-002B	SAMP	1	125450.8	109276.7	114.8	PASS	70-125	94296	87685.5	107.54	PASS	70-125
N035779-002B	SAMP	5	123964.6	109276.7	113.44	PASS	70-125	99851.6	87685.5	113.87	PASS	70-125
N035779-002B	SAMP	25	121609.4	109276.7	111.29	PASS	70-125	98546.6	87685.5	112.39	PASS	70-125
N035779-003B	SAMP	1	120688.6	109276.7	110.44	PASS	70-125	90206.8	87685.5	102.88	PASS	70-125
N035779-003B	SAMP	5	120092.9	109276.7	109.9	PASS	70-125	95504.6	87685.5	108.92	PASS	70-125
CCV4	CCV	1	118674.9	109276.7	108.6	PASS	70-125	93534.6	87685.5	106.67	PASS	70-125
CCB4	CCB	1	114135.6	109276.7	104.45	PASS	70-125	93056.5	87685.5	106.13	PASS	70-125
ICSA2	ICSA	1	96735.3	109276.7	88.52	PASS	70-125	79017.1	87685.5	90.11	PASS	70-125
ICSAB2	ICSAB	1	114571.8	109276.7	104.85	PASS	70-125	89789.3	87685.5	102.4	PASS	70-125
N035779-003B	SAMP	10	116942.1	109276.7	107.02	PASS	70-125	94168.3	87685.5	107.39	PASS	70-125
N035779-004B	SAMP	1	109102	109276.7	99.84	PASS	70-125	76152.9	87685.5	86.85	PASS	70-125
N035779-004B	SAMP	5	114015.4	109276.7	104.34	PASS	70-125	86688.1	87685.5	98.86	PASS	70-125
N035779-004B	SAMP	50	115397.6	109276.7	105.6	PASS	70-125	92784.6	87685.5	105.82	PASS	70-125
N035779-005B	SAMP	1	113395	109276.7	103.77	PASS	70-125	78493.9	87685.5	89.52	PASS	70-125
N035779-005B	SAMP	5	120715.5	109276.7	110.47	PASS	70-125	90227.2	87685.5	102.9	PASS	70-125
N035779-005B	SAMP	50	119057.2	109276.7	108.95	PASS	70-125	94776.2	87685.5	108.09	PASS	70-125
N035779-006B	SAMP	1	111573	109276.7	102.1	PASS	70-125	74590.6	87685.5	85.066	PASS	70-125
N035779-006B	SAMP	5	125275.2	109276.7	114.64	PASS	70-125	92303.3	87685.5	105.27	PASS	70-125
N035779-007B	SAMP	1	121363.5	109276.7	111.06	PASS	70-125	84931.3	87685.5	96.86	PASS	70-125
CCV5	CCV	1	97802.1	109276.7	89.5	PASS	70-125	80316.9	87685.5	91.6	PASS	70-125
CCB5	CCB	1	102576.5	109276.7	93.87	PASS	70-125	84528.5	87685.5	96.4	PASS	70-125
N035779-007B	SAMP	5	102485.8	109276.7	93.79	PASS	70-125	82684	87685.5	94.3	PASS	70-125
N035779-008B	SAMP	1	103399.2	109276.7	94.62	PASS	70-125	72226.1	87685.5	82.37	PASS	70-125
N035779-008B	SAMP	5	107523.1	109276.7	98.4	PASS	70-125	84770.2	87685.5	96.68	PASS	70-125
N035811-001A	SAMP	1	109587	109276.7	100.28	PASS	70-125	75723.8	87685.5	86.36	PASS	70-125
N035828-001A	SAMP	1	114813.7	109276.7	105.07	PASS	70-125	75335.7	87685.5	85.92	PASS	70-125
CCV6	CCV	1	111409.6	109276.7	101.95	PASS	70-125	87414.8	87685.5	99.69	PASS	70-125

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB6	CCB	1	105783.1	109276.7	96.8	PASS	70-125	85003.6	87685.5	96.94	PASS	70-125
CCV7	CCV	1	91639.3	109276.7	83.86	PASS	70-125	74162.3	87685.5	84.58	PASS	70-125
CCB7	CCB	1	90064.9	109276.7	82.42	PASS	70-125	72989.6	87685.5	83.24	PASS	70-125
CCV8	CCV	1	85021.3	109276.7	77.8	PASS	70-125	68991.1	87685.5	78.68	PASS	70-125
CCB8	CCB	1	82424.7	109276.7	75.43	PASS	70-125	68436.5	87685.5	78.048	PASS	70-125
ICSA3	ICSA	1	106961.8	109276.7	97.88	PASS	70-125	84919.8	87685.5	96.85	PASS	70-125
ICSAB3	ICSAB	1	84136.3	109276.7	76.99	PASS	70-125	66590	87685.5	75.94	PASS	70-125
CCV9	CCV	1	91331	109276.7	83.58	PASS	70-125	73161.2	87685.5	83.44	PASS	70-125
CCB9	CCB	1	86756.5	109276.7	79.39	PASS	70-125	70798.9	87685.5	80.74	PASS	70-125
CCV10	CCV	1	88868.4	109276.7	81.32	PASS	70-125	72017.6	87685.5	82.13	PASS	70-125
CCB10	CCB	1	84804.2	109276.7	77.61	PASS	70-125	70412.5	87685.5	80.3	PASS	70-125
CCV11	CCV	1	86944.3	109276.7	79.56	PASS	70-125	71666.8	87685.5	81.73	PASS	70-125
CCB11	CCB	1	86939	109276.7	79.56	PASS	70-125	72749	87685.5	82.97	PASS	70-125
ICSA4	ICSA	1	112070	109276.7	102.56	PASS	70-125	86912.6	87685.5	99.12	PASS	70-125
ICSAB4	ICSAB	1	88505.5	109276.7	80.99	PASS	70-125	71060	87685.5	81.04	PASS	70-125

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	59818.6	59818.6	100	PASS	70-125	2445745.7	2445745.7	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	60893.3	59818.6	101.8	PASS	70-125	2457275.2	2445745.7	100.47	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	61201.4	59818.6	102.31	PASS	70-125	2439595.8	2445745.7	99.75	PASS	70-125
Std3-5/50 ppb	ICAL	1	61295.2	59818.6	102.47	PASS	70-125	2446848.2	2445745.7	100.05	PASS	70-125
Std4-10/100 ppb	ICAL	1	61194.5	59818.6	102.3	PASS	70-125	2469555.4	2445745.7	100.97	PASS	70-125
Std5-20/200 ppb	ICAL	1	60435.4	59818.6	101.03	PASS	70-125	2426141.7	2445745.7	99.2	PASS	70-125
Std6-40/400 ppb	ICAL	1	60507.8	59818.6	101.15	PASS	70-125	2433231.8	2445745.7	99.49	PASS	70-125
Std7-100/1000 ppb	ICAL	1	60233.2	59818.6	100.69	PASS	70-125	2390638.7	2445745.7	97.75	PASS	70-125
Std8-200/2000 ppb	ICAL	1	59755.1	59818.6	99.89	PASS	70-125	2361257.9	2445745.7	96.55	PASS	70-125
ICV	ICV	1	52977.2	59818.6	88.56	PASS	70-125	2319600.2	2445745.7	94.84	PASS	70-125
ICB	ICB	1	58176.8	59818.6	97.26	PASS	70-125	2380688.4	2445745.7	97.34	PASS	70-125
LLICV	CCV1	1	63259	59818.6	105.75	PASS	70-125	2606938.6	2445745.7	106.59	PASS	70-125
ICSA1	ICSA	1	52924.5	59818.6	88.47	PASS	70-125	2269245.3	2445745.7	92.78	PASS	70-125
ICSAB1	ICSAB	1	55077.4	59818.6	92.074	PASS	70-125	2211023.7	2445745.7	90.4	PASS	70-125
LLICV	CCV1	1	65993.3	59818.6	110.32	PASS	70-125	2755070.1	2445745.7	112.65	PASS	70-125
MB-74195	MBLK	1	55563.7	59818.6	92.89	PASS	70-125	2423271.9	2445745.7	99.081	PASS	70-125
LCS-74195	LCS	1	54280.1	59818.6	90.74	PASS	70-125	2317923.8	2445745.7	94.77	PASS	70-125
N035761-001B	SAMP	1	43438.9	59818.6	72.62	PASS	70-125	1822781.5	2445745.7	74.53	PASS	70-125
N035761-001B	SAMP	5	54399.4	59818.6	90.94	PASS	70-125	2254750.1	2445745.7	92.19	PASS	70-125
N035761-001B	SAMP	25	59393.6	59818.6	99.29	PASS	70-125	2465518.2	2445745.7	100.81	PASS	70-125
N035761-001B-PS	PS	1	43602.7	59818.6	72.89	PASS	70-125	1923213.3	2445745.7	78.64	PASS	70-125
N035761-001B-PS	PS	5	55224.5	59818.6	92.32	PASS	70-125	2361601.7	2445745.7	96.56	PASS	70-125
N035761-001B-MS	MS	1	44622.2	59818.6	74.6	PASS	70-125	1990214.1	2445745.7	81.37	PASS	70-125
N035761-001B-MS	MS	5	56698.3	59818.6	94.78	PASS	70-125	2392882.8	2445745.7	97.84	PASS	70-125
CCV1	CCV	1	61942.9	59818.6	103.55	PASS	70-125	2649546.5	2445745.7	108.33	PASS	70-125
CCB1	CCB	1	60335.9	59818.6	100.86	PASS	70-125	2614807.2	2445745.7	106.91	PASS	70-125
N035761-001B-MSD	MSD	1	44613.2	59818.6	74.58	PASS	70-125	1973550.3	2445745.7	80.69	PASS	70-125
N035761-001B-MSD	MSD	5	57299.6	59818.6	95.79	PASS	70-125	2402053.2	2445745.7	98.21	PASS	70-125
N035761-002B	SAMP	1	43661.9	59818.6	72.99	PASS	70-125	1920268.1	2445745.7	78.51	PASS	70-125
N035761-002B	SAMP	5	58642.9	59818.6	98.035	PASS	70-125	2464566.6	2445745.7	100.77	PASS	70-125
N035761-003B	SAMP	1	47410.8	59818.6	79.26	PASS	70-125	2117736.6	2445745.7	86.59	PASS	70-125
N035761-003B	SAMP	5	60009.2	59818.6	100.32	PASS	70-125	2525257.4	2445745.7	103.25	PASS	70-125
N035761-004B	SAMP	1	44266.9	59818.6	74.002	PASS	70-125	1936604.9	2445745.7	79.18	PASS	70-125
N035761-004B	SAMP	5	57514.9	59818.6	96.15	PASS	70-125	2434128.6	2445745.7	99.53	PASS	70-125
N035761-005B	SAMP	1	45168.1	59818.6	75.51	PASS	70-125	1994929.3	2445745.7	81.57	PASS	70-125
N035761-005B	SAMP	5	58605	59818.6	97.97	PASS	70-125	2468122.2	2445745.7	100.91	PASS	70-125
CCV2	CCV	1	65304	59818.6	109.17	PASS	70-125	2826181.6	2445745.7	115.56	PASS	70-125
CCB2	CCB	1	64361.4	59818.6	107.59	PASS	70-125	2779845.9	2445745.7	113.66	PASS	70-125
N035761-006B	SAMP	1	43689.6	59818.6	73.037	PASS	70-125	1946088.7	2445745.7	79.57	PASS	70-125
N035761-006B	SAMP	5	57750	59818.6	96.54	PASS	70-125	2443044.5	2445745.7	99.89	PASS	70-125
N035761-006B	SAMP	25	62751.8	59818.6	104.9	PASS	70-125	2667931.1	2445745.7	109.09	PASS	70-125

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035761-007B	SAMP	1	44201.9	59818.6	73.89	PASS	70-125	1985554.8	2445745.7	81.18	PASS	70-125
N035761-007B	SAMP	5	58094.6	59818.6	97.12	PASS	70-125	2447538.9	2445745.7	100.07	PASS	70-125
N035761-007B	SAMP	25	62808.7	59818.6	105	PASS	70-125	2649238.5	2445745.7	108.32	PASS	70-125
N035761-008B	SAMP	1	47966.1	59818.6	80.19	PASS	70-125	2075564.9	2445745.7	84.86	PASS	70-125
N035761-008B	SAMP	5	59132.8	59818.6	98.85	PASS	70-125	2522212.5	2445745.7	103.13	PASS	70-125
N035761-010B	SAMP	1	43458.1	59818.6	72.65	PASS	70-125	1912640	2445745.7	78.2	PASS	70-125
N035761-010B	SAMP	5	57540.4	59818.6	96.19	PASS	70-125	2449282	2445745.7	100.14	PASS	70-125
CCV3	CCV	1	64347.1	59818.6	107.57	PASS	70-125	2787049.9	2445745.7	113.96	PASS	70-125
CCB3	CCB	1	62838.7	59818.6	105.05	PASS	70-125	2701633.1	2445745.7	110.46	PASS	70-125
N035761-013B	SAMP	1	40754.2	59818.6	68.13	NR!	70-125	1866363.2	2445745.7	76.31	PASS	70-125
N035761-013B	SAMP	5	56631.6	59818.6	94.67	PASS	70-125	2428380.8	2445745.7	99.29	PASS	70-125
N035779-001B	SAMP	1	50848	59818.6	85.004	PASS	70-125	2189235.5	2445745.7	89.51	PASS	70-125
N035779-001B	SAMP	5	60350.4	59818.6	100.89	PASS	70-125	2503249.2	2445745.7	102.35	PASS	70-125
N035779-001B	SAMP	25	62908	59818.6	105.16	PASS	70-125	2655536	2445745.7	108.58	PASS	70-125
N035779-002B	SAMP	1	57051.9	59818.6	95.37	PASS	70-125	2362119	2445745.7	96.58	PASS	70-125
N035779-002B	SAMP	5	60290	59818.6	100.79	PASS	70-125	2565743	2445745.7	104.91	PASS	70-125
N035779-002B	SAMP	25	62220.5	59818.6	104.02	PASS	70-125	2633211.4	2445745.7	107.66	PASS	70-125
N035779-003B	SAMP	1	55157.4	59818.6	92.21	PASS	70-125	2291385.1	2445745.7	93.69	PASS	70-125
N035779-003B	SAMP	5	59799.3	59818.6	99.97	PASS	70-125	2477133.6	2445745.7	101.28	PASS	70-125
CCV4	CCV	1	58783.5	59818.6	98.27	PASS	70-125	2563518.4	2445745.7	104.82	PASS	70-125
CCB4	CCB	1	58482.5	59818.6	97.77	PASS	70-125	2552651.9	2445745.7	104.37	PASS	70-125
ICSA2	ICSA	1	53815.5	59818.6	89.96	PASS	70-125	2235238.7	2445745.7	91.39	PASS	70-125
ICSAB2	ICSAB	1	53804.3	59818.6	89.95	PASS	70-125	2286282.8	2445745.7	93.48	PASS	70-125
N035779-003B	SAMP	10	59290.7	59818.6	99.12	PASS	70-125	2482135.8	2445745.7	101.49	PASS	70-125
N035779-004B	SAMP	1	42867.4	59818.6	71.66	PASS	70-125	1904770.7	2445745.7	77.88	PASS	70-125
N035779-004B	SAMP	5	52584.9	59818.6	87.91	PASS	70-125	2250799	2445745.7	92.029	PASS	70-125
N035779-004B	SAMP	50	58689.8	59818.6	98.11	PASS	70-125	2463389.5	2445745.7	100.72	PASS	70-125
N035779-005B	SAMP	1	43763.3	59818.6	73.16	PASS	70-125	1934514.6	2445745.7	79.097	PASS	70-125
N035779-005B	SAMP	5	53583.5	59818.6	89.58	PASS	70-125	2283118	2445745.7	93.35	PASS	70-125
N035779-005B	SAMP	50	58633.1	59818.6	98.018	PASS	70-125	2479860.9	2445745.7	101.39	PASS	70-125
N035779-006B	SAMP	1	39010.1	59818.6	65.21	NR!	70-125	1784290.8	2445745.7	72.95	PASS	70-125
N035779-006B	SAMP	5	53989.7	59818.6	90.26	PASS	70-125	2319512.6	2445745.7	94.84	PASS	70-125
N035779-007B	SAMP	1	48857.6	59818.6	81.68	PASS	70-125	2140063.9	2445745.7	87.5	PASS	70-125
CCV5	CCV	1	47701.9	59818.6	79.74	PASS	70-125	2365934.1	2445745.7	96.74	PASS	70-125
CCB5	CCB	1	53155.4	59818.6	88.86	PASS	70-125	2379034.6	2445745.7	97.27	PASS	70-125
N035779-007B	SAMP	5	51874.6	59818.6	86.72	PASS	70-125	2174635	2445745.7	88.92	PASS	70-125
N035779-008B	SAMP	1	42366	59818.6	70.82	PASS	70-125	1821552.3	2445745.7	74.48	PASS	70-125
N035779-008B	SAMP	5	52617.2	59818.6	87.96	PASS	70-125	2197035.9	2445745.7	89.83	PASS	70-125
N035811-001A	SAMP	1	43277.6	59818.6	72.35	PASS	70-125	1875880.9	2445745.7	76.7	PASS	70-125
N035828-001A	SAMP	1	41184.1	59818.6	68.85	NR!	70-125	1819524	2445745.7	74.4	PASS	70-125
CCV6	CCV	1	55146.5	59818.6	92.19	PASS	70-125	2394333.9	2445745.7	97.9	PASS	70-125

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB6	CCB	1	55320.3	59818.6	92.48	PASS	70-125	2354530.9	2445745.7	96.27	PASS	70-125
CCV7	CCV	1	50115.8	59818.6	83.78	PASS	70-125	2095136.1	2445745.7	85.66	PASS	70-125
CCB7	CCB	1	50441.2	59818.6	84.32	PASS	70-125	2090165.8	2445745.7	85.46	PASS	70-125
CCV8	CCV	1	47961.6	59818.6	80.18	PASS	70-125	1953621.2	2445745.7	79.88	PASS	70-125
CCB8	CCB	1	47632.8	59818.6	79.63	PASS	70-125	1951070.3	2445745.7	79.77	PASS	70-125
ICSA3	ICSA	1	55721.8	59818.6	93.15	PASS	70-125	2365248	2445745.7	96.71	PASS	70-125
ICSAB3	ICSAB	1	44856.2	59818.6	74.99	PASS	70-125	1777810.7	2445745.7	72.69	PASS	70-125
CCV9	CCV	1	52519.9	59818.6	87.8	PASS	70-125	2068910.8	2445745.7	84.59	PASS	70-125
CCB9	CCB	1	50171.5	59818.6	83.87	PASS	70-125	2017380.6	2445745.7	82.49	PASS	70-125
CCV10	CCV	1	51197.2	59818.6	85.59	PASS	70-125	2043762.4	2445745.7	83.56	PASS	70-125
CCB10	CCB	1	51122.4	59818.6	85.46	PASS	70-125	2000320.7	2445745.7	81.79	PASS	70-125
CCV11	CCV	1	50449.1	59818.6	84.34	PASS	70-125	2035876.1	2445745.7	83.24	PASS	70-125
CCB11	CCB	1	50754.7	59818.6	84.85	PASS	70-125	2046508	2445745.7	83.68	PASS	70-125
ICSA4	ICSA	1	58382.1	59818.6	97.6	PASS	70-125	2423276.7	2445745.7	99.081	PASS	70-125
ICSAB4	ICSAB	1	48137.5	59818.6	80.47	PASS	70-125	1873237.3	2445745.7	76.59	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035761
Test Method: EPA 6020
Analysis Date: 6/16/2019

Matrix: Groundwater
Batch No.: 74195

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Mn failed. However, PS passed criteria.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035761-001B DT 5x	Chromium	Cr	µg/L	0	NA	0		10
N035761-001B DT 5x	Arsenic	As	µg/L	1.244996	NA	1.185443	5.02%	10
N035761-001B DT 5x	Manganese	Mn	µg/L	20.40712	FAIL	18.0213	13.24%	10
N035761-001B DT 5x	Molybdenum	Mo	µg/L	12.8514	PASS	13.40358	4.12%	10
N035761-001B DT 5x	Selenium	Se	µg/L	0	NA	0.5159975	100.00%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035761-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ZZZZZZ** Batch ID: **74195** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/16/2019** SeqNo: **3413744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.385	0.10	10.00	1.185	112	80	120				
Manganese	106.671	0.50	100.0	18.02	88.6	80	120				
Molybdenum	25.850	0.50	10.00	13.40	124	80	120				S
Selenium	12.235	0.50	10.00	0.5160	117	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035761
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N035761-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID:	**ZZZZZZ**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.719	1.0	10.00	0	97.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

July 01, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035779

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 24, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

ASSET Laboratories **Date:** *01-Jul-19*

CLIENT:	ARCADIS U.S., Inc. - California
Project:	PG&E Topock - GMP, RC000753.801D
Lab Order:	N035779

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for sample N035779-006 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

ASSET Laboratories

Date: *01-Jul-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035779
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035779-001A	TW-01-Q219	Groundwater	5/24/2019 8:50:00 AM	5/24/2019	7/1/2019
N035779-001B	TW-01-Q219	Groundwater	5/24/2019 8:50:00 AM	5/24/2019	7/1/2019
N035779-001C	TW-01-Q219	Groundwater	5/24/2019 8:50:00 AM	5/24/2019	7/1/2019
N035779-001D	TW-01-Q219	Groundwater	5/24/2019 8:50:00 AM	5/24/2019	7/1/2019
N035779-002A	MW-20-070-Q219	Groundwater	5/24/2019 8:52:00 AM	5/24/2019	7/1/2019
N035779-002B	MW-20-070-Q219	Groundwater	5/24/2019 8:52:00 AM	5/24/2019	7/1/2019
N035779-002C	MW-20-070-Q219	Groundwater	5/24/2019 8:52:00 AM	5/24/2019	7/1/2019
N035779-002D	MW-20-070-Q219	Groundwater	5/24/2019 8:52:00 AM	5/24/2019	7/1/2019
N035779-003A	MW-20-100-Q219	Groundwater	5/24/2019 8:14:00 AM	5/24/2019	7/1/2019
N035779-003B	MW-20-100-Q219	Groundwater	5/24/2019 8:14:00 AM	5/24/2019	7/1/2019
N035779-003C	MW-20-100-Q219	Groundwater	5/24/2019 8:14:00 AM	5/24/2019	7/1/2019
N035779-003D	MW-20-100-Q219	Groundwater	5/24/2019 8:14:00 AM	5/24/2019	7/1/2019
N035779-004A	MW-20-130-Q219	Groundwater	5/24/2019 9:32:00 AM	5/24/2019	7/1/2019
N035779-004B	MW-20-130-Q219	Groundwater	5/24/2019 9:32:00 AM	5/24/2019	7/1/2019
N035779-004C	MW-20-130-Q219	Groundwater	5/24/2019 9:32:00 AM	5/24/2019	7/1/2019
N035779-004D	MW-20-130-Q219	Groundwater	5/24/2019 9:32:00 AM	5/24/2019	7/1/2019
N035779-005A	MW-902-Q219	Groundwater	5/24/2019 9:42:00 AM	5/24/2019	7/1/2019
N035779-005B	MW-902-Q219	Groundwater	5/24/2019 9:42:00 AM	5/24/2019	7/1/2019
N035779-005C	MW-902-Q219	Groundwater	5/24/2019 9:42:00 AM	5/24/2019	7/1/2019
N035779-005D	MW-902-Q219	Groundwater	5/24/2019 9:42:00 AM	5/24/2019	7/1/2019
N035779-006A	MW-72-080-Q219	Groundwater	5/24/2019 8:28:00 AM	5/24/2019	7/1/2019
N035779-006B	MW-72-080-Q219	Groundwater	5/24/2019 8:28:00 AM	5/24/2019	7/1/2019
N035779-006C	MW-72-080-Q219	Groundwater	5/24/2019 8:28:00 AM	5/24/2019	7/1/2019
N035779-006D	MW-72-080-Q219	Groundwater	5/24/2019 8:28:00 AM	5/24/2019	7/1/2019
N035779-007A	MW-35-060-Q219	Groundwater	5/24/2019 9:43:00 AM	5/24/2019	7/1/2019
N035779-007B	MW-35-060-Q219	Groundwater	5/24/2019 9:43:00 AM	5/24/2019	7/1/2019
N035779-007C	MW-35-060-Q219	Groundwater	5/24/2019 9:43:00 AM	5/24/2019	7/1/2019
N035779-007D	MW-35-060-Q219	Groundwater	5/24/2019 9:43:00 AM	5/24/2019	7/1/2019
N035779-008A	MW-35-135-Q219	Groundwater	5/24/2019 10:31:00 AM	5/24/2019	7/1/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035779
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035779-008B	MW-35-135-Q219	Groundwater	5/24/2019 10:31:00 AM	5/24/2019	7/1/2019
N035779-008C	MW-35-135-Q219	Groundwater	5/24/2019 10:31:00 AM	5/24/2019	7/1/2019
N035779-008D	MW-35-135-Q219	Groundwater	5/24/2019 10:31:00 AM	5/24/2019	7/1/2019
N035779-009A	MW-726-Q219	Groundwater	5/24/2019 9:50:00 AM	5/24/2019	7/1/2019
N035779-010A	MW-727-Q219	Groundwater	5/24/2019 10:50:00 AM	5/24/2019	7/1/2019

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *01-Jul-19*

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-01-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-070-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:52:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	1800	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-100-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *01-Jul-19*

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-130-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *01-Jul-19*

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:42:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-060-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:43:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	4600	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-135-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 10:31:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	9200	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N035779-005DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **134169**
Client ID: **ZZZZZZ** Batch ID: **R134169** TestNo: **EPA 120.1** Analysis Date: **5/24/2019** SeqNo: **3397592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10230.000	0.10						10220	0.0978	2	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-01-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	2300	17	100		µg/L	500	5/28/2019 10:21 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	2400	3.2	25		µg/L	25	6/16/2019 12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-070-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:52:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	1700	6.6	40		µg/L	200	5/28/2019 10:32 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	1800	3.2	25		µg/L	25	6/16/2019 12:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-100-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	1300	6.6	40		µg/L	200	5/28/2019 10:41 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	1500	1.3	10		µg/L	10	6/16/2019 12:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-130-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	5900	33	200		µg/L	1000	5/28/2019 10:51 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	6800	6.5	50		µg/L	50	6/16/2019 01:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:42:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	6000	33	200		µg/L	1000	5/28/2019 11:00 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	6800	6.5	50		µg/L	50	6/16/2019 01:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A** QC Batch: **R134183**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	55	0.33	2.0		µg/L	10	5/28/2019 11:10 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190616A** QC Batch: **74195**				PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	51	0.13	1.0		µg/L	1	6/16/2019 01:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-060-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:43:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A** QC Batch: **R134183**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	24	0.17	1.0		µg/L	5	5/28/2019 11:19 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190616A** QC Batch: **74195**				PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	22	0.13	1.0		µg/L	1	6/16/2019 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-135-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 10:31:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A** QC Batch: **R134183**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	28	0.17	1.0		µg/L	5	5/28/2019 11:29 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190616A** QC Batch: **74195**				PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	24	0.13	1.0		µg/L	1	6/16/2019 01:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-726-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/28/2019 01:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-727-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 10:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/28/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R134183**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **PBW**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398059**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R134183**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **LCSW**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398060**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.104	0.20	5.000	0	102	90	110				

Sample ID **N035779-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398071**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2327.800	100						2308	0.841	20	

Sample ID **N035779-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398072**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2718.580	40	1000	1716	100	90	110				

Sample ID **N035779-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398073**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2317.540	40	1000	1305	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N035779-004AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398074

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11078.300	200	5000	5930	103	90	110				

Sample ID	N035779-005AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398075

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11090.800	200	5000	5993	102	90	110				

Sample ID	N035779-006AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398076

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	105.708	2.0	50.00	55.09	101	90	110				

Sample ID	N035779-007AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398077

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	49.362	1.0	25.00	23.78	102	90	110				

Sample ID	N035779-008AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398078

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	53.830	1.0	25.00	28.46	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N035779-004AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398079

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11053.300	200	5000	5930	102	90	110	11080	0.226	20	

Sample ID	N035779-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398080

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4848.450	100	2500	2308	102	90	110				

Sample ID	N035779-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398084

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.999	0.20	1.000	0	99.9	90	110				

Sample ID	N035779-010AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398086

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.031	0.20	1.000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-74195	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	PBW	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413602

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-74195	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	LCSW	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413603

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.347	1.0	10.00	0	103	85	115				

Sample ID	N035761-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413609

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.441	1.0	10.00	0	84.4	75	125				

Sample ID	N035761-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413613

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.470	1.0	10.00	0	84.7	75	125	8.441	0.345	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-01-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E** QC Batch: **R134369** PrepDate: Analyst: **QBM**							
Nitrate/Nitrite as N	15	0.63	1.0		mg/L	20	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-070-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:52:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate:				Analyst: **QBM**
Nitrate/Nitrite as N	8.7	0.32	0.50		mg/L	10	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-100-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	7.9	0.32	0.50		mg/L	10	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-130-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E** QC Batch: **R134369** PrepDate: Analyst: **QBM**							
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:42:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E** QC Batch: **R134369** PrepDate: Analyst: **QBM**							
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-060-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:43:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**		PrepDate:				Analyst: **QBM**
Nitrate/Nitrite as N	2.0	0.16	0.25		mg/L	5	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-135-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 10:31:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	2.4	0.16	0.25		mg/L	5	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134369	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	PBW	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402975		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050											

Sample ID	LCS-R134369	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	LCSW	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402976		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	0.466	0.050	0.5000	0	93.2	85	115						

Sample ID	N035761-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402980		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	ND	0.050						0	0	20			

Sample ID	N035761-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402982		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	5.853	0.25	2.500	3.263	104	75	125						

Sample ID	N035761-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369		
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402983		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Nitrate/Nitrite as N	5.942	0.25	2.500	3.263	107	75	125	5.853	1.52	20			

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-01-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**				PrepDate:	**6/13/2019**	Analyst: **CEI**
Molybdenum	15	0.21	0.50		µg/L	1	6/16/2019 11:50 AM
Selenium	14	0.36	0.50		µg/L	1	6/16/2019 11:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-070-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:52:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate:		**6/13/2019**	Analyst: **CEI**
Molybdenum	35	0.21	0.50		µg/L	1	6/16/2019 12:05 PM
Selenium	7.1	0.36	0.50		µg/L	1	6/16/2019 12:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-100-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate:		**6/13/2019**	Analyst: **CEI**
Molybdenum	3.7	0.21	0.50		µg/L	1	6/16/2019 12:20 PM
Selenium	6.0	0.36	0.50		µg/L	1	6/16/2019 12:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-130-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Arsenic	4.6	0.081	0.10		µg/L	1	6/16/2019 12:56 PM
Manganese	1.7	0.26	0.50		µg/L	1	6/16/2019 12:56 PM
Molybdenum	42	0.21	0.50		µg/L	1	6/16/2019 12:56 PM
Selenium	34	0.36	0.50		µg/L	1	6/16/2019 12:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:42:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Arsenic	4.5	0.081	0.10		µg/L	1	6/16/2019 01:11 PM
Manganese	2.2	0.26	0.50		µg/L	1	6/16/2019 01:11 PM
Molybdenum	40	0.21	0.50		µg/L	1	6/16/2019 01:11 PM
Selenium	36	0.36	0.50		µg/L	1	6/16/2019 01:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Arsenic	10	0.081	0.10		µg/L	1	6/16/2019 01:26 PM
Manganese	77	0.26	0.50		µg/L	1	6/16/2019 01:26 PM
Molybdenum	85	0.21	0.50		µg/L	1	6/16/2019 01:26 PM
Selenium	ND	1.8	2.5		µg/L	5	6/16/2019 01:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-060-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:43:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	6/16/2019 01:36 PM
Manganese	ND	0.26	0.50		µg/L	1	6/16/2019 01:36 PM
Molybdenum	11	0.21	0.50		µg/L	1	6/16/2019 01:36 PM
Selenium	1.5	0.36	0.50		µg/L	1	6/17/2019 08:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-135-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 10:31:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Arsenic	0.82	0.081	0.10		µg/L	1	6/16/2019 01:56 PM
Manganese	1.3	0.26	0.50		µg/L	1	6/16/2019 01:56 PM
Molybdenum	19	0.21	0.50		µg/L	1	6/16/2019 01:56 PM
Selenium	1.3	0.36	0.50		µg/L	1	6/19/2019 02:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-74195	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134542
Client ID:	PBW	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413739

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	LCS-74195	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134542
Client ID:	LCSW	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413740

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.416	0.10	10.00	0	104	85	115				
Manganese	106.811	0.50	100.0	0	107	85	115				
Molybdenum	10.202	0.50	10.00	0	102	85	115				
Selenium	10.225	0.50	10.00	0	102	85	115				

Sample ID	N035761-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134542
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413746

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.498	0.10	10.00	1.185	113	75	125				
Manganese	106.868	0.50	100.0	18.02	88.8	75	125				
Molybdenum	25.063	0.50	10.00	13.40	117	75	125				
Selenium	11.825	0.50	10.00	0.5160	113	75	125				

Sample ID	N035761-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134542
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413750

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.268	0.10	10.00	1.185	111	75	125	12.50	1.86	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	**N035761-001B-MSD**	SampType:	**MSD**	TestCode:	**6020_DIS**	Units:	**µg/L**	Prep Date:	**6/13/2019**	RunNo:	**134542**
Client ID:	**ZZZZZZ**	Batch ID:	**74195**	TestNo:	**EPA 6020**	**EPA 3010A**		Analysis Date:	**6/16/2019**	SeqNo:	**3413750**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.461	0.50	100.0	18.02	89.4	75	125	106.9	0.553	20	
Molybdenum	24.903	0.50	10.00	13.40	115	75	125	25.06	0.642	20	
Selenium	12.248	0.50	10.00	0.5160	117	75	125	11.82	3.51	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-74311	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	PBW	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419555

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	LCS-74311	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	LCSW	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	8.916	0.50	10.00	0	89.2	85	115				

Sample ID	N035705-005B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	ZZZZZZ	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419560

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.544	0.50	10.00	0.5232	100	75	125				

Sample ID	N035705-005B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	ZZZZZZ	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419561

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.442	0.50	10.00	0.5232	109	75	125	10.54	8.17	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓ (Specify: RWQCB); Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#: SWA-ASSET-C9817-051	
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200 Fax:	
Title: Scientist 1	Phone: 916-786-3302 Fax:		

Signature: Date: 5/24/19
I hereby authorize ASSET Labs to perform the tests indicated below.

Sampled By: Nara Tay
I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for
Signature: Date: 5/24/2019

Project Name: PG&E Topock - GMP
Project Number: RC000753.801D

Matrix: Ground x; Potable; NPDES; Surface; Sediment; Soil; Other Solid

Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: ICE; Sample Temp: 4.1 / 3.7

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (6020AFF) Arsenic; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved Metals (SW6020A) FF Manganese; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Molybdenum; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Selenium; HNO3 (125 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, Iron (EPA 200.7); HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035779 - 01	TW-01-Q219	5/24/2019	8:50		X			X		X	X	X		X						E	4	P	BNS	
2	- 02	MW-20-070-Q219	5/24/2019	8:52		X			X		X	X	X		X						E	4	P	BNS	
3	- 03	MW-20-100-Q219	5/24/2019	8:14		X			X		X	X	X		X						E	4	P	BNS	
4	- 04	MW-20-130-Q219	5/24/2019	9:32		X		X	X	X	X	X	X		X						E	4	P	BNS	
5	- 05	MW-902-Q219	5/24/2019	9:42		X		X	X	X	X	X	X		X						E	4	P	BNS	
6	- 06	MW-72-080-Q219	5/24/2019	8:28		X		X	X	X	X	X	X		X						E	4	P	BNS	
7	- 07	MW-35-060-Q219	5/24/2019	9:43		X		X	X	X	X	X	X		X						E	4	P	BNS	
8	- 08	MW-35-135-Q219	5/24/2019	10:31		X		X	X	X	X	X	X		X						E	4	P	BNS	
9	- 09	MW-726-Q219	5/24/2019	9:50		X															E	1	P	B	
10	- 10	MW-727-Q219	5/24/2019	10:50		X															E	1	P	B	

Reliquished by (Signature and Printed Name): Nara Tay Date/Time: 5/24/19 1126
Reliquished by (Signature and Printed Name): Joe Gatel Date/Time: 5/24/19 1126
Reliquished by (Signature and Printed Name): Date/Time:
Reliquished by (Signature and Printed Name): Joe Gatel 5/24/19 1139 Date/Time:
Reliquished by (Signature and Printed Name): Joe Gatel / Joe DAN / GE Date/Time: 5-24-19 1139

Turn Around Time (TAT)
- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms:
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

Joe DAN GE 5-24-19 1413
LM 5/24/19 1418

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/24/2019	Workorder:	N035779
Rep sample Temp (Deg C):	4.1/3.7	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For:

Checklist Completed By: RM YRJ 5/28/2019

Reviewed By: LG 060419

ASSET Laboratories

WORK ORDER Summary

30-May-19

WorkOrder: N035779

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035779-001A	TW-01-Q219	5/24/2019 8:50:00 AM	6/10/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-001B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-001C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-001D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-002A	MW-20-070-Q219	5/24/2019 8:52:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-002B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-002C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-002D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-003A	MW-20-100-Q219	5/24/2019 8:14:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-003B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-003C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-003D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-004A	MW-20-130-Q219	5/24/2019 9:32:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-004B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-May-19

WorkOrder: N035779

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035779-004B	MW-20-130-Q219	5/24/2019 9:32:00 AM	6/10/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-004C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-004D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-005A	MW-902-Q219	5/24/2019 9:42:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-005B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-005C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-005D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-006A	MW-72-080-Q219	5/24/2019 8:28:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-006B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-006C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-006D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-007A	MW-35-060-Q219	5/24/2019 9:43:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-007B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-007C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-007D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-May-19

WorkOrder: N035779

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035779-008A	MW-35-135-Q219	5/24/2019 10:31:00 AM	6/10/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-008B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-008C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-008D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-009A	MW-726-Q219	5/24/2019 9:50:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-010A	MW-727-Q219	5/24/2019 10:50:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-011A	FOLDER	6/10/2019	6/10/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/10/2019		Folder	Folder	☐	☐	☐	LAB
			6/10/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - GMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035779

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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July 01, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035779

RE: PG&E Topock - GMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on May 24, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburcaw for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035779

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time.

Analytical Comments for EPA 6020_Dissolved:

Dilution was necessary on some analytes for sample N035779-006 due to associated internal standard not meeting method criteria possibly due to matrix interference. Sample was analyzed with dilution and internal standard met method criteria. Affected analytes for this failed internal standard were reported at dilution that meet internal standard recovery limit.

ASSET Laboratories

Date: *01-Jul-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035779
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035779-001A	TW-01-Q219	Groundwater	5/24/2019 8:50:00 AM	5/24/2019	7/1/2019
N035779-001B	TW-01-Q219	Groundwater	5/24/2019 8:50:00 AM	5/24/2019	7/1/2019
N035779-001C	TW-01-Q219	Groundwater	5/24/2019 8:50:00 AM	5/24/2019	7/1/2019
N035779-001D	TW-01-Q219	Groundwater	5/24/2019 8:50:00 AM	5/24/2019	7/1/2019
N035779-002A	MW-20-070-Q219	Groundwater	5/24/2019 8:52:00 AM	5/24/2019	7/1/2019
N035779-002B	MW-20-070-Q219	Groundwater	5/24/2019 8:52:00 AM	5/24/2019	7/1/2019
N035779-002C	MW-20-070-Q219	Groundwater	5/24/2019 8:52:00 AM	5/24/2019	7/1/2019
N035779-002D	MW-20-070-Q219	Groundwater	5/24/2019 8:52:00 AM	5/24/2019	7/1/2019
N035779-003A	MW-20-100-Q219	Groundwater	5/24/2019 8:14:00 AM	5/24/2019	7/1/2019
N035779-003B	MW-20-100-Q219	Groundwater	5/24/2019 8:14:00 AM	5/24/2019	7/1/2019
N035779-003C	MW-20-100-Q219	Groundwater	5/24/2019 8:14:00 AM	5/24/2019	7/1/2019
N035779-003D	MW-20-100-Q219	Groundwater	5/24/2019 8:14:00 AM	5/24/2019	7/1/2019
N035779-004A	MW-20-130-Q219	Groundwater	5/24/2019 9:32:00 AM	5/24/2019	7/1/2019
N035779-004B	MW-20-130-Q219	Groundwater	5/24/2019 9:32:00 AM	5/24/2019	7/1/2019
N035779-004C	MW-20-130-Q219	Groundwater	5/24/2019 9:32:00 AM	5/24/2019	7/1/2019
N035779-004D	MW-20-130-Q219	Groundwater	5/24/2019 9:32:00 AM	5/24/2019	7/1/2019
N035779-005A	MW-902-Q219	Groundwater	5/24/2019 9:42:00 AM	5/24/2019	7/1/2019
N035779-005B	MW-902-Q219	Groundwater	5/24/2019 9:42:00 AM	5/24/2019	7/1/2019
N035779-005C	MW-902-Q219	Groundwater	5/24/2019 9:42:00 AM	5/24/2019	7/1/2019
N035779-005D	MW-902-Q219	Groundwater	5/24/2019 9:42:00 AM	5/24/2019	7/1/2019
N035779-006A	MW-72-080-Q219	Groundwater	5/24/2019 8:28:00 AM	5/24/2019	7/1/2019
N035779-006B	MW-72-080-Q219	Groundwater	5/24/2019 8:28:00 AM	5/24/2019	7/1/2019
N035779-006C	MW-72-080-Q219	Groundwater	5/24/2019 8:28:00 AM	5/24/2019	7/1/2019
N035779-006D	MW-72-080-Q219	Groundwater	5/24/2019 8:28:00 AM	5/24/2019	7/1/2019
N035779-007A	MW-35-060-Q219	Groundwater	5/24/2019 9:43:00 AM	5/24/2019	7/1/2019
N035779-007B	MW-35-060-Q219	Groundwater	5/24/2019 9:43:00 AM	5/24/2019	7/1/2019
N035779-007C	MW-35-060-Q219	Groundwater	5/24/2019 9:43:00 AM	5/24/2019	7/1/2019
N035779-007D	MW-35-060-Q219	Groundwater	5/24/2019 9:43:00 AM	5/24/2019	7/1/2019
N035779-008A	MW-35-135-Q219	Groundwater	5/24/2019 10:31:00 AM	5/24/2019	7/1/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - GMP, RC000753.801D
Lab Order: N035779
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035779-008B	MW-35-135-Q219	Groundwater	5/24/2019 10:31:00 AM	5/24/2019	7/1/2019
N035779-008C	MW-35-135-Q219	Groundwater	5/24/2019 10:31:00 AM	5/24/2019	7/1/2019
N035779-008D	MW-35-135-Q219	Groundwater	5/24/2019 10:31:00 AM	5/24/2019	7/1/2019
N035779-009A	MW-726-Q219	Groundwater	5/24/2019 9:50:00 AM	5/24/2019	7/1/2019
N035779-010A	MW-727-Q219	Groundwater	5/24/2019 10:50:00 AM	5/24/2019	7/1/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-01-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
EPA 120.1							
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	7000	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-070-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:52:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	1800	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-100-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	2200	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-130-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:42:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	10000	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	13000	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

ASSET Laboratories

ANALYTICAL RESULTS

Print Date: *01-Jul-19*

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-060-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:43:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	4600	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-135-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 10:31:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190524F**	QC Batch: **R134169**			PrepDate:			Analyst: **LR**
Specific Conductance	9200	0.10	0.10		umhos/cm	1	5/24/2019 03:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N035779-005DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **134169**
Client ID: **ZZZZZZ** Batch ID: **R134169** TestNo: **EPA 120.1** Analysis Date: **5/24/2019** SeqNo: **3397592**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	10230.000	0.10						10220	0.0978	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035779
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035779-001

Client Sample ID: TW-01-Q219
Collection Date: 5/24/2019 8:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	2300	17	100		µg/L	500	5/28/2019 10:21 AM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	2400	3.2	25		µg/L	25	6/16/2019 12:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-070-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:52:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	1700	6.6	40		µg/L	200	5/28/2019 10:32 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	1800	3.2	25		µg/L	25	6/16/2019 12:15 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-100-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	1300	6.6	40		µg/L	200	5/28/2019 10:41 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	1500	1.3	10		µg/L	10	6/16/2019 12:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-130-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	5900	33	200		µg/L	1000	5/28/2019 10:51 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	6800	6.5	50		µg/L	50	6/16/2019 01:06 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035779
Project: PG&E Topock - GMP, RC000753.801D
Lab ID: N035779-005

Client Sample ID: MW-902-Q219
Collection Date: 5/24/2019 9:42:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	6000	33	200		µg/L	1000	5/28/2019 11:00 AM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616A**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	6800	6.5	50		µg/L	50	6/16/2019 01:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A** QC Batch: **R134183**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	55	0.33	2.0		µg/L	10	5/28/2019 11:10 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190616A** QC Batch: **74195**				PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	51	0.13	1.0		µg/L	1	6/16/2019 01:26 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-060-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:43:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A** QC Batch: **R134183**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	24	0.17	1.0		µg/L	5	5/28/2019 11:19 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190616A** QC Batch: **74195**				PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	22	0.13	1.0		µg/L	1	6/16/2019 01:36 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-135-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 10:31:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190528A** QC Batch: **R134183**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	28	0.17	1.0		µg/L	5	5/28/2019 11:29 AM
DISSOLVED METALS BY ICP-MS							
			EPA 3010A		**EPA 6020**		
RunID: **NV00922-ICP7_190616A** QC Batch: **74195**				PrepDate:	**6/13/2019**		Analyst: **CEI**
Chromium	24	0.13	1.0		µg/L	1	6/16/2019 01:56 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-726-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/28/2019 01:51 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-727-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 10:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
EPA 218.6							
RunID: **NV00922-IC7_190528A**	QC Batch: **R134183**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	5/28/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R134183	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	PBW	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398059

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID	LCS-R134183	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	LCSW	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398060

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.104	0.20	5.000	0	102	90	110				

Sample ID	N035779-001ADUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398071

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2327.800	100						2308	0.841	20	

Sample ID	N035779-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398072

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2718.580	40	1000	1716	100	90	110				

Sample ID	N035779-003AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398073

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2317.540	40	1000	1305	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035779-004AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398074**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11078.300	200	5000	5930	103	90	110				

Sample ID **N035779-005AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398075**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11090.800	200	5000	5993	102	90	110				

Sample ID **N035779-006AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398076**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	105.708	2.0	50.00	55.09	101	90	110				

Sample ID **N035779-007AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398077**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	49.362	1.0	25.00	23.78	102	90	110				

Sample ID **N035779-008AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398078**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	53.830	1.0	25.00	28.46	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N035779-004AMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398079

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	11053.300	200	5000	5930	102	90	110	11080	0.226	20	

Sample ID	N035779-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398080

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4848.450	100	2500	2308	102	90	110				

Sample ID	N035779-009AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398084

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.999	0.20	1.000	0	99.9	90	110				

Sample ID	N035779-010AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134183
Client ID:	ZZZZZZ	Batch ID:	R134183	TestNo:	EPA 218.6			Analysis Date:	5/28/2019	SeqNo:	3398086

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.031	0.20	1.000	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	MB-74195	SampType:	MBLK	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	PBW	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413602

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	LCS-74195	SampType:	LCS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	LCSW	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413603

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.347	1.0	10.00	0	103	85	115				

Sample ID	N035761-001B-MS	SampType:	MS	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413609

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.441	1.0	10.00	0	84.4	75	125				

Sample ID	N035761-001B-MSD	SampType:	MSD	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134541
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413613

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	8.470	1.0	10.00	0	84.7	75	125	8.441	0.345	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-01-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	15	0.63	1.0		mg/L	20	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-070-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:52:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	8.7	0.32	0.50		mg/L	10	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-100-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	7.9	0.32	0.50		mg/L	10	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-130-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:42:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	11	0.63	1.0		mg/L	20	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-060-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:43:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	2.0	0.16	0.25		mg/L	5	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-135-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 10:31:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190606E**	QC Batch: **R134369**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	2.4	0.16	0.25		mg/L	5	6/6/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134369	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369
Client ID:	PBW	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402975

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R134369	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369
Client ID:	LCSW	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402976

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.466	0.050	0.5000	0	93.2	85	115				

Sample ID	N035761-002CDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402980

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050						0	0	20	

Sample ID	N035761-003CMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402982

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.853	0.25	2.500	3.263	104	75	125				

Sample ID	N035761-003CMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134369
Client ID:	ZZZZZZ	Batch ID:	R134369	TestNo:	SM4500-NO3			Analysis Date:	6/6/2019	SeqNo:	3402983

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.942	0.25	2.500	3.263	107	75	125	5.853	1.52	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-01-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:50:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**				PrepDate:	**6/13/2019**	Analyst: **CEI**
Molybdenum	15	0.21	0.50		µg/L	1	6/16/2019 11:50 AM
Selenium	14	0.36	0.50		µg/L	1	6/16/2019 11:50 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-070-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:52:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**				PrepDate:	**6/13/2019**	Analyst: **CEI**
Molybdenum	35	0.21	0.50		µg/L	1	6/16/2019 12:05 PM
Selenium	7.1	0.36	0.50		µg/L	1	6/16/2019 12:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-100-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:14:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**				PrepDate:	**6/13/2019**	Analyst: **CEI**
Molybdenum	3.7	0.21	0.50		µg/L	1	6/16/2019 12:20 PM
Selenium	6.0	0.36	0.50		µg/L	1	6/16/2019 12:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-20-130-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:32:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**				PrepDate:	**6/13/2019**	Analyst: **CEI**
Arsenic	4.6	0.081	0.10		µg/L	1	6/16/2019 12:56 PM
Manganese	1.7	0.26	0.50		µg/L	1	6/16/2019 12:56 PM
Molybdenum	42	0.21	0.50		µg/L	1	6/16/2019 12:56 PM
Selenium	34	0.36	0.50		µg/L	1	6/16/2019 12:56 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-902-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:42:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**			PrepDate:	**6/13/2019**		Analyst: **CEI**
Arsenic	4.5	0.081	0.10		µg/L	1	6/16/2019 01:11 PM
Manganese	2.2	0.26	0.50		µg/L	1	6/16/2019 01:11 PM
Molybdenum	40	0.21	0.50		µg/L	1	6/16/2019 01:11 PM
Selenium	36	0.36	0.50		µg/L	1	6/16/2019 01:11 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-72-080-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 8:28:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**				PrepDate:	**6/13/2019**	Analyst: **CEI**
Arsenic	10	0.081	0.10		µg/L	1	6/16/2019 01:26 PM
Manganese	77	0.26	0.50		µg/L	1	6/16/2019 01:26 PM
Molybdenum	85	0.21	0.50		µg/L	1	6/16/2019 01:26 PM
Selenium	ND	1.8	2.5		µg/L	5	6/16/2019 01:31 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-060-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 9:43:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**				PrepDate:	**6/13/2019**	Analyst: **CEI**
Arsenic	1.3	0.081	0.10		µg/L	1	6/16/2019 01:36 PM
Manganese	ND	0.26	0.50		µg/L	1	6/16/2019 01:36 PM
Molybdenum	11	0.21	0.50		µg/L	1	6/16/2019 01:36 PM
Selenium	1.5	0.36	0.50		µg/L	1	6/17/2019 08:38 PM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-35-135-Q219
Lab Order:	N035779	**Collection Date:**	5/24/2019 10:31:00 AM
Project:	PG&E Topock - GMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035779-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190616B**	QC Batch: **74195**				PrepDate:	**6/13/2019**	Analyst: **CEI**
Arsenic	0.82	0.081	0.10		µg/L	1	6/16/2019 01:56 PM
Manganese	1.3	0.26	0.50		µg/L	1	6/16/2019 01:56 PM
Molybdenum	19	0.21	0.50		µg/L	1	6/16/2019 01:56 PM
Selenium	1.3	0.36	0.50		µg/L	1	6/19/2019 02:27 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-74195	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134542
Client ID:	PBW	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413739

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	LCS-74195	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134542
Client ID:	LCSW	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413740

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.416	0.10	10.00	0	104	85	115				
Manganese	106.811	0.50	100.0	0	107	85	115				
Molybdenum	10.202	0.50	10.00	0	102	85	115				
Selenium	10.225	0.50	10.00	0	102	85	115				

Sample ID	N035761-001B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134542
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413746

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.498	0.10	10.00	1.185	113	75	125				
Manganese	106.868	0.50	100.0	18.02	88.8	75	125				
Molybdenum	25.063	0.50	10.00	13.40	117	75	125				
Selenium	11.825	0.50	10.00	0.5160	113	75	125				

Sample ID	N035761-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134542
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413750

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.268	0.10	10.00	1.185	111	75	125	12.50	1.86	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N035761-001B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134542
Client ID:	ZZZZZZ	Batch ID:	74195	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/16/2019	SeqNo:	3413750

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	107.461	0.50	100.0	18.02	89.4	75	125	106.9	0.553	20	
Molybdenum	24.903	0.50	10.00	13.40	115	75	125	25.06	0.642	20	
Selenium	12.248	0.50	10.00	0.5160	117	75	125	11.82	3.51	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	MB-74311	SampType:	MBLK	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	PBW	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419555

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID	LCS-74311	SampType:	LCS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	LCSW	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419556

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	8.916	0.50	10.00	0	89.2	85	115				

Sample ID	N035705-005B-MS	SampType:	MS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	ZZZZZZ	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419560

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.544	0.50	10.00	0.5232	100	75	125				

Sample ID	N035705-005B-MSD	SampType:	MSD	TestCode:	6020_DIS	Units:	µg/L	Prep Date:	6/22/2019	RunNo:	134703
Client ID:	ZZZZZZ	Batch ID:	74311	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	6/24/2019	SeqNo:	3419561

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	11.442	0.50	10.00	0.5232	109	75	125	10.54	8.17	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Geotracker	RWQCB ✓	1. Chilled ✓
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.# SWA-ASSET-C9817-051	Labspec	CalTrans	2. Headspace
Submitted By: Joe Gatel		Phone: 949-727-1400, ext 200 Fax:	Others ✓	LEVEL III	3. Container Intact ✓
Title: Scientist 1	Phone: 916-786-3302 Fax:		Specify: RWQCB	LEVEL IV	4. Seal Present ✓
Signature: Date: 5/24/19	Sampled By: Nara Tay		Global ID:	Regulatory	5. IR number 2
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*			Specify State:	6. Method of Cooling: ICE
Project Name: PG&E Topock - GMP	Signature: Date: 5/24/2019				Sample Temp: 4.1 / 3.7
Project Number: RC000753.801D					Courier:
					Tracking No.:

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (2x250 mL poly)	Dissolved Metals (6020AFF) Arsenic; HNO3 (500 mL poly)	Metals Dissolved (6020AFF) Cr; HNO3 (500 mL poly)	Dissolved Metals (SW6020A) FF Manganese; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Molybdenum; HNO3 (500 mL poly)	Dissolved metals (SW6020A) FF Selenium; HNO3 (125 mL poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Bromide, Sulfate, Chloride (EPA 300.0) (1 liter poly)	Specific Conductance (EPA 120.1) (1 liter poly)	Total Dissolved Solids (SM92540) (1 liter poly)	Alkalinity, Total as CaCO3 (SM2320B) (1 liter poly)	pH (SM4500-HB) (1 liter poly)	Dissolved metals, Calcium, Magnesium, sodium, Iron (EPA 200.7); HNO3 (500 mL poly)	Total Organic Carbon (SM5310C); H2SO4 (3x40 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035779 - 01	TW-01-Q219	5/24/2019	8:50		X			X		X	X	X		X					E	4	P	BNS
2	- 02	MW-20-070-Q219	5/24/2019	8:52		X			X		X	X	X		X					E	4	P	BNS
3	- 03	MW-20-100-Q219	5/24/2019	8:14		X			X		X	X	X		X					E	4	P	BNS
4	- 04	MW-20-130-Q219	5/24/2019	9:32		X		X	X	X	X	X	X		X					E	4	P	BNS
5	- 05	MW-902-Q219	5/24/2019	9:42		X		X	X	X	X	X	X		X					E	4	P	BNS
6	- 06	MW-72-080-Q219	5/24/2019	8:28		X		X	X	X	X	X	X		X					E	4	P	BNS
7	- 07	MW-35-060-Q219	5/24/2019	9:43		X		X	X	X	X	X	X		X					E	4	P	BNS
8	- 08	MW-35-135-Q219	5/24/2019	10:31		X		X	X	X	X	X	X		X					E	4	P	BNS
9	- 09	MW-726-Q219	5/24/2019	9:50		X														E	1	P	B
10	- 10	MW-727-Q219	5/24/2019	10:50		X														E	1	P	B

Reliquished by (Signature and Printed Name): Nara Tay Date/Time: 5/24/19 1126
Reliquished by (Signature and Printed Name): Joe Gatel Date/Time: 5/24/19 1126
Reliquished by (Signature and Printed Name): Date/Time:
Reliquished by (Signature and Printed Name): Joe Gatel 5/24/19 1139
Reliquished by (Signature and Printed Name): Date/Time: 5-24-19 1139

Turn Around Time (TAT)
- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [X] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Title 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms:
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Duplicates and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

5-24-19 1413
5/24/19 1413

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	5/24/2019	Workorder:	N035779
Rep sample Temp (Deg C):	4.1/3.7	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

For:

Checklist Completed By: RM YRJ 5/28/2019

Reviewed By: LG 060419

ASSET Laboratories

WORK ORDER Summary

30-May-19

WorkOrder: N035779

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035779-001A	TW-01-Q219	5/24/2019 8:50:00 AM	6/10/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-001B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-001C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-001D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-002A	MW-20-070-Q219	5/24/2019 8:52:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-002B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-002C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-002D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-003A	MW-20-100-Q219	5/24/2019 8:14:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-003B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-003C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-003D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-004A	MW-20-130-Q219	5/24/2019 9:32:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-004B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

30-May-19

WorkOrder: N035779

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035779-004B	MW-20-130-Q219	5/24/2019 9:32:00 AM	6/10/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-004C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-004D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-005A	MW-902-Q219	5/24/2019 9:42:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-005B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-005C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-005D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-006A	MW-72-080-Q219	5/24/2019 8:28:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-006B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-006C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-006D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-007A	MW-35-060-Q219	5/24/2019 9:43:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-007B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-007C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-007D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

30-May-19

WorkOrder: N035779

Client ID: ARCUS02

Project: PG&E Topock - GMP, RC000753.801D **QC Level:** Level IV **Date Received:** 5/24/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035779-008A	MW-35-135-Q219	5/24/2019 10:31:00 AM	6/10/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-008B			6/10/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			6/10/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035779-008C			6/10/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035779-008D			6/10/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
N035779-009A	MW-726-Q219	5/24/2019 9:50:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-010A	MW-727-Q219	5/24/2019 10:50:00 AM	6/10/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035779-011A	FOLDER	6/10/2019	6/10/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/10/2019		Folder	Folder	☐	☐	☐	LAB
			6/10/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N035779

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6020_Dissolved
Lilia Ramit	EPA 120.1
Ria Abes	EPA 218.6

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134169 **Analyst:** LSR

ASSET #: N035779 **Date Analyzed:** 24-May

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 5/30/2019

2nd Level Reviewer: Mary 6/19/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 5/24/19 1110

Analyst: LSR CONT'D

Standard	Std ID	Reading	Comments
9.84 mS/cm	CIW-181121A	9.71 @ 20.5C	% Rec: (90-110%)
1411	190425C	1419 @ 20.5C	
9965	190218B	9940 @ 20.3C	
100390	190218C	100200 @ 20.4C	

	Sample ID	Matrix	Reading	Comments
1	N035755-1A	H2O	4290 @ 19.5C	
2	1ADUP		4330 @ 19.2C	
3	2A		4380 @ 19.3C	
4				
5				
6				
7				
8	1413 mS/cm	CIW-190313A	1450 @ 19.5°C	
9	10000	B	10070 @ 20.1C	
10	99922	CIW-190111H	100600 @ 20.2C	
Dup				RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 5/24/19 1550

Analyst: LSR

Julia Ramit 5/30/2019

Standard	Std ID	Reading	Comments
9.84 mS/cm	CIW-181121A	9.71 @ 20.5C	% Rec: (90-110%)
1411	190425C	1419 @ 20.4C	
9965	190218B	9940 @ 20.3C	
100390	190218C	100200 @ 20.4C	

	Sample ID	Matrix	Reading	Comments
1	N035779-1D	H2O	6990 @ 20.1C	
2	2D		1819 @ 19.9C	
3	3D		2180 @ 20.3C	
4	4D		10080 @ 20.1C	
5	5D		10220 @ 19.9C	
6	5D DUP		10230 @ 19.9C	
7	6D		13330 @ 18.5C	
8	7D		4640 @ 18.3C	
9	8D		9230 @ 18.2C	
10	1413 mS/cm	CIW-190313A	1458 @ 23.9C	
Dup	10000	B	9980 @ 23.4C	RPD Criteria: 2%
	Std Chk 99922	CIW-190111H	96500 @ 24.0C	% Rec: (90-110%)

ASSET LABORATORIES
"Serving Clients with Passion and Professionalism"
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11110 Artesia Blvd., Ste B, Cerritos, CA 90703
ELAP Cert 2921
EPA ID CA01638
NEVADA | P:702.307.2659 F:702.307.2691
3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R134183
ASSET #: N035779

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 5/28/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer RBA Date: 6/11/2019

2nd Level Reviewer _____ Date: 6/11/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035779-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.6166 * 500$$

$$Cr^{+6}, \mu g/L = 2308.3000$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 2300}$$

6/11/2019

ANALYSIS RUN LOG

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

jrba 5/11/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 5/11/2019

INJECTION LOG: 190528A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/28/19 8:54 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	05/28/19 9:05 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	05/28/19 9:15 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/28/19 9:24 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	05/28/19 9:34 AM	Reported
15	MB-R134183	MBLK	1	Hexavalent Chromium	05/28/19 9:43 AM	Reported
16	LCS-R134183	LCS	1	Hexavalent Chromium	05/28/19 9:53 AM	Reported
17	N035779-001A	SAMP	500	Hexavalent Chromium	05/28/19 10:21 AM	Reported
18	N035779-002A	SAMP	200	Hexavalent Chromium	05/28/19 10:32 AM	Reported
19	N035779-003A	SAMP	200	Hexavalent Chromium	05/28/19 10:41 AM	Reported
20	N035779-004A	SAMP	1000	Hexavalent Chromium	05/28/19 10:51 AM	Reported
21	N035779-005A	SAMP	1000	Hexavalent Chromium	05/28/19 11:00 AM	Reported
22	N035779-006A	SAMP	10	Hexavalent Chromium	05/28/19 11:10 AM	Reported
23	N035779-007A	SAMP	5	Hexavalent Chromium	05/28/19 11:19 AM	Reported
24	N035779-008A	SAMP	5	Hexavalent Chromium	05/28/19 11:29 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	05/28/19 11:38 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	05/28/19 11:48 AM	Reported
27	N035779-001ADUP	DUP	500	Hexavalent Chromium	05/28/19 11:57 AM	Reported
28	N035779-002AMS	MS	200	Hexavalent Chromium	05/28/19 12:07 PM	Reported
29	N035779-003AMS	MS	200	Hexavalent Chromium	05/28/19 12:16 PM	Reported
30	N035779-004AMS	MS	1000	Hexavalent Chromium	05/28/19 12:25 PM	Reported
31	N035779-005AMS	MS	1000	Hexavalent Chromium	05/28/19 12:35 PM	Reported
32	N035779-006AMS	MS	10	Hexavalent Chromium	05/28/19 12:44 PM	Reported
33	N035779-007AMS	MS	5	Hexavalent Chromium	05/28/19 12:54 PM	Reported
34	N035779-008AMS	MS	5	Hexavalent Chromium	05/28/19 1:03 PM	Reported
35	N035779-004AMSD	MSD	1000	Hexavalent Chromium	05/28/19 1:13 PM	Reported
36	N035779-001AMS	MS	500	Hexavalent Chromium	05/28/19 1:22 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	05/28/19 1:32 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	05/28/19 1:41 PM	Reported
39	N035779-009A	SAMP	1	Hexavalent Chromium	05/28/19 1:51 PM	Reported
40	N035779-009AMS	MS	1	Hexavalent Chromium	05/28/19 2:00 PM	Reported
41	N035779-010A	SAMP	1	Hexavalent Chromium	05/28/19 2:10 PM	Reported
42	N035779-010AMS	MS	1	Hexavalent Chromium	05/28/19 2:19 PM	Reported

INJECTION LOG: 190528A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	CCV-4	CCV1	1	Hexavalent Chromium	05/28/19 2:28 PM	Reported
44	CCB-4	CCB	1	Hexavalent Chromium	05/28/19 2:38 PM	Reported
45	BLANK	BLANK	1	Hexavalent Chromium	05/28/19 2:47 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190528A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**28/May/19 15:18:11**
No. of Injections:	**48**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/28/2019 08:54	Finished	BLANK
11	BLANK	2	1000	Unknown		05/28/2019 09:05	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		05/28/2019 09:15	Finished	CCV @5ppb, IWST-190423A
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		05/28/2019 09:24	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		05/28/2019 09:34	Finished	CCB R190508A
15	MB-H2O,MBLK,1,	6	1000	Unknown		05/28/2019 09:43	Finished	MB R190508A
16	LCS-H2O,LCS,1,	7	1000	Unknown		05/28/2019 09:53	Finished	LCS @5ppb, IWST-190423B
17	N035779-001A,SAMP	1	1000	Unknown		05/28/2019 10:21	Finished	SAMP,0.02>10mL
18	N035779-002A,SAMP	2	1000	Unknown		05/28/2019 10:32	Finished	SAMP,0.05>10mL
19	N035779-003A,SAMP	3	1000	Unknown		05/28/2019 10:41	Finished	SAMP,0.05>10mL
20	N035779-004A,SAMP	4	1000	Unknown		05/28/2019 10:51	Finished	SAMP,0.01>10mL
21	N035779-005A,SAMP	5	1000	Unknown		05/28/2019 11:00	Finished	SAMP,0.01>10mL
22	N035779-006A,SAMP	6	1000	Unknown		05/28/2019 11:10	Finished	SAMP,1>10mL
23	N035779-007A,SAMP	7	1000	Unknown		05/28/2019 11:19	Finished	SAMP,2>10mL
24	N035779-008A,SAMP	8	1000	Unknown		05/28/2019 11:29	Finished	SAMP,2>10mL
25	CCV-2,CCV1,1,	9	1000	Unknown		05/28/2019 11:38	Finished	CCV @10ppb, IWST-190423A
26	CCB-2,CCB,1,	10	1000	Unknown		05/28/2019 11:48	Finished	CCB R190508A
27	N035779-001ADUP,D	11	1000	Unknown		05/28/2019 11:57	Finished	DUP,0.02>10mL
28	N035779-002AMS,MS	12	1000	Unknown		05/28/2019 12:07	Finished	MS (5ppb), IWST-190423B,0.0
29	N035779-003AMS,MS	13	1000	Unknown		05/28/2019 12:16	Finished	MS (5ppb), IWST-190423B,0.0
30	N035779-004AMS,MS	14	1000	Unknown		05/28/2019 12:25	Finished	MS (5ppb), IWST-190423B,0.0
31	N035779-005AMS,MS	15	1000	Unknown		05/28/2019 12:35	Finished	MS (5ppb), IWST-190423B,0.0
32	N035779-006AMS,MS	16	1000	Unknown		05/28/2019 12:44	Finished	MS (5ppb), IWST-190423B,1>1
33	N035779-007AMS,MS	17	1000	Unknown		05/28/2019 12:54	Finished	MS (5ppb), IWST-190423B,5>1
34	N035779-008AMS,MS	18	1000	Unknown		05/28/2019 13:03	Finished	MS (5ppb), IWST-190423B,5>1
35	N035779-004AMSD,M	19	1000	Unknown		05/28/2019 13:13	Finished	MSD (5ppb), IWST-190423B,0
36	N035779-001AMS,MS	20	1000	Unknown		05/28/2019 13:22	Finished	MS (5ppb), IWST-190423B,0.0
37	CCV-3,CCV,1,	21	1000	Unknown		05/28/2019 13:32	Finished	CCV @5ppb, IWST-190423A
38	CCB-3,CCB,1,	22	1000	Unknown		05/28/2019 13:41	Finished	CCB R190508A
39	N035779-009A,SAMP	23	1000	Unknown		05/28/2019 13:51	Finished	SAMP, 10mL
40	N035779-009AMS,MS	24	1000	Unknown		05/28/2019 14:00	Finished	MS (1ppb), IWST-190423B,10
41	N035779-010A,SAMP	25	1000	Unknown		05/28/2019 14:10	Finished	SAMP, 10mL
42	N035779-010AMS,MS	26	1000	Unknown		05/28/2019 14:19	Finished	MS (1ppb), IWST-190423B,10
43	CCV-4,CCV1,1,	27	1000	Unknown		05/28/2019 14:28	Finished	CCV @10ppb, IWST-190423A
44	CCB-4,CCB,1,	28	1000	Unknown		05/28/2019 14:38	Finished	CCB R190508A
45	BLANK	29	1000	Unknown		05/28/2019 14:47	Finished	BLANK
46	SHUTDOWN	30	1000	Unknown		05/28/2019 14:57	Finished	
47	Eluent: R190524B	31	1000	Unknown		n.a.	Finished	Eluent
48	PCR: R190524C	32	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 5/28/19
Time Prepared: NSA
Prepared By: 0944H

stope: 97.92
pH 4: 4.01
7: 7.01
10: 10.03

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV - 190329A
NH4OH + NH4SO4 eluent: M90524B
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N035779-W1A	9.32	–	~250ml	~250ml		
2)	2A	9.45	–				
3)	3A	9.37	–				
4)	4A	9.39	–				
5)	5A	9.41	–				
6)	6A	9.44	–				
7)	7A	9.42	–				
8)	8A	9.47	–				
9)	9A	9.60	–				
10)	10A	9.61	–				
11)							
12)							
13)							
14)							
15)							

5/29/19

Sample Preparation

Date Prepared: 5/30/19
Time Prepared: 0859H
Prepared By: NSA

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90529A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N035810-W1A	9.62	–	~250ml	~250ml		
2)	N035811-W2A	9.64	–				
3)							
4)							
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 5/3/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0527	0.2514	1.2615	2.5188	3.7985	5.0310	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ICV**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3398053**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.175	0.20	5.000	0	104	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3398054**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.214	0.20	0.2000	0	107	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **CCV**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398056**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.062	0.20	5.000	0	101	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398057**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.228	0.20	0.2000	0	114	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398069**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.070	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **CCV**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398081**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.088	0.20	5.000	0	102	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ZZZZZZ**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398087**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.051	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **ICB**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/3/2019**	SeqNo: **3398055**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **CCB**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398058**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **CCB**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398070**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **CCB**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398082**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134183**
Client ID: **CCB**	Batch ID: **R134183**	TestNo: **EPA 218.6**		Analysis Date: **5/28/2019**	SeqNo: **3398088**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/28/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.731	
CCV-2	4.740	
CCV-3	4.731	
CCV-4	4.740	

Average	4.736	
Actual RT Window	4.656 -	4.816
Applied RT Window	4.536 -	4.936

MB-R134183	N.A.	N.A.
LCS-R134183	4.740	PASS
N035779-001A	4.740	PASS
N035779-002A	4.740	PASS
N035779-003A	4.740	PASS
N035779-004A	4.731	PASS
N035779-005A	4.740	PASS
N035779-006A	4.715	PASS
N035779-007A	4.723	PASS
N035779-008A	4.706	PASS
N035779-001ADUP	4.740	PASS
N035779-002AMS	4.740	PASS
N035779-003AMS	4.740	PASS
N035779-004AMS	4.731	PASS
N035779-005AMS	4.740	PASS
N035779-006AMS	4.715	PASS
N035779-007AMS	4.723	PASS
N035779-008AMS	4.706	PASS
N035779-004AMSD	4.740	PASS
N035779-001AMS	4.740	PASS
N035779-009A	N.A.	N.A.
N035779-009AMS	4.740	PASS
N035779-010A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 5/28/2019

Sample Name	Retention Time	Evaluation
ICV	4.698	
CCV-1	4.731	
CCV-2	4.740	
CCV-3	4.731	
CCV-4	4.740	
Average	4.736	
Actual RT Window	4.656 - 4.816	
Applied RT Window	4.536 - 4.936	
N035779-010AMS	4.740	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190503A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	ICV	ICV	1	Hexavalent Chromium	05/03/19 11:21 AM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/03/19 11:33 AM	Reported
12	ICB	ICB	1	Hexavalent Chromium	05/03/19 11:42 AM	Reported

rba 5/11/2019

6/06/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190503A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**03/May/19 12:54:44**
No. of Injections:	**15**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		05/03/2019 11:21	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		05/03/2019 11:33	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		05/03/2019 11:42	Finished	ICB R190411C
13	SHUTDOWN	14	1000	Unknown		05/03/2019 12:31	Finished	
14	Eluent: R190502A	15	1000	Unknown		n.a.	Finished	Eluent
15	PCR: R190502B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

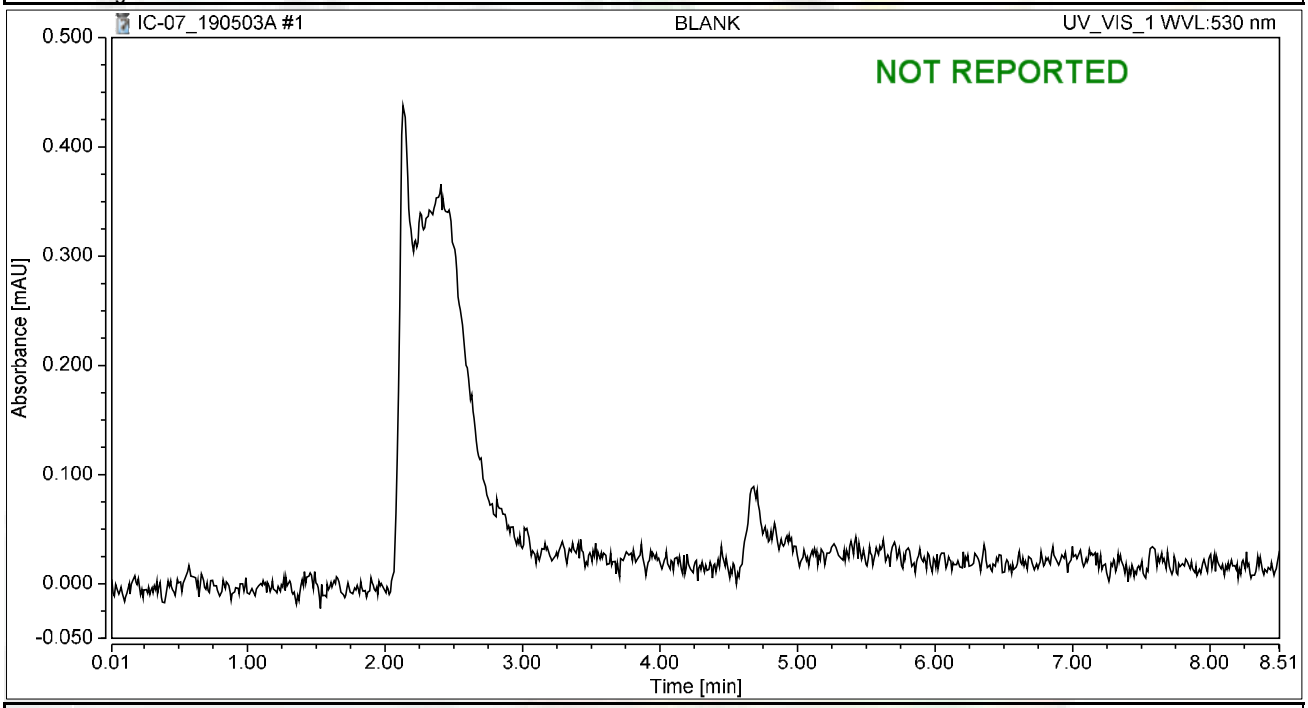
rba 5/11/2019

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 09:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

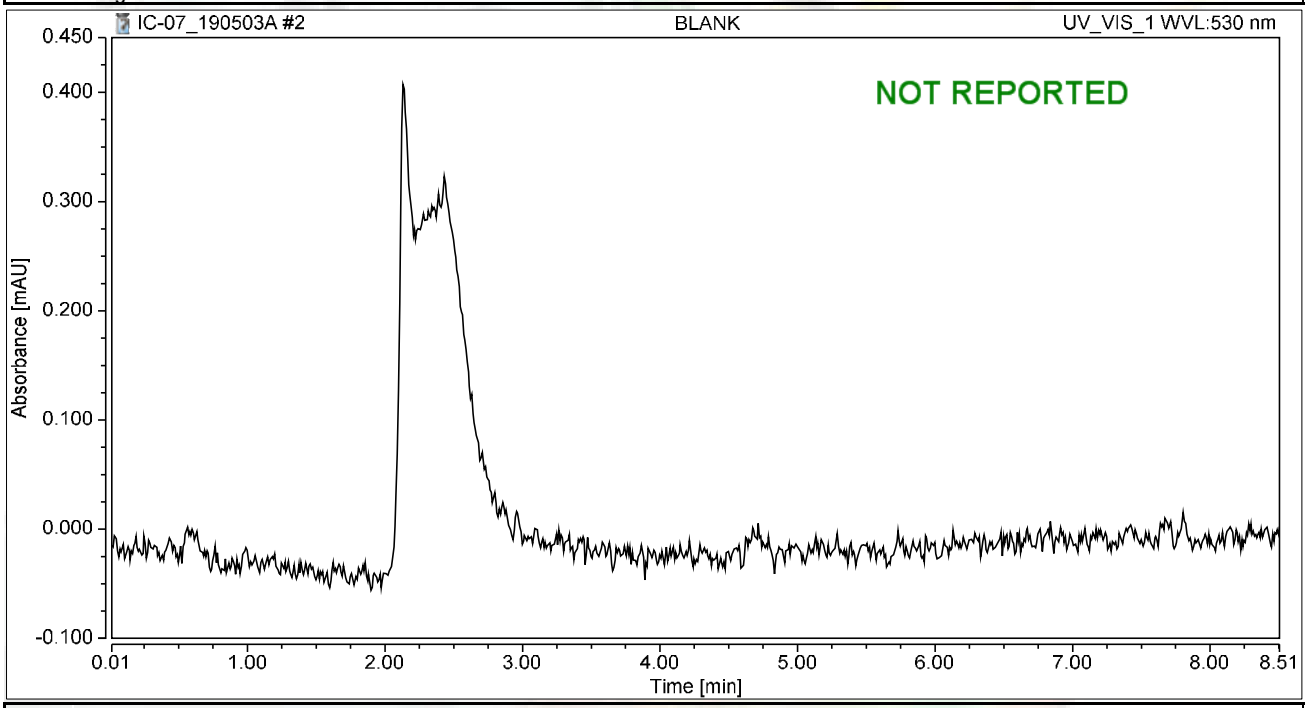
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

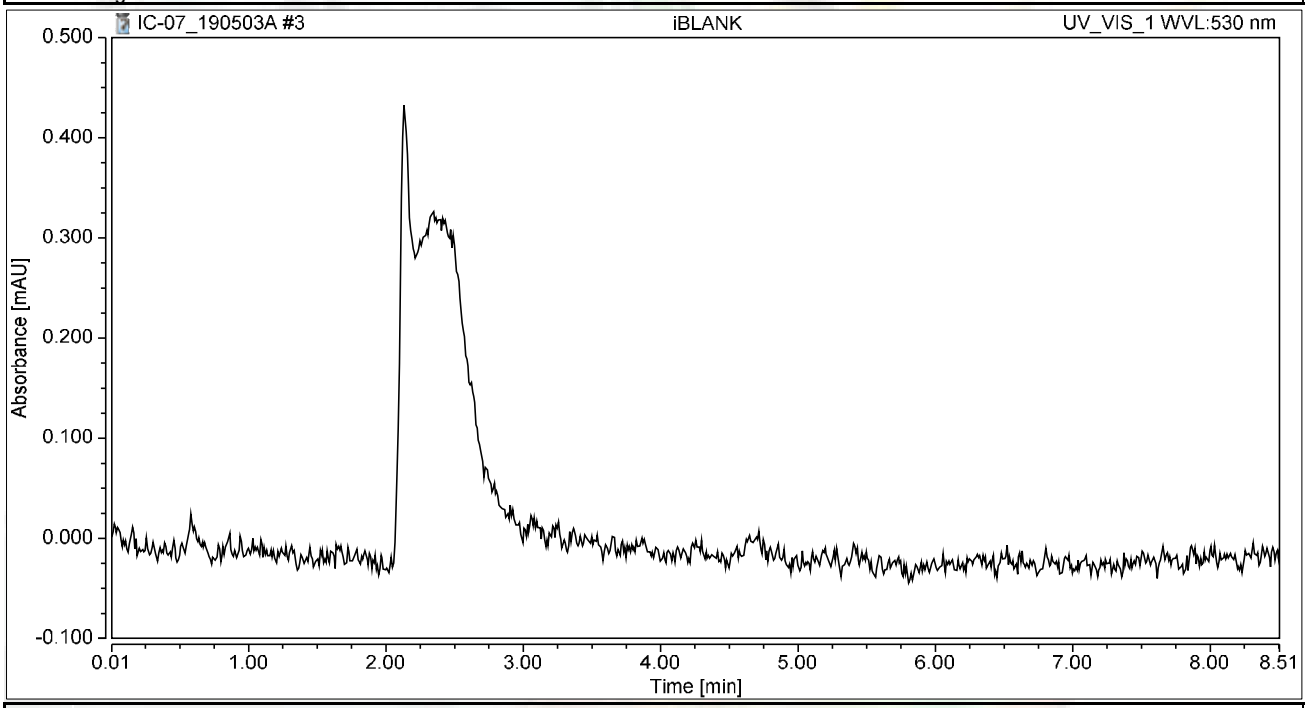
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

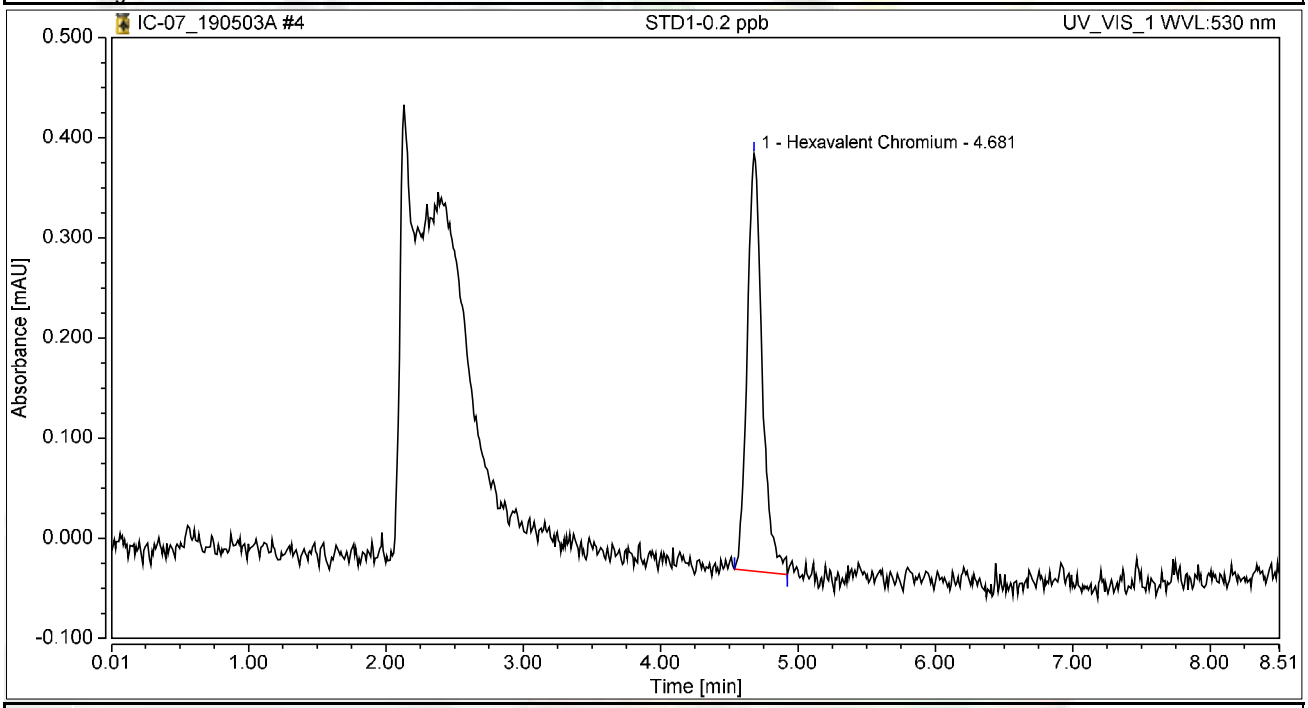
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

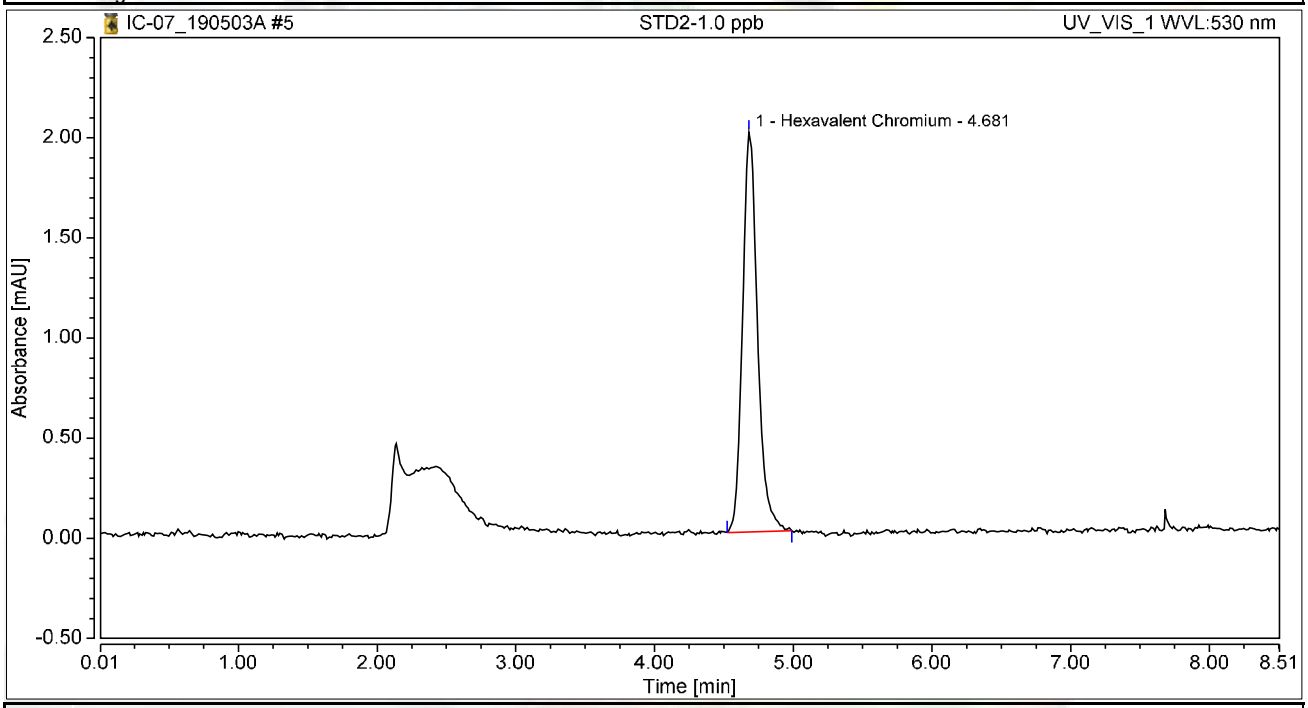
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.053	0.417	100.00	100.00	0.2092
Total:			**0.053**	**0.417**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

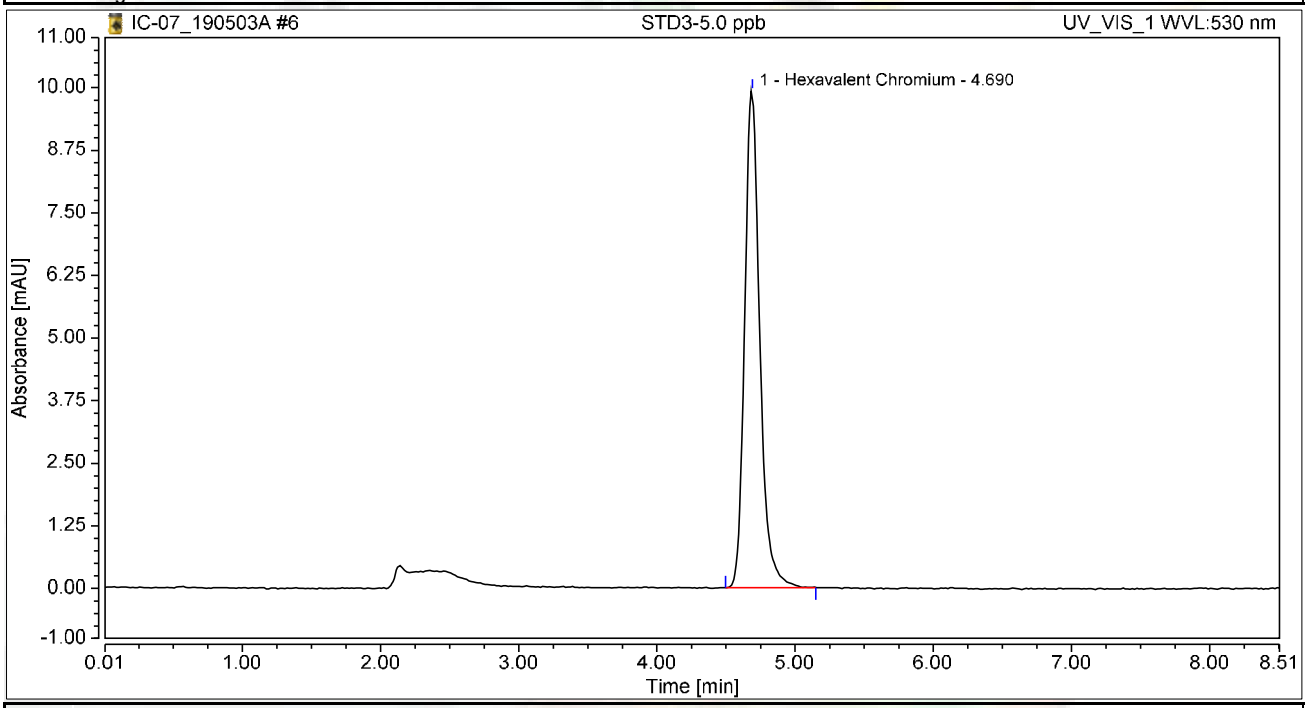
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	0.251	1.997	100.00	100.00	0.9971
Total:			**0.251**	**1.997**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

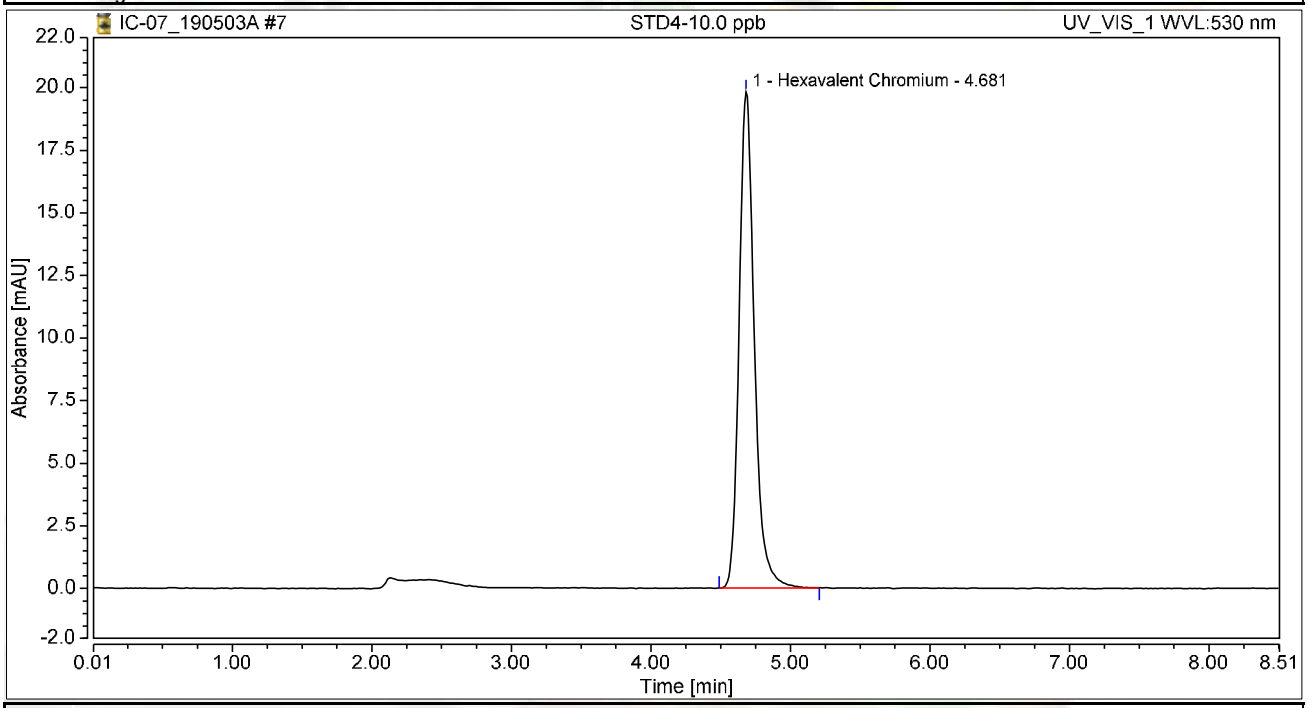
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	1.261	9.919	100.00	100.00	5.0034
Total:			**1.261**	**9.919**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 10:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

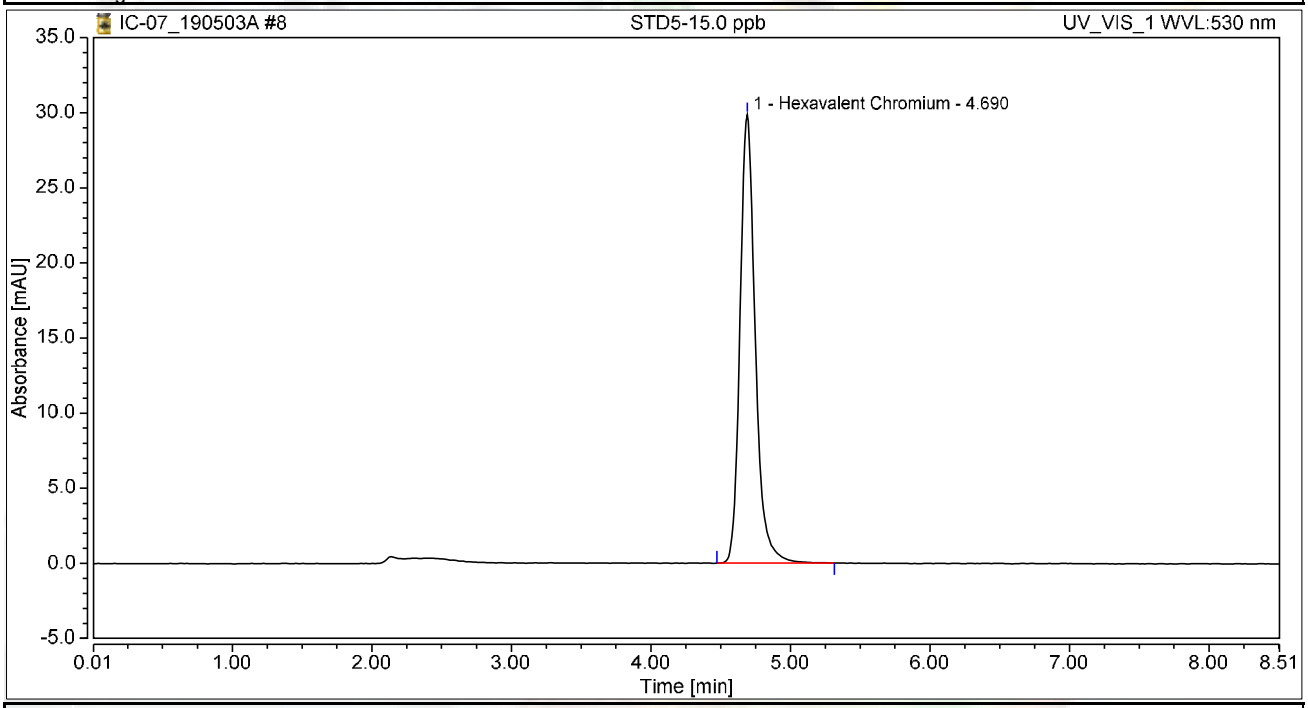
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.681	2.519	19.825	100.00	100.00	9.9901
Total:			**2.519**	**19.825**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

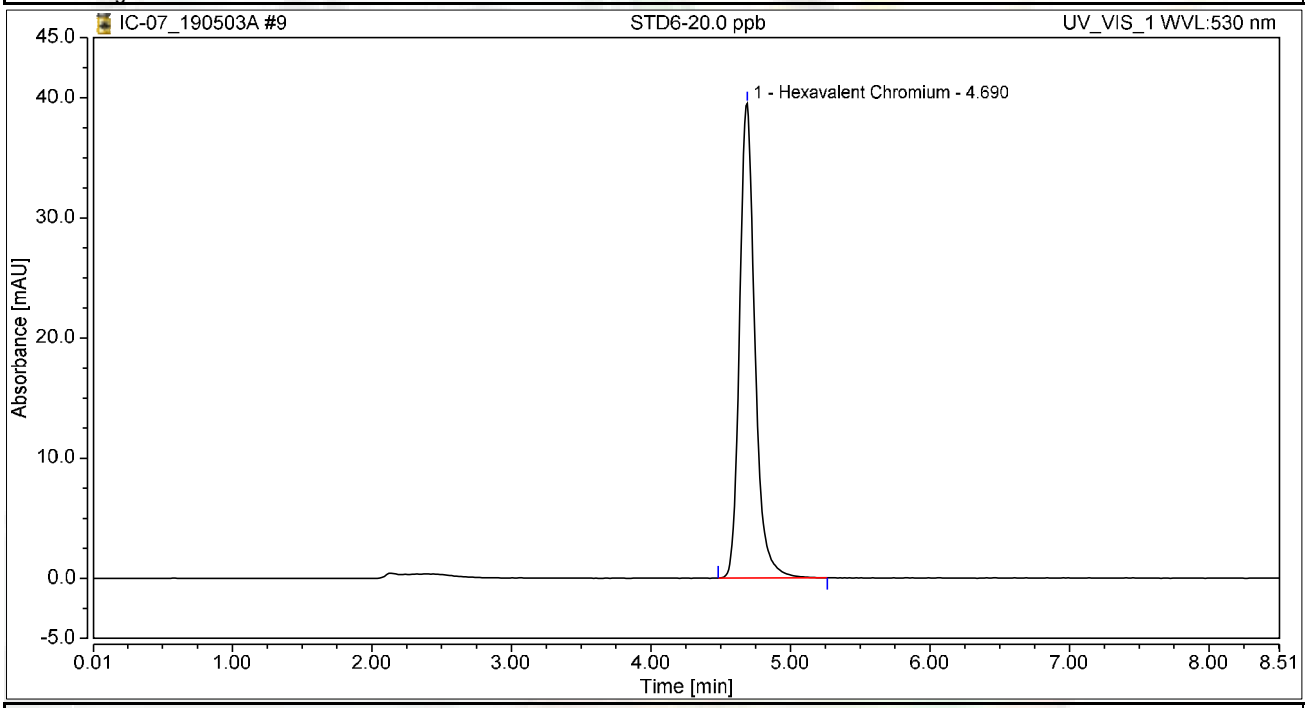
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	3.799	29.868	100.00	100.00	15.0660
Total:			**3.799**	**29.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:09**	*Sample Weight:*	**1.0000**

Chromatogram



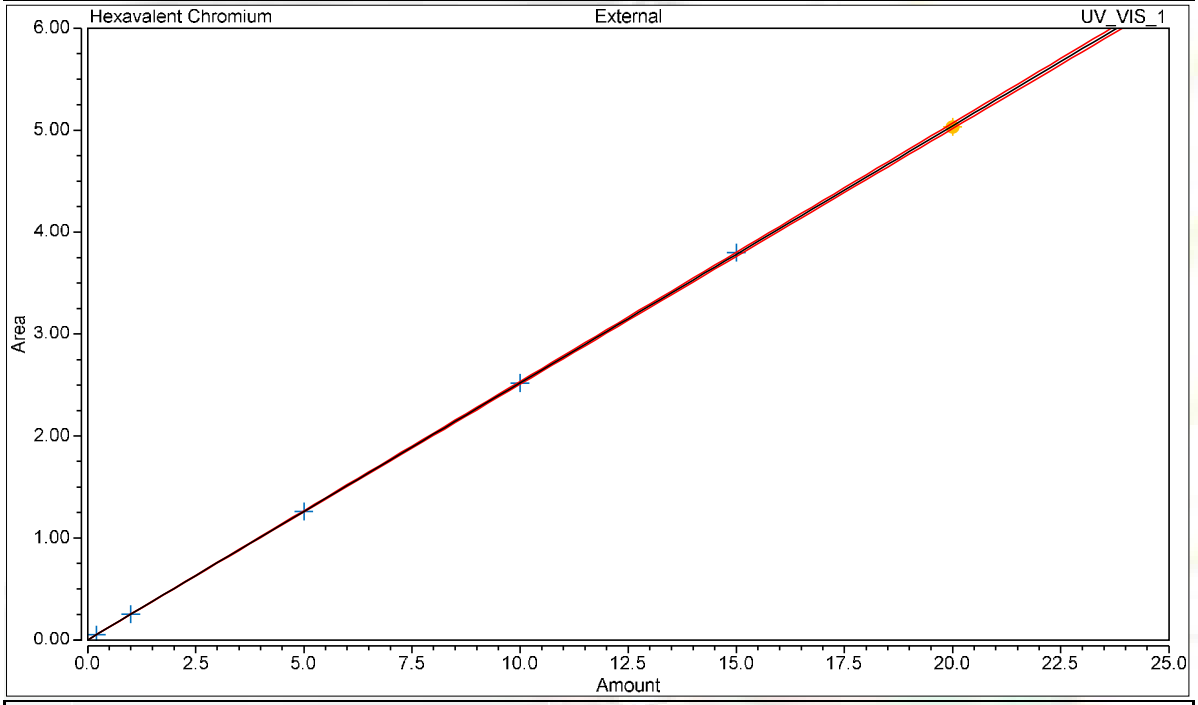
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.690	5.031	39.475	100.00	100.00	19.9546
Total:			**5.031**	**39.475**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2521
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

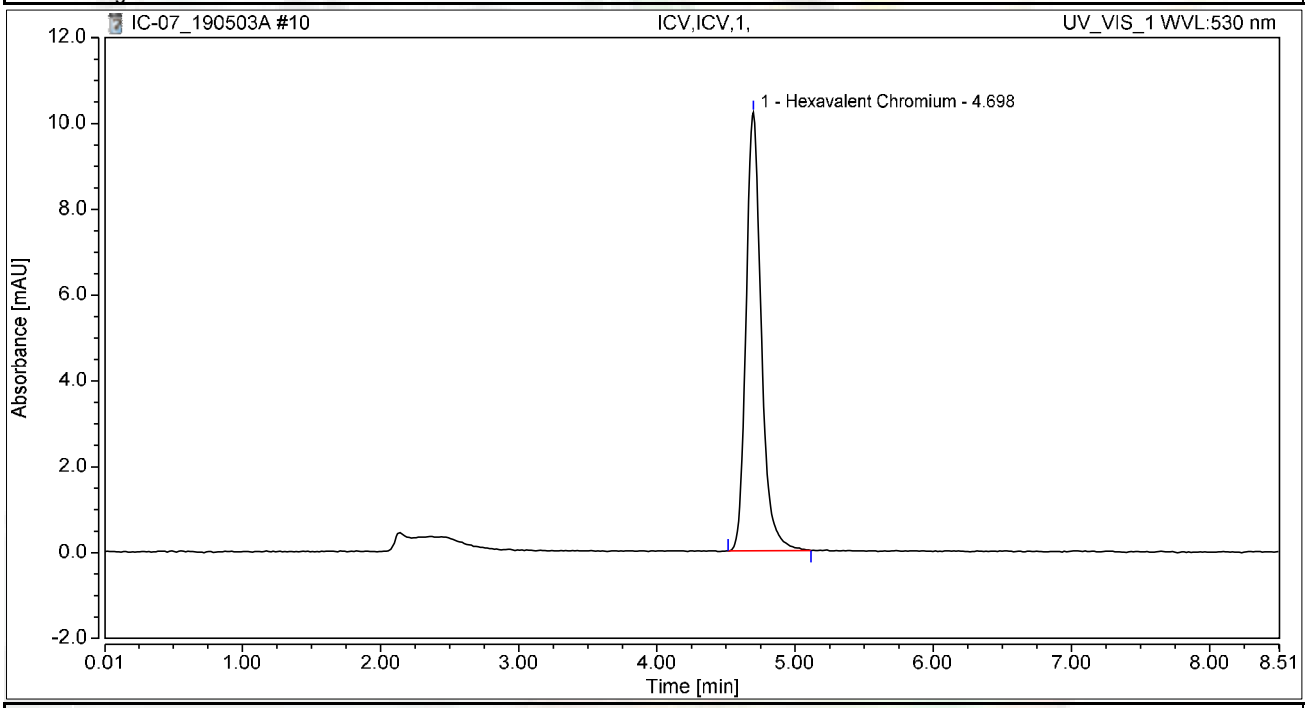
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0527	0.053	0.417
5	STD2-1.0 ppb	02	1.0000	0.2514	0.251	1.997
6	STD3-5.0 ppb	03	5.0000	1.2615	1.261	9.919
7	STD4-10.0 ppb	04	10.0000	2.5188	2.519	19.825
8	STD5-15.0 ppb	05	15.0000	3.7985	3.799	29.868
9	STD6-20.0 ppb	06	20.0000	5.0310	5.031	39.475

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

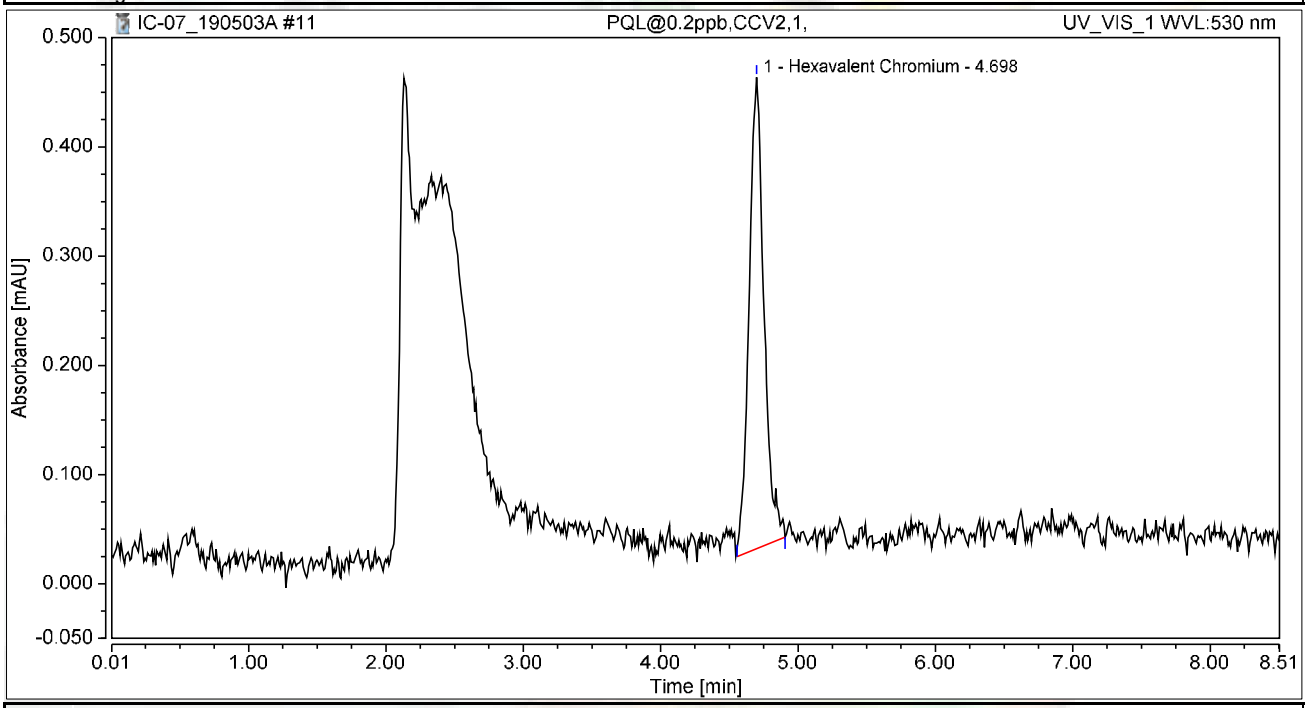
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	1.305	10.217	100.00	100.00	5.1753
Total:			**1.305**	**10.217**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

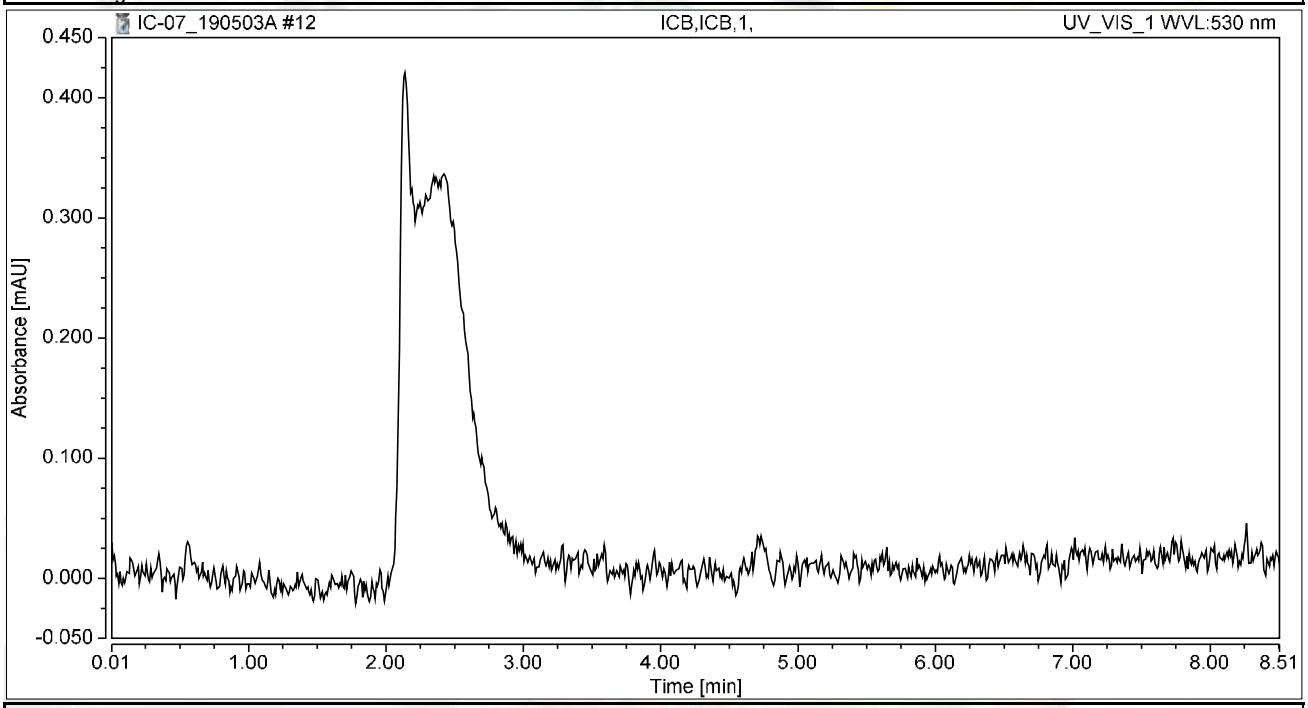
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	0.054	0.431	100.00	100.00	0.2143
Total:			**0.054**	**0.431**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**03/May/19 11:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190528A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 9:52 AM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	05/03/19 10:03 AM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	05/03/19 10:13 AM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:22 AM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:32 AM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:41 AM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 10:50 AM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:00 AM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	05/03/19 11:09 AM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	05/28/19 8:54 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	05/28/19 9:05 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	05/28/19 9:15 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	05/28/19 9:24 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	05/28/19 9:34 AM	Reported
15	MB-R134183	MBLK	1	Hexavalent Chromium	05/28/19 9:43 AM	Reported
16	LCS-R134183	LCS	1	Hexavalent Chromium	05/28/19 9:53 AM	Reported
17	N035779-001A	SAMP	500	Hexavalent Chromium	05/28/19 10:21 AM	Reported
18	N035779-002A	SAMP	200	Hexavalent Chromium	05/28/19 10:32 AM	Reported
19	N035779-003A	SAMP	200	Hexavalent Chromium	05/28/19 10:41 AM	Reported
20	N035779-004A	SAMP	1000	Hexavalent Chromium	05/28/19 10:51 AM	Reported
21	N035779-005A	SAMP	1000	Hexavalent Chromium	05/28/19 11:00 AM	Reported
22	N035779-006A	SAMP	10	Hexavalent Chromium	05/28/19 11:10 AM	Reported
23	N035779-007A	SAMP	5	Hexavalent Chromium	05/28/19 11:19 AM	Reported
24	N035779-008A	SAMP	5	Hexavalent Chromium	05/28/19 11:29 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	05/28/19 11:38 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	05/28/19 11:48 AM	Reported
27	N035779-001ADUP	DUP	500	Hexavalent Chromium	05/28/19 11:57 AM	Reported
28	N035779-002AMS	MS	200	Hexavalent Chromium	05/28/19 12:07 PM	Reported
29	N035779-003AMS	MS	200	Hexavalent Chromium	05/28/19 12:16 PM	Reported
30	N035779-004AMS	MS	1000	Hexavalent Chromium	05/28/19 12:25 PM	Reported
31	N035779-005AMS	MS	1000	Hexavalent Chromium	05/28/19 12:35 PM	Reported
32	N035779-006AMS	MS	10	Hexavalent Chromium	05/28/19 12:44 PM	Reported
33	N035779-007AMS	MS	5	Hexavalent Chromium	05/28/19 12:54 PM	Reported
34	N035779-008AMS	MS	5	Hexavalent Chromium	05/28/19 1:03 PM	Reported
35	N035779-004AMSD	MSD	1000	Hexavalent Chromium	05/28/19 1:13 PM	Reported
36	N035779-001AMS	MS	500	Hexavalent Chromium	05/28/19 1:22 PM	Reported
37	CCV-3	CCV	1	Hexavalent Chromium	05/28/19 1:32 PM	Reported
38	CCB-3	CCB	1	Hexavalent Chromium	05/28/19 1:41 PM	Reported
39	N035779-009A	SAMP	1	Hexavalent Chromium	05/28/19 1:51 PM	Reported
40	N035779-009AMS	MS	1	Hexavalent Chromium	05/28/19 2:00 PM	Reported
41	N035779-010A	SAMP	1	Hexavalent Chromium	05/28/19 2:10 PM	Reported
42	N035779-010AMS	MS	1	Hexavalent Chromium	05/28/19 2:19 PM	Reported

6/06/2019

INJECTION LOG: 190528A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	CCV-4	CCV1	1	Hexavalent Chromium	05/28/19 2:28 PM	Reported
44	CCB-4	CCB	1	Hexavalent Chromium	05/28/19 2:38 PM	Reported
45	BLANK	BLANK	1	Hexavalent Chromium	05/28/19 2:47 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190528A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**28/May/19 15:18:11**
No. of Injections:	**48**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		05/03/2019 09:52	Finished	BLANK
2	BLANK	2	1000	Unknown		05/03/2019 10:03	Finished	BLANK
3	iBLANK	3	1000	Unknown		05/03/2019 10:13	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	05/03/2019 10:22	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	05/03/2019 10:32	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	05/03/2019 10:41	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	05/03/2019 10:50	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	05/03/2019 11:00	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	05/03/2019 11:09	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		05/28/2019 08:54	Finished	BLANK
11	BLANK	2	1000	Unknown		05/28/2019 09:05	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		05/28/2019 09:15	Finished	CCV @5ppb, IWST-190423A
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		05/28/2019 09:24	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		05/28/2019 09:34	Finished	CCB R190508A
15	MB-H2O,MBLK,1,	6	1000	Unknown		05/28/2019 09:43	Finished	MB R190508A
16	LCS-H2O,LCS,1,	7	1000	Unknown		05/28/2019 09:53	Finished	LCS @5ppb, IWST-190423B
17	N035779-001A,SAMP	1	1000	Unknown		05/28/2019 10:21	Finished	SAMP,0.02>10mL
18	N035779-002A,SAMP	2	1000	Unknown		05/28/2019 10:32	Finished	SAMP,0.05>10mL
19	N035779-003A,SAMP	3	1000	Unknown		05/28/2019 10:41	Finished	SAMP,0.05>10mL
20	N035779-004A,SAMP	4	1000	Unknown		05/28/2019 10:51	Finished	SAMP,0.01>10mL
21	N035779-005A,SAMP	5	1000	Unknown		05/28/2019 11:00	Finished	SAMP,0.01>10mL
22	N035779-006A,SAMP	6	1000	Unknown		05/28/2019 11:10	Finished	SAMP,1>10mL
23	N035779-007A,SAMP	7	1000	Unknown		05/28/2019 11:19	Finished	SAMP,2>10mL
24	N035779-008A,SAMP	8	1000	Unknown		05/28/2019 11:29	Finished	SAMP,2>10mL
25	CCV-2,CCV1,1,	9	1000	Unknown		05/28/2019 11:38	Finished	CCV @10ppb, IWST-190423A
26	CCB-2,CCB,1,	10	1000	Unknown		05/28/2019 11:48	Finished	CCB R190508A
27	N035779-001ADUP,D	11	1000	Unknown		05/28/2019 11:57	Finished	DUP,0.02>10mL
28	N035779-002AMS,MS	12	1000	Unknown		05/28/2019 12:07	Finished	MS (5ppb), IWST-190423B,0.0
29	N035779-003AMS,MS	13	1000	Unknown		05/28/2019 12:16	Finished	MS (5ppb), IWST-190423B,0.0
30	N035779-004AMS,MS	14	1000	Unknown		05/28/2019 12:25	Finished	MS (5ppb), IWST-190423B,0.0
31	N035779-005AMS,MS	15	1000	Unknown		05/28/2019 12:35	Finished	MS (5ppb), IWST-190423B,0.0
32	N035779-006AMS,MS	16	1000	Unknown		05/28/2019 12:44	Finished	MS (5ppb), IWST-190423B,1>1
33	N035779-007AMS,MS	17	1000	Unknown		05/28/2019 12:54	Finished	MS (5ppb), IWST-190423B,5>1
34	N035779-008AMS,MS	18	1000	Unknown		05/28/2019 13:03	Finished	MS (5ppb), IWST-190423B,5>1
35	N035779-004AMSD,M	19	1000	Unknown		05/28/2019 13:13	Finished	MSD (5ppb), IWST-190423B,0.
36	N035779-001AMS,MS	20	1000	Unknown		05/28/2019 13:22	Finished	MS (5ppb), IWST-190423B,0.0
37	CCV-3,CCV,1,	21	1000	Unknown		05/28/2019 13:32	Finished	CCV @5ppb, IWST-190423A
38	CCB-3,CCB,1,	22	1000	Unknown		05/28/2019 13:41	Finished	CCB R190508A
39	N035779-009A,SAMP	23	1000	Unknown		05/28/2019 13:51	Finished	SAMP, 10mL
40	N035779-009AMS,MS	24	1000	Unknown		05/28/2019 14:00	Finished	MS (1ppb), IWST-190423B,10
41	N035779-010A,SAMP	25	1000	Unknown		05/28/2019 14:10	Finished	SAMP, 10mL
42	N035779-010AMS,MS	26	1000	Unknown		05/28/2019 14:19	Finished	MS (1ppb), IWST-190423B,10
43	CCV-4,CCV1,1,	27	1000	Unknown		05/28/2019 14:28	Finished	CCV @10ppb, IWST-190423A
44	CCB-4,CCB,1,	28	1000	Unknown		05/28/2019 14:38	Finished	CCB R190508A
45	BLANK	29	1000	Unknown		05/28/2019 14:47	Finished	BLANK
46	SHUTDOWN	30	1000	Unknown		05/28/2019 14:57	Finished	
47	Eluent: R190524B	31	1000	Unknown		n.a.	Finished	Eluent
48	PCR: R190524C	32	1000	Unknown		n.a.	Finished	Post-Column Reagent

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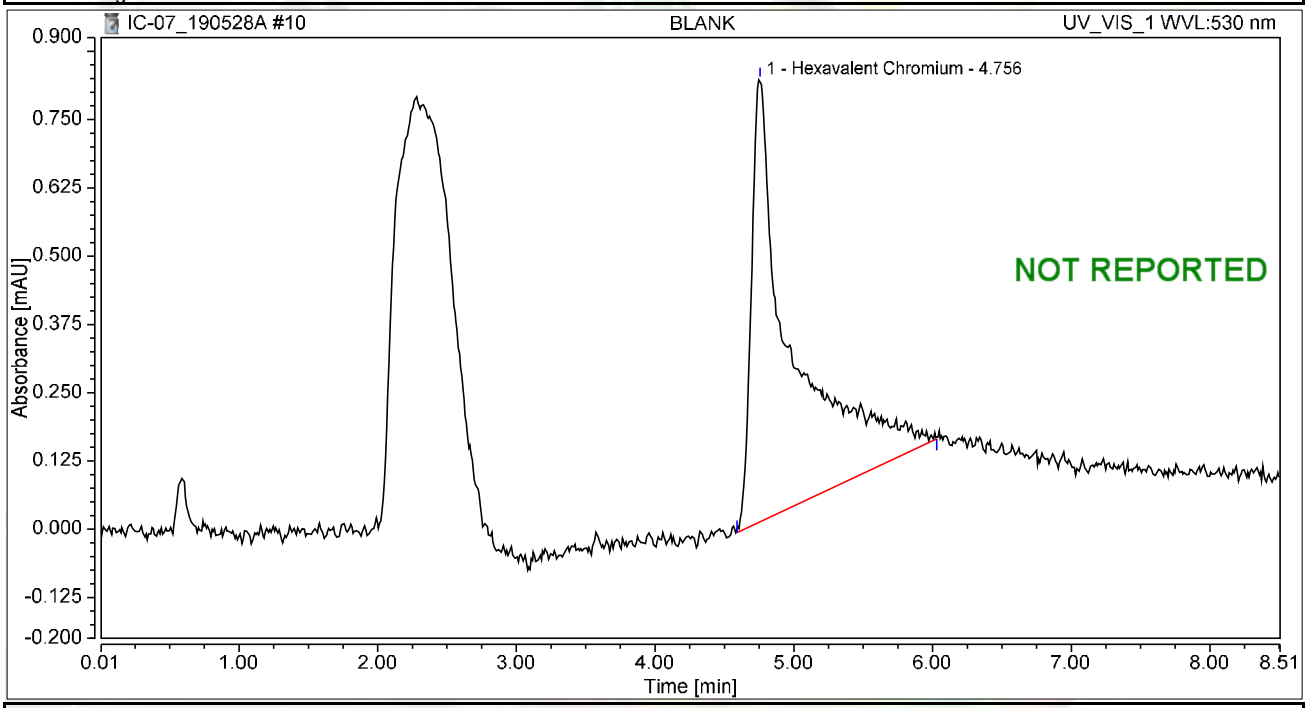
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 08:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

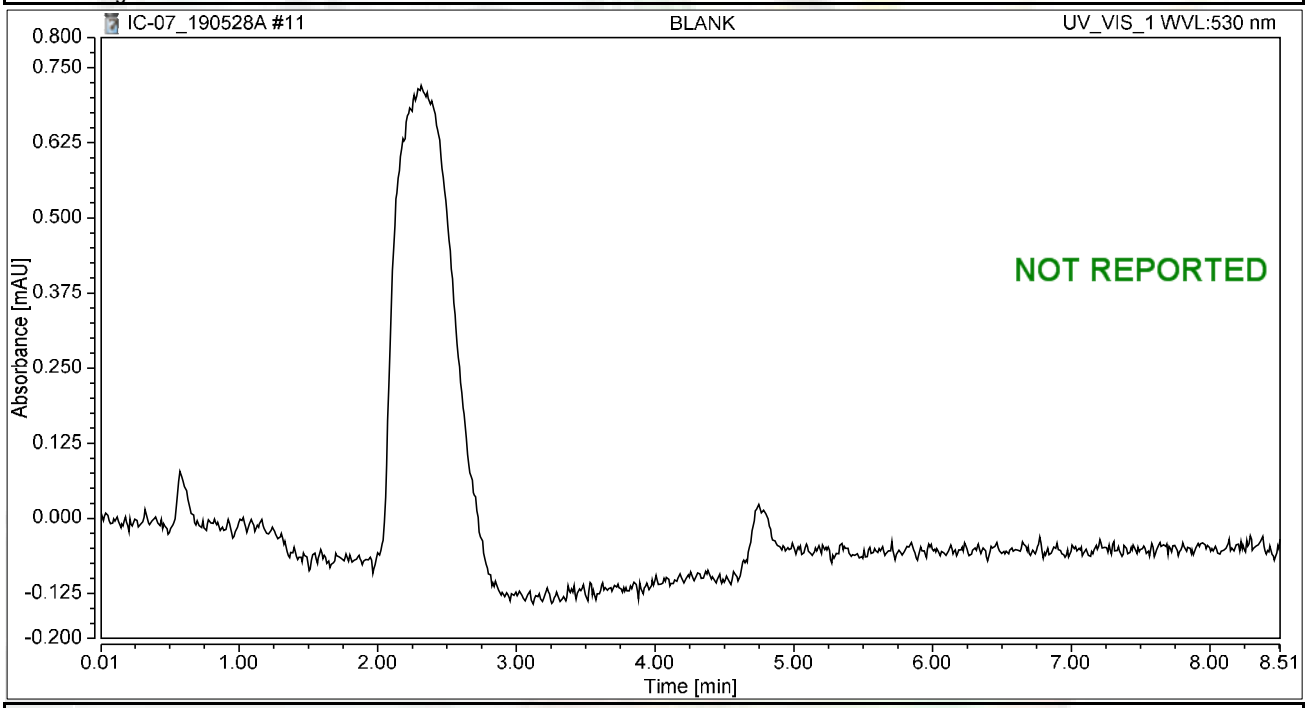
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.756	0.279	0.810	100.00	100.00	1.1074
Total:			**0.279**	**0.810**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 09:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

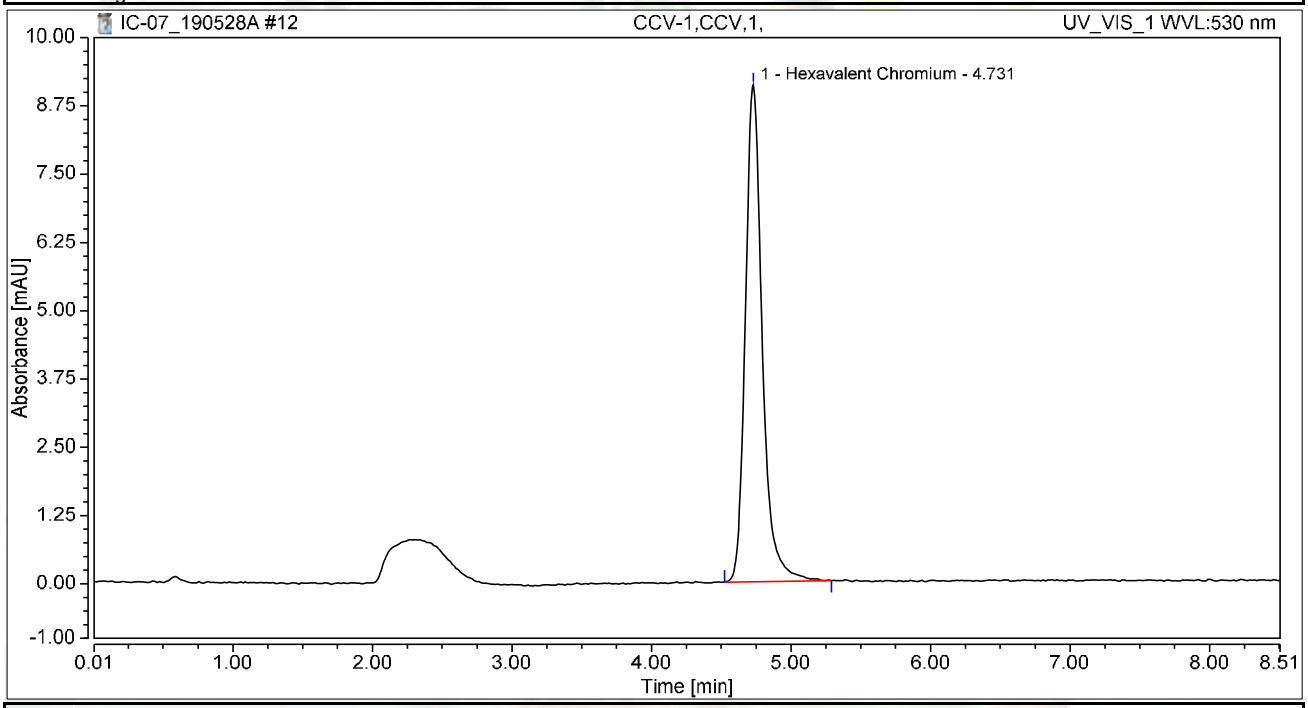
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 09:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

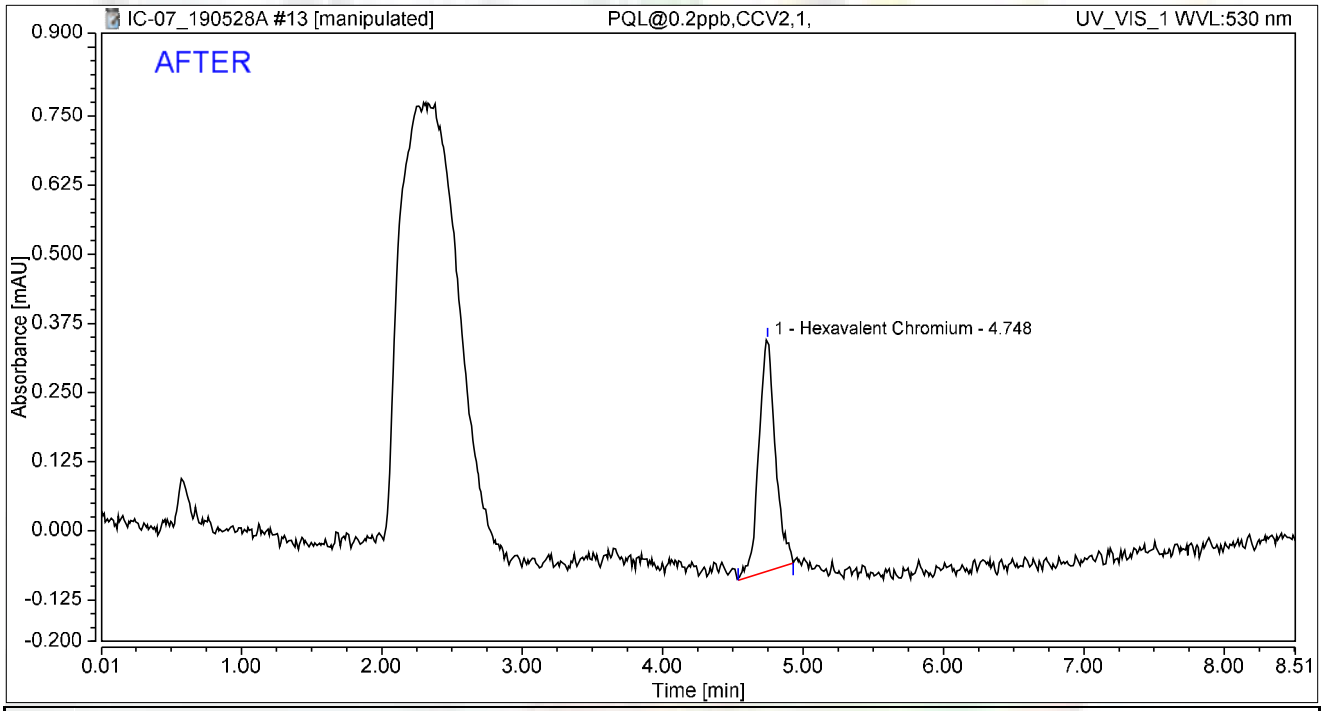
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.276	9.100	100.00	100.00	5.0623
Total:			**1.276**	**9.100**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 09:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.058	0.418	100.00	100.00	0.2283
Total:			**0.058**	**0.418**	**100.00**	**100.00**	

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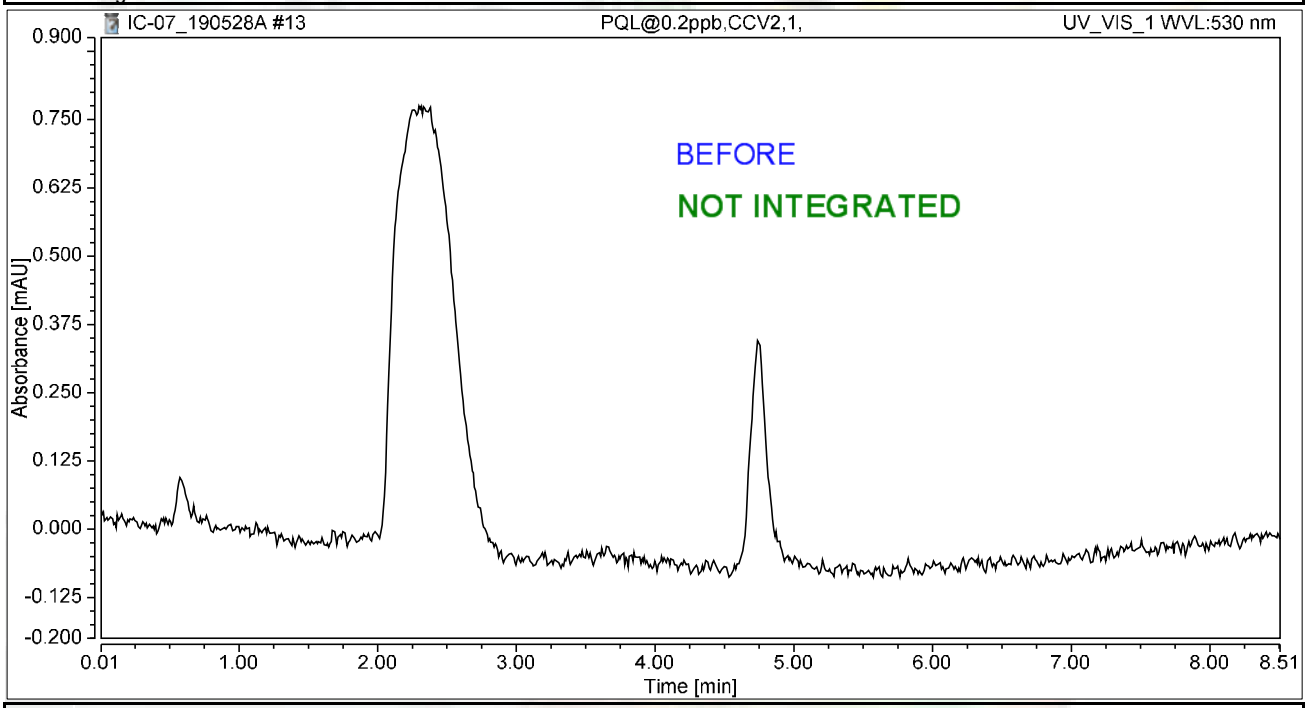
Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 09:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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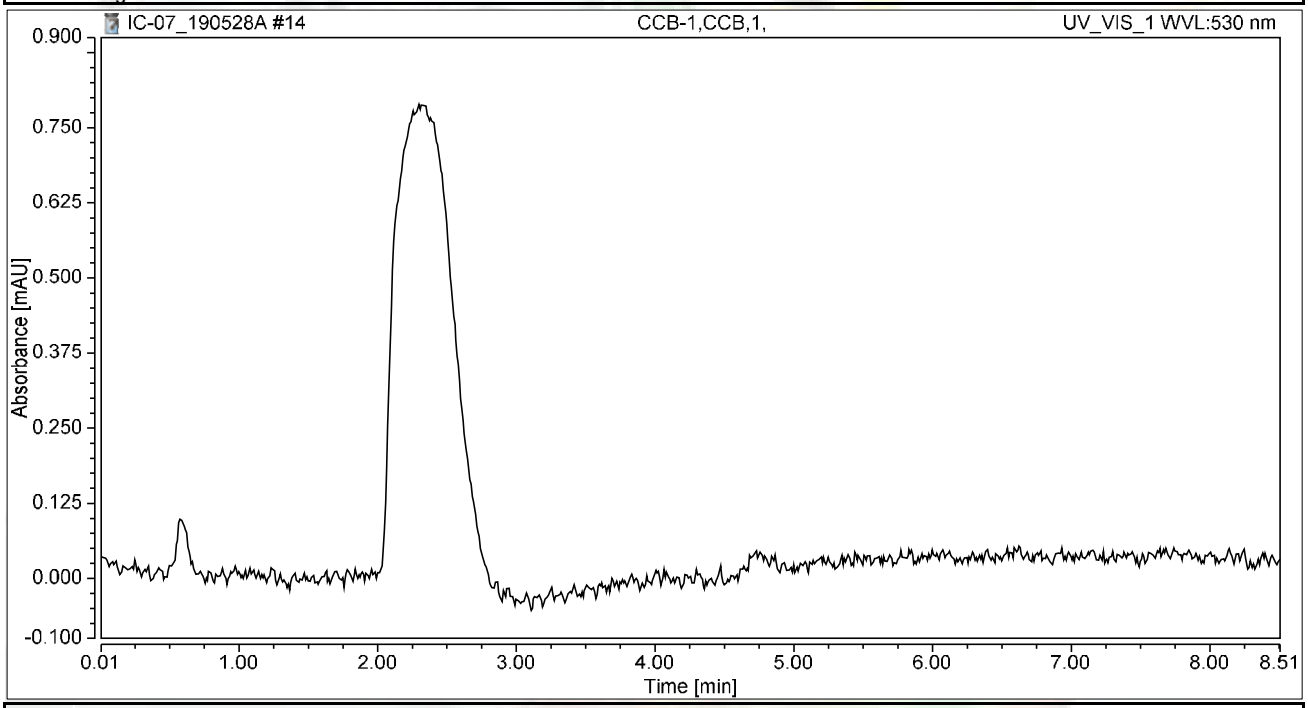
Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 09:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

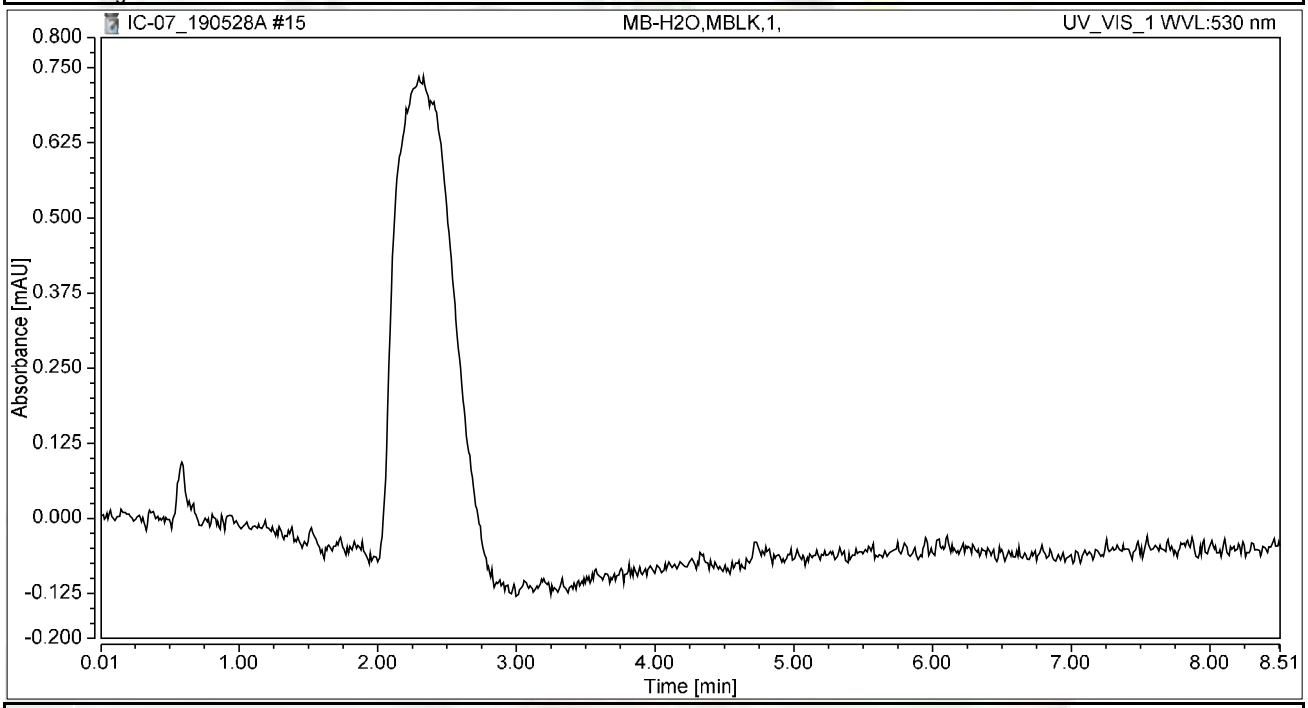
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 09:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

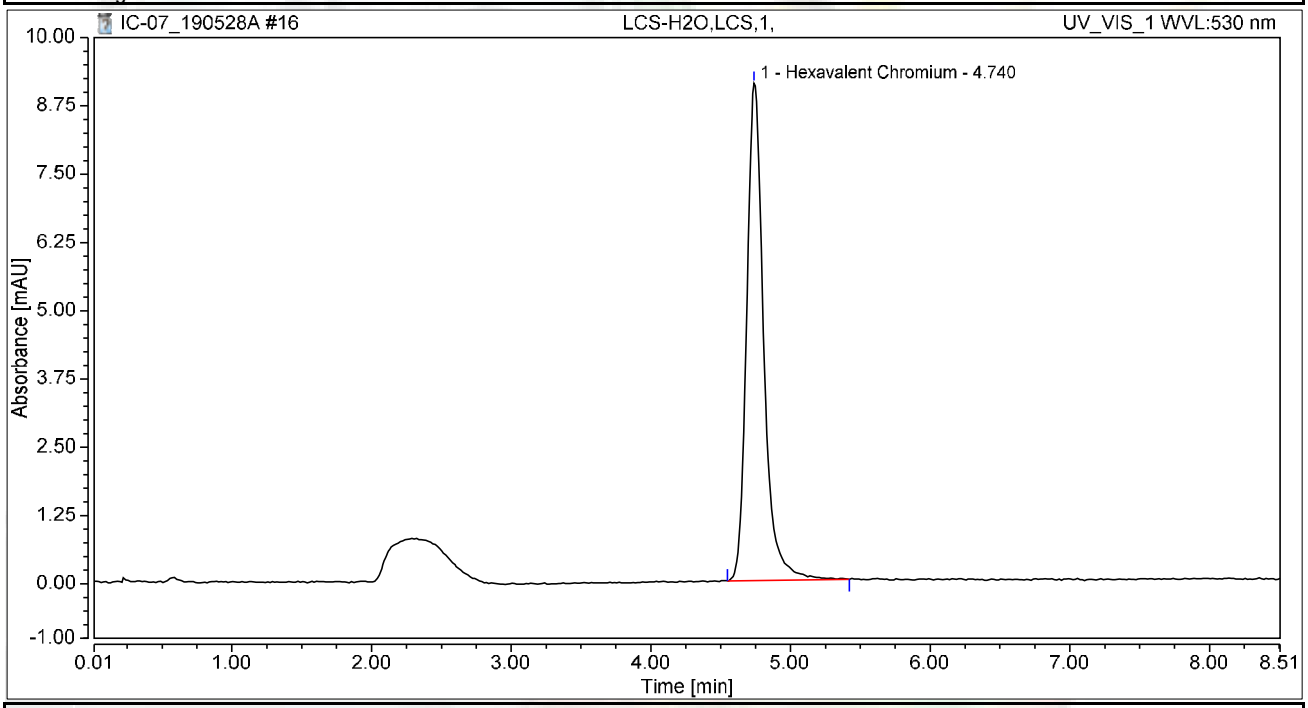
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 09:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

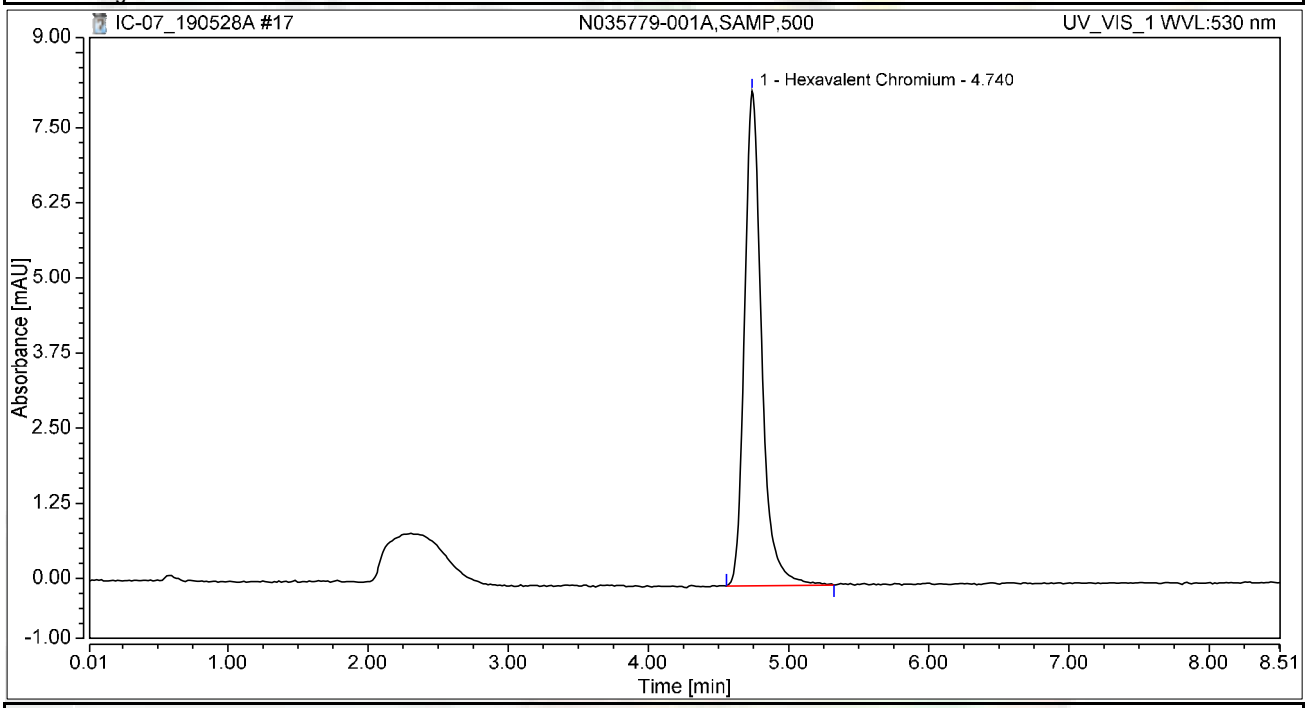
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.287	9.103	100.00	100.00	5.1037
Total:			**1.287**	**9.103**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-001A,SAMP,500**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 10:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

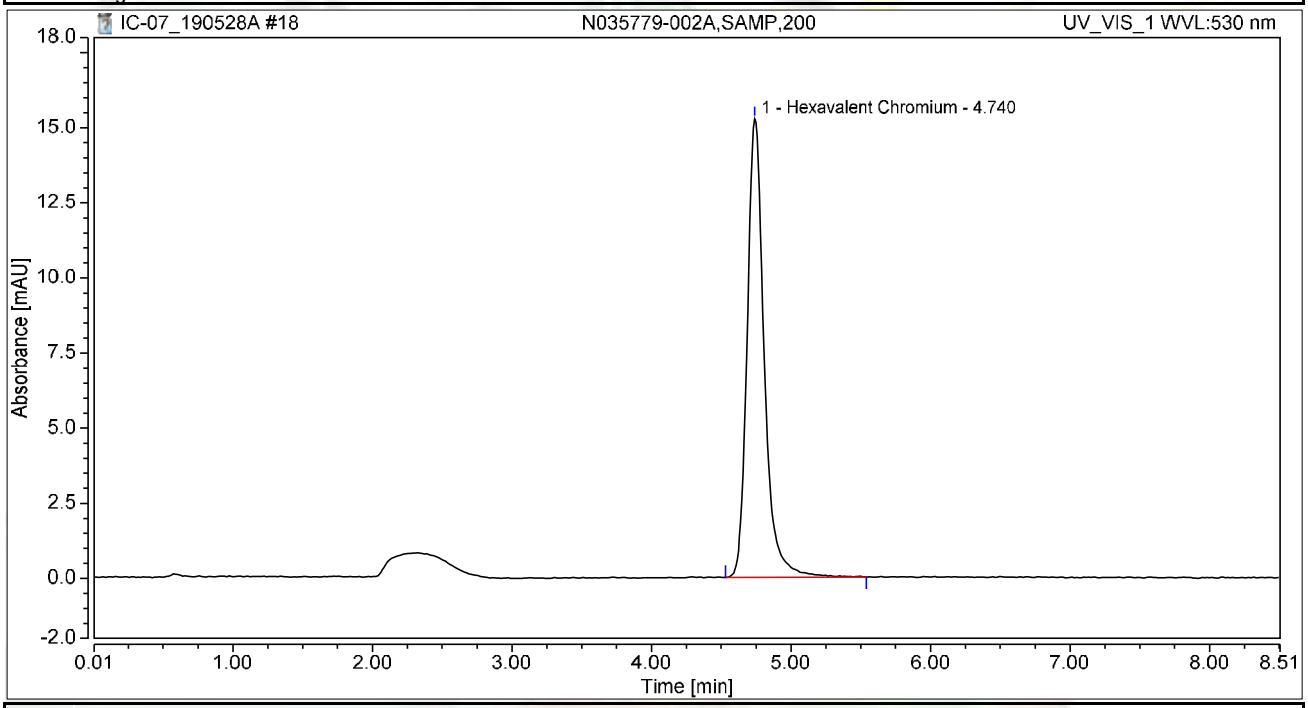
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.164	8.236	100.00	100.00	4.6166
Total:			**1.164**	**8.236**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-002A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 10:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

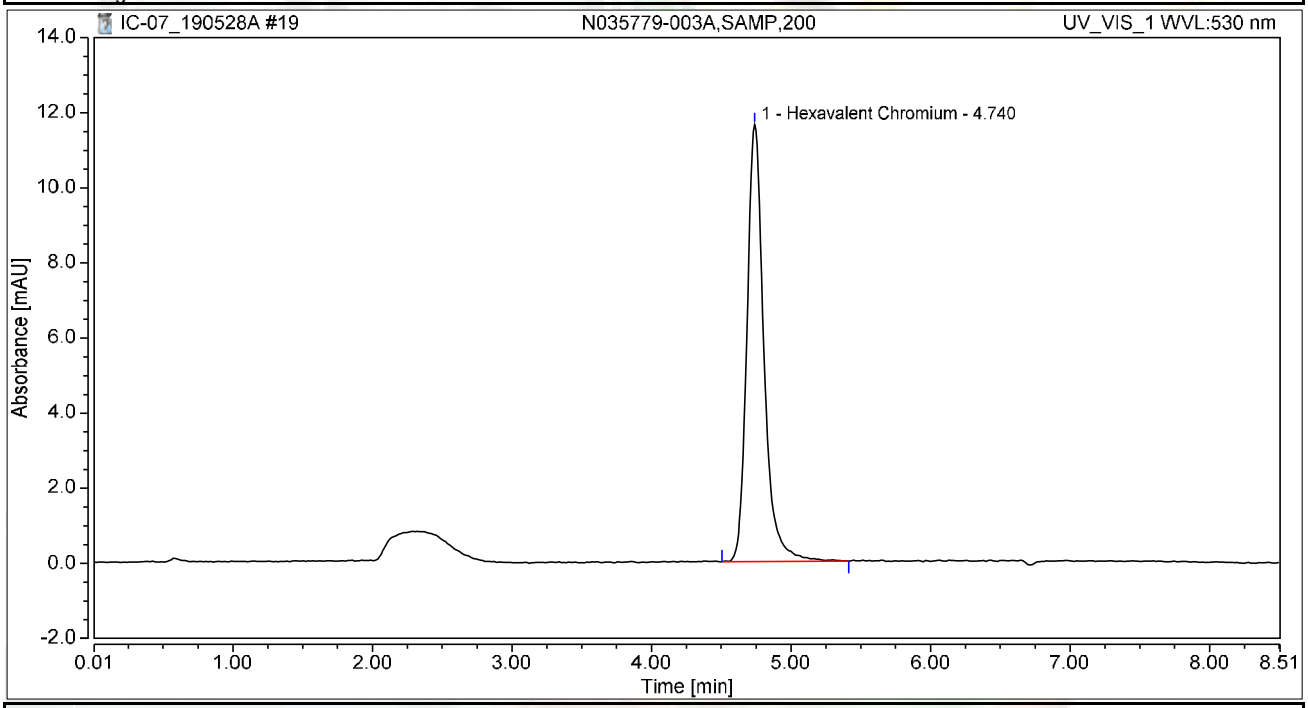
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.163	15.262	100.00	100.00	8.5799
Total:			**2.163**	**15.262**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-003A,SAMP,200**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 10:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

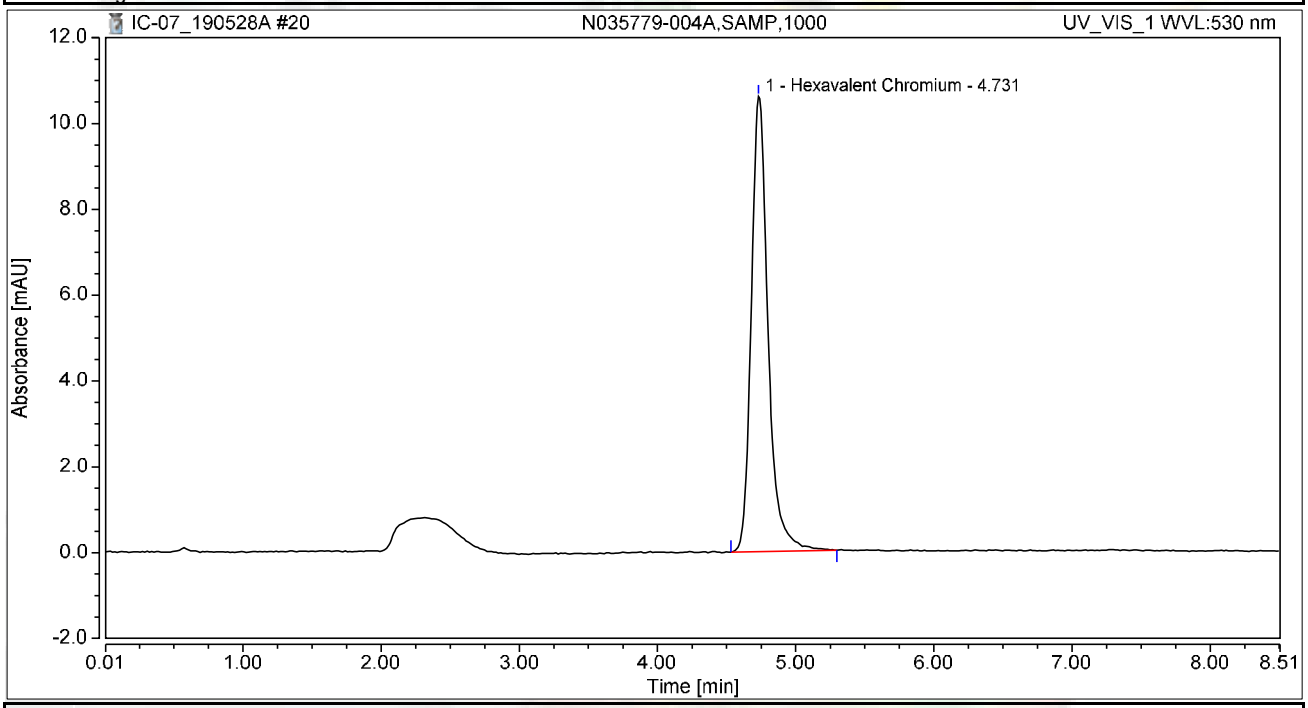
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.645	11.637	100.00	100.00	6.5258
Total:			**1.645**	**11.637**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-004A,SAMP,1000**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 10:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

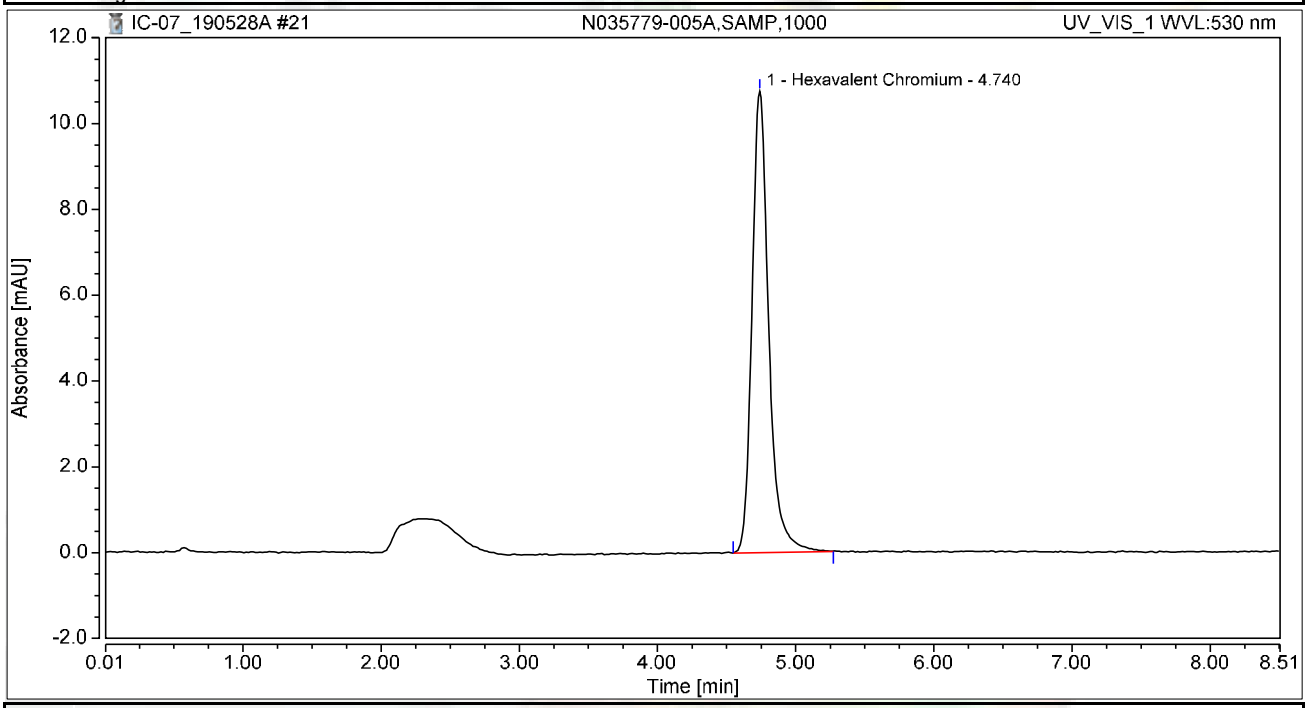
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.495	10.601	100.00	100.00	5.9303
Total:			**1.495**	**10.601**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-005A,SAMP,1000**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 11:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

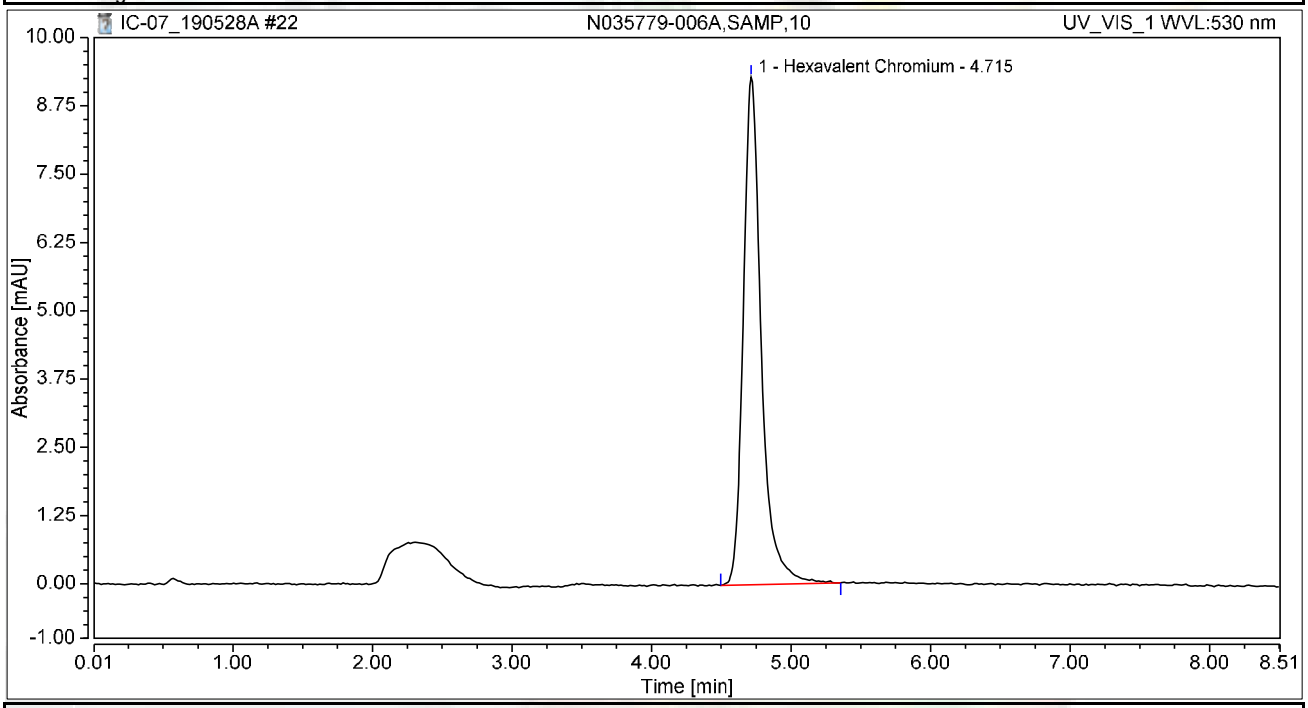
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.511	10.754	100.00	100.00	5.9926
Total:			**1.511**	**10.754**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-006A,SAMP,10**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 11:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

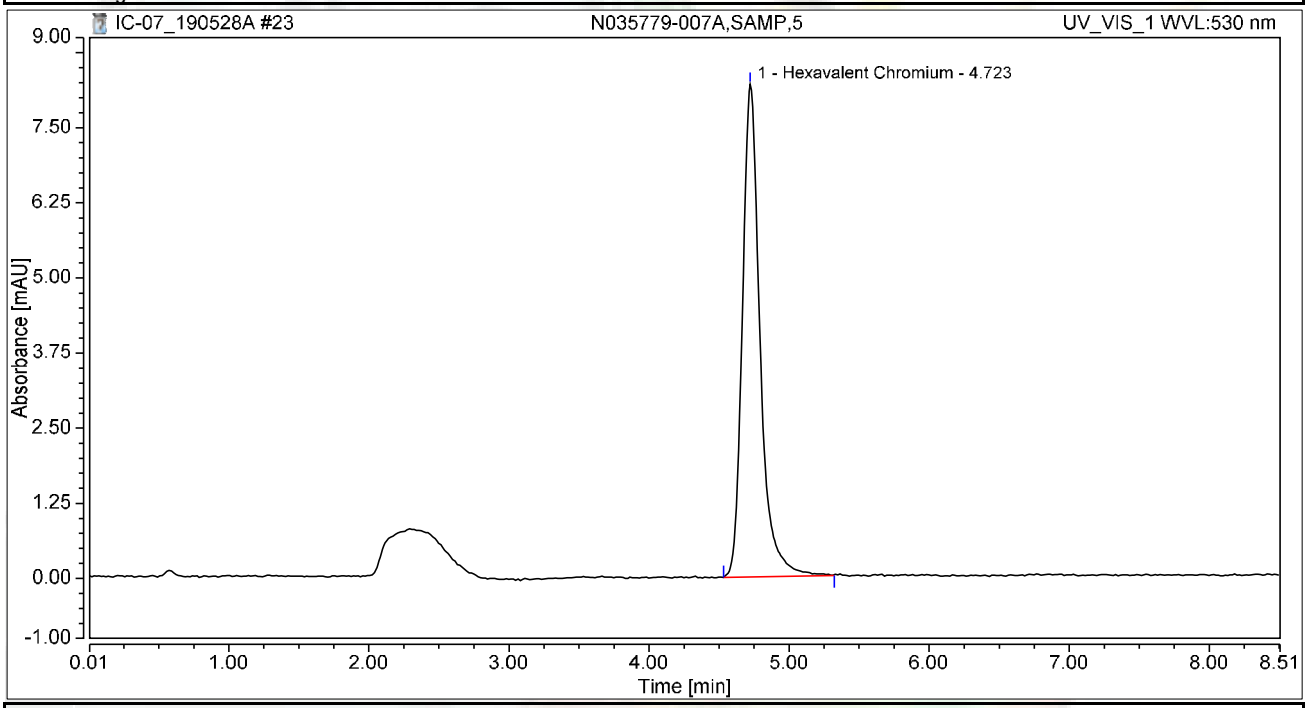
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	1.389	9.292	100.00	100.00	5.5089
Total:			**1.389**	**9.292**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-007A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 11:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

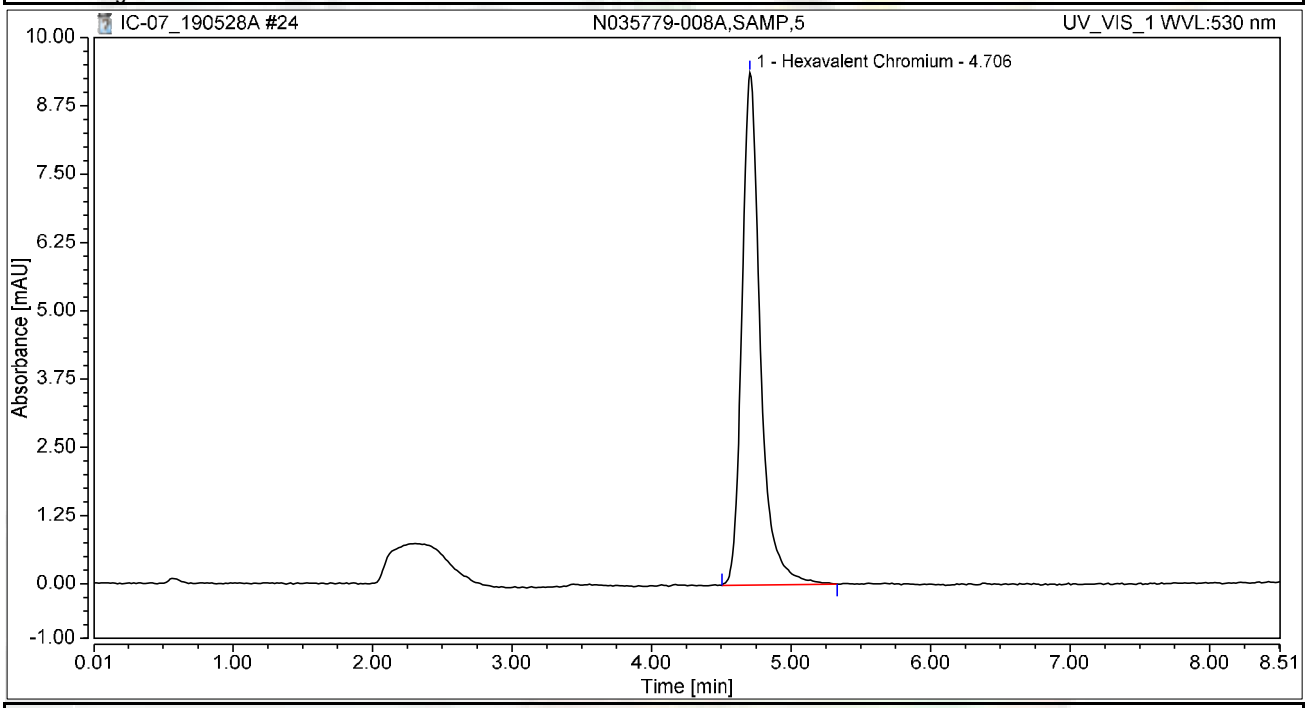
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.199	8.199	100.00	100.00	4.7551
Total:			**1.199**	**8.199**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-008A,SAMP,5**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 11:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

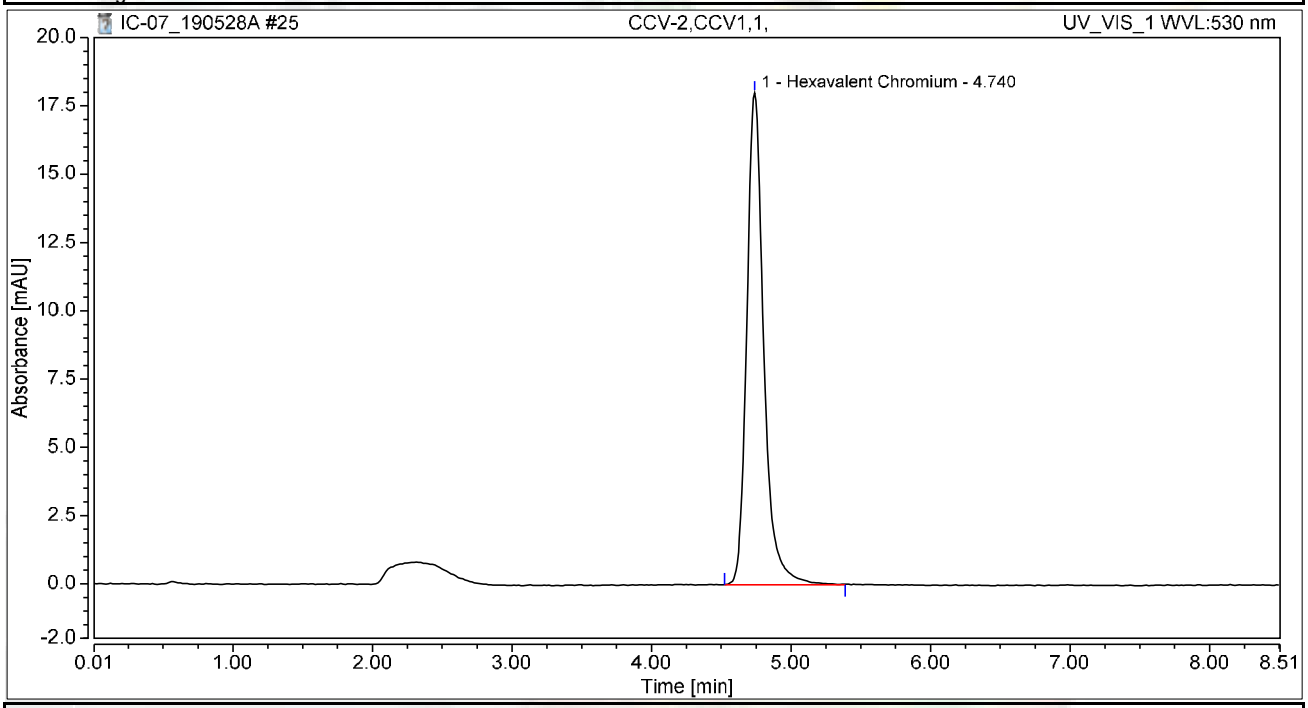
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	1.435	9.383	100.00	100.00	5.6928
Total:			**1.435**	**9.383**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 11:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

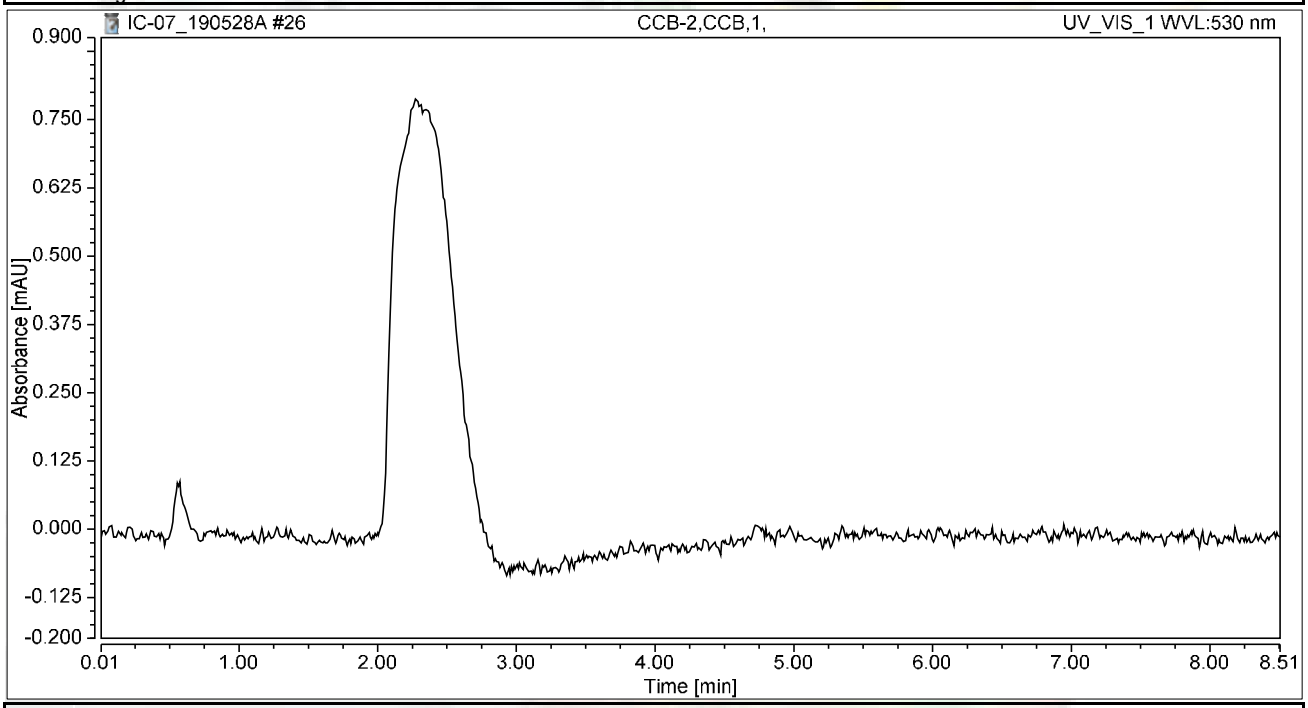
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.539	18.012	100.00	100.00	10.0699
Total:			**2.539**	**18.012**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 11:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

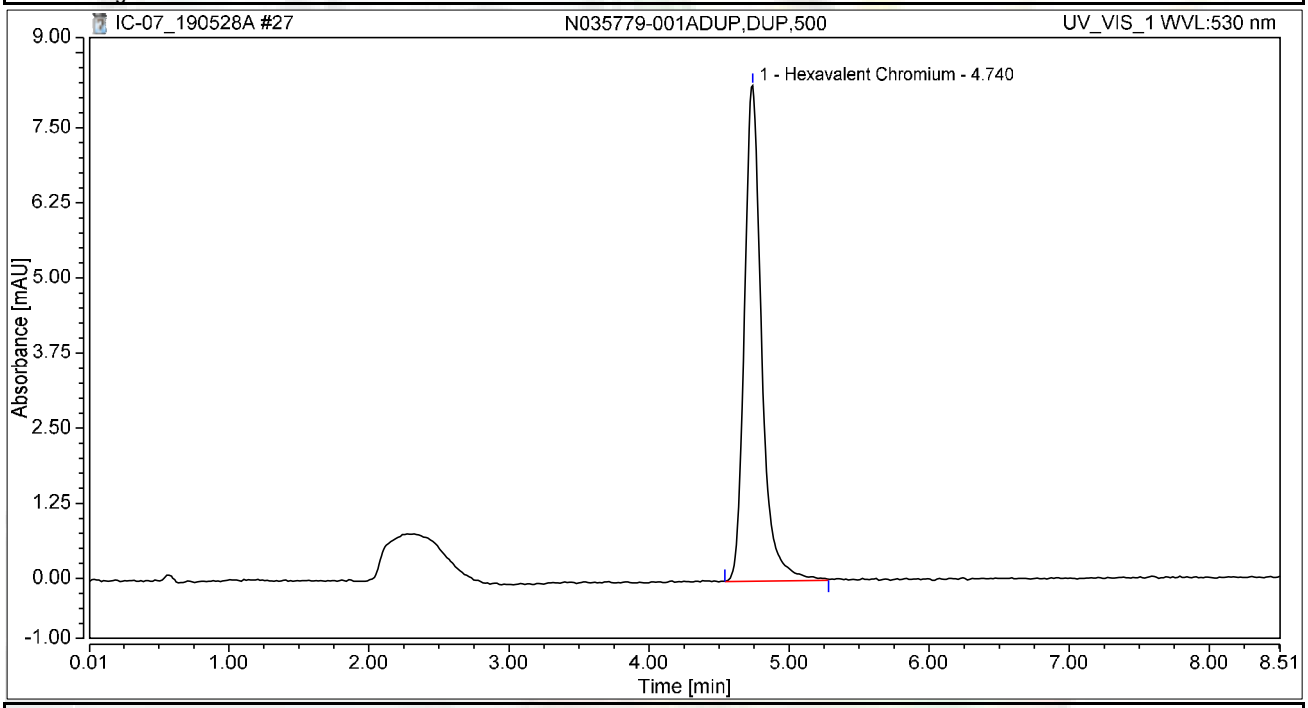
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-001ADUP,DUP,500**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 11:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

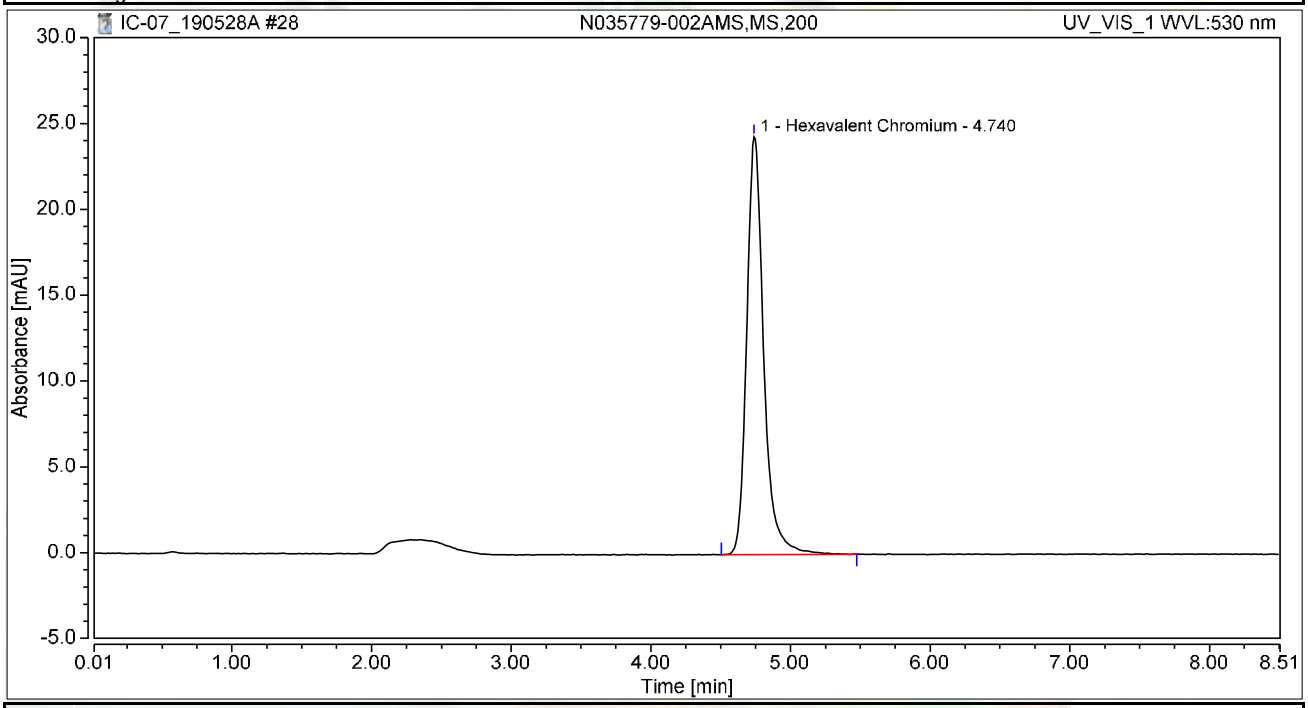
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.174	8.250	100.00	100.00	4.6556
Total:			**1.174**	**8.250**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-002AMS,MS,200**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 12:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

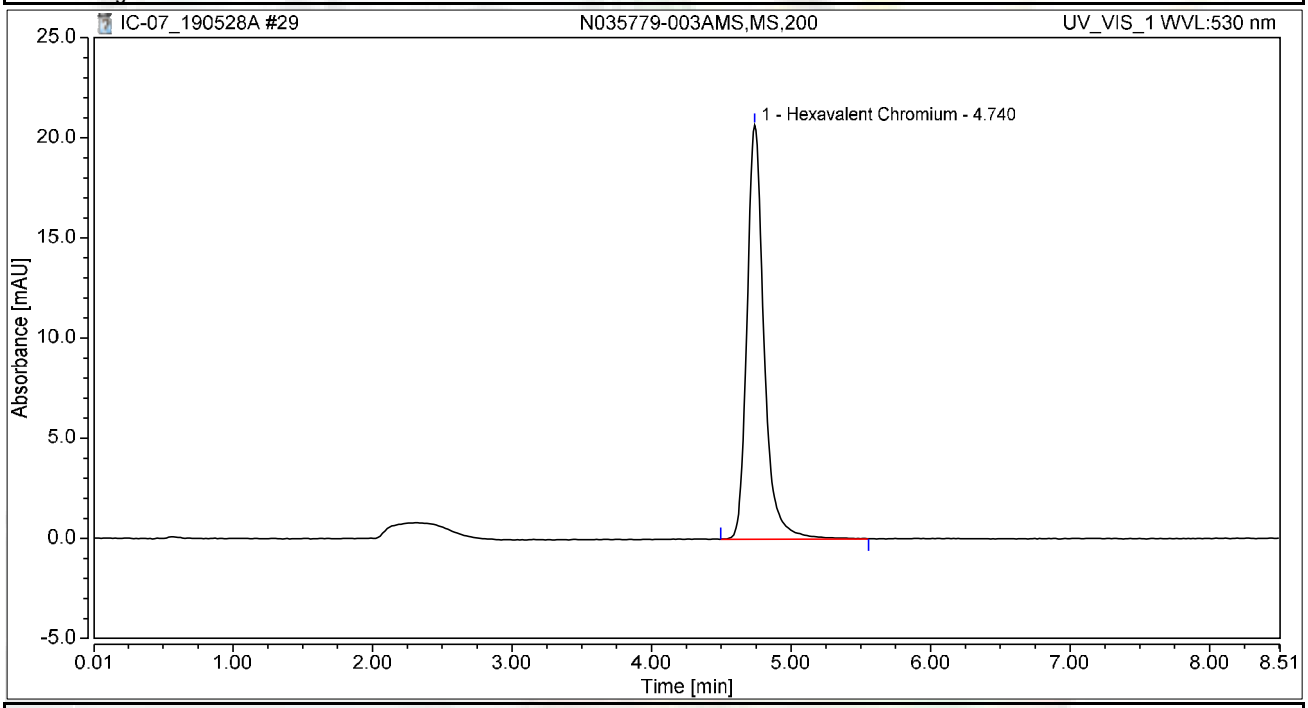
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.427	24.334	100.00	100.00	13.5929
Total:			**3.427**	**24.334**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-003AMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 12:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

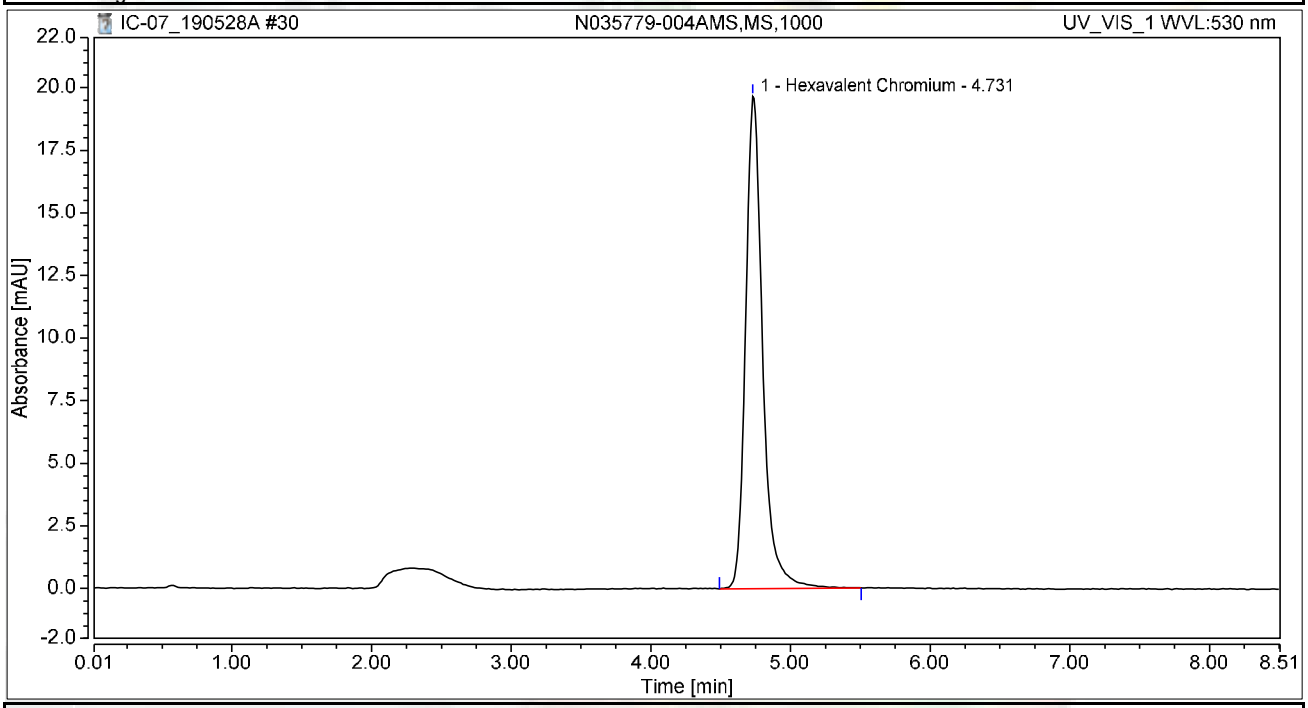
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.922	20.661	100.00	100.00	11.5877
Total:			**2.922**	**20.661**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-004AMS,MS,1000**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 12:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

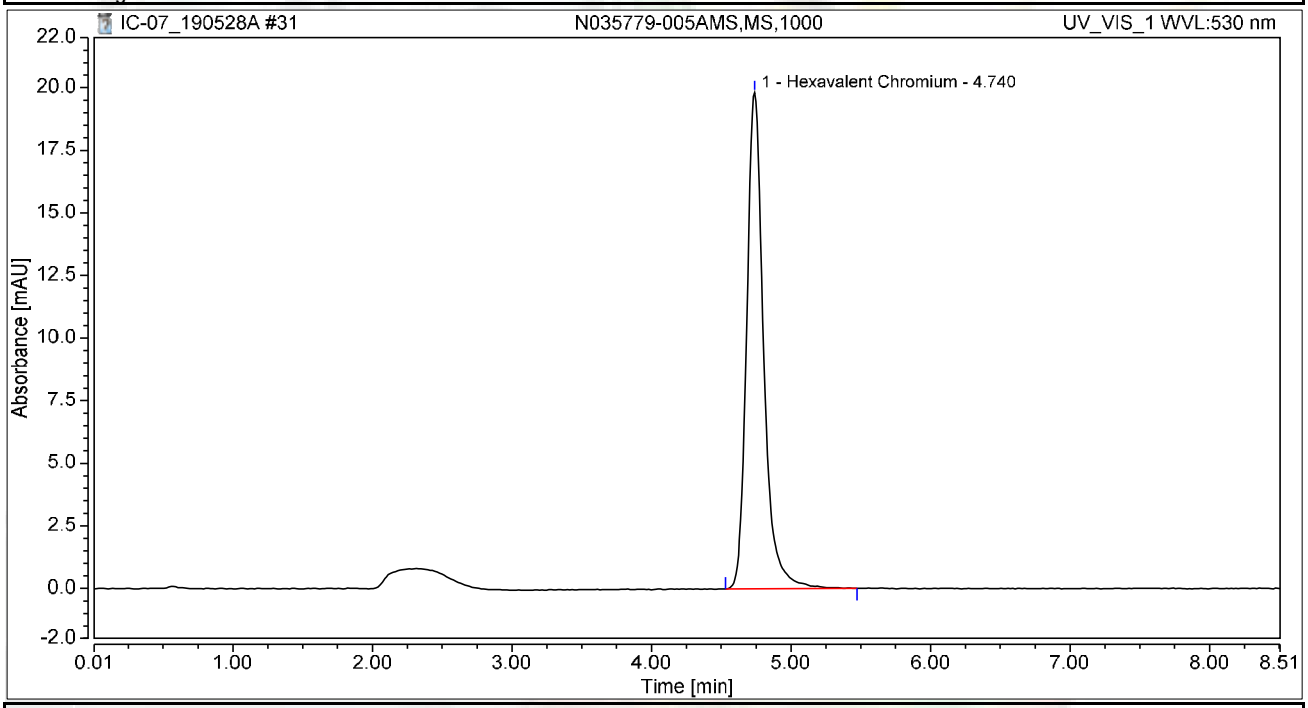
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.793	19.667	100.00	100.00	11.0783
Total:			**2.793**	**19.667**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-005AMS,MS,1000**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 12:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

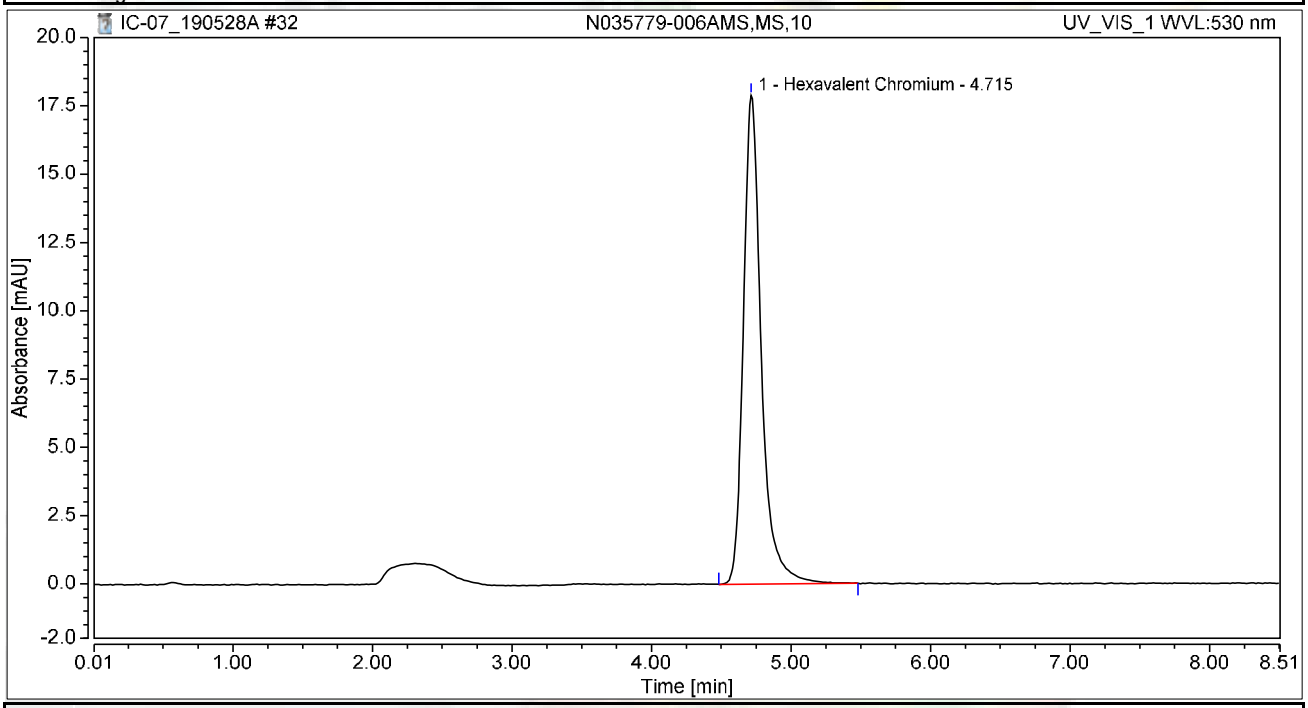
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.796	19.817	100.00	100.00	11.0908
Total:			**2.796**	**19.817**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-006AMS,MS,10**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 12:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

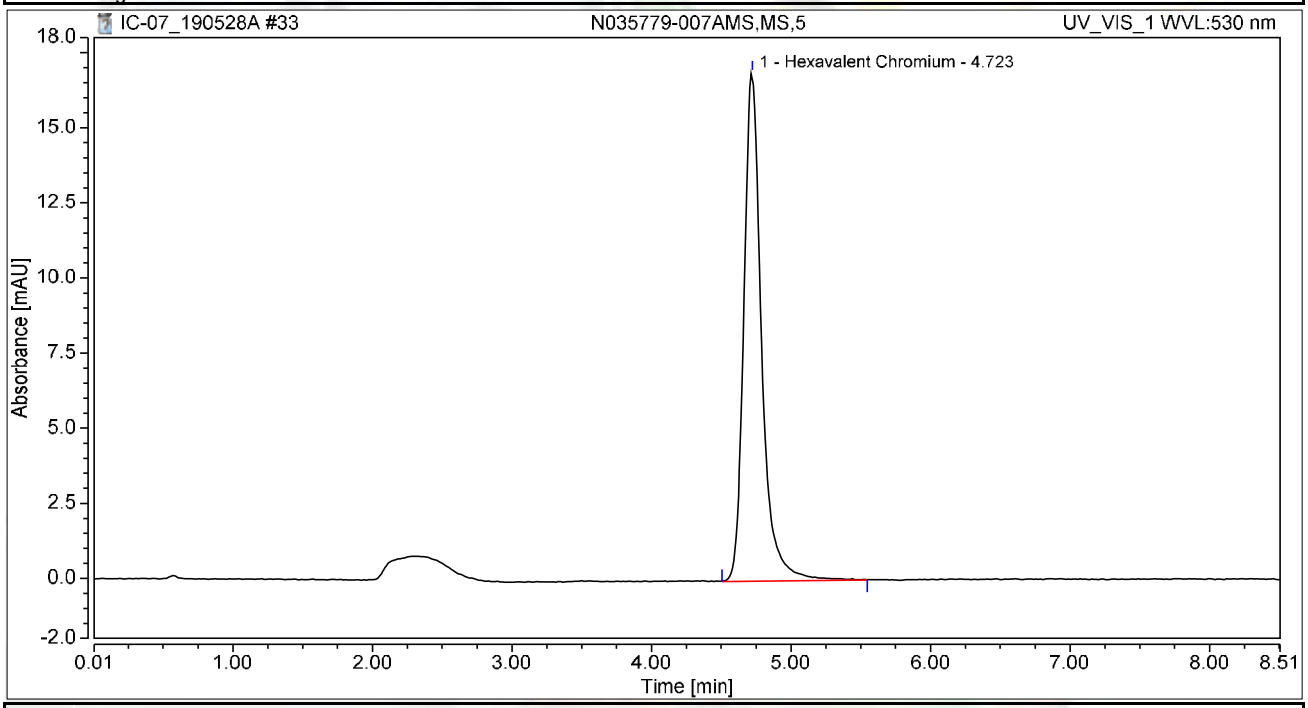
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.665	17.897	100.00	100.00	10.5708
Total:			**2.665**	**17.897**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-007AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 12:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

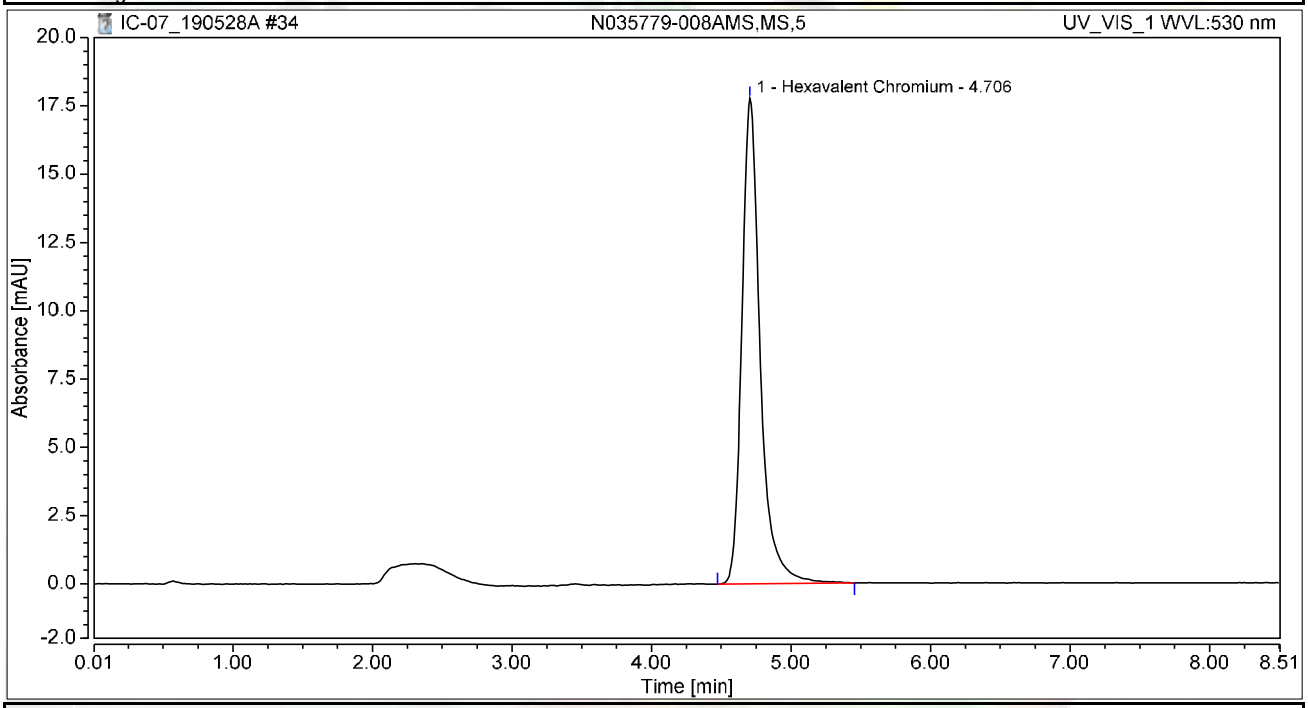
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	2.489	16.913	100.00	100.00	9.8723
Total:			**2.489**	**16.913**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-008AMS,MS,5**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 13:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

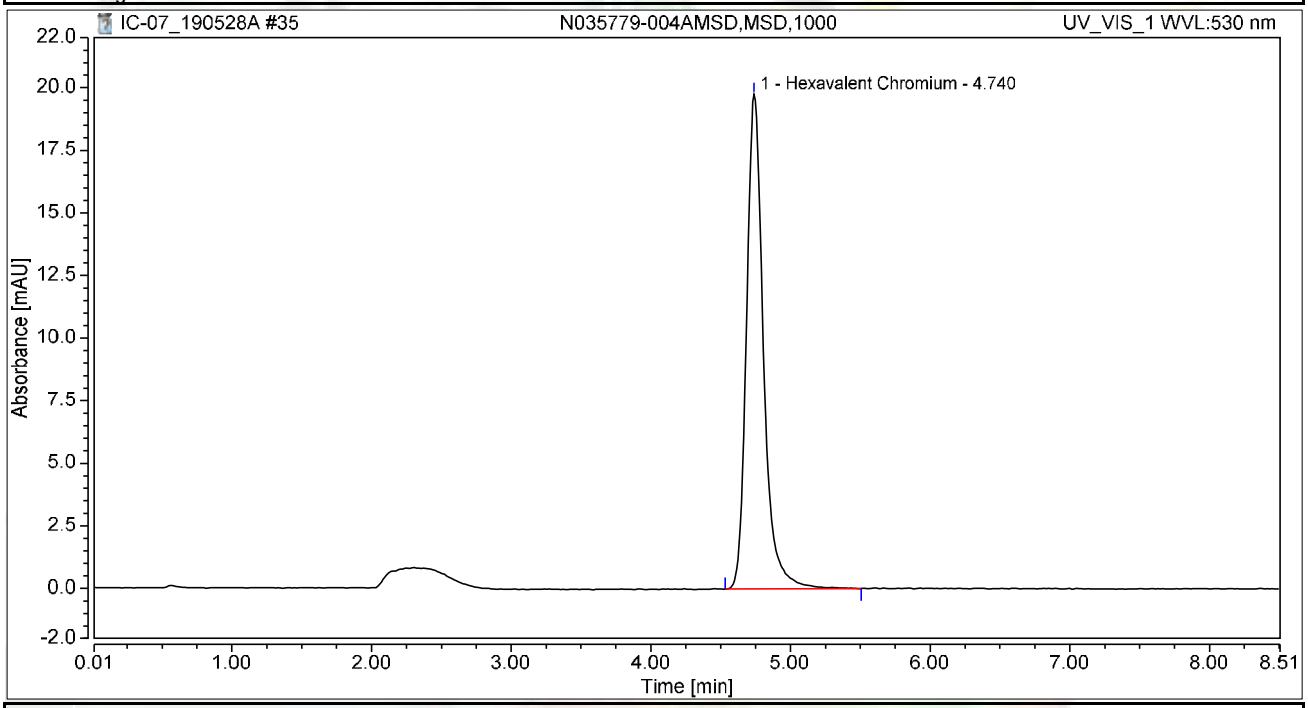
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	2.714	17.782	100.00	100.00	10.7659
Total:			**2.714**	**17.782**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-004AMSD,MSD,1000**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 13:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

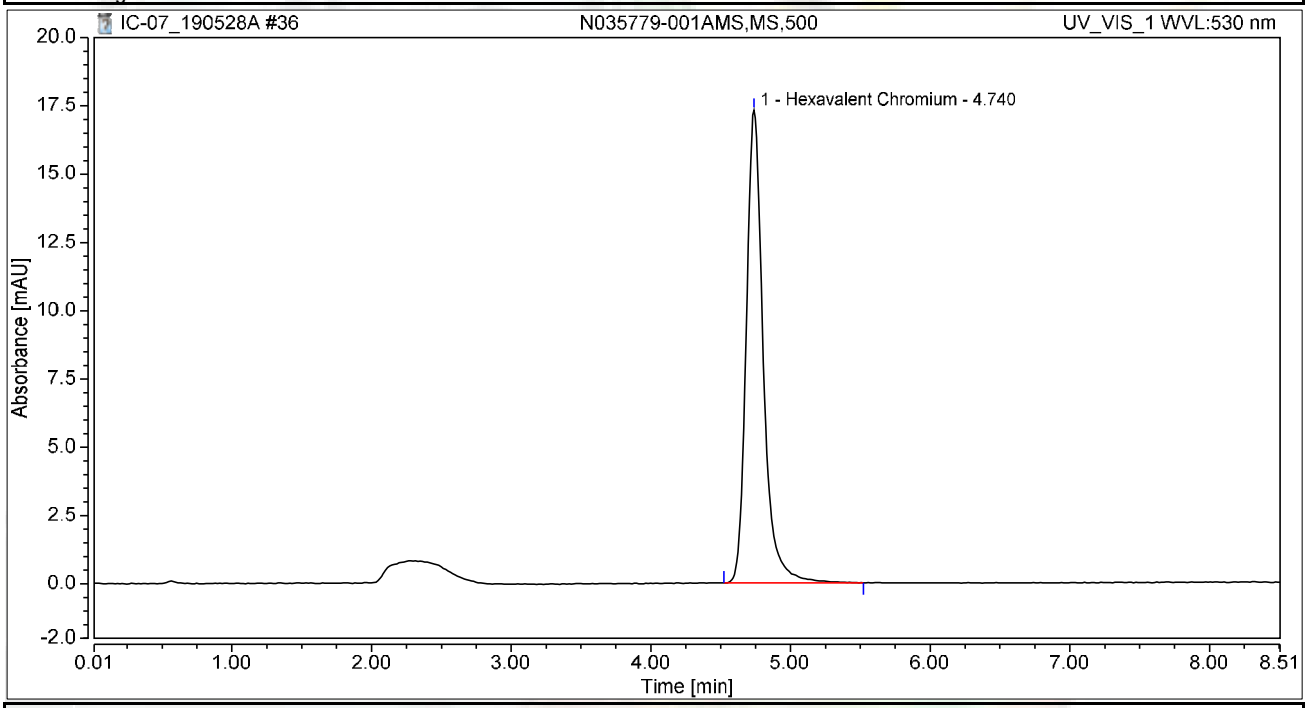
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.787	19.759	100.00	100.00	11.0533
Total:			**2.787**	**19.759**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-001AMS,MS,500**	*Run Time (min):*	**8.49**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 13:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

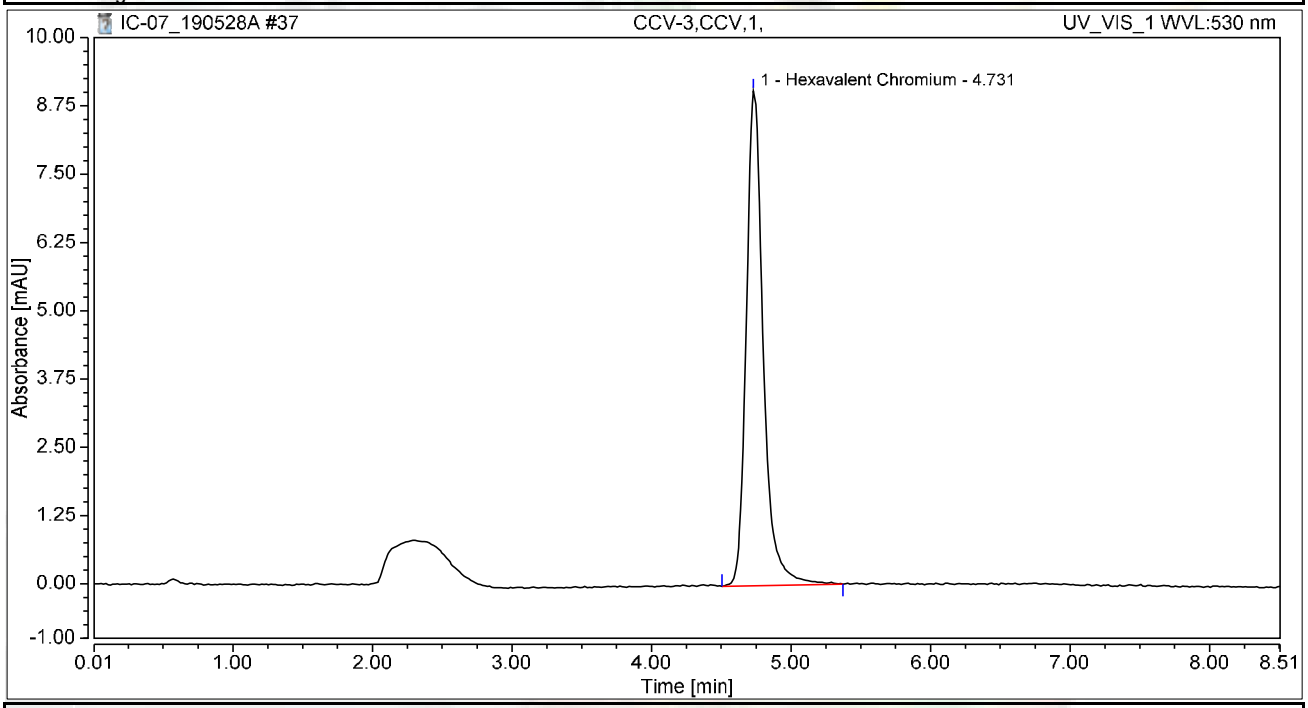
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.445	17.309	100.00	100.00	9.6969
Total:			**2.445**	**17.309**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 13:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

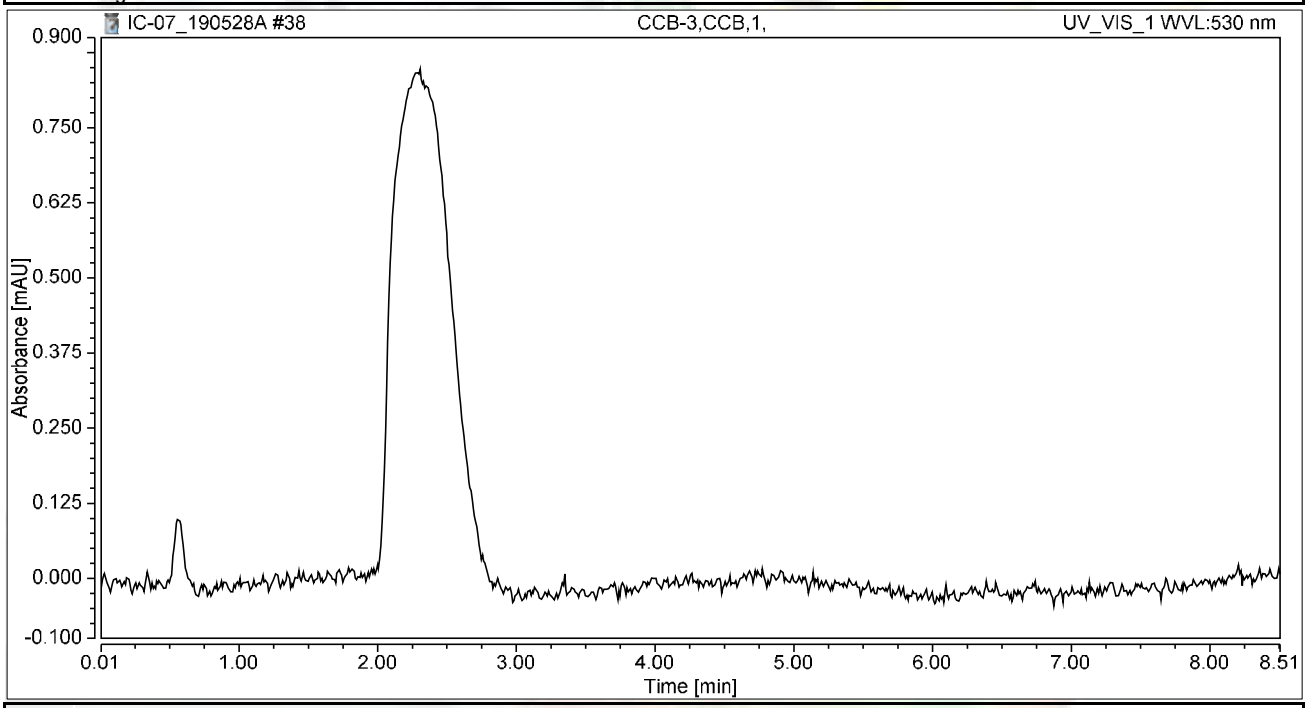
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.283	9.061	100.00	100.00	5.0881
Total:			**1.283**	**9.061**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 13:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

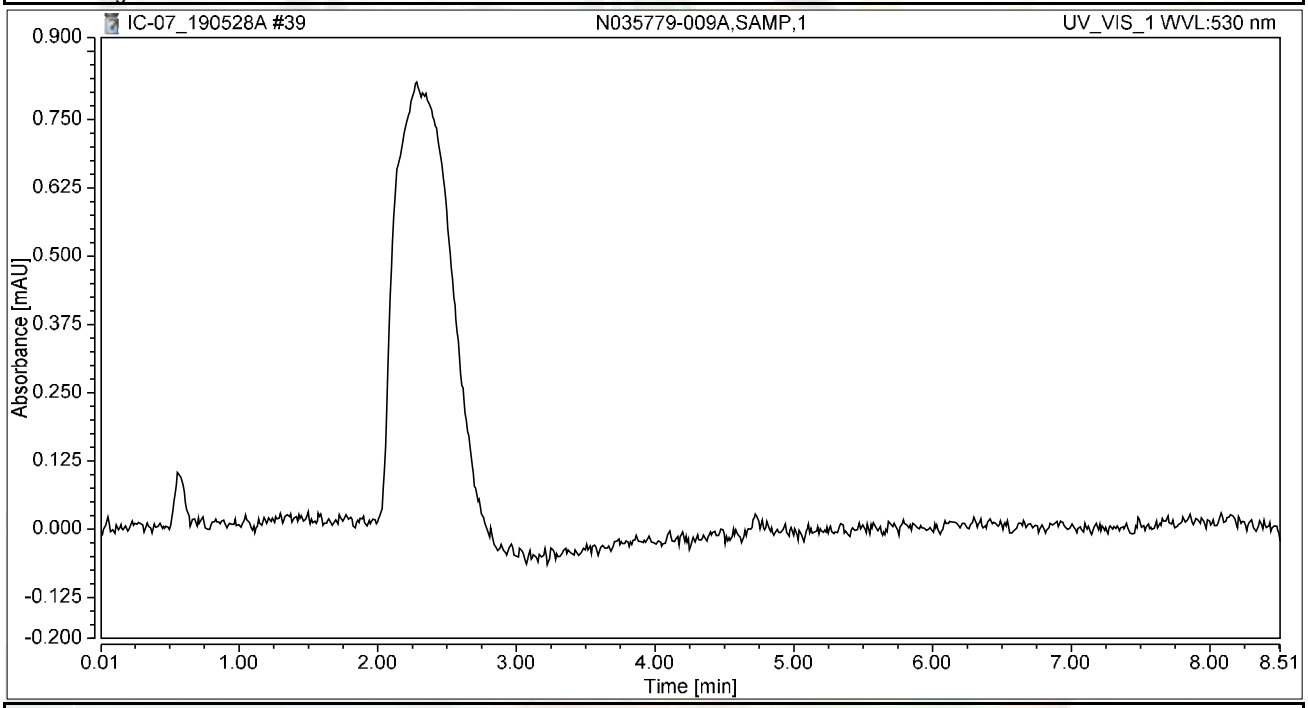
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-009A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 13:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

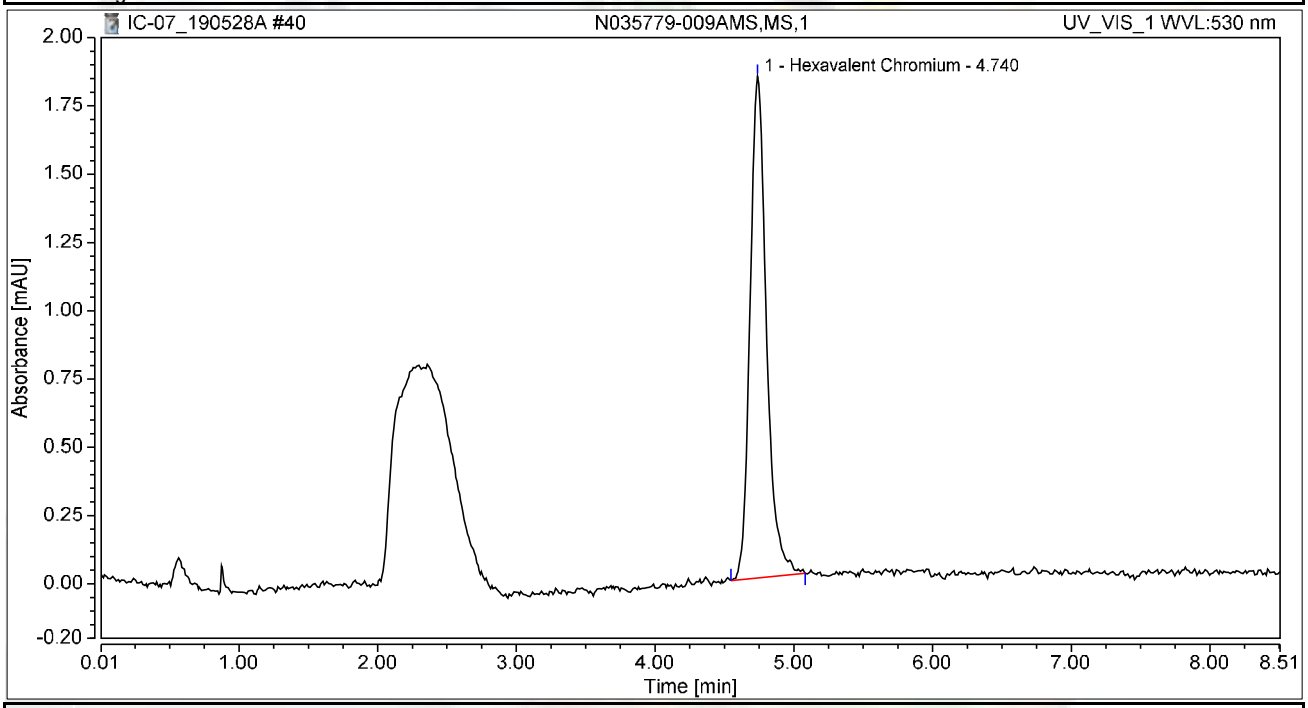
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-009AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 14:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

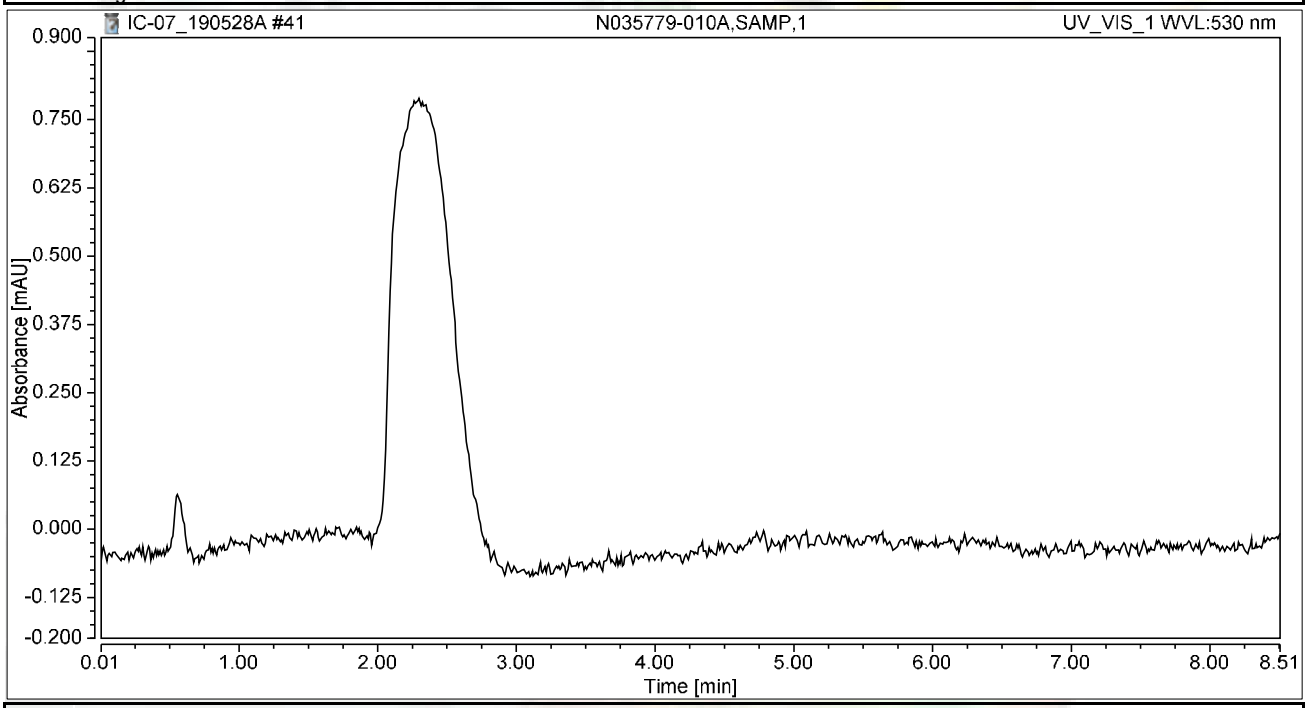
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.252	1.836	100.00	100.00	0.9993
Total:			**0.252**	**1.836**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 14:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

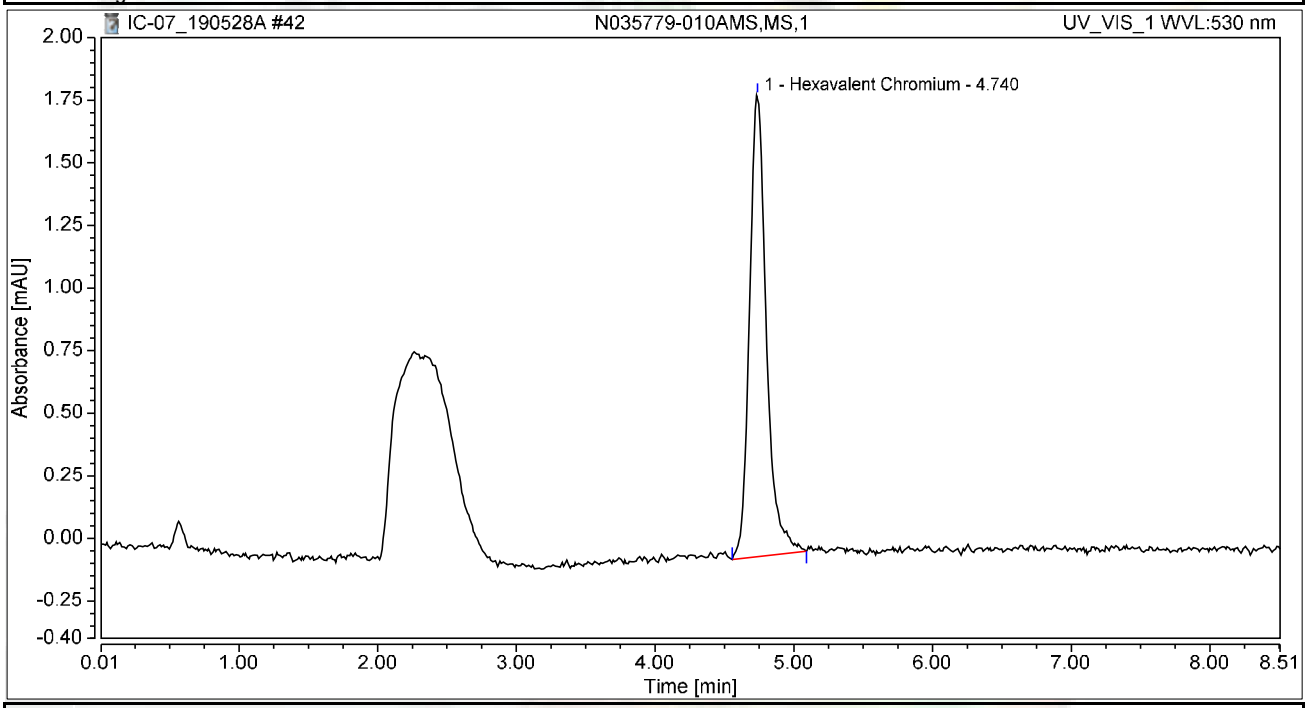
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035779-010AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 14:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

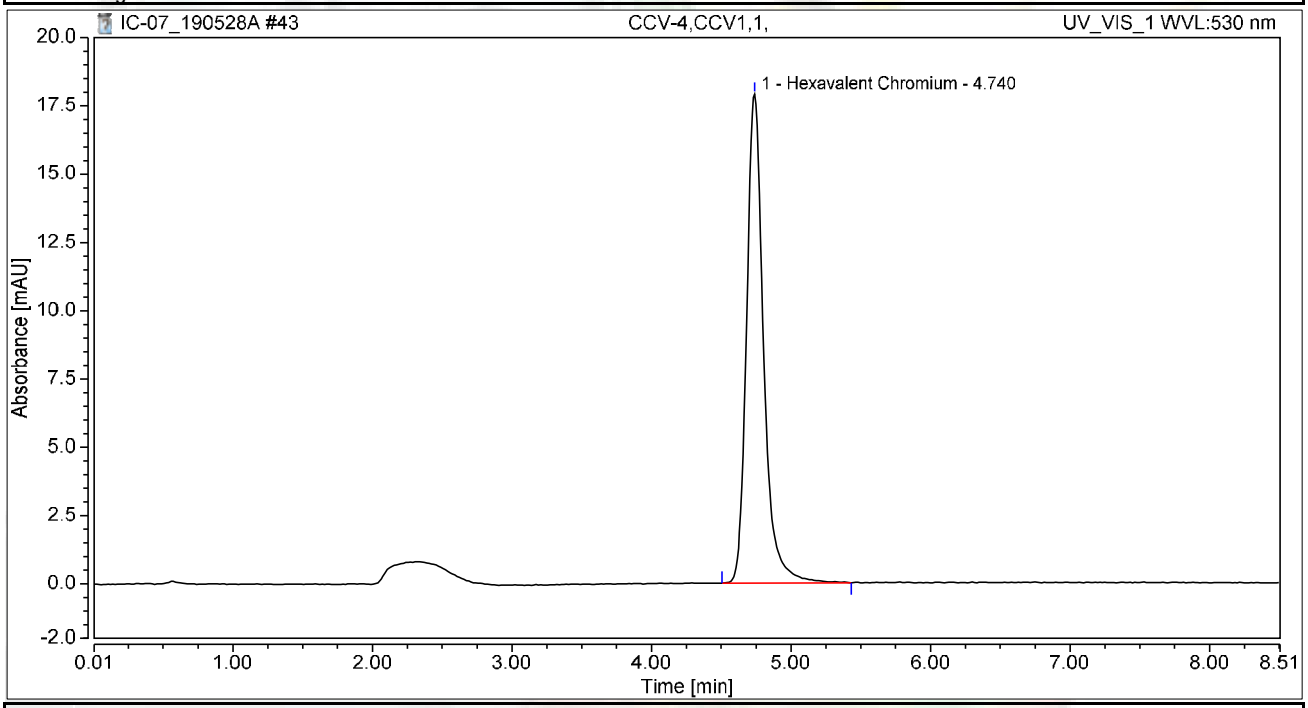
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.260	1.843	100.00	100.00	1.0312
Total:			**0.260**	**1.843**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 14:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

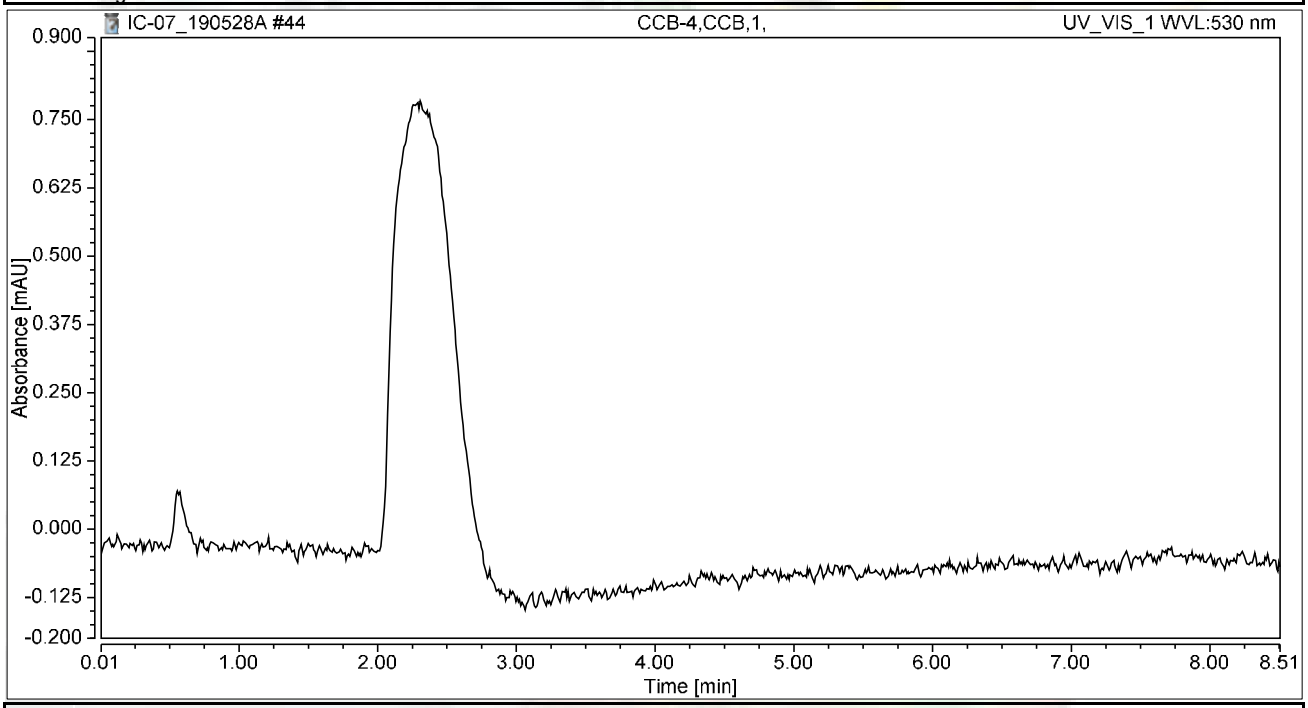
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.534	17.900	100.00	100.00	10.0506
Total:			**2.534**	**17.900**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 14:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

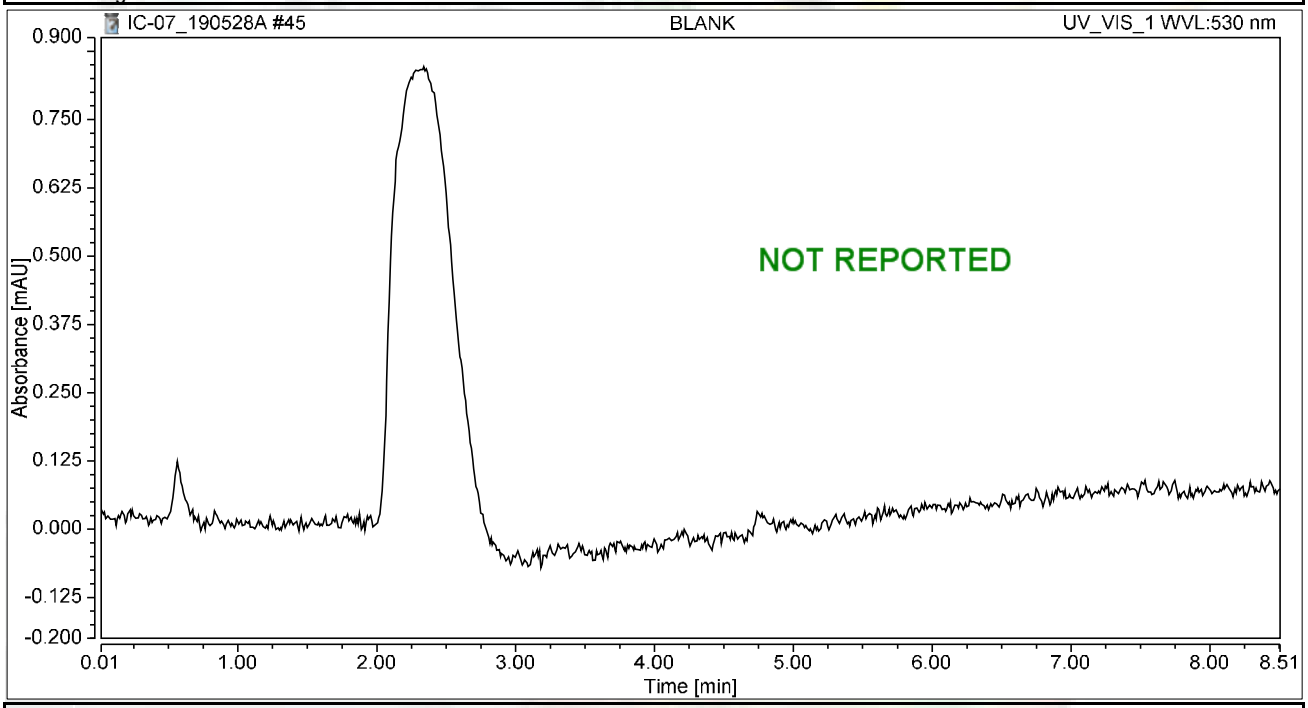
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190503_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**28/May/19 14:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134369 **Analyst:** QBM

ASSET #: N035760, N035761, N035779 **Date Analyzed:** 6/6/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 6/18/2019

2nd Level Reviewer NS Date: 6/18/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N035779-001C**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.7318	*	20
	=	14.636	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 15 mg/L

NS 6/19/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

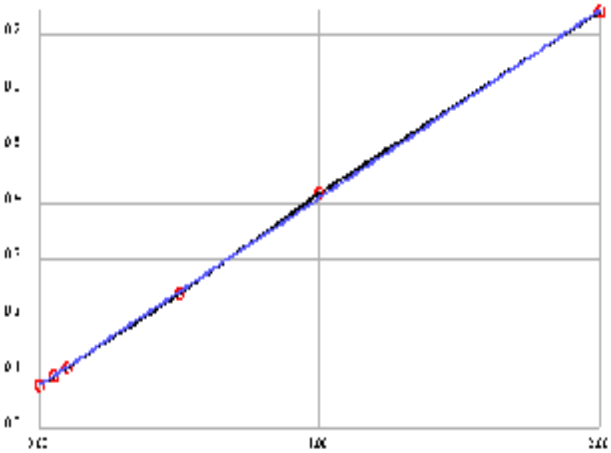
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3346x + 0.0757
Correlation	.999841

Calibrant	Energy	Set	Conc
1	0.0759	0.0000	0.0005
2	0.0922	0.0500	0.0493
3	0.1074	0.1000	0.0947
4	0.2394	0.5000	0.4891
5	0.4193	1.0000	1.0268
6	0.7415	2.0000	1.9896

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **ICV**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402973**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.508	0.050	0.5000	0	102	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCV**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402984**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.472	0.050	0.5000	0	94.4	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCV**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402995**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.513	0.050	0.5000	0	103	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCV**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3403002**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.461	0.050	0.5000	0	92.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **ICB**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402974**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCB**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402985**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCB**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3402996**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134369**
Client ID: **CCB**	Batch ID: **R134369**	TestNo: **SM4500-NO3**		Analysis Date: **6/6/2019**	SeqNo: **3403003**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
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Time start: 06-06-2019 18:30
Time end: 06-06-2019 21:14

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	20:36:48	0.0017		0.0763
2	<BLANK>	20:37:42	0.0002		0.0758
3	<CAL1>	20:38:43	0.0005	[0]	0.0759
4	<CAL2>	20:39:38	0.0493	[0.05]	0.0922
5	<CAL3>	20:40:34	0.0947	[0.1]	0.1074
6	<CAL4>	20:41:34	0.4891	[0.5]	0.2394
7	<CAL5>	20:42:30	1.0268	[1]	0.4193
8	<CAL6>	20:43:25	1.9896	[2]	0.7415
9	,BLANK,BLANK,1, NOT REPORTED	20:44:19	0.0194		0.0822
10	,ICV,ICV,1,	20:45:21	0.5080		0.2457
11	,ICB,ICB,1,	20:46:16	0.0053		0.0775
12	,MB-H2O,MBLK,1,	20:47:12	0.0002		0.0758
13	,LCS-H2O,LCS,1,	20:48:12	0.4658		0.2316
14	,N035760-001B,SAMP,1,	20:49:08	0.0340		0.0871
15	,N035761-001C,SAMP,1,	20:50:03	0.0851		0.1042
16	,N035761-002C,SAMP,1,	20:51:03	0.0265		0.0846
17	,N035761-002CDUP,DUP,1,	20:51:59	0.0242		0.0838
18	,N035761-003C,SAMP,5,	20:52:54	0.6526		0.2941
19	,N035761-003CMS,MS,5,	20:53:50	1.1705		0.4674
20	,N035761-003CMSD,MSD,5,	20:54:50	1.1884		0.4734
21	,BLANK, NOT REPORTED	20:55:46	0.0092		0.0788
22	,CCV-1,CCV,1,	20:56:41	0.4721		0.2337
23	,CCB-1,CCB,1,	20:57:41	-0.0021		0.0750
24	,N035761-004C,SAMP,1,	20:58:37	0.2196		0.1492
25	,N035761-005C,SAMP,1,	20:59:20	0.2217		0.1499
26	,N035761-010C,SAMP,1,	21:00:09	0.5429		0.2574

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035779-006C,SAMP,1,	21:00:52	0.3693		0.1993
28	,N035761-006C,SAMP,5,	21:01:40	0.8657		0.3654
29	,N035761-007C,SAMP,5,	21:02:24	0.8588		0.3631
30	,N035761-008C,SAMP,1,	21:03:07	0.6876		0.3058
31	,N035779-001C,SAMP,20,	21:03:49	0.7318		0.3206
32	,N035779-002C,SAMP,10,	21:04:33	0.8732		0.3679
33	,BLANK, NOT REPORTED	21:05:21	-0.0004		0.0756
34	,CCV-2,CCV,1,	21:06:04	0.5125		0.2472
35	,CCB-2,CCB,1,	21:06:52	-0.0063		0.0736
36	,N035779-003C,SAMP,10,	21:07:36	0.7859		0.3387
37	,N035779-004C,SAMP,20,	21:08:18	0.5399		0.2564
38	,N035779-005C,SAMP,20,	21:09:01	0.5316		0.2536
39	,N035779-007C,SAMP,5,	21:09:45	0.4025		0.2104
40	,N035779-008C,SAMP,5,	21:10:33	0.4730		0.2340
41	,BLANK, NOT REPORTED	21:11:16	-0.0087		0.0728
42	,CCV-3,CCV,1,	21:12:04	0.4614		0.2301
43	,CCB-3,CCB,1,	21:12:47	-0.0132		0.0713

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 6/6/2019
Time Analyzed: 6:30 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035760-001B		7.41							
N035761-001C		8.00							
N035761-002C		7.70							
N035761-003C		8.16							
N035761-004C		8.09							
N035761-005C		8.26							
N035761-006C		8.80							
N035761-007C		8.60							
N035761-008C		7.77							
N035761-010C		8.66							
N035779-001C		7.16							
N035779-002C		7.21							
N035779-003C		8.35							
N035779-004C		7.99							
N035779-005C		7.46							
N035779-006C		7.05							
N035779-007C		8.36							
N035779-008C		8.25							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74195
ASSET #: N035779

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/16/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X			X	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X			X		
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented	X			X		
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of Se in N035779-007B / 008B failed. For rerun.
% RSD of As in LLICV failed. However, % Recovery passed criteria.
% Rec of Mo in N035761-001B-PS failed, high bias. However, LCS passed criteria.
Dilution test for Mn failed. However, PS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/1/2019

2nd Level Reviewer NS 7/1/2019 Date: —

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74195
ASSET #: N035779

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/17/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)		X			X	
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.			X			X
24. LCS compounds within control limits.			X			X
25. MS/MSD, RPD's are within control limits			X			X
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented	X			X		
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of Se in N035779-008B failed. For rerun.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/1/2019

2nd Level Reviewer NS 7/1/2019 Date: _____

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74195
ASSET #: N035779

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 6/19/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?		X		X	~~X~~	
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.	X			X		
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).		X			X	
23. Method blank values are below 1/2 the reporting limit.			X			X
24. LCS compounds within control limits.			X			X
25. MS/MSD, RPD's are within control limits			X			X
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented	X			X		
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments: for Se rerun on sample N035779-008

IS of Se in CCV2 failed.

~~CAR-2792-IS of Selenium in CCV2 failed, biased high. However, recovery is within criteria. All other QCs passed criteria. Reported from this run is sample N035779-008 for Selenium only as this sample was reanalyzed for several runs due to failing RSD of sample. The result is comparable for all runs.~~

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/1/2019

2nd Level Reviewer NS 7/1/2019 Date: ~~7/1/2019~~

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Molybdenum concentration, in ug/L , in the original sample as follows:

Molybdenum , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035779-001B** , the concentration in ug/L is calculated as follows:

Molybdenum , ug/L = 15.421 * 1 *(25 / 25)

Molybdenum , ug/L = 15.421

Reporting results in two significant figures,

Molybdenum, ug/L = 15

NS 7/1/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.085	13.49	15	PASS	0.16	18.038	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.48	6.57	15	PASS	0.57	2.94	15	PASS
Std3-5/50 ppb	ICAL	1	5.28	5.6	15	PASS	5.53	2.7	15	PASS
Std4-10/100 ppb	ICAL	1	10.096	4.37	15	PASS	10.67	3.34	15	PASS
Std5-20/200 ppb	ICAL	1	19.92	3.3	15	PASS	20.87	4.049	15	PASS
Std6-40/400 ppb	ICAL	1	39.43	2.99	15	PASS	41.053	3.6	15	PASS
Std7-100/1000 ppb	ICAL	1	95.093	1.68	15	PASS	99.31	1.68	15	PASS
Std8-200/2000 ppb	ICAL	1	202.56	2.83	15	PASS	191.83	2.067	15	PASS
ICV	ICV	1	9.015	2.032	15	PASS	91.67	1.74	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	0.94	5.97	20	PASS	0.49	8.051	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.65	3.63	15	PASS	17.74	3.69	15	PASS
LLICV	CCV1	1	0.96	4.38	20	PASS	0.48	1	20	PASS
MB-74195	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-74195	LCS	1	10.35	2.85	15	PASS	106.81	3.62	15	PASS
N035761-001B	SAMP	1	<0.000	N/A	15	<PQL	18.021	2.46	15	PASS
N035761-001B	SAMP	5	<0.000	N/A	15	<PQL	4.081	3.85	15	PASS
N035761-001B	SAMP	25	<0.000	N/A	15	<PQL	0.85	3.57	15	PASS
N035761-001B-PS	PS	1	9.72	0.85	15	PASS	106.67	3.95	15	PASS
N035761-001B-PS	PS	5	1.87	3.73	15	PASS	24.52	2.39	15	PASS
N035761-001B-MS	MS	1	8.44	1.81	15	PASS	106.87	1.9	15	PASS
N035761-001B-MS	MS	5	1.83	2.8	15	PASS	24.15	2.57	15	PASS
CCV1	CCV	1	19.98	3.92	15	PASS	20.25	3.5	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035761-001B-MSD	MSD	1	8.47	2.27	15	PASS	107.46	0.9	15	PASS
N035761-001B-MSD	MSD	5	1.81	5.39	15	PASS	24.029	2.86	15	PASS
N035761-002B	SAMP	1	0.45	3.06	15	PASS	182.92	2.93	15	PASS
N035761-002B	SAMP	5	<0.000	N/A	15	<PQL	41.91	2.73	15	PASS
N035761-003B	SAMP	1	31.097	3.61	15	PASS	5.42	4.31	15	PASS
N035761-003B	SAMP	5	7.043	3.81	15	PASS	1.13	5.83	15	PASS
N035761-004B	SAMP	1	61.27	2.72	15	PASS	6.68	2.45	15	PASS
N035761-004B	SAMP	5	13.68	3.4	15	PASS	2.5	2.61	15	PASS
N035761-005B	SAMP	1	73.9	2.78	15	PASS	6.73	3.67	15	PASS
N035761-005B	SAMP	5	16.62	4.35	15	PASS	2.43	4.82	15	PASS
CCV2	CCV	1	20.43	3.64	15	PASS	21.097	3.24	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035761-006B	SAMP	1	1829.81	2.46	15	PASS	28.73	2.96	15	PASS
N035761-006B	SAMP	5	422.7	3.089	15	PASS	7.43	4.00095	15	PASS
N035761-006B	SAMP	25	79.56	3.033	15	PASS	1.57	2.87	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035761-007B	SAMP	1	1823.73	1.68	15	PASS	28.88	2.12	15	PASS
N035761-007B	SAMP	5	427.65	3.25	15	PASS	7.87	3.87	15	PASS
N035761-007B	SAMP	25	82.64	3.85	15	PASS	1.57	2.43	15	PASS
N035761-008B	SAMP	1	6.7	1.71	15	PASS	177.25	2.88	15	PASS
N035761-008B	SAMP	5	1.48	3.85	15	PASS	40.55	3.37	15	PASS
N035761-010B	SAMP	1	280.94	2.33	15	PASS	186.17	2.0089	15	PASS
N035761-010B	SAMP	5	55.4	3.28	15	PASS	42.054	3.38	15	PASS
CCV3	CCV	1	20.042	3.14	15	PASS	20.68	3.72	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N035761-013B	SAMP	1	0.33	12.67	15	PASS	4.84	0.91	15	PASS
N035761-013B	SAMP	5	<0.000	N/A	15	<PQL	1.95	3.61	15	PASS
N035779-001B	SAMP	1	2365.33	2.97	15	PASS	0.33	7.9	15	PASS
N035779-001B	SAMP	5	531.47	5.11	15	PASS	0.049	50.15	15	<PQL
N035779-001B	SAMP	25	96.63	3.45	15	PASS	<0.000	N/A	15	<PQL
N035779-002B	SAMP	1	1850.18	2.37	15	PASS	<0.000	N/A	15	<PQL
N035779-002B	SAMP	5	404.83	4.84	15	PASS	<0.000	N/A	15	<PQL
N035779-002B	SAMP	25	73.85	3.81	15	PASS	0.16	7.51	15	PASS
N035779-003B	SAMP	1	1379.13	1.9	15	PASS	<0.000	N/A	15	<PQL
N035779-003B	SAMP	5	301.49	2.78	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.45	4.5	15	PASS	21.097	3.17	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.65	4.43	15	PASS	17.52	3.39	15	PASS
N035779-003B	SAMP	10	150.88	4.29	15	PASS	<0.000	N/A	15	<PQL
N035779-004B	SAMP	1	6037.062	2	15	PASS	1.69	3.73	15	PASS
N035779-004B	SAMP	5	1335.29	3.017	15	PASS	0.31	8	15	PASS
N035779-004B	SAMP	50	135.28	4.84	15	PASS	<0.000	N/A	15	<PQL
N035779-005B	SAMP	1	5822.14	2.22	15	PASS	2.2	0.85	15	PASS
N035779-005B	SAMP	5	1280.23	3.2	15	PASS	0.43	9.61	15	PASS
N035779-005B	SAMP	50	136.9	3.45	15	PASS	<0.000	N/A	15	<PQL
N035779-006B	SAMP	1	50.99	2.041	15	PASS	77.059	1.77	15	PASS
N035779-006B	SAMP	5	11.41	4.41	15	PASS	18.069	3.72	15	PASS
N035779-007B	SAMP	1	21.61	1.7	15	PASS	0.3	12.25	15	PASS
CCV5	CCV	1	21.12	3.9	15	PASS	21.83	5.0095	15	PASS
CCB5	CCB	1	0.0087	492.1	15	<PQL	<0.000	N/A	15	<PQL
N035779-007B	SAMP	5	4.65	2.95	15	PASS	0.0091	72.07	15	<PQL
N035779-008B	SAMP	1	24.28	1.5	15	PASS	1.31	2.81	15	PASS
N035779-008B	SAMP	5	5.54	1.88	15	PASS	0.16	14.47	15	PASS
N035811-001A	SAMP	1	<0.000	N/A	15	<PQL	180.84	1.49	15	PASS
N035828-001A	SAMP	1	<0.000	N/A	15	<PQL	506.96	2.97	15	PASS
CCV6	CCV	1	19.91	2.98	15	PASS	20.69	2.3	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB6	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV7	CCV	1	20.19	3.89	15	PASS	21.42	2.55	15	PASS
CCB7	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV8	CCV	1	19.67	3.34	15	PASS	21.52	3.43	15	PASS
CCB8	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.24	4.097	15	PASS	18.48	3.3	15	PASS
CCV9	CCV	1	19.58	2.83	15	PASS	20.67	2.4	15	PASS
CCB9	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV10	CCV	1	19.7	1.71	15	PASS	21.055	2.33	15	PASS
CCB10	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
CCV11	CCV	1	19.95	3.4	15	PASS	21.11	4.11	15	PASS
CCB11	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	19.14	2.094	15	PASS	18.57	2.037	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	20.011	15	NR!	0.083	61.058	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.56	6.43	15	PASS	0.53	7.66	15	PASS
Std3-5/50 ppb	ICAL	1	5.22	3.088	15	PASS	4.83	8.081	15	PASS
Std4-10/100 ppb	ICAL	1	10.4	1.22	15	PASS	10.21	7.71	15	PASS
Std5-20/200 ppb	ICAL	1	20.48	1.35	15	PASS	20.71	4.79	15	PASS
Std6-40/400 ppb	ICAL	1	40.77	0.82	15	PASS	40.96	3.043	15	PASS
Std7-100/1000 ppb	ICAL	1	100.33	0.39	15	PASS	100.67	1.12	15	PASS
Std8-200/2000 ppb	ICAL	1	199.61	1.22	15	PASS	199.39	2.00036	15	PASS
ICV	ICV	1	10.46	1.45	15	PASS	10.62	5.028	15	PASS
ICB	ICB	1	0.011	49.27	15	<PQL	0.035	50.083	15	<PQL
LLICV	CCV1	1	0.13	8.51	20	PASS	0.56	15.53	20	PASS
ICSA1	ICSA	1	0.044	10.17	15	PASS	0.032	33.55	15	<PQL
ICSAB1	ICSAB	1	20.53	0.82	15	PASS	20.42	2.27	15	PASS
LLICV	CCV1	1	0.12	27.34	20	FAIL NR!	0.59	17.5	20	PASS
MB-74195	MBLK	1	0.0054	92.47	15	<PQL	0.006	173.21	15	<PQL
LCS-74195	LCS	1	10.42	0.9	15	PASS	10.23	4.9	15	PASS
N035761-001B	SAMP	1	1.19	1.99	15	PASS	0.52	13.13	15	PASS
N035761-001B	SAMP	5	0.25	2.74	15	PASS	0.056	67.68	15	<PQL
N035761-001B	SAMP	25	0.059	14.54	15	PASS	0.0056	173.21	15	<PQL
N035761-001B-PS	PS	1	12.38	0.8	15	PASS	12.24	4.37	15	PASS
N035761-001B-PS	PS	5	2.54	2.9	15	PASS	2.29	7.15	15	PASS
N035761-001B-MS	MS	1	12.5	1.37	15	PASS	11.82	5.35	15	PASS
N035761-001B-MS	MS	5	2.57	2.54	15	PASS	2.073	6.93	15	PASS
CCV1	CCV	1	20.4	0.9	15	PASS	20.85	6.84	15	PASS
CCB1	CCB	1	0.011	22.49	15	<PQL	0.017	173.21	15	<PQL
N035761-001B-MSD	MSD	1	12.27	2.48	15	PASS	12.25	5.1	15	PASS
N035761-001B-MSD	MSD	5	2.52	1.024	15	PASS	2.43	14.14	15	PASS
N035761-002B	SAMP	1	13.052	2.13	15	PASS	0.016	173.21	15	<PQL
N035761-002B	SAMP	5	2.69	1.4	15	PASS	0.023	86.61	15	<PQL
N035761-003B	SAMP	1	1.82	4.31	15	PASS	4.33	5.91	15	PASS
N035761-003B	SAMP	5	0.42	3.63	15	PASS	0.96	24.85	15	NR!
N035761-004B	SAMP	1	9.19	0.76	15	PASS	3.24	14.98	15	PASS
N035761-004B	SAMP	5	1.9	4.57	15	PASS	0.66	14.52	15	PASS
N035761-005B	SAMP	1	8.68	1.63	15	PASS	2.69	8.48	15	PASS
N035761-005B	SAMP	5	1.77	2.0028	15	PASS	0.63	14.79	15	PASS
CCV2	CCV	1	20.16	0.38	15	PASS	21.049	2.21	15	PASS
CCB2	CCB	1	0.019	61.5	15	<PQL	0.01	173.21	15	<PQL
N035761-006B	SAMP	1	1.63	1.073	15	PASS	4.81	9.27	15	PASS
N035761-006B	SAMP	5	0.34	7.29	15	PASS	0.96	5.53	15	PASS
N035761-006B	SAMP	25	0.081	20.53	15	<PQL	0.21	33.47	15	<PQL

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PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035761-007B	SAMP	1	1.66	2.58	15	PASS	4.65	6.72	15	PASS
N035761-007B	SAMP	5	0.36	3.063	15	PASS	1.0082	11.3	15	PASS
N035761-007B	SAMP	25	0.08	1	15	PASS	0.28	12.32	15	PASS
N035761-008B	SAMP	1	14.21	0.72	15	PASS	13.34	3.081	15	PASS
N035761-008B	SAMP	5	2.82	1.91	15	PASS	2.63	3.22	15	PASS
N035761-010B	SAMP	1	3.72	2.64	15	PASS	0.87	11.69	15	PASS
N035761-010B	SAMP	5	0.75	4.34	15	PASS	0.17	36.2	15	<PQL
CCV3	CCV	1	20.41	0.66	15	PASS	21.53	4.79	15	PASS
CCB3	CCB	1	0.024	15.46	15	<PQL	0.016	1.34	15	PASS
N035761-013B	SAMP	1	1.82	5.035	15	PASS	0.2	84.46	15	<PQL
N035761-013B	SAMP	5	0.4	11.91	15	PASS	0.077	54.038	15	<PQL
N035779-001B	SAMP	1	1.75	6.59	15	PASS	14.27	4.75	15	PASS
N035779-001B	SAMP	5	0.36	6.6	15	PASS	2.62	21.67	15	NR!
N035779-001B	SAMP	25	0.078	17.47	15	<PQL	0.55	31.39	15	NR!
N035779-002B	SAMP	1	2.87	1.086	15	PASS	7.075	0.89	15	PASS
N035779-002B	SAMP	5	0.57	2.8	15	PASS	1.32	10.96	15	PASS
N035779-002B	SAMP	25	0.13	12.025	15	PASS	0.31	34.74	15	<PQL
N035779-003B	SAMP	1	1.82	5.12	15	PASS	6.014	9.49	15	PASS
N035779-003B	SAMP	5	0.36	5.054	15	PASS	1.36	9.78	15	PASS
CCV4	CCV	1	20.38	1.82	15	PASS	21.49	3.035	15	PASS
CCB4	CCB	1	0.014	67.55	15	<PQL	0.034	86.65	15	<PQL
ICSA2	ICSA	1	0.023	16.48	15	<PQL	0.025	86.67	15	<PQL
ICSAB2	ICSAB	1	19.91	0.68	15	PASS	21.57	3.026	15	PASS
N035779-003B	SAMP	10	0.2	5.28	15	PASS	0.64	11.45	15	PASS
N035779-004B	SAMP	1	4.63	3.38	15	PASS	34.083	3.26	15	PASS
N035779-004B	SAMP	5	0.92	2.55	15	PASS	6.81	6.8	15	PASS
N035779-004B	SAMP	50	0.086	30.57	15	<PQL	0.57	18.57	15	NR!
N035779-005B	SAMP	1	4.53	4.36	15	PASS	35.88	3.52	15	PASS
N035779-005B	SAMP	5	0.89	6.16	15	PASS	6.5	6.84	15	PASS
N035779-005B	SAMP	50	0.088	17.24	15	<PQL	0.7	13.4	15	PASS
N035779-006B	SAMP	1	10.25	1.94	15	PASS	1.09	5.18	15	PASS
N035779-006B	SAMP	5	2.028	5.057	15	PASS	0.24	36.31	15	<PQL
N035779-007B	SAMP	1	1.31	1.35	15	PASS	1.47	17.062	15	NR!
CCV5	CCV	1	20.21	1.0035	15	PASS	20.78	1.76	15	PASS
CCB5	CCB	1	0.017	14.46	15	PASS	0.0063	173.21	15	<PQL
N035779-007B	SAMP	5	0.26	13.84	15	PASS	0.26	22.014	15	<PQL
N035779-008B	SAMP	1	0.82	3.32	15	PASS	1.23	19.57	15	NR!
N035779-008B	SAMP	5	0.18	5.13	15	PASS	0.24	33.79	15	<PQL
N035811-001A	SAMP	1	0.55	5.72	15	PASS	1.029	8.68	15	PASS
N035828-001A	SAMP	1	0.25	7.37	15	PASS	0.22	44.15	15	<PQL
CCV6	CCV	1	20.24	0.11	15	PASS	20.86	4.95	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	75 As [2]				78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCB6	CCB	1	0.026	47.38	15	<PQL	0.024	41.18	15	<PQL
CCV7	CCV	1	20.074	2.87	15	PASS	20.42	2.08	15	PASS
CCB7	CCB	1	0.036	30.46	15	<PQL	0.026	113.52	15	<PQL
CCV8	CCV	1	19.88	1.77	15	PASS	20.54	3.74	15	PASS
CCB8	CCB	1	0.028	26.96	15	<PQL	0.07	91.47	15	<PQL
ICSA3	ICSA	1	0.032	4.94	15	PASS	0.03	124.1	15	<PQL
ICSAB3	ICSAB	1	20.11	1.4	15	PASS	19.92	3.9	15	PASS
CCV9	CCV	1	19.81	1.1	15	PASS	20.27	5.19	15	PASS
CCB9	CCB	1	0.027	31.16	15	<PQL	0.054	142.44	15	<PQL
CCV10	CCV	1	19.96	1.35	15	PASS	20.66	3.097	15	PASS
CCB10	CCB	1	0.027	35.24	15	<PQL	0	N/A	15	<PQL
CCV11	CCV	1	20.074	1.84	15	PASS	20.87	3.61	15	PASS
CCB11	CCB	1	0.031	32.69	15	<PQL	0.026	173.21	15	<PQL
ICSA4	ICSA	1	0.027	66.1	15	<PQL	0.0057	173.21	15	<PQL
ICSAB4	ICSAB	1	20.027	0.54	15	PASS	19.41	2.27	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.46	5.62	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.5	8.64	15	PASS
Std3-5/50 ppb	ICAL	1	4.98	1	15	PASS
Std4-10/100 ppb	ICAL	1	9.9	0.79	15	PASS
Std5-20/200 ppb	ICAL	1	20.16	2.48	15	PASS
Std6-40/400 ppb	ICAL	1	40.14	1.38	15	PASS
Std7-100/1000 ppb	ICAL	1	100.31	1.17	15	PASS
Std8-200/2000 ppb	ICAL	1	199.81	1.39	15	PASS
ICV	ICV	1	10.28	2.037	15	PASS
ICB	ICB	1	0.089	15.067	15	<PQL
LLICV	CCV1	1	0.55	2.18	20	PASS
ICSA1	ICSA	1	0.12	15.34	15	<PQL
ICSAB1	ICSAB	1	20.99	1.17	15	PASS
LLICV	CCV1	1	0.56	3.65	20	PASS
MB-74195	MBLK	1	0.057	16.13	15	<PQL
LCS-74195	LCS	1	10.2	0.54	15	PASS
N035761-001B	SAMP	1	13.4	1.83	15	PASS
N035761-001B	SAMP	5	2.57	1.065	15	PASS
N035761-001B	SAMP	25	0.53	1.99	15	PASS
N035761-001B-PS	PS	1	25.85	1.15	15	PASS
N035761-001B-PS	PS	5	5.098	1.83	15	PASS
N035761-001B-MS	MS	1	25.063	1.16	15	PASS
N035761-001B-MS	MS	5	4.93	2.028	15	PASS
CCV1	CCV	1	19.56	0.62	15	PASS
CCB1	CCB	1	0.1	4.96	15	PASS
N035761-001B-MSD	MSD	1	24.9	1.57	15	PASS
N035761-001B-MSD	MSD	5	5.073	2.11	15	PASS
N035761-002B	SAMP	1	76.077	0.46	15	PASS
N035761-002B	SAMP	5	14.61	0.66	15	PASS
N035761-003B	SAMP	1	29.89	1.67	15	PASS
N035761-003B	SAMP	5	5.79	0.68	15	PASS
N035761-004B	SAMP	1	63.28	1.41	15	PASS
N035761-004B	SAMP	5	12.21	1.5	15	PASS
N035761-005B	SAMP	1	59.041	1.24	15	PASS
N035761-005B	SAMP	5	11.57	0.03	15	PASS
CCV2	CCV	1	19.82	0.4	15	PASS
CCB2	CCB	1	0.12	6.57	15	PASS
N035761-006B	SAMP	1	29.9	0.94	15	PASS
N035761-006B	SAMP	5	6.085	0.82	15	PASS
N035761-006B	SAMP	25	1.22	0.7	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
N035761-007B	SAMP	1	30.59	0.79	15	PASS
N035761-007B	SAMP	5	6.18	3.15	15	PASS
N035761-007B	SAMP	25	1.25	2.041	15	PASS
N035761-008B	SAMP	1	58.78	1.63	15	PASS
N035761-008B	SAMP	5	11.54	0.7	15	PASS
N035761-010B	SAMP	1	23.28	1.93	15	PASS
N035761-010B	SAMP	5	4.47	3.25	15	PASS
CCV3	CCV	1	19.77	0.79	15	PASS
CCB3	CCB	1	0.095	11.69	15	PASS
N035761-013B	SAMP	1	10.28	2.97	15	PASS
N035761-013B	SAMP	5	2.0051	1.67	15	PASS
N035779-001B	SAMP	1	15.42	1.68	15	PASS
N035779-001B	SAMP	5	3.015	1.72	15	PASS
N035779-001B	SAMP	25	0.59	0.78	15	PASS
N035779-002B	SAMP	1	34.87	0.51	15	PASS
N035779-002B	SAMP	5	6.7	2.38	15	PASS
N035779-002B	SAMP	25	1.4	1.14	15	PASS
N035779-003B	SAMP	1	3.68	1.021	15	PASS
N035779-003B	SAMP	5	0.74	2.025	15	PASS
CCV4	CCV	1	19.63	0.57	15	PASS
CCB4	CCB	1	0.088	9.75	15	PASS
ICSA2	ICSA	1	0.037	9.22	15	PASS
ICSAB2	ICSAB	1	20.73	1.52	15	PASS
N035779-003B	SAMP	10	0.43	12.77	15	PASS
N035779-004B	SAMP	1	41.52	0.66	15	PASS
N035779-004B	SAMP	5	8.16	1.47	15	PASS
N035779-004B	SAMP	50	0.82	0.26	15	PASS
N035779-005B	SAMP	1	40.029	0.66	15	PASS
N035779-005B	SAMP	5	7.93	1.39	15	PASS
N035779-005B	SAMP	50	0.82	4.24	15	PASS
N035779-006B	SAMP	1	85.45	0.33	15	PASS
N035779-006B	SAMP	5	16.87	2.24	15	PASS
N035779-007B	SAMP	1	11.12	1.34	15	PASS
CCV5	CCV	1	18.46	2.29	15	PASS
CCB5	CCB	1	0.12	14.94	15	PASS
N035779-007B	SAMP	5	2.16	3.54	15	PASS
N035779-008B	SAMP	1	18.78	2.0094	15	PASS
N035779-008B	SAMP	5	3.65	1.51	15	PASS
N035811-001A	SAMP	1	60.34	0.8	15	PASS
N035828-001A	SAMP	1	78.78	0.44	15	PASS
CCV6	CCV	1	19.29	0.8	15	PASS

PERCENT RSD SUMMARY: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment
CCB6	CCB	1	0.12	10.28	15	PASS
CCV7	CCV	1	19.42	1.16	15	PASS
CCB7	CCB	1	0.12	7.44	15	PASS
CCV8	CCV	1	19.21	2.57	15	PASS
CCB8	CCB	1	0.12	1.85	15	PASS
ICSA3	ICSA	1	0.066	7.92	15	PASS
ICSAB3	ICSAB	1	20.47	1.58	15	PASS
CCV9	CCV	1	19.24	0.78	15	PASS
CCB9	CCB	1	0.11	14.65	15	PASS
CCV10	CCV	1	19.31	0.76	15	PASS
CCB10	CCB	1	0.11	7.017	15	PASS
CCV11	CCV	1	19.3	1.17	15	PASS
CCB11	CCB	1	0.13	12.95	15	PASS
ICSA4	ICSA	1	0.066	10.46	15	PASS
ICSAB4	ICSAB	1	20.63	0.6	15	PASS

PERCENT RSD SUMMARY: 190617B

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.16	23.2	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.59	13.28	15	PASS
Std3-5/50 ppb	ICAL	1	4.92	1.22	15	PASS
Std4-10/100 ppb	ICAL	1	10.91	9.33	15	PASS
Std5-20/200 ppb	ICAL	1	20.069	1.62	15	PASS
Std6-40/400 ppb	ICAL	1	39.65	4.13	15	PASS
Std7-100/1000 ppb	ICAL	1	99.48	1.55	15	PASS
Std8-200/2000 ppb	ICAL	1	200.28	1.73	15	PASS
ICV	ICV	1	10.47	6.2	15	PASS
ICB	ICB	1	0.055	112.15	15	<PQL
LLICV	CCV1	1	0.42	19.49	20	PASS
ICSA1	ICSA	1	<0.000	0	15	PASS
ICSAB1	ICSAB	1	20.43	3.18	15	PASS
LLICV	CCV1	1	0.5	34.26	20	NR!
CCV1	CCV	1	20.15	5.0057	15	PASS
CCB1	CCB	1	0.038	109.04	15	<PQL
N035779-007B	SAMP	1	1.54	10.85	15	PASS
N035779-008B	SAMP	1	1.45	25.5	15	NR!
CCV2	CCV	1	20.22	4.029	15	PASS
CCB2	CCB	1	0.039	60.99	15	<PQL
CCV3	CCV	1	20.029	1.62	15	PASS
CCB3	CCB	1	0.013	248.06	15	<PQL
CCV4	CCV	1	19.66	2.96	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.0016	907.66	15	<PQL
ICSAB2	ICSAB	1	20.36	3.99	15	PASS
CCV5	CCV	1	19.69	2.91	15	PASS
CCB5	CCB	1	0.036	94.3	15	<PQL
CCV6	CCV	1	19.5	2.7	15	PASS
CCB6	CCB	1	0.022	156.66	15	<PQL
ICSA3	ICSA	1	<0.000	0	15	PASS
ICSAB3	ICSAB	1	20.44	4.12	15	PASS

PERCENT RSD SUMMARY: 190619A2

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.096	64.018	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.47	56.041	15	<PQL
Std3-5/50 ppb	ICAL	1	4.77	7.91	15	PASS
Std4-10/100 ppb	ICAL	1	9.21	2.23	15	PASS
Std5-20/200 ppb	ICAL	1	20.25	4.63	15	PASS
Std6-40/400 ppb	ICAL	1	41.25	3.85	15	PASS
Std7-100/1000 ppb	ICAL	1	100.23	2.13	15	PASS
Std8-200/2000 ppb	ICAL	1	199.66	3.51	15	PASS
ICV	ICV	1	10.17	6.16	15	PASS
ICV	ICV	1	10.26	10.81	15	PASS
ICB	ICB	1	0.002	1235.62	15	<PQL
LLICV	CCV1	1	0.35	9.19	20	PASS
ICSA1	ICSA	1	0.039	113.26	15	<PQL
ICSAB1	ICSAB	1	19.17	9.69	15	PASS
LLICV	CCV1	1	0.55	40.44	20	NR!
CCV1	CCV	1	20.4	3.84	15	PASS
CCB1	CCB	1	0.018	167.91	15	<PQL
N035779-007B	SAMP	1	1.42	27.82	15	NR!
N035779-008B	SAMP	1	1.05	31.8	15	NR!
N035779-007B	SAMP	1	1.61	20.25	15	NR!
N035779-008B	SAMP	1	1.31	3.6	15	PASS
N035779-007B	SAMP	1	1.53	14.91	15	PASS
N035779-008B	SAMP	1	1.011	20.22	15	NR!
CCV2	CCV	1	18.88	3.3	15	PASS
CCB2	CCB	1	0.0076	223.14	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	18.96	11.99	15	PASS
CCV3	CCV	1	18.26	0.77	15	PASS
CCB3	CCB	1	0.032	237.41	15	<PQL
ICSA3	ICSA	1	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.73	2.044	15	PASS
CCV4	CCV	1	17.63	7.19	15	PASS
CCB4	CCB	1	0.00015	13992.33	15	<PQL
ICSA4	ICSA	1	<0.000	N/A	15	<PQL
ICSAB4	ICSAB	1	19.51	0.75	15	PASS
CCV5	CCV	1	19.26	10.79	15	PASS
CCB5	CCB	1	0.022	267.37	15	<PQL
CCV6	CCV	1	20.44	4.037	15	PASS
CCB6	CCB	1	0.056	108.57	15	<PQL
CCV7	CCV	1	18.31	3.011	15	PASS

PERCENT RSD SUMMARY: 190619A2

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]			
			Conc. [ppb]	RSD	Criteria	Comment
CCB7	CCB	1	0.2	98.94	15	<PQL
CCV8	CCV	1	18.61	9.045	15	PASS
CCB8	CCB	1	0.066	127.35	15	<PQL
ICSA5	ICSA	1	0.09	137.98	15	<PQL
ICSAB5	ICSAB	1	17.75	9.4	15	PASS
CCV9	CCV	1	16.69	10.86	15	PASS
CCB9	CCB	1	14.065	172.3	15	NR!
ICSA6	ICSA	1	<0.000	N/A	15	<PQL
ICSAB6	ICSAB	1	17.3	14.39	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190616A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0616001.D	RINSE	RINSE	1	06/16/19 7:09 AM
A0616002.D	Cal Blank	IBLK	1	06/16/19 7:14 AM
A0616003.D	Std1-0.1/1 ppb	ICAL	1	06/16/19 7:19 AM
A0616004.D	Std2-0.5/5 ppb	ICAL	1	06/16/19 7:24 AM
A0616005.D	Std3-5/50 ppb	ICAL	1	06/16/19 7:29 AM
A0616006.D	Std4-10/100 ppb	ICAL	1	06/16/19 7:34 AM
A0616007.D	Std5-20/200 ppb	ICAL	1	06/16/19 7:39 AM
A0616008.D	Std6-40/400 ppb	ICAL	1	06/16/19 7:44 AM
A0616009.D	Std7-100/1000 ppb	ICAL	1	06/16/19 7:49 AM
A0616010.D	Std8-200/2000 ppb	ICAL	1	06/16/19 7:54 AM
A0616011.D	ICV	ICV	1	06/16/19 8:11 AM
A0616012.D	ICB	ICB	1	06/16/19 8:16 AM
A0616013.D	LLICV	CCV1	1	06/16/19 8:21 AM
A0616014.D	ICSA1	ICSA	1	06/16/19 8:26 AM
A0616015.D	ICSAB1	ICSAB	1	06/16/19 8:31 AM
A0616016.D	LLICV	CCV1	1	06/16/19 8:36 AM
A0616017.D	LCS-74196	LCS	1	06/16/19 8:41 AM
A0616018.D	MB-74195	MBLK	1	06/16/19 8:46 AM
A0616019.D	LCS-74195	LCS	1	06/16/19 8:51 AM
A0616020.D	N035761-001B	SAMP	1	06/16/19 8:56 AM
A0616021.D	N035761-001B	SAMP	5	06/16/19 9:01 AM
A0616022.D	N035761-001B	SAMP	25	06/16/19 9:06 AM
A0616023.D	N035761-001B-PS	PS	1	06/16/19 9:11 AM
A0616024.D	N035761-001B-PS	PS	5	06/16/19 9:16 AM
A0616025.D	N035761-001B-MS	MS	1	06/16/19 9:21 AM
A0616026.D	N035761-001B-MS	MS	5	06/16/19 9:26 AM
A0616027.D	CCV1	CCV	1	06/16/19 9:31 AM
A0616028.D	CCB1	CCB	1	06/16/19 9:36 AM
A0616029.D	N035761-001B-MSD	MSD	1	06/16/19 9:41 AM
A0616030.D	N035761-001B-MSD	MSD	5	06/16/19 9:46 AM
A0616031.D	N035761-002B	SAMP	1	06/16/19 9:51 AM
A0616032.D	N035761-002B	SAMP	5	06/16/19 9:56 AM
A0616033.D	N035761-003B	SAMP	1	06/16/19 10:01 AM
A0616034.D	N035761-003B	SAMP	5	06/16/19 10:06 AM
A0616035.D	N035761-004B	SAMP	1	06/16/19 10:11 AM
A0616036.D	N035761-004B	SAMP	5	06/16/19 10:16 AM
A0616037.D	N035761-005B	SAMP	1	06/16/19 10:21 AM
A0616038.D	N035761-005B	SAMP	5	06/16/19 10:26 AM
A0616039.D	CCV2	CCV	1	06/16/19 10:31 AM
A0616040.D	CCB2	CCB	1	06/16/19 10:36 AM
A0616041.D	N035761-006B	SAMP	1	06/16/19 10:41 AM
A0616042.D	N035761-006B	SAMP	5	06/16/19 10:46 AM

INJECTION LOG: 190616A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0616043.D	N035761-006B	SAMP	25	06/16/19 10:51 AM
A0616044.D	N035761-007B	SAMP	1	06/16/19 10:56 AM
A0616045.D	N035761-007B	SAMP	5	06/16/19 11:01 AM
A0616046.D	N035761-007B	SAMP	25	06/16/19 11:06 AM
A0616047.D	N035761-008B	SAMP	1	06/16/19 11:11 AM
A0616048.D	N035761-008B	SAMP	5	06/16/19 11:16 AM
A0616049.D	N035761-010B	SAMP	1	06/16/19 11:21 AM
A0616050.D	N035761-010B	SAMP	5	06/16/19 11:26 AM
A0616051.D	CCV3	CCV	1	06/16/19 11:30 AM
A0616052.D	CCB3	CCB	1	06/16/19 11:35 AM
A0616053.D	N035761-013B	SAMP	1	06/16/19 11:40 AM
A0616054.D	N035761-013B	SAMP	5	06/16/19 11:45 AM
A0616055.D	N035779-001B	SAMP	1	06/16/19 11:50 AM
A0616056.D	N035779-001B	SAMP	5	06/16/19 11:55 AM
A0616057.D	N035779-001B	SAMP	25	06/16/19 12:00 PM
A0616058.D	N035779-002B	SAMP	1	06/16/19 12:05 PM
A0616059.D	N035779-002B	SAMP	5	06/16/19 12:10 PM
A0616060.D	N035779-002B	SAMP	25	06/16/19 12:15 PM
A0616061.D	N035779-003B	SAMP	1	06/16/19 12:20 PM
A0616062.D	N035779-003B	SAMP	5	06/16/19 12:25 PM
A0616063.D	CCV4	CCV	1	06/16/19 12:30 PM
A0616064.D	CCB4	CCB	1	06/16/19 12:35 PM
A0616065.D	ICSA2	ICSA	1	06/16/19 12:41 PM
A0616066.D	ICSAB2	ICSAB	1	06/16/19 12:45 PM
A0616067.D	N035779-003B	SAMP	10	06/16/19 12:51 PM
A0616068.D	N035779-004B	SAMP	1	06/16/19 12:56 PM
A0616069.D	N035779-004B	SAMP	5	06/16/19 1:01 PM
A0616070.D	N035779-004B	SAMP	50	06/16/19 1:06 PM
A0616071.D	N035779-005B	SAMP	1	06/16/19 1:11 PM
A0616072.D	N035779-005B	SAMP	5	06/16/19 1:16 PM
A0616073.D	N035779-005B	SAMP	50	06/16/19 1:21 PM
A0616074.D	N035779-006B	SAMP	1	06/16/19 1:26 PM
A0616075.D	N035779-006B	SAMP	5	06/16/19 1:31 PM
A0616076.D	N035779-007B	SAMP	1	06/16/19 1:36 PM
A0616077.D	CCV5	CCV	1	06/16/19 1:41 PM
A0616078.D	CCB5	CCB	1	06/16/19 1:46 PM
A0616079.D	N035779-007B	SAMP	5	06/16/19 1:51 PM
A0616080.D	N035779-008B	SAMP	1	06/16/19 1:56 PM
A0616081.D	N035779-008B	SAMP	5	06/16/19 2:01 PM
A0616082.D	N035811-001A	SAMP	1	06/16/19 2:06 PM
A0616083.D	N035828-001A	SAMP	1	06/16/19 2:11 PM
A0616084.D	MB-74201	MBLK	1	06/16/19 2:16 PM

INJECTION LOG: 190616A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0616085.D	LCS-74201	LCS	1	06/16/19 2:21 PM
A0616086.D	N035913-001B	SAMP	1	06/16/19 2:26 PM
A0616087.D	N035913-001B	SAMP	5	06/16/19 2:31 PM
A0616088.D	N035913-001B	SAMP	25	06/16/19 2:36 PM
A0616090.D	CCV6	CCV	1	06/16/19 2:41 PM
A0616091.D	CCB6	CCB	1	06/16/19 2:46 PM
A0616092.D	N035913-001B-PS	PS	1	06/16/19 2:51 PM
A0616093.D	N035913-001B-PS	PS	5	06/16/19 2:56 PM
A0616094.D	N035913-001B-MS	MS	1	06/16/19 3:01 PM
A0616095.D	N035913-001B-MS	MS	5	06/16/19 3:06 PM
A0616096.D	N035913-001B-MSD	MSD	1	06/16/19 3:11 PM
A0616097.D	N035913-001B-MSD	MSD	5	06/16/19 3:16 PM
A0616098.D	N035913-002B	SAMP	1	06/16/19 3:21 PM
A0616099.D	N035913-002B	SAMP	5	06/16/19 3:26 PM
A0616100.D	N035913-003B	SAMP	1	06/16/19 3:31 PM
A0616101.D	N035913-003B	SAMP	5	06/16/19 3:36 PM
A0616102.D	CCV7	CCV	1	06/16/19 3:41 PM
A0616103.D	CCB7	CCB	1	06/16/19 3:46 PM
A0616104.D	N035913-004B	SAMP	1	06/16/19 3:51 PM
A0616105.D	N035913-004B	SAMP	5	06/16/19 3:56 PM
A0616106.D	N035913-005B	SAMP	1	06/16/19 4:01 PM
A0616107.D	N035913-005B	SAMP	5	06/16/19 4:06 PM
A0616108.D	N035913-006B	SAMP	1	06/16/19 4:11 PM
A0616109.D	N035913-006B	SAMP	5	06/16/19 4:16 PM
A0616110.D	N035913-007B	SAMP	1	06/16/19 4:21 PM
A0616111.D	N035913-007B	SAMP	5	06/16/19 4:26 PM
A0616112.D	N035913-008B	SAMP	1	06/16/19 4:31 PM
A0616113.D	N035913-008B	SAMP	5	06/16/19 4:36 PM
A0616114.D	CCV8	CCV	1	06/16/19 4:41 PM
A0616115.D	CCB8	CCB	1	06/16/19 4:46 PM
A0616116.D	ICSA3	ICSA	1	06/16/19 4:54 PM
A0616117.D	ICSAB3	ICSAB	1	06/16/19 4:56 PM
A0616118.D	N035914-004B	SAMP	1	06/16/19 5:02 PM
A0616119.D	N035915-001B	SAMP	1	06/16/19 5:07 PM
A0616120.D	N035915-001B	SAMP	5	06/16/19 5:12 PM
A0616121.D	N035915-002B	SAMP	1	06/16/19 5:17 PM
A0616122.D	N035915-002B	SAMP	5	06/16/19 5:22 PM
A0616123.D	N035915-003B	SAMP	1	06/16/19 5:27 PM
A0616124.D	N035915-003B	SAMP	5	06/16/19 5:32 PM
A0616125.D	N035915-004B	SAMP	1	06/16/19 5:37 PM
A0616126.D	N035915-004B	SAMP	5	06/16/19 5:42 PM
A0616127.D	N035915-005B	SAMP	1	06/16/19 5:47 PM

INJECTION LOG: 190616A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0616128.D	CCV9	CCV	1	06/16/19 5:53 PM
A0616129.D	CCB9	CCB	1	06/16/19 5:58 PM
A0616130.D	N035915-005B	SAMP	5	06/16/19 6:03 PM
A0616131.D	N035915-006B	SAMP	1	06/16/19 6:08 PM
A0616132.D	N035915-006B	SAMP	5	06/16/19 6:13 PM
A0616133.D	N035915-007B	SAMP	1	06/16/19 6:18 PM
A0616134.D	N035915-007B	SAMP	5	06/16/19 6:23 PM
A0616135.D	N035915-008B	SAMP	1	06/16/19 6:28 PM
A0616136.D	N035915-008B	SAMP	5	06/16/19 6:33 PM
A0616137.D	N035915-009B	SAMP	1	06/16/19 6:38 PM
A0616138.D	N035915-009B	SAMP	5	06/16/19 6:43 PM
A0616139.D	N035915-010B	SAMP	1	06/16/19 6:48 PM
A0616140.D	CCV10	CCV	1	06/16/19 6:53 PM
A0616141.D	CCB10	CCB	1	06/16/19 6:58 PM
A0616142.D	N035915-010B	SAMP	5	06/16/19 7:03 PM
A0616143.D	N035915-009B	SAMP	1	06/16/19 7:08 PM
A0616144.D	N035915-010B	SAMP	1	06/16/19 7:13 PM
A0616146.D	CCV11	CCV	1	06/16/19 7:19 PM
A0616147.D	CCB11	CCB	1	06/16/19 7:24 PM
A0616148.D	ICSA4	ICSA	1	06/16/19 7:28 PM
A0616149.D	ICSAB4	ICSAB	1	06/16/19 7:34 PM

INJECTION LOG: 190617B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0617001.D	RINSE	RINSE	1	06/17/19 5:13 PM
B0617002.D	Cal Blank	IBLK	1	06/17/19 5:18 PM
B0617003.D	Std1-0.1/1 ppb	ICAL	1	06/17/19 5:23 PM
B0617004.D	Std2-0.5/5 ppb	ICAL	1	06/17/19 5:28 PM
B0617005.D	Std3-5/50 ppb	ICAL	1	06/17/19 5:33 PM
B0617006.D	Std4-10/100 ppb	ICAL	1	06/17/19 5:38 PM
B0617007.D	Std5-20/200 ppb	ICAL	1	06/17/19 5:43 PM
B0617008.D	Std6-40/400 ppb	ICAL	1	06/17/19 5:48 PM
B0617009.D	Std7-100/1000 ppb	ICAL	1	06/17/19 5:53 PM
B0617010.D	Std8-200/2000 ppb	ICAL	1	06/17/19 5:58 PM
B0617011.D	ICV	ICV	1	06/17/19 6:43 PM
B0617012.D	ICB	ICB	1	06/17/19 6:48 PM
B0617013.D	LLICV	CCV1	1	06/17/19 6:53 PM
B0617014.D	ICSA1	ICSA	1	06/17/19 6:58 PM
B0617015.D	ICSAB1	ICSAB	1	06/17/19 7:03 PM
B0617016.D	LLICV	CCV1	1	06/17/19 7:08 PM
B0617017.D	MB-74224	MBLK	1	06/17/19 7:13 PM
B0617018.D	LCS-74224	LCS	1	06/17/19 7:18 PM
B0617019.D	N036071-001A	SAMP	1	06/17/19 7:23 PM
B0617020.D	N036071-001A	SAMP	5	06/17/19 7:28 PM
B0617021.D	N036071-001A-DUP	DUP	1	06/17/19 7:33 PM
B0617022.D	N036071-001A-PS	PS	1	06/17/19 7:38 PM
B0617023.D	N036071-001A-MS	MS	1	06/17/19 7:43 PM
B0617024.D	N036071-001A-MSD	MSD	1	06/17/19 7:48 PM
B0617025.D	N035705-004B	SAMP	1	06/17/19 7:53 PM
B0617026.D	N035705-005B	SAMP	1	06/17/19 7:58 PM
B0617027.D	CCV1	CCV	1	06/17/19 8:03 PM
B0617028.D	CCB1	CCB	1	06/17/19 8:08 PM
B0617029.D	N035712-010B	SAMP	1	06/17/19 8:13 PM
B0617030.D	N035712-011B	SAMP	1	06/17/19 8:18 PM
B0617031.D	N035712-020B	SAMP	1	06/17/19 8:23 PM
B0617032.D	N035738-004B	SAMP	10	06/17/19 8:28 PM
B0617033.D	N035761-003B	SAMP	1	06/17/19 8:33 PM
B0617034.D	N035779-007B	SAMP	1	06/17/19 8:38 PM
B0617035.D	N035779-008B	SAMP	1	06/17/19 8:43 PM
B0617036.D	MB-74214	MBLK	1	06/17/19 8:48 PM
B0617037.D	LCS-74214	LCS	1	06/17/19 8:53 PM
B0617038.D	N035917-001A	SAMP	5	06/17/19 8:58 PM
B0617039.D	CCV2	CCV	1	06/17/19 9:03 PM
B0617040.D	CCB2	CCB	1	06/17/19 9:08 PM
B0617041.D	N035917-001A	SAMP	25	06/17/19 9:13 PM
B0617042.D	N035917-001A-PS	PS	5	06/17/19 9:18 PM

INJECTION LOG: 190617B

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
B0617043.D	N035917-001A-MS	MS	5	06/17/19 9:23 PM
B0617044.D	N035917-001A-MSD	MSD	5	06/17/19 9:28 PM
B0617045.D	N035917-002A	SAMP	5	06/17/19 9:33 PM
B0617046.D	N035917-003A	SAMP	5	06/17/19 9:38 PM
B0617047.D	N035917-004A	SAMP	5	06/17/19 9:43 PM
B0617048.D	N035917-005A	SAMP	5	06/17/19 9:48 PM
B0617049.D	N035917-006A	SAMP	5	06/17/19 9:53 PM
B0617050.D	N035917-007A	SAMP	5	06/17/19 9:58 PM
B0617051.D	CCV3	CCV	1	06/17/19 10:03 PM
B0617052.D	CCB3	CCB	1	06/17/19 10:08 PM
B0617053.D	N035917-008B	SAMP	1	06/17/19 10:13 PM
B0617054.D	N035918-001A	SAMP	5	06/17/19 10:18 PM
B0617055.D	N035918-002A	SAMP	5	06/17/19 10:23 PM
B0617056.D	N035918-003A	SAMP	5	06/17/19 10:28 PM
B0617057.D	N035918-004A	SAMP	5	06/17/19 10:33 PM
B0617058.D	N035919-001A	SAMP	5	06/17/19 10:38 PM
B0617059.D	N035919-002A	SAMP	5	06/17/19 10:43 PM
B0617060.D	N035919-003A	SAMP	5	06/17/19 10:48 PM
B0617061.D	N035919-004A	SAMP	5	06/17/19 10:53 PM
B0617062.D	N035919-005A	SAMP	5	06/17/19 10:58 PM
B0617063.D	CCV4	CCV	1	06/17/19 11:03 PM
B0617064.D	CCB4	CCB	1	06/17/19 11:08 PM
B0617065.D	ICSA2	ICSA	1	06/17/19 11:13 PM
B0617066.D	ICSAB2	ICSAB	1	06/17/19 11:18 PM
B0617067.D	N035919-006A	SAMP	5	06/17/19 11:23 PM
B0617068.D	N035919-007A	SAMP	5	06/17/19 11:28 PM
B0617069.D	MB-74235	MBLK	1	06/17/19 11:33 PM
B0617070.D	LCS-74235	LCS	1	06/17/19 11:38 PM
B0617071.D	N036084-001A	SAMP	5	06/17/19 11:43 PM
B0617072.D	N036084-001A	SAMP	25	06/17/19 11:48 PM
B0617073.D	N036084-001A-PS	PS	5	06/17/19 11:53 PM
B0617074.D	N036084-001A-MS	MS	5	06/17/19 11:58 PM
B0617075.D	N036084-001A-MSD	MSD	5	06/18/19 12:03 AM
B0617076.D	N035978-001A	SAMP	5	06/18/19 12:08 AM
B0617077.D	CCV5	CCV	1	06/18/19 12:13 AM
B0617078.D	CCB5	CCB	1	06/18/19 12:18 AM
B0617079.D	N035978-004A	SAMP	5	06/18/19 12:23 AM
B0617080.D	N035978-007A	SAMP	5	06/18/19 12:28 AM
B0617081.D	CCV6	CCV	1	06/18/19 12:33 AM
B0617082.D	CCB6	CCB	1	06/18/19 12:38 AM
B0617083.D	ICSA3	ICSA	1	06/18/19 12:43 AM
B0617084.D	ICSAB3	ICSAB	1	06/18/19 12:48 AM

INJECTION LOG: 190619A2

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0619001.D	RINSE	RINSE	1	06/19/19 11:11 AM
A0619002.D	Cal Blank	IBLK	1	06/19/19 11:16 AM
A0619003.D	Std1-0.1/1 ppb	ICAL	1	06/19/19 11:21 AM
A0619004.D	Std2-0.5/5 ppb	ICAL	1	06/19/19 11:26 AM
A0619005.D	Std3-5/50 ppb	ICAL	1	06/19/19 11:31 AM
A0619006.D	Std4-10/100 ppb	ICAL	1	06/19/19 11:36 AM
A0619007.D	Std5-20/200 ppb	ICAL	1	06/19/19 11:41 AM
A0619008.D	Std6-40/400 ppb	ICAL	1	06/19/19 11:46 AM
A0619009.D	Std7-100/1000 ppb	ICAL	1	06/19/19 11:51 AM
A0619010.D	Std8-200/2000 ppb	ICAL	1	06/19/19 11:56 AM
A0619011.D	ICV	ICV	1	06/19/19 12:01 PM
A0619012.D	ICV	ICV	1	06/19/19 12:06 PM
A0619013.D	ICB	ICB	1	06/19/19 12:11 PM
A0619014.D	LLICV	CCV1	1	06/19/19 12:16 PM
A0619015.D	ICSA1	ICSA	1	06/19/19 12:21 PM
A0619016.D	ICSAB1	ICSAB	1	06/19/19 12:26 PM
A0619017.D	LLICV	CCV1	1	06/19/19 12:31 PM
A0619018.D	MB-74224	MBLK	1	06/19/19 12:36 PM
A0619019.D	LCS-74224	LCS	1	06/19/19 12:41 PM
A0619020.D	N036071-001A	SAMP	1	06/19/19 12:46 PM
A0619021.D	N036071-001A	SAMP	5	06/19/19 12:51 PM
A0619022.D	N036071-001A-DUP	DUP	1	06/19/19 12:56 PM
A0619023.D	N036071-001A-PS	PS	1	06/19/19 1:01 PM
A0619024.D	N036071-001A-MS	MS	1	06/19/19 1:06 PM
A0619025.D	N036071-001A-MSD	MSD	1	06/19/19 1:11 PM
A0619026.D	MB-74212	MBLK	1	06/19/19 1:16 PM
A0620027.D	N035705-005B	SAMP	1	06/19/19 1:21 PM
A0619028.D	CCV1	CCV	1	06/19/19 1:26 PM
A0619029.D	CCB1	CCB	1	06/19/19 1:31 PM
A0619030.D	N035712-020B	SAMP	1	06/19/19 1:36 PM
A0619031.D	N035779-007B	SAMP	1	06/19/19 1:41 PM
A0619032.D	N035779-008B	SAMP	1	06/19/19 1:46 PM
A0619033.D	N035712-020B	SAMP	1	06/19/19 2:17 PM
A0619034.D	N035779-007B	SAMP	1	06/19/19 2:22 PM
A0619035.D	N035779-008B	SAMP	1	06/19/19 2:27 PM
A0619036.D	N035712-020B	SAMP	1	06/19/19 2:32 PM
A0619037.D	N035779-007B	SAMP	1	06/19/19 2:37 PM
A0619038.D	N035779-008B	SAMP	1	06/19/19 2:42 PM
A0619039.D	CCV2	CCV	1	06/19/19 2:47 PM
A0619040.D	CCB2	CCB	1	06/19/19 2:52 PM
A0619041.D	ICSA2	ICSA	1	06/19/19 2:57 PM
A0619042.D	ICSAB2	ICSAB	1	06/19/19 3:02 PM

INJECTION LOG: 190619A2

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0619043.D	CCV3	CCV	1	06/19/19 4:05 PM
A0619044.D	CCB3	CCB	1	06/19/19 4:10 PM
A0619045.D	ICSA3	ICSA	1	06/19/19 4:15 PM
A0619046.D	ICSAB3	ICSAB	1	06/19/19 4:20 PM
A0619047.D	CCV4	CCV	1	06/19/19 6:54 PM
A0619048.D	CCB4	CCB	1	06/19/19 6:59 PM
A0619049.D	ICSA4	ICSA	1	06/19/19 7:04 PM
A0619050.D	ICSAB4	ICSAB	1	06/19/19 7:09 PM
A0619051.D	MB-74272	MBLK	1	06/19/19 7:26 PM
A0619052.D	LCS-74272	LCS	1	06/19/19 7:31 PM
A0619053.D	N036103-001A	SAMP	1	06/19/19 7:36 PM
A0619054.D	N036103-001A	SAMP	5	06/19/19 7:41 PM
A0619055.D	N036103-001A-PS	PS	1	06/19/19 7:46 PM
A0619056.D	N036103-001A-MS	MS	5	06/19/19 7:50 PM
A0619057.D	N036103-001A-MSD	MSD	5	06/19/19 7:55 PM
A0619058.D	N036103-002A	SAMP	1	06/19/19 8:00 PM
A0619059.D	N036103-003A	SAMP	1	06/19/19 8:05 PM
A0619060.D	N036103-004A	SAMP	1	06/19/19 8:10 PM
A0619061.D	CCV5	CCV	1	06/19/19 8:15 PM
A0619062.D	CCB5	CCB	1	06/19/19 8:20 PM
A0619063.D	N036103-005A	SAMP	1	06/19/19 8:25 PM
A0619064.D	N036103-006A	SAMP	1	06/19/19 8:30 PM
A0619065.D	N036103-007A	SAMP	1	06/19/19 8:35 PM
A0619066.D	N036103-008A	SAMP	1	06/19/19 8:40 PM
A0619067.D	N036103-009A	SAMP	1	06/19/19 8:45 PM
A0619068.D	N036103-010A	SAMP	1	06/19/19 8:50 PM
A0619069.D	N036103-011A	SAMP	1	06/19/19 8:55 PM
A0619070.D	N036103-012A	SAMP	1	06/19/19 9:00 PM
A0619071.D	N036103-013A	SAMP	1	06/19/19 9:05 PM
A0619072.D	N036103-014A	SAMP	1	06/19/19 9:10 PM
A0619073.D	CCV6	CCV	1	06/19/19 9:15 PM
A0619074.D	CCB6	CCB	1	06/19/19 9:20 PM
A0619075.D	N036103-015A	SAMP	1	06/19/19 9:25 PM
A0619076.D	N036103-016A	SAMP	1	06/19/19 9:30 PM
A0619077.D	N036103-017A	SAMP	1	06/19/19 9:35 PM
A0619078.D	N036103-018A	SAMP	1	06/19/19 9:40 PM
A0619079.D	N036103-019A	SAMP	1	06/19/19 9:45 PM
A0619080.D	N036103-020A	SAMP	1	06/19/19 9:50 PM
A0619081.D	MB-74273	MBLK	1	06/19/19 9:55 PM
A0619082.D	LCS-74273	LCS	1	06/19/19 10:00 PM
A0619083.D	N036103-021A	SAMP	1	06/19/19 10:05 PM
A0619084.D	N036103-021A	SAMP	5	06/19/19 10:10 PM

INJECTION LOG: 190619A2

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0619085.D	CCV7	CCV	1	06/19/19 10:15 PM
A0619086.D	CCB7	CCB	1	06/19/19 10:20 PM
A0619087.D	N036103-021A-PS	PS	1	06/19/19 10:25 PM
A0619088.D	N036103-021A-MS	MS	1	06/19/19 10:30 PM
A0619089.D	N036103-021A-MSD	MSD	1	06/19/19 10:35 PM
A0619090.D	N036103-022A	SAMP	1	06/19/19 10:40 PM
A0619091.D	N036103-023A	SAMP	1	06/19/19 10:45 PM
A0619092.D	N036103-024A	SAMP	1	06/19/19 10:50 PM
A0619093.D	N036103-025A	SAMP	1	06/19/19 10:54 PM
A0619094.D	N036103-026A	SAMP	1	06/19/19 10:59 PM
A0619095.D	N036103-027A	SAMP	1	06/19/19 11:04 PM
A0619096.D	MB-74174	MBLK	1	06/19/19 11:09 PM
A0619097.D	CCV8	CCV	1	06/19/19 11:14 PM
A0619098.D	CCB8	CCB	1	06/19/19 11:19 PM
A0619099.D	ICSA5	ICSA	1	06/19/19 11:24 PM
A0619100.D	ICSAB5	ICSAB	1	06/19/19 11:29 PM
A0619101.D	LCS-74174	LCS	1	06/19/19 11:35 PM
A0619102.D	N035982-005A	SAMP	1	06/19/19 11:40 PM
A0619103.D	N035982-005A	SAMP	5	06/19/19 11:44 PM
A0619104.D	N035982-005A-PS	PS	1	06/19/19 11:49 PM
A0619105.D	N035982-005A-MS	MS	1	06/19/19 11:54 PM
A0619106.D	N035982-005A-MSD	MSD	1	06/19/19 11:59 PM
A0619107.D	N035982-010A	SAMP	1	06/20/19 12:04 AM
A0619108.D	N035982-015A	SAMP	1	06/20/19 12:10 AM
A0619109.D	N035982-020A	SAMP	1	06/20/19 12:15 AM
A0619110.D	MB-74214	MBLK	1	06/20/19 12:20 AM
A0619111.D	CCV9	CCV	1	06/20/19 12:25 AM
A0619112.D	CCB9	CCB	1	06/20/19 12:30 AM
A0619113.D	ICSA6	ICSA	1	06/20/19 12:35 AM
A0619114.D	ICSAB6	ICSAB	1	06/20/19 12:40 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/13/2019 1:02:46 P**
Prep End Date: **6/13/2019 5:30:00 P**
Reviewed/ Date: NS 6/24/2019
Initials/ Date: for
Prep Batch **74195** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-3**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74195	Aqueous		25	☐	0	0	25	1.000		
MB-74195	Aqueous		25	☐	0	0	25	1.000		
N035761-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N035761-013B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/13/2019 1:02:46 P**
Prep End Date: **6/13/2019 5:30:00 P**
Reviewed/ Date: NS 6/24/2019
Initials/ Date: for
Prep Batch **74195** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.6**	**02-3**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N035779-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N035779-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N035811-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N035828-001A	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 16 Jun 2019 06:40:56 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	148733.00	0.00	
24 Mg	636809.00	0.00	
25 Mg	82462.10	0.00	
26 Mg	94284.00	0.00	
59 Co	619636.00	0.00	
115 In	1031940.00	0.00	
206 Pb	295470.00	0.00	
207 Pb	260257.00	0.00	
208 Pb	635106.00	0.00	

RSD (%)

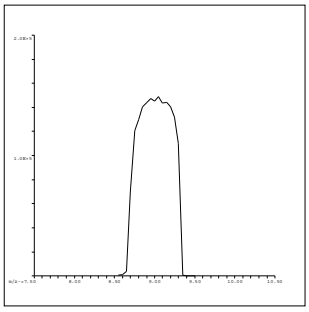
Element	Actual	Required	Flag
9 Be	0.61	5.00	
24 Mg	0.88	5.00	
25 Mg	0.63	5.00	
26 Mg	0.95	5.00	
59 Co	0.55	5.00	
115 In	0.77	5.00	
206 Pb	1.44	5.00	
207 Pb	1.25	5.00	
208 Pb	1.03	5.00	

Ion Ratio

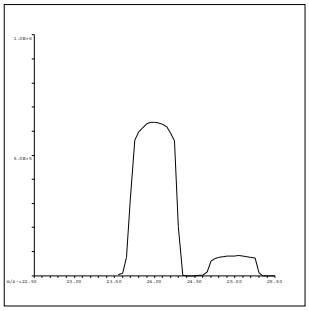
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

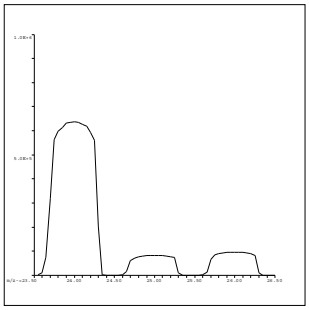
Element	Actual	Required	Flag



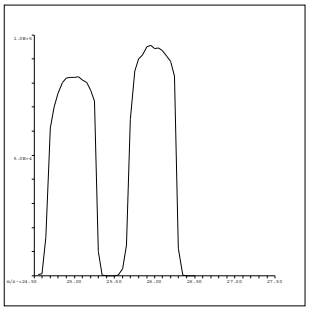
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



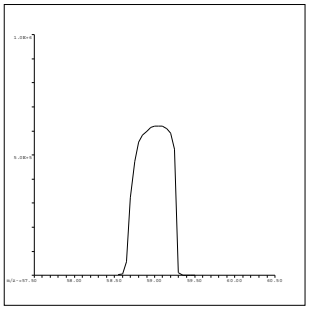
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



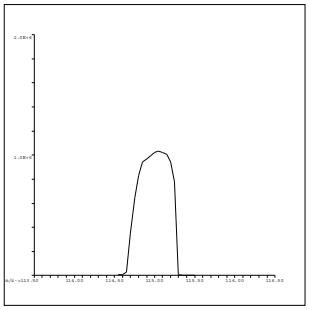
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



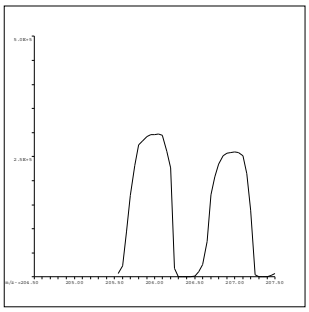
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



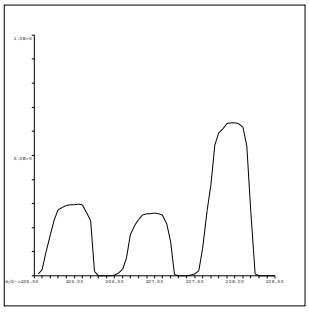
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



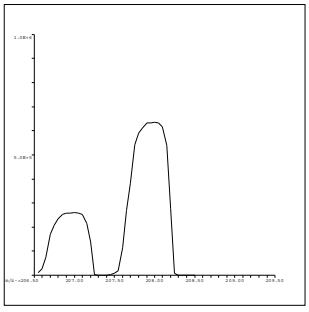
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 17 Jun 2019 08:21:02 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	88402.10	0.00	
24	Mg	450740.00	0.00	
25	Mg	59046.80	0.00	
26	Mg	67694.60	0.00	
59	Co	459728.00	0.00	
115	In	882603.00	0.00	
206	Pb	278857.00	0.00	
207	Pb	242545.00	0.00	
208	Pb	599319.00	0.00	

RSD (%)

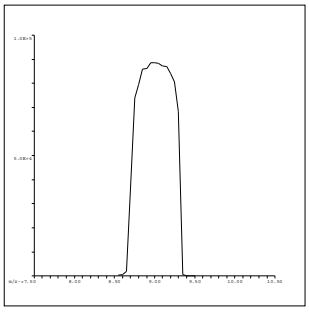
Element		Actual	Required	Flag
9	Be	0.87	5.00	
24	Mg	1.08	5.00	
25	Mg	0.48	5.00	
26	Mg	1.02	5.00	
59	Co	1.25	5.00	
115	In	0.72	5.00	
206	Pb	0.83	5.00	
207	Pb	1.18	5.00	
208	Pb	1.07	5.00	

Ion Ratio

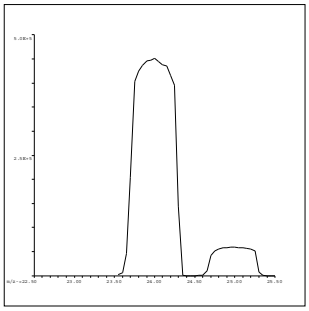
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

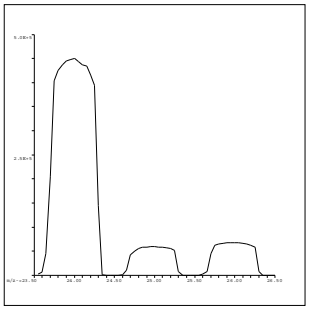
Element		Actual	Required	Flag



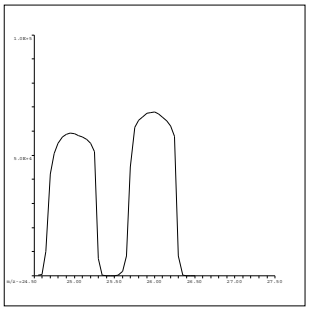
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



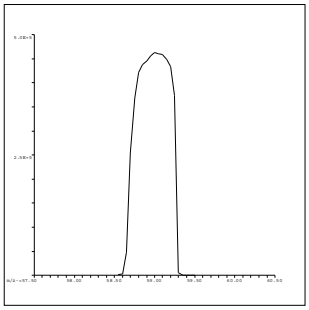
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



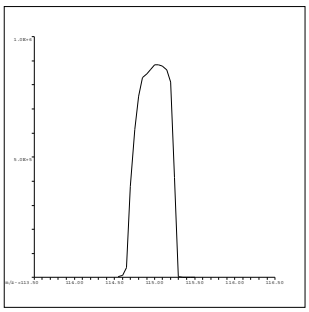
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



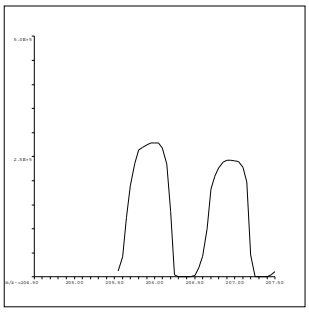
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



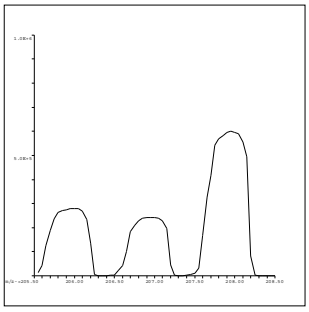
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



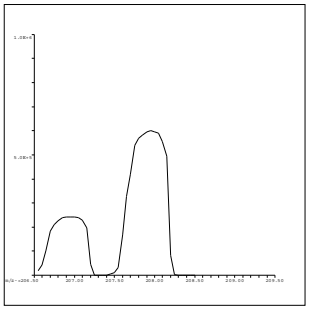
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 19 Jun 2019 05:34:30 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	162077.00	0.00	
24	Mg	456007.00	0.00	
25	Mg	59472.20	0.00	
26	Mg	67482.10	0.00	
59	Co	344439.00	0.00	
115	In	529180.00	0.00	
206	Pb	178164.00	0.00	
207	Pb	156721.00	0.00	
208	Pb	385164.00	0.00	

RSD (%)

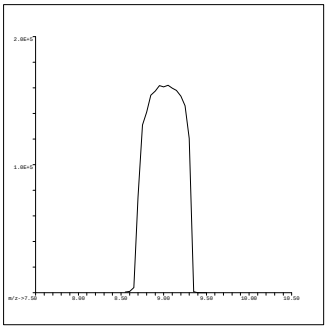
Element		Actual	Required	Flag
9	Be	1.16	5.00	
24	Mg	0.76	5.00	
25	Mg	1.04	5.00	
26	Mg	1.03	5.00	
59	Co	0.88	5.00	
115	In	0.47	5.00	
206	Pb	0.68	5.00	
207	Pb	0.46	5.00	
208	Pb	1.02	5.00	

Ion Ratio

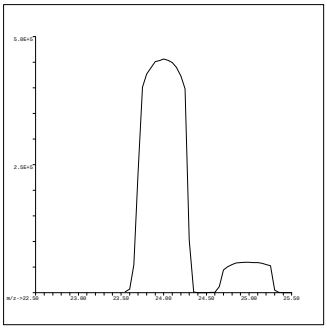
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

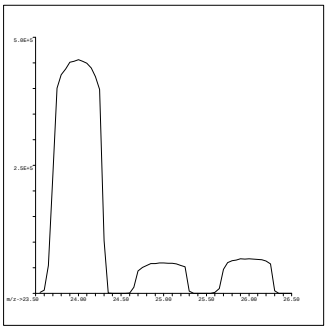
Element	Actual	Required	Flag



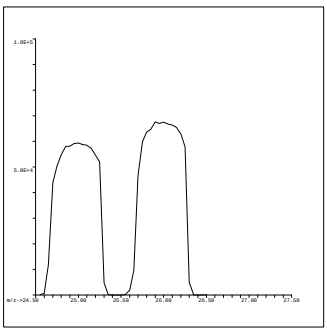
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



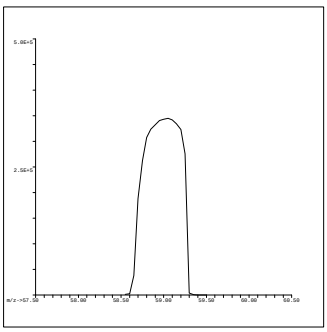
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



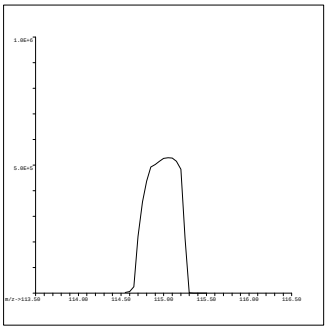
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



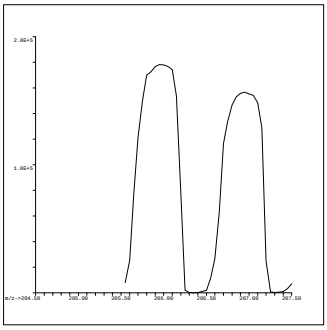
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



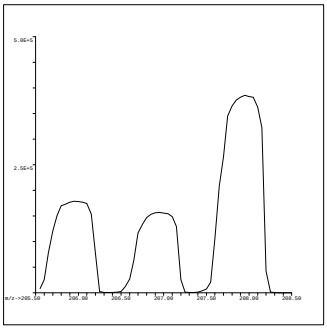
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



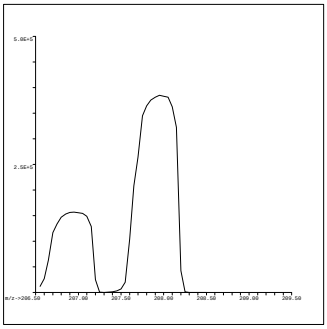
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.55
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190616A

Instrument ID: ICPMS-02

Analyte	Data File	A0616002.D	A0616003.D	A0616004.D	A0616005.D	A0616006.D	A0616007.D	A0616008.D	A0616009.D	A0616010.D	
	Acq. Date-Time	06/16/2019 07:14 AM	06/16/2019 07:19 AM	06/16/2019 07:24 AM	06/16/2019 07:29 AM	06/16/2019 07:34 AM	06/16/2019 07:39 AM	06/16/2019 07:44 AM	06/16/2019 07:49 AM	06/16/2019 07:54 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	109276.7		108540.1	109625.9	113355.8	113986.1	114340.4	116418.5	117394.7	
55 Mn [2]	CPS	789.5		3424.3	26676.4	52434.3	102262.5	201025.1	494292.9	961882.3	0.9999
52 Cr [2]	CPS	1588.8		5697.7	47136	91820.7	180528.9	356928.4	874559.4	1876060.7	0.9996
72 Ge (ISTD) [1]	CPS	59818.6		61201.4	61295.2	61194.5	60435.4	60507.8	60233.2	59755.1	
78 Se [1]	CPS	0		107.8	982.3	2074.7	4154.1	8226.9	20131.1	39552.6	1.0000
72 Ge (ISTD) [2]	CPS	87685.5	89383.6	88044.6	89111	89504.5	88182.3	88427.5	88154	86829	
75 As [2]	CPS	27.1	162.7	634.2	5761.1	11487.7	22270.9	44429.4	108961.2	213498.8	1.0000
103 Rh (ISTD) [2]	CPS	2445745.7		2439595.8	2446848.2	2469555.4	2426141.7	2433231.8	2390638.7	2361257.9	
95 Mo [2]	CPS	25.6		2705.9	26693.1	53571.7	107148	213931.4	525231.4	1033350.4	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190617B

Instrument ID: ICPMS-02

Analyte	Data File	B0617002.D	B0617004.D	B0617005.D	B0617006.D	B0617007.D	B0617008.D	B0617009.D	B0617010.D	
	Acq. Date-Time	06/17/2019 05:18 PM	06/17/2019 05:28 PM	06/17/2019 05:33 PM	06/17/2019 05:38 PM	06/17/2019 05:43 PM	06/17/2019 05:48 PM	06/17/2019 05:53 PM	06/17/2019 05:58 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [1]	CPS	45220.5	45574.8	45749.7	45608.2	45923.5	45811	45767.6	45063.2	
78 Se [1]	CPS	2.2	90	732.3	1617.9	2992.6	5896.9	14777.3	29287.5	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190619A2

Instrument ID: ICPMS-02

Analyte	Data File	A0619002.D	A0619004.D	A0619005.D	A0619006.D	A0619007.D	A0619008.D	A0619009.D	A0619010.D	
	Acq. Date-Time	06/19/2019 11:16 AM	06/19/2019 11:26 AM	06/19/2019 11:31 AM	06/19/2019 11:36 AM	06/19/2019 11:41 AM	06/19/2019 11:46 AM	06/19/2019 11:51 AM	06/19/2019 11:56 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
72 Ge (ISTD) [1]	CPS	24410.2	24175.4	22931.3	22770	22597.6	22466.2	21793	22074.6	
78 Se [1]	CPS	1.1	43.3	407.8	780.1	1701.3	3443.9	8115.7	16372.3	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **ICV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.460	0.10	10.00	0	105	90	110				
Manganese	91.666	0.50	100.0	0	91.7	90	110				
Molybdenum	10.278	0.50	10.00	0	103	90	110				
Selenium	10.619	0.50	10.00	0	106	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **ZZZZZZ**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413737**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.115	0.10	0.1000	0	115	80	120				
Manganese	0.482	0.50	0.5000	0	96.3	80	120				
Molybdenum	0.564	0.50	0.5000	0	113	80	120				
Selenium	0.593	0.50	0.5000	0	119	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413748**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.399	0.10	20.00	0	102	90	110				
Manganese	20.250	0.50	20.00	0	101	90	110				
Molybdenum	19.564	0.50	20.00	0	97.8	90	110				
Selenium	20.850	0.50	20.00	0	104	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.159	0.10	20.00	0	101	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **CCV** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.097	0.50	20.00	0	105	90	110				
Molybdenum	19.824	0.50	20.00	0	99.1	90	110				
Selenium	21.049	0.50	20.00	0	105	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **CCV** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.414	0.10	20.00	0	102	90	110				
Manganese	20.676	0.50	20.00	0	103	90	110				
Molybdenum	19.769	0.50	20.00	0	98.8	90	110				
Selenium	21.533	0.50	20.00	0	108	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **CCV** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.375	0.10	20.00	0	102	90	110				
Manganese	21.097	0.50	20.00	0	105	90	110				
Molybdenum	19.633	0.50	20.00	0	98.2	90	110				
Selenium	21.495	0.50	20.00	0	107	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **CCV** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413798**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.206	0.10	20.00	0	101	90	110				
Manganese	21.832	0.50	20.00	0	109	90	110				
Molybdenum	18.461	0.50	20.00	0	92.3	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413798**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.784	0.50	20.00	0	104	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413810**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.245	0.10	20.00	0	101	90	110				
Manganese	20.689	0.50	20.00	0	103	90	110				
Molybdenum	19.291	0.50	20.00	0	96.5	90	110				
Selenium	20.856	0.50	20.00	0	104	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.074	0.10	20.00	0	100	90	110				
Manganese	21.425	0.50	20.00	0	107	90	110				
Molybdenum	19.418	0.50	20.00	0	97.1	90	110				
Selenium	20.421	0.50	20.00	0	102	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.876	0.10	20.00	0	99.4	90	110				
Manganese	21.518	0.50	20.00	0	108	90	110				
Molybdenum	19.214	0.50	20.00	0	96.1	90	110				
Selenium	20.541	0.50	20.00	0	103	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413848**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.806	0.10	20.00	0	99.0	90	110				
Manganese	20.667	0.50	20.00	0	103	90	110				
Molybdenum	19.240	0.50	20.00	0	96.2	90	110				
Selenium	20.268	0.50	20.00	0	101	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.956	0.10	20.00	0	99.8	90	110				
Manganese	21.055	0.50	20.00	0	105	90	110				
Molybdenum	19.307	0.50	20.00	0	96.5	90	110				
Selenium	20.660	0.50	20.00	0	103	90	110				

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCV**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.074	0.10	20.00	0	100	90	110				
Manganese	21.108	0.50	20.00	0	106	90	110				
Molybdenum	19.297	0.50	20.00	0	96.5	90	110				
Selenium	20.868	0.50	20.00	0	104	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	115.339	0.50	100.0	0	115	90	110				S
Selenium	10.468	0.50	10.00	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ZZZZZZ**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.565	0.50	0.5000	0	113	80	120				
Selenium	0.416	0.50	0.5000	0	83.2	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415784**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.233	0.50	20.00	0	106	90	110				
Selenium	20.146	0.50	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415796**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.484	0.50	20.00	0	97.4	90	110				
Selenium	20.221	0.50	20.00	0	101	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.254	0.50	20.00	0	96.3	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

%Rec of Mn in ICV failed, biased high. Mn not reported on this run.

NS 7/1/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415808**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.029	0.50	20.00	0	100	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCV**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415820**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.070	0.50	20.00	0	95.4	90	110				
Selenium	19.656	0.50	20.00	0	98.3	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **ICV**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	10.168	0.50	10.00	0	102	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **ZZZZZZ**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	0.553	0.50	0.5000	0	111	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **CCV**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422854**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	20.397	0.50	20.00	0	102	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **CCV**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.879	0.50	20.00	0	94.4	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413595**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.015	1.0	10.00	0	90.1	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ZZZZZZ**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413597**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.938	1.0	1.000	0	93.8	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413611**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.984	1.0	20.00	0	99.9	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413623**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.429	1.0	20.00	0	102	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413635**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.042	1.0	20.00	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413647**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.451	1.0	20.00	0	102	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413661**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.117	1.0	20.00	0	106	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.908	1.0	20.00	0	99.5	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.187	1.0	20.00	0	101	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.669	1.0	20.00	0	98.3	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV9**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413711**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.575	1.0	20.00	0	97.9	90	110				

Sample ID **CCV10**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413723**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.700	1.0	20.00	0	98.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV11**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCV**	Batch ID: **R134541~~R134~~**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.953	1.0	20.00	0	99.8	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
ICB	**ICB**	**6020_DIS**	**µg/L**		**134542**
Client ID: **ICB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413733**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB1	**CCB**	**6020_DIS**	**µg/L**		**134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413749**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB2	**CCB**	**6020_DIS**	**µg/L**		**134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB3	**CCB**	**6020_DIS**	**µg/L**		**134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413773**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413785**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413799**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413811**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413861**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **CCB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415785**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415797**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415809**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415821**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **CCB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415821**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **ICB**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **CCB**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **CCB**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422866**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413596**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413612**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413624**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413636**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413648**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413662**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413698**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB9**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB10**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB11**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **CCB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413729**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	ICSA1	SampType:	ICSA	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	134542
Client ID:	ICSA	Batch ID:	R134542	TestNo:	EPA 6020			Analysis Date:	6/16/2019	SeqNo:	3413735

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	ICSAB1	SampType:	ICSAB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	134542
Client ID:	ICSAB	Batch ID:	R134542	TestNo:	EPA 6020			Analysis Date:	6/16/2019	SeqNo:	3413736

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.527	0.10	20.00	0	103	80	120				
Manganese	17.735	0.50	20.00	0	88.7	80	120				
Molybdenum	20.991	0.50	20.00	0	105	80	120				
Selenium	20.419	0.50	20.00	0	102	80	120				

Sample ID	ICSA2	SampType:	ICSA	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	134542
Client ID:	ICSA	Batch ID:	R134542	TestNo:	EPA 6020			Analysis Date:	6/16/2019	SeqNo:	3413786

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	134542
Client ID:	ICSAB	Batch ID:	R134542	TestNo:	EPA 6020			Analysis Date:	6/16/2019	SeqNo:	3413787

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.906	0.10	20.00	0	99.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSAB** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413787**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.516	0.50	20.00	0	87.6	80	120				
Molybdenum	20.732	0.50	20.00	0	104	80	120				
Selenium	21.567	0.50	20.00	0	108	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSA** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSAB** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.114	0.10	20.00	0	101	80	120				
Manganese	18.476	0.50	20.00	0	92.4	80	120				
Molybdenum	20.472	0.50	20.00	0	102	80	120				
Selenium	19.917	0.50	20.00	0	99.6	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ICSA** Batch ID: **R134542** TestNo: **EPA 6020** Analysis Date: **6/16/2019** SeqNo: **3413867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									
Molybdenum	ND	0.50									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **ICSA**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134542**
Client ID: **ICSAB**	Batch ID: **R134542**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.027	0.10	20.00	0	100	80	120				
Manganese	18.573	0.50	20.00	0	92.9	80	120				
Molybdenum	20.635	0.50	20.00	0	103	80	120				
Selenium	19.409	0.50	20.00	0	97.0	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSA**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415771**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSAB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415772**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.967	0.50	20.00	0	99.8	80	120				
Selenium	20.431	0.50	20.00	0	102	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSA**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415822**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134609**
Client ID: **ICSAB**	Batch ID: **R134609**	TestNo: **EPA 6020**		Analysis Date: **6/17/2019**	SeqNo: **3415823**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	19.695	0.50	20.00	0	98.5	80	120				
Selenium	20.364	0.50	20.00	0	102	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **ICSA**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **ICSAB**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422842**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.170	0.50	20.00	0	95.8	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **ICSA**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134619**
Client ID: **ICSAB**	Batch ID: **R134619**	TestNo: **EPA 6020**		Analysis Date: **6/19/2019**	SeqNo: **3422868**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	18.964	0.50	20.00	0	94.8	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSA**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413598**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSAB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413599**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.653	1.0	20.00	0	98.3	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSA**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413649**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSAB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413650**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.648	1.0	20.00	0	98.2	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSA**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSAB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.240	1.0	20.00	0	96.2	80	120				

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSA**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID: **ICSAB**	Batch ID: **R134541**	TestNo: **EPA 6020**		Analysis Date: **6/16/2019**	SeqNo: **3413731**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.142	1.0	20.00	0	95.7	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	109276.7	109276.7	100	PASS	70-125	87685.5	87685.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	109682.5	109276.7	100.37	PASS	70-125	89383.6	87685.5	101.94	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	108540.1	109276.7	99.33	PASS	70-125	88044.6	87685.5	100.41	PASS	70-125
Std3-5/50 ppb	ICAL	1	109625.9	109276.7	100.32	PASS	70-125	89111	87685.5	101.63	PASS	70-125
Std4-10/100 ppb	ICAL	1	113355.8	109276.7	103.73	PASS	70-125	89504.5	87685.5	102.07	PASS	70-125
Std5-20/200 ppb	ICAL	1	113986.1	109276.7	104.31	PASS	70-125	88182.3	87685.5	100.57	PASS	70-125
Std6-40/400 ppb	ICAL	1	114340.4	109276.7	104.63	PASS	70-125	88427.5	87685.5	100.85	PASS	70-125
Std7-100/1000 ppb	ICAL	1	116418.5	109276.7	106.54	PASS	70-125	88154	87685.5	100.53	PASS	70-125
Std8-200/2000 ppb	ICAL	1	117394.7	109276.7	107.43	PASS	70-125	86829	87685.5	99.023	PASS	70-125
ICV	ICV	1	116311.2	109276.7	106.44	PASS	70-125	81336.3	87685.5	92.76	PASS	70-125
ICB	ICB	1	103364.7	109276.7	94.59	PASS	70-125	83934.5	87685.5	95.72	PASS	70-125
LLICV	CCV1	1	114844.7	109276.7	105.1	PASS	70-125	92084.6	87685.5	105.02	PASS	70-125
ICSA1	ICSA	1	110288.7	109276.7	100.93	PASS	70-125	84796.4	87685.5	96.71	PASS	70-125
ICSAB1	ICSAB	1	110623.8	109276.7	101.23	PASS	70-125	84752.6	87685.5	96.66	PASS	70-125
LLICV	CCV1	1	125515.6	109276.7	114.86	PASS	70-125	98257.8	87685.5	112.06	PASS	70-125
MB-74195	MBLK	1	106723.2	109276.7	97.66	PASS	70-125	84909	87685.5	96.83	PASS	70-125
LCS-74195	LCS	1	101403.1	109276.7	92.79	PASS	70-125	81298.7	87685.5	92.72	PASS	70-125
N035761-001B	SAMP	1	111272.5	109276.7	101.83	PASS	70-125	73530.5	87685.5	83.86	PASS	70-125
N035761-001B	SAMP	5	113498	109276.7	103.86	PASS	70-125	85561.2	87685.5	97.58	PASS	70-125
N035761-001B	SAMP	25	118331.2	109276.7	108.29	PASS	70-125	93238.4	87685.5	106.33	PASS	70-125
N035761-001B-PS	PS	1	118809	109276.7	108.72	PASS	70-125	79210.8	87685.5	90.34	PASS	70-125
N035761-001B-PS	PS	5	124273.9	109276.7	113.72	PASS	70-125	91490.8	87685.5	104.34	PASS	70-125
N035761-001B-MS	MS	1	126091.6	109276.7	115.39	PASS	70-125	81665.8	87685.5	93.13	PASS	70-125
N035761-001B-MS	MS	5	126838.1	109276.7	116.07	PASS	70-125	93491	87685.5	106.62	PASS	70-125
CCV1	CCV	1	128244.1	109276.7	117.36	PASS	70-125	96805.7	87685.5	110.4	PASS	70-125
CCB1	CCB	1	121247.2	109276.7	110.95	PASS	70-125	94634	87685.5	107.92	PASS	70-125
N035761-001B-MSD	MSD	1	123816.2	109276.7	113.31	PASS	70-125	82138.1	87685.5	93.67	PASS	70-125
N035761-001B-MSD	MSD	5	128977.1	109276.7	118.03	PASS	70-125	94923.8	87685.5	108.25	PASS	70-125
N035761-002B	SAMP	1	126111.5	109276.7	115.41	PASS	70-125	83039.5	87685.5	94.7	PASS	70-125
N035761-002B	SAMP	5	135170.6	109276.7	123.7	PASS	70-125	99232	87685.5	113.17	PASS	70-125
N035761-003B	SAMP	1	136731.5	109276.7	125.12	NR!	70-125	90308.1	87685.5	102.99	PASS	70-125
N035761-003B	SAMP	5	134124.6	109276.7	122.74	PASS	70-125	100307.5	87685.5	114.39	PASS	70-125
N035761-004B	SAMP	1	129991.2	109276.7	118.96	PASS	70-125	85380	87685.5	97.37	PASS	70-125
N035761-004B	SAMP	5	133462	109276.7	122.13	PASS	70-125	97876.5	87685.5	111.62	PASS	70-125
N035761-005B	SAMP	1	131555	109276.7	120.39	PASS	70-125	86641.5	87685.5	98.81	PASS	70-125
N035761-005B	SAMP	5	134284.5	109276.7	122.88	PASS	70-125	98499.1	87685.5	112.33	PASS	70-125
CCV2	CCV	1	135736.2	109276.7	124.21	PASS	70-125	106742	87685.5	121.73	PASS	70-125
CCB2	CCB	1	128574.8	109276.7	117.66	PASS	70-125	103156.5	87685.5	117.64	PASS	70-125
N035761-006B	SAMP	1	124862.7	109276.7	114.26	PASS	70-125	83482.7	87685.5	95.21	PASS	70-125
N035761-006B	SAMP	5	134050.6	109276.7	122.67	PASS	70-125	98055.4	87685.5	111.83	PASS	70-125
N035761-006B	SAMP	25	134382.1	109276.7	122.97	PASS	70-125	104934.9	87685.5	119.67	PASS	70-125

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035761-007B	SAMP	1	131283.7	109276.7	120.14	PASS	70-125	86002.2	87685.5	98.08	PASS	70-125
N035761-007B	SAMP	5	136016.2	109276.7	124.47	PASS	70-125	99591.1	87685.5	113.58	PASS	70-125
N035761-007B	SAMP	25	131870.2	109276.7	120.68	PASS	70-125	103921.5	87685.5	118.52	PASS	70-125
N035761-008B	SAMP	1	134045	109276.7	122.67	PASS	70-125	87878.8	87685.5	100.22	PASS	70-125
N035761-008B	SAMP	5	137157	109276.7	125.51	NR!	70-125	100910.5	87685.5	115.08	PASS	70-125
N035761-010B	SAMP	1	124875.7	109276.7	114.27	PASS	70-125	82189	87685.5	93.73	PASS	70-125
N035761-010B	SAMP	5	133346.5	109276.7	122.03	PASS	70-125	98777.3	87685.5	112.65	PASS	70-125
CCV3	CCV	1	134805.5	109276.7	123.36	PASS	70-125	104156.7	87685.5	118.78	PASS	70-125
CCB3	CCB	1	124644.1	109276.7	114.06	PASS	70-125	99973.5	87685.5	114.01	PASS	70-125
N035761-013B	SAMP	1	117398.9	109276.7	107.43	PASS	70-125	78482.6	87685.5	89.5	PASS	70-125
N035761-013B	SAMP	5	131725.8	109276.7	120.54	PASS	70-125	96103.5	87685.5	109.6	PASS	70-125
N035779-001B	SAMP	1	130849.9	109276.7	119.74	PASS	70-125	90559.4	87685.5	103.28	PASS	70-125
N035779-001B	SAMP	5	129664.6	109276.7	118.66	PASS	70-125	99157.3	87685.5	113.08	PASS	70-125
N035779-001B	SAMP	25	131240.2	109276.7	120.1	PASS	70-125	102280.7	87685.5	116.64	PASS	70-125
N035779-002B	SAMP	1	125450.8	109276.7	114.8	PASS	70-125	94296	87685.5	107.54	PASS	70-125
N035779-002B	SAMP	5	123964.6	109276.7	113.44	PASS	70-125	99851.6	87685.5	113.87	PASS	70-125
N035779-002B	SAMP	25	121609.4	109276.7	111.29	PASS	70-125	98546.6	87685.5	112.39	PASS	70-125
N035779-003B	SAMP	1	120688.6	109276.7	110.44	PASS	70-125	90206.8	87685.5	102.88	PASS	70-125
N035779-003B	SAMP	5	120092.9	109276.7	109.9	PASS	70-125	95504.6	87685.5	108.92	PASS	70-125
CCV4	CCV	1	118674.9	109276.7	108.6	PASS	70-125	93534.6	87685.5	106.67	PASS	70-125
CCB4	CCB	1	114135.6	109276.7	104.45	PASS	70-125	93056.5	87685.5	106.13	PASS	70-125
ICSA2	ICSA	1	96735.3	109276.7	88.52	PASS	70-125	79017.1	87685.5	90.11	PASS	70-125
ICSAB2	ICSAB	1	114571.8	109276.7	104.85	PASS	70-125	89789.3	87685.5	102.4	PASS	70-125
N035779-003B	SAMP	10	116942.1	109276.7	107.02	PASS	70-125	94168.3	87685.5	107.39	PASS	70-125
N035779-004B	SAMP	1	109102	109276.7	99.84	PASS	70-125	76152.9	87685.5	86.85	PASS	70-125
N035779-004B	SAMP	5	114015.4	109276.7	104.34	PASS	70-125	86688.1	87685.5	98.86	PASS	70-125
N035779-004B	SAMP	50	115397.6	109276.7	105.6	PASS	70-125	92784.6	87685.5	105.82	PASS	70-125
N035779-005B	SAMP	1	113395	109276.7	103.77	PASS	70-125	78493.9	87685.5	89.52	PASS	70-125
N035779-005B	SAMP	5	120715.5	109276.7	110.47	PASS	70-125	90227.2	87685.5	102.9	PASS	70-125
N035779-005B	SAMP	50	119057.2	109276.7	108.95	PASS	70-125	94776.2	87685.5	108.09	PASS	70-125
N035779-006B	SAMP	1	111573	109276.7	102.1	PASS	70-125	74590.6	87685.5	85.066	PASS	70-125
N035779-006B	SAMP	5	125275.2	109276.7	114.64	PASS	70-125	92303.3	87685.5	105.27	PASS	70-125
N035779-007B	SAMP	1	121363.5	109276.7	111.06	PASS	70-125	84931.3	87685.5	96.86	PASS	70-125
CCV5	CCV	1	97802.1	109276.7	89.5	PASS	70-125	80316.9	87685.5	91.6	PASS	70-125
CCB5	CCB	1	102576.5	109276.7	93.87	PASS	70-125	84528.5	87685.5	96.4	PASS	70-125
N035779-007B	SAMP	5	102485.8	109276.7	93.79	PASS	70-125	82684	87685.5	94.3	PASS	70-125
N035779-008B	SAMP	1	103399.2	109276.7	94.62	PASS	70-125	72226.1	87685.5	82.37	PASS	70-125
N035779-008B	SAMP	5	107523.1	109276.7	98.4	PASS	70-125	84770.2	87685.5	96.68	PASS	70-125
N035811-001A	SAMP	1	109587	109276.7	100.28	PASS	70-125	75723.8	87685.5	86.36	PASS	70-125
N035828-001A	SAMP	1	114813.7	109276.7	105.07	PASS	70-125	75335.7	87685.5	85.92	PASS	70-125
CCV6	CCV	1	111409.6	109276.7	101.95	PASS	70-125	87414.8	87685.5	99.69	PASS	70-125

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB6	CCB	1	105783.1	109276.7	96.8	PASS	70-125	85003.6	87685.5	96.94	PASS	70-125
CCV7	CCV	1	91639.3	109276.7	83.86	PASS	70-125	74162.3	87685.5	84.58	PASS	70-125
CCB7	CCB	1	90064.9	109276.7	82.42	PASS	70-125	72989.6	87685.5	83.24	PASS	70-125
CCV8	CCV	1	85021.3	109276.7	77.8	PASS	70-125	68991.1	87685.5	78.68	PASS	70-125
CCB8	CCB	1	82424.7	109276.7	75.43	PASS	70-125	68436.5	87685.5	78.048	PASS	70-125
ICSA3	ICSA	1	106961.8	109276.7	97.88	PASS	70-125	84919.8	87685.5	96.85	PASS	70-125
ICSAB3	ICSAB	1	84136.3	109276.7	76.99	PASS	70-125	66590	87685.5	75.94	PASS	70-125
CCV9	CCV	1	91331	109276.7	83.58	PASS	70-125	73161.2	87685.5	83.44	PASS	70-125
CCB9	CCB	1	86756.5	109276.7	79.39	PASS	70-125	70798.9	87685.5	80.74	PASS	70-125
CCV10	CCV	1	88868.4	109276.7	81.32	PASS	70-125	72017.6	87685.5	82.13	PASS	70-125
CCB10	CCB	1	84804.2	109276.7	77.61	PASS	70-125	70412.5	87685.5	80.3	PASS	70-125
CCV11	CCV	1	86944.3	109276.7	79.56	PASS	70-125	71666.8	87685.5	81.73	PASS	70-125
CCB11	CCB	1	86939	109276.7	79.56	PASS	70-125	72749	87685.5	82.97	PASS	70-125
ICSA4	ICSA	1	112070	109276.7	102.56	PASS	70-125	86912.6	87685.5	99.12	PASS	70-125
ICSAB4	ICSAB	1	88505.5	109276.7	80.99	PASS	70-125	71060	87685.5	81.04	PASS	70-125

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	59818.6	59818.6	100	PASS	70-125	2445745.7	2445745.7	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	60893.3	59818.6	101.8	PASS	70-125	2457275.2	2445745.7	100.47	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	61201.4	59818.6	102.31	PASS	70-125	2439595.8	2445745.7	99.75	PASS	70-125
Std3-5/50 ppb	ICAL	1	61295.2	59818.6	102.47	PASS	70-125	2446848.2	2445745.7	100.05	PASS	70-125
Std4-10/100 ppb	ICAL	1	61194.5	59818.6	102.3	PASS	70-125	2469555.4	2445745.7	100.97	PASS	70-125
Std5-20/200 ppb	ICAL	1	60435.4	59818.6	101.03	PASS	70-125	2426141.7	2445745.7	99.2	PASS	70-125
Std6-40/400 ppb	ICAL	1	60507.8	59818.6	101.15	PASS	70-125	2433231.8	2445745.7	99.49	PASS	70-125
Std7-100/1000 ppb	ICAL	1	60233.2	59818.6	100.69	PASS	70-125	2390638.7	2445745.7	97.75	PASS	70-125
Std8-200/2000 ppb	ICAL	1	59755.1	59818.6	99.89	PASS	70-125	2361257.9	2445745.7	96.55	PASS	70-125
ICV	ICV	1	52977.2	59818.6	88.56	PASS	70-125	2319600.2	2445745.7	94.84	PASS	70-125
ICB	ICB	1	58176.8	59818.6	97.26	PASS	70-125	2380688.4	2445745.7	97.34	PASS	70-125
LLICV	CCV1	1	63259	59818.6	105.75	PASS	70-125	2606938.6	2445745.7	106.59	PASS	70-125
ICSA1	ICSA	1	52924.5	59818.6	88.47	PASS	70-125	2269245.3	2445745.7	92.78	PASS	70-125
ICSAB1	ICSAB	1	55077.4	59818.6	92.074	PASS	70-125	2211023.7	2445745.7	90.4	PASS	70-125
LLICV	CCV1	1	65993.3	59818.6	110.32	PASS	70-125	2755070.1	2445745.7	112.65	PASS	70-125
MB-74195	MBLK	1	55563.7	59818.6	92.89	PASS	70-125	2423271.9	2445745.7	99.081	PASS	70-125
LCS-74195	LCS	1	54280.1	59818.6	90.74	PASS	70-125	2317923.8	2445745.7	94.77	PASS	70-125
N035761-001B	SAMP	1	43438.9	59818.6	72.62	PASS	70-125	1822781.5	2445745.7	74.53	PASS	70-125
N035761-001B	SAMP	5	54399.4	59818.6	90.94	PASS	70-125	2254750.1	2445745.7	92.19	PASS	70-125
N035761-001B	SAMP	25	59393.6	59818.6	99.29	PASS	70-125	2465518.2	2445745.7	100.81	PASS	70-125
N035761-001B-PS	PS	1	43602.7	59818.6	72.89	PASS	70-125	1923213.3	2445745.7	78.64	PASS	70-125
N035761-001B-PS	PS	5	55224.5	59818.6	92.32	PASS	70-125	2361601.7	2445745.7	96.56	PASS	70-125
N035761-001B-MS	MS	1	44622.2	59818.6	74.6	PASS	70-125	1990214.1	2445745.7	81.37	PASS	70-125
N035761-001B-MS	MS	5	56698.3	59818.6	94.78	PASS	70-125	2392882.8	2445745.7	97.84	PASS	70-125
CCV1	CCV	1	61942.9	59818.6	103.55	PASS	70-125	2649546.5	2445745.7	108.33	PASS	70-125
CCB1	CCB	1	60335.9	59818.6	100.86	PASS	70-125	2614807.2	2445745.7	106.91	PASS	70-125
N035761-001B-MSD	MSD	1	44613.2	59818.6	74.58	PASS	70-125	1973550.3	2445745.7	80.69	PASS	70-125
N035761-001B-MSD	MSD	5	57299.6	59818.6	95.79	PASS	70-125	2402053.2	2445745.7	98.21	PASS	70-125
N035761-002B	SAMP	1	43661.9	59818.6	72.99	PASS	70-125	1920268.1	2445745.7	78.51	PASS	70-125
N035761-002B	SAMP	5	58642.9	59818.6	98.035	PASS	70-125	2464566.6	2445745.7	100.77	PASS	70-125
N035761-003B	SAMP	1	47410.8	59818.6	79.26	PASS	70-125	2117736.6	2445745.7	86.59	PASS	70-125
N035761-003B	SAMP	5	60009.2	59818.6	100.32	PASS	70-125	2525257.4	2445745.7	103.25	PASS	70-125
N035761-004B	SAMP	1	44266.9	59818.6	74.002	PASS	70-125	1936604.9	2445745.7	79.18	PASS	70-125
N035761-004B	SAMP	5	57514.9	59818.6	96.15	PASS	70-125	2434128.6	2445745.7	99.53	PASS	70-125
N035761-005B	SAMP	1	45168.1	59818.6	75.51	PASS	70-125	1994929.3	2445745.7	81.57	PASS	70-125
N035761-005B	SAMP	5	58605	59818.6	97.97	PASS	70-125	2468122.2	2445745.7	100.91	PASS	70-125
CCV2	CCV	1	65304	59818.6	109.17	PASS	70-125	2826181.6	2445745.7	115.56	PASS	70-125
CCB2	CCB	1	64361.4	59818.6	107.59	PASS	70-125	2779845.9	2445745.7	113.66	PASS	70-125
N035761-006B	SAMP	1	43689.6	59818.6	73.037	PASS	70-125	1946088.7	2445745.7	79.57	PASS	70-125
N035761-006B	SAMP	5	57750	59818.6	96.54	PASS	70-125	2443044.5	2445745.7	99.89	PASS	70-125
N035761-006B	SAMP	25	62751.8	59818.6	104.9	PASS	70-125	2667931.1	2445745.7	109.09	PASS	70-125

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N035761-007B	SAMP	1	44201.9	59818.6	73.89	PASS	70-125	1985554.8	2445745.7	81.18	PASS	70-125
N035761-007B	SAMP	5	58094.6	59818.6	97.12	PASS	70-125	2447538.9	2445745.7	100.07	PASS	70-125
N035761-007B	SAMP	25	62808.7	59818.6	105	PASS	70-125	2649238.5	2445745.7	108.32	PASS	70-125
N035761-008B	SAMP	1	47966.1	59818.6	80.19	PASS	70-125	2075564.9	2445745.7	84.86	PASS	70-125
N035761-008B	SAMP	5	59132.8	59818.6	98.85	PASS	70-125	2522212.5	2445745.7	103.13	PASS	70-125
N035761-010B	SAMP	1	43458.1	59818.6	72.65	PASS	70-125	1912640	2445745.7	78.2	PASS	70-125
N035761-010B	SAMP	5	57540.4	59818.6	96.19	PASS	70-125	2449282	2445745.7	100.14	PASS	70-125
CCV3	CCV	1	64347.1	59818.6	107.57	PASS	70-125	2787049.9	2445745.7	113.96	PASS	70-125
CCB3	CCB	1	62838.7	59818.6	105.05	PASS	70-125	2701633.1	2445745.7	110.46	PASS	70-125
N035761-013B	SAMP	1	40754.2	59818.6	68.13	NR!	70-125	1866363.2	2445745.7	76.31	PASS	70-125
N035761-013B	SAMP	5	56631.6	59818.6	94.67	PASS	70-125	2428380.8	2445745.7	99.29	PASS	70-125
N035779-001B	SAMP	1	50848	59818.6	85.004	PASS	70-125	2189235.5	2445745.7	89.51	PASS	70-125
N035779-001B	SAMP	5	60350.4	59818.6	100.89	PASS	70-125	2503249.2	2445745.7	102.35	PASS	70-125
N035779-001B	SAMP	25	62908	59818.6	105.16	PASS	70-125	2655536	2445745.7	108.58	PASS	70-125
N035779-002B	SAMP	1	57051.9	59818.6	95.37	PASS	70-125	2362119	2445745.7	96.58	PASS	70-125
N035779-002B	SAMP	5	60290	59818.6	100.79	PASS	70-125	2565743	2445745.7	104.91	PASS	70-125
N035779-002B	SAMP	25	62220.5	59818.6	104.02	PASS	70-125	2633211.4	2445745.7	107.66	PASS	70-125
N035779-003B	SAMP	1	55157.4	59818.6	92.21	PASS	70-125	2291385.1	2445745.7	93.69	PASS	70-125
N035779-003B	SAMP	5	59799.3	59818.6	99.97	PASS	70-125	2477133.6	2445745.7	101.28	PASS	70-125
CCV4	CCV	1	58783.5	59818.6	98.27	PASS	70-125	2563518.4	2445745.7	104.82	PASS	70-125
CCB4	CCB	1	58482.5	59818.6	97.77	PASS	70-125	2552651.9	2445745.7	104.37	PASS	70-125
ICSA2	ICSA	1	53815.5	59818.6	89.96	PASS	70-125	2235238.7	2445745.7	91.39	PASS	70-125
ICSAB2	ICSAB	1	53804.3	59818.6	89.95	PASS	70-125	2286282.8	2445745.7	93.48	PASS	70-125
N035779-003B	SAMP	10	59290.7	59818.6	99.12	PASS	70-125	2482135.8	2445745.7	101.49	PASS	70-125
N035779-004B	SAMP	1	42867.4	59818.6	71.66	PASS	70-125	1904770.7	2445745.7	77.88	PASS	70-125
N035779-004B	SAMP	5	52584.9	59818.6	87.91	PASS	70-125	2250799	2445745.7	92.029	PASS	70-125
N035779-004B	SAMP	50	58689.8	59818.6	98.11	PASS	70-125	2463389.5	2445745.7	100.72	PASS	70-125
N035779-005B	SAMP	1	43763.3	59818.6	73.16	PASS	70-125	1934514.6	2445745.7	79.097	PASS	70-125
N035779-005B	SAMP	5	53583.5	59818.6	89.58	PASS	70-125	2283118	2445745.7	93.35	PASS	70-125
N035779-005B	SAMP	50	58633.1	59818.6	98.018	PASS	70-125	2479860.9	2445745.7	101.39	PASS	70-125
N035779-006B	SAMP	1	39010.1	59818.6	65.21	NR!	70-125	1784290.8	2445745.7	72.95	PASS	70-125
N035779-006B	SAMP	5	53989.7	59818.6	90.26	PASS	70-125	2319512.6	2445745.7	94.84	PASS	70-125
N035779-007B	SAMP	1	48857.6	59818.6	81.68	PASS	70-125	2140063.9	2445745.7	87.5	PASS	70-125
CCV5	CCV	1	47701.9	59818.6	79.74	PASS	70-125	2365934.1	2445745.7	96.74	PASS	70-125
CCB5	CCB	1	53155.4	59818.6	88.86	PASS	70-125	2379034.6	2445745.7	97.27	PASS	70-125
N035779-007B	SAMP	5	51874.6	59818.6	86.72	PASS	70-125	2174635	2445745.7	88.92	PASS	70-125
N035779-008B	SAMP	1	42366	59818.6	70.82	PASS	70-125	1821552.3	2445745.7	74.48	PASS	70-125
N035779-008B	SAMP	5	52617.2	59818.6	87.96	PASS	70-125	2197035.9	2445745.7	89.83	PASS	70-125
N035811-001A	SAMP	1	43277.6	59818.6	72.35	PASS	70-125	1875880.9	2445745.7	76.7	PASS	70-125
N035828-001A	SAMP	1	41184.1	59818.6	68.85	NR!	70-125	1819524	2445745.7	74.4	PASS	70-125
CCV6	CCV	1	55146.5	59818.6	92.19	PASS	70-125	2394333.9	2445745.7	97.9	PASS	70-125

INTERNAL STANDARD: 190616A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]					103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCB6	CCB	1	55320.3	59818.6	92.48	PASS	70-125	2354530.9	2445745.7	96.27	PASS	70-125
CCV7	CCV	1	50115.8	59818.6	83.78	PASS	70-125	2095136.1	2445745.7	85.66	PASS	70-125
CCB7	CCB	1	50441.2	59818.6	84.32	PASS	70-125	2090165.8	2445745.7	85.46	PASS	70-125
CCV8	CCV	1	47961.6	59818.6	80.18	PASS	70-125	1953621.2	2445745.7	79.88	PASS	70-125
CCB8	CCB	1	47632.8	59818.6	79.63	PASS	70-125	1951070.3	2445745.7	79.77	PASS	70-125
ICSA3	ICSA	1	55721.8	59818.6	93.15	PASS	70-125	2365248	2445745.7	96.71	PASS	70-125
ICSAB3	ICSAB	1	44856.2	59818.6	74.99	PASS	70-125	1777810.7	2445745.7	72.69	PASS	70-125
CCV9	CCV	1	52519.9	59818.6	87.8	PASS	70-125	2068910.8	2445745.7	84.59	PASS	70-125
CCB9	CCB	1	50171.5	59818.6	83.87	PASS	70-125	2017380.6	2445745.7	82.49	PASS	70-125
CCV10	CCV	1	51197.2	59818.6	85.59	PASS	70-125	2043762.4	2445745.7	83.56	PASS	70-125
CCB10	CCB	1	51122.4	59818.6	85.46	PASS	70-125	2000320.7	2445745.7	81.79	PASS	70-125
CCV11	CCV	1	50449.1	59818.6	84.34	PASS	70-125	2035876.1	2445745.7	83.24	PASS	70-125
CCB11	CCB	1	50754.7	59818.6	84.85	PASS	70-125	2046508	2445745.7	83.68	PASS	70-125
ICSA4	ICSA	1	58382.1	59818.6	97.6	PASS	70-125	2423276.7	2445745.7	99.081	PASS	70-125
ICSAB4	ICSAB	1	48137.5	59818.6	80.47	PASS	70-125	1873237.3	2445745.7	76.59	PASS	70-125

INTERNAL STANDARD: 190617B

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	45220.5	45220.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	45165.8	45220.5	99.88	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	45574.8	45220.5	100.78	PASS	70-125
Std3-5/50 ppb	ICAL	1	45749.7	45220.5	101.17	PASS	70-125
Std4-10/100 ppb	ICAL	1	45608.2	45220.5	100.86	PASS	70-125
Std5-20/200 ppb	ICAL	1	45923.5	45220.5	101.55	PASS	70-125
Std6-40/400 ppb	ICAL	1	45811	45220.5	101.31	PASS	70-125
Std7-100/1000 ppb	ICAL	1	45767.6	45220.5	101.21	PASS	70-125
Std8-200/2000 ppb	ICAL	1	45063.2	45220.5	99.65	PASS	70-125
ICV	ICV	1	41166.3	45220.5	91.035	PASS	70-125
ICB	ICB	1	43498	45220.5	96.19	PASS	70-125
LLICV	CCV1	1	50787	45220.5	112.31	PASS	70-125
ICSA1	ICSA	1	42803.8	45220.5	94.66	PASS	70-125
ICSAB1	ICSAB	1	44957.4	45220.5	99.42	PASS	70-125
LLICV	CCV1	1	58221.7	45220.5	128.75	NR!	70-125
CCV1	CCV	1	51990.8	45220.5	114.97	PASS	70-125
CCB1	CCB	1	51011.9	45220.5	112.81	PASS	70-125
N035779-007B	SAMP	1	45508.1	45220.5	100.64	PASS	70-125
N035779-008B	SAMP	1	42570	45220.5	94.14	PASS	70-125
CCV2	CCV	1	50248.6	45220.5	111.12	PASS	70-125
CCB2	CCB	1	50788.2	45220.5	112.31	PASS	70-125
CCV3	CCV	1	48161	45220.5	106.5	PASS	70-125
CCB3	CCB	1	47945.8	45220.5	106.03	PASS	70-125
CCV4	CCV	1	45278.5	45220.5	100.13	PASS	70-125
CCB4	CCB	1	44925.4	45220.5	99.35	PASS	70-125
ICSA2	ICSA	1	40831.1	45220.5	90.29	PASS	70-125
ICSAB2	ICSAB	1	44430.6	45220.5	98.25	PASS	70-125
CCV5	CCV	1	47517.1	45220.5	105.08	PASS	70-125
CCB5	CCB	1	46769.3	45220.5	103.42	PASS	70-125
CCV6	CCV	1	47328.7	45220.5	104.66	PASS	70-125
CCB6	CCB	1	45886.7	45220.5	101.47	PASS	70-125
ICSA3	ICSA	1	42876.4	45220.5	94.82	PASS	70-125
ICSAB3	ICSAB	1	47026.8	45220.5	103.99	PASS	70-125

INTERNAL STANDARD: 190619A2

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	24410.2	24410.2	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	24777.4	24410.2	101.5	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	24175.4	24410.2	99.038	PASS	70-125
Std3-5/50 ppb	ICAL	1	22931.3	24410.2	93.94	PASS	70-125
Std4-10/100 ppb	ICAL	1	22770	24410.2	93.28	PASS	70-125
Std5-20/200 ppb	ICAL	1	22597.6	24410.2	92.57	PASS	70-125
Std6-40/400 ppb	ICAL	1	22466.2	24410.2	92.036	PASS	70-125
Std7-100/1000 ppb	ICAL	1	21793	24410.2	89.28	PASS	70-125
Std8-200/2000 ppb	ICAL	1	22074.6	24410.2	90.43	PASS	70-125
ICV	ICV	1	22003.5	24410.2	90.14	PASS	70-125
ICV	ICV	1	21597.3	24410.2	88.48	PASS	70-125
ICB	ICB	1	21639.6	24410.2	88.65	PASS	70-125
LLICV	CCV1	1	19145.3	24410.2	78.43	PASS	70-125
ICSA1	ICSA	1	23171.7	24410.2	94.93	PASS	70-125
ICSAB1	ICSAB	1	24856.4	24410.2	101.83	PASS	70-125
LLICV	CCV1	1	23814.8	24410.2	97.56	PASS	70-125
CCV1	CCV	1	30506.2	24410.2	124.97	PASS	70-125
CCB1	CCB	1	29945.1	24410.2	122.67	PASS	70-125
N035779-007B	SAMP	1	25087.9	24410.2	102.78	PASS	70-125
N035779-008B	SAMP	1	22999.2	24410.2	94.22	PASS	70-125
N035779-007B	SAMP	1	24237.7	24410.2	99.29	PASS	70-125
N035779-008B	SAMP	1	22993.6	24410.2	94.2	PASS	70-125
N035779-007B	SAMP	1	24517	24410.2	100.44	PASS	70-125
N035779-008B	SAMP	1	22511.9	24410.2	92.22	PASS	70-125
CCV2	CCV	1	31218.7	24410.2	127.89	NR!	70-125
CCB2	CCB	1	30162.2	24410.2	123.56	PASS	70-125
ICSA2	ICSA	1	29379.6	24410.2	120.36	PASS	70-125
ICSAB2	ICSAB	1	30388.2	24410.2	124.49	PASS	70-125
CCV3	CCV	1	25050.1	24410.2	102.62	PASS	70-125
CCB3	CCB	1	26929.7	24410.2	110.32	PASS	70-125
ICSA3	ICSA	1	27322.7	24410.2	111.93	PASS	70-125
ICSAB3	ICSAB	1	28381.2	24410.2	116.27	PASS	70-125
CCV4	CCV	1	22853.5	24410.2	93.62	PASS	70-125
CCB4	CCB	1	24613.9	24410.2	100.83	PASS	70-125
ICSA4	ICSA	1	25697.8	24410.2	105.27	PASS	70-125
ICSAB4	ICSAB	1	27913.7	24410.2	114.35	PASS	70-125
CCV5	CCV	1	24234.4	24410.2	99.28	PASS	70-125
CCB5	CCB	1	25959.4	24410.2	106.35	PASS	70-125
CCV6	CCV	1	26298.7	24410.2	107.74	PASS	70-125
CCB6	CCB	1	26922.1	24410.2	110.29	PASS	70-125
CCV7	CCV	1	23877.5	24410.2	97.82	PASS	70-125

INTERNAL STANDARD: 190619A2

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria
CCB7	CCB	1	22062.2	24410.2	90.38	PASS	70-125
CCV8	CCV	1	20877.9	24410.2	85.53	PASS	70-125
CCB8	CCB	1	20789.2	24410.2	85.17	PASS	70-125
ICSA5	ICSA	1	23373.7	24410.2	95.75	PASS	70-125
ICSAB5	ICSAB	1	25795.2	24410.2	105.67	PASS	70-125
CCV9	CCV	1	18400.7	24410.2	75.38	PASS	70-125
CCB9	CCB	1	17352.4	24410.2	71.087	PASS	70-125
ICSA6	ICSA	1	27733.4	24410.2	113.61	PASS	70-125
ICSAB6	ICSAB	1	21041.8	24410.2	86.2	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035779
Test Method: EPA 6020
Analysis Date: 6/16/2019

Matrix: Groundwater
Batch No.: 74195

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test for Mn failed. However, PS passed criteria.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N035761-001B DT 5x	Chromium	Cr	µg/L	0	NA	0		10
N035761-001B DT 5x	Arsenic	As	µg/L	1.244996	NA	1.185443	5.02%	10
N035761-001B DT 5x	Manganese	Mn	µg/L	20.40712	FAIL	18.0213	13.24%	10
N035761-001B DT 5x	Molybdenum	Mo	µg/L	12.8514	PASS	13.40358	4.12%	10
N035761-001B DT 5x	Selenium	Se	µg/L	0	NA	0.5159975	100.00%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N035761-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134542**
Client ID: **ZZZZZZ** Batch ID: **74195** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **6/16/2019** SeqNo: **3413744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.385	0.10	10.00	1.185	112	80	120				
Manganese	106.671	0.50	100.0	18.02	88.6	80	120				
Molybdenum	25.850	0.50	10.00	13.40	124	80	120				S
Selenium	12.235	0.50	10.00	0.5160	117	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035779
Project: PG&E Topock - GMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N035761-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134541**
Client ID:	**ZZZZZZ**	Batch ID: **74195**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **6/16/2019**	SeqNo: **3413607**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.719	1.0	10.00	0	97.2	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CORRECTIVE ACTION DOCUMENTATION

ASSET Laboratories

Corrective Action Report (CAR)

Date Initiated: 02-Jul-19
Initiated By: Nancy Sibucao
Corrective Action Report ID: 2793
Department: ME-4-CA(ICP)

Corrective Action Description

CAR Summary: IS of Selenium in CCV2 failed.

Description of Nonconformance: IS of Selenium in CCV2 failed, biased high.

Description of Corrective Action: IS of Selenium in CCV2 failed, biased high. However, recovery is within criteria. All other QCs passed criteria. Reported from this run is sample N035779-008 for Selenium only as this sample was reanalyzed for several runs due to failing RSD of sample. The result is comparable for all runs.

Performed By: Nancy Sibucao
Completion Date: 02-Jul-19

Client Notification

Client Notification Required: No
Notified By:
Comment:

Quality Assurance Review

Corrective Action: Deficiency

Further Action required by QA: none

Approval and Closure

CAR Closed By: _____ Close Date: _____

QA Reviewed By: Nancy 7/2/2019 QA Date: _____

Last Updated BY nancys Updated: 02-Jul-2019 7:31 PM Reported: 02-Jul-2019 7:32 PM

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

July 05, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035891

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on June 05, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucan for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035891

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Subcontracted Analyses:

Metals by EPA 200.7 was subcontracted to BC Labs- Bakersfield,CA.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N036000-001A-MS and N036000-001A-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *05-Jul-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035891
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035891-001A	PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	6/5/2019	7/5/2019
N035891-001B	PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	6/5/2019	7/5/2019
N035891-001C	PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	6/5/2019	7/5/2019
N035891-001D	PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	6/5/2019	7/5/2019
N035891-001E	PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	6/5/2019	7/5/2019
N035891-002A	TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	6/5/2019	7/5/2019
N035891-002B	TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	6/5/2019	7/5/2019
N035891-002C	TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	6/5/2019	7/5/2019
N035891-002D	TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	6/5/2019	7/5/2019
N035891-002E	TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	6/5/2019	7/5/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190606B**	QC Batch: **R134349**		PrepDate				Analyst: **LR**
Specific Conductance	2000	0.10	0.10		umhos/cm	1	6/6/2019 09:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190606B**	QC Batch: **R134349**			PrepDate			Analyst: **LR**
Specific Conductance	7500	0.10	0.10		umhos/cm	1	6/6/2019 09:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N035889-001ADUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:				RunNo: **134349**	
Client ID: **ZZZZZZ**	Batch ID: **R134349**	TestNo: **EPA 120.1**		Analysis Date: **6/6/2019**				SeqNo: **3402592**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7150.000	0.10						7140	0.140	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190606C**	QC Batch: **R134350**			PrepDate			Analyst: **LR**
pH	7.6	0.10	0.10	H	pH Units	1	6/6/2019 09:10 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/6/2019 09:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190606C**	QC Batch: **R134350**			PrepDate			Analyst: **LR**
pH	7.3	0.10	0.10	H	pH Units	1	6/6/2019 09:10 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/6/2019 09:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N035891-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **134350**
Client ID: **ZZZZZZ** Batch ID: **R134350** TestNo: **SM4500-H+B** Analysis Date: **6/6/2019** SeqNo: **3402601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.580	0.10						7.560	0.264	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190606F**	QC Batch: **74128**				PrepDate	**6/6/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1200	13	13		mg/L	1	6/6/2019 12:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190606F**	QC Batch: **74128**				PrepDate	**6/6/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	6/6/2019 12:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID	LCS-74128	SampType:	LCS	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	6/6/2019	RunNo:	134385
Client ID:	LCSW	Batch ID:	74128	TestNo:	SM2540C			Analysis Date:	6/6/2019	SeqNo:	3405303

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	976.000	10	1000	0	97.6	80	120				

Sample ID	MB-74128	SampType:	MBLK	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	6/6/2019	RunNo:	134385
Client ID:	PBW	Batch ID:	74128	TestNo:	SM2540C			Analysis Date:	6/6/2019	SeqNo:	3405304

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID	N035889-001ADUP	SampType:	DUP	TestCode:	160.1_2540C	Units:	mg/L	Prep Date:	6/6/2019	RunNo:	134385
Client ID:	ZZZZZZ	Batch ID:	74128	TestNo:	SM2540C			Analysis Date:	6/6/2019	SeqNo:	3405306

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4155.000	50						4150	0.120	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190614B**	QC Batch: **74203**				PrepDate	**6/13/2019**	Analyst: **CEI**
Manganese	460	1.3	2.5		µg/L	5	6/14/2019 02:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190614B**	QC Batch: **74203**			PrepDate	**6/13/2019**		Analyst: **CEI**
Manganese	18	0.26	0.50		µg/L	1	6/14/2019 02:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID	MB-74203	SampType:	MBLK	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	PBW	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411234

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID	LCS-74203	SampType:	LCS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	LCSW	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411235

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	106.320	0.50	100.0	0	106	85	115				

Sample ID	N036000-001A-DUP	SampType:	DUP	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411238

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	57.836	0.50						57.37	0.808	20	

Sample ID	N036000-001A-MS	SampType:	MS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411250

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	155.885	0.50	100.0	57.37	98.5	75	125				

Sample ID	N036000-001A-MSD	SampType:	MSD	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411251

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	152.915	0.50	100.0	57.37	95.5	75	125	155.9	1.92	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190606A**	QC Batch: **R134359**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/6/2019 11:52 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190614B**	QC Batch: **74203**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/14/2019 02:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190606A**	QC Batch: **R134359**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	450	3.3	20		µg/L	100	6/6/2019 12:11 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190614B**	QC Batch: **74203**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	440	0.65	5.0		µg/L	5	6/14/2019 02:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-74203	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	PBW	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411189

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.135	1.0									

Sample ID	LCS-74203	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	LCSW	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411190

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.086	1.0	10.00	0	101	85	115				

Sample ID	N036000-001A-DUP	SampType:	DUP	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411201

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1967.877	25						1915	2.74	20	

Sample ID	N036000-001A-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411203

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1841.649	25	10.00	1915	-731	75	125				S

Sample ID	N036000-001A-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411204

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1867.476	25	10.00	1915	-472	75	125	1842	1.39	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	MB-R134359	SampType:	MBLK	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134359		
Client ID:	PBW	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402691		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	ND	0.20											

Sample ID	LCS-R134359	SampType:	LCS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134359		
Client ID:	LCSW	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402692		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	5.065	0.20	5.000	0	101	90	110						

Sample ID	N035889-001BDUP	SampType:	DUP	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134359		
Client ID:	ZZZZZZ	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402695		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	452.230	20						448.1	0.913	20			

Sample ID	N035890-001BMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134359		
Client ID:	ZZZZZZ	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402699		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	2418.640	40	1000	1439	98.0	90	110						

Sample ID	N035890-001BMSD	SampType:	MSD	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134359		
Client ID:	ZZZZZZ	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402700		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual		
Hexavalent Chromium	2419.900	40	1000	1439	98.1	90	110	2419	0.0521	20			

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID	N035891-002AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134359
Client ID:	ZZZZZZ	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402705

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	945.280	20	500.0	447.0	99.7	90	110				

Sample ID	N035891-001AMS	SampType:	MS	TestCode:	218.6_WPGE	Units:	µg/L	Prep Date:		RunNo:	134359
Client ID:	ZZZZZZ	Batch ID:	R134359	TestNo:	EPA 218.6			Analysis Date:	6/6/2019	SeqNo:	3402708

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.049	0.20	1.000	0	105	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **N036000-001A-PS**	SampType: **PS**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:			RunNo: **134513**	
Client ID: **ZZZZZZ**	Batch ID: **74203**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**			SeqNo: **3411202**	

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1840.509	25	10.00	1915	-742	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190606D**	QC Batch: **R134358**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	200	1.2	5.0		mg/L	1	6/6/2019 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190606D**	QC Batch: **R134358**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	6/6/2019 01:30 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R134358**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **134358**
Client ID: **LCSW**	Batch ID: **R134358**	TestNo: **SM 2320 B**		Analysis Date: **6/6/2019**	SeqNo: **3402677**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	98.060	5.0	100.0	0	98.1	85	115				

Sample ID **MB-R134358**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **134358**
Client ID: **PBW**	Batch ID: **R134358**	TestNo: **SM 2320 B**		Analysis Date: **6/6/2019**	SeqNo: **3402678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N035891-002CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **134358**
Client ID: **ZZZZZZ**	Batch ID: **R134358**	TestNo: **SM 2320 B**		Analysis Date: **6/6/2019**	SeqNo: **3402681**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	161.638	5.0						161.6	0	30	

Sample ID **N035891-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **134358**
Client ID: **ZZZZZZ**	Batch ID: **R134358**	TestNo: **SM 2320 B**		Analysis Date: **6/6/2019**	SeqNo: **3402682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	256.466	5.0	100.0	161.6	94.8	75	125				

Sample ID **N035891-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:	RunNo: **134358**
Client ID: **ZZZZZZ**	Batch ID: **R134358**	TestNo: **SM 2320 B**		Analysis Date: **6/6/2019**	SeqNo: **3402683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	256.466	5.0	100.0	161.6	94.8	75	125	256.5	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190606B**	QC Batch: **R134375**			PrepDate			Analyst: **RAB**
Chloride	390	0.46	25		mg/L	50	6/6/2019 02:50 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190606B**	QC Batch: **R134375**			PrepDate			Analyst: **RAB**
Sulfate	240	1.1	25		mg/L	50	6/6/2019 02:50 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190606B**	QC Batch: **R134375**			PrepDate			Analyst: **RAB**
Chloride	2100	4.6	250		mg/L	500	6/6/2019 02:20 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190606B**	QC Batch: **R134375**			PrepDate			Analyst: **RAB**
Sulfate	480	1.1	25		mg/L	50	6/6/2019 03:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R134375_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	PBW	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403125

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.163	0.50									

Sample ID	LCS-R134375_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	LCSW	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403126

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.049	0.50	2.000	0	102	90	110				

Sample ID	N035891-002CMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403131

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3126.900	250	1000	2052	108	80	120				

Sample ID	N035891-002CMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403132

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3102.450	250	1000	2052	105	80	120	3127	0.785	20	

Sample ID	N035891-001CDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403133

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	391.790	25						385.9	1.52	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R134375_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	PBW	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403142

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R134375_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	LCSW	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403143

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.965	0.50	4.000	0	99.1	90	110				

Sample ID	N035891-002CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403149

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	695.750	25	200.0	483.6	106	80	120				

Sample ID	N035891-002CMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403150

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	685.740	25	200.0	483.6	101	80	120	695.8	1.45	20	

Sample ID	N035891-001CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403151

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	245.490	25						242.6	1.17	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190613D**	QC Batch: **R134491**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	6/13/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190612B**	QC Batch: **R134466**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	2.6	0.16	0.25		mg/L	5	6/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134466	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134466
Client ID:	PBW	Batch ID:	R134466	TestNo:	SM4500-NO3			Analysis Date:	6/12/2019	SeqNo:	3408760

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R134466	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134466
Client ID:	LCSW	Batch ID:	R134466	TestNo:	SM4500-NO3			Analysis Date:	6/12/2019	SeqNo:	3408761

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.480	0.050	0.5000	0	95.9	85	115				

Sample ID	N035891-002DDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134466
Client ID:	ZZZZZZ	Batch ID:	R134466	TestNo:	SM4500-NO3			Analysis Date:	6/12/2019	SeqNo:	3408765

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.625	0.25						2.638	0.475	20	

Sample ID	N035889-002DMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134466
Client ID:	ZZZZZZ	Batch ID:	R134466	TestNo:	SM4500-NO3			Analysis Date:	6/12/2019	SeqNo:	3408767

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.517	0.25	2.500	2.847	107	75	125				

Sample ID	N035889-002DMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134466
Client ID:	ZZZZZZ	Batch ID:	R134466	TestNo:	SM4500-NO3			Analysis Date:	6/12/2019	SeqNo:	3408768

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.395	0.25	2.500	2.847	102	75	125	5.516	2.23	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134491	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134491
Client ID:	PBW	Batch ID:	R134491	TestNo:	SM4500-NO3			Analysis Date:	6/13/2019	SeqNo:	3409673

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R134491	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134491
Client ID:	LCSW	Batch ID:	R134491	TestNo:	SM4500-NO3			Analysis Date:	6/13/2019	SeqNo:	3409674

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.4	85	115				

Sample ID	N035849-001EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134491
Client ID:	ZZZZZZ	Batch ID:	R134491	TestNo:	SM4500-NO3			Analysis Date:	6/13/2019	SeqNo:	3409678

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.227	0.050						0.2467	8.45	20	

Sample ID	N035850-001EMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134491
Client ID:	ZZZZZZ	Batch ID:	R134491	TestNo:	SM4500-NO3			Analysis Date:	6/13/2019	SeqNo:	3409680

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.755	0.050	0.5000	0.2365	104	75	125				

Sample ID	N035850-001EMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134491
Client ID:	ZZZZZZ	Batch ID:	R134491	TestNo:	SM4500-NO3			Analysis Date:	6/13/2019	SeqNo:	3409681

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.760	0.050	0.5000	0.2365	105	75	125	0.7547	0.673	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com	Address:	Geotracker	RWQCB ✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivot.com	Labspec	CalTrans	2. Headspace
Submitted By:		P.O.# SWA-ASSET-C9817-051	Others ✓	LEVEL III	3. Container Intact
Title:	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present
Signature: Date:	Sampled By: Spencer Doolittle	Matrix: Ground x Sediment; Potable Soil; NPDES Other Solid; Surface	Global ID:	Regulatory	5. IR number
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, data or time of collection is considered fraud and may be grounds for*			Specify State:	6. Method of Cooling: ICE
Project Name: PG&E Topock - PMP	Signature: SDoolittle Date: 6/5/2019				Sample Temp: 2.3
Project Number: RC000753.801D					Courier: Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 mL poly)	(1 L poly)	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn (1 L poly)	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na, (1 L poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (1 L poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035891-01	PE-01-0619	6/5/2019	1130		X		X	X			X	X	X	X	X		X	E	4	P	BN	
2	-02	TW-03D-0619	6/5/2019	1120		X		X	X			X	X	X	X	X		X	E	4	P	BN	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
SDoolittle Spencer Doolittle	6/5/19 12:10	Michael Andrews / Michael Andrews	6/5/19 12:40
Michael Andrews / Michael Andrews	6/5/19 16:02	J JORDAN / GS	6/6/19 1632
J JORDAN GS	6-6-19 0828	J JORDAN GS	6/6/19 0828

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms:
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	6/5/2019	Workorder:	N035891
Rep sample Temp (Deg C):	2.3	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YRJ 6/6/2019

Reviewed By: LG 060918

ASSET Laboratories

WORK ORDER Summary

05-Jul-19

WorkOrder: N035891

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/5/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035891-001A	PE-01-0619	6/5/2019 11:30:00 AM	6/19/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035891-001B			6/19/2019			AQPREP TOTAL METALS: ICP, FLAA	☑	☐	☐	WW
			6/19/2019		EPA 200.7	DISSOLVED METALS BY ICP	☑	☐	☐	WW
			6/19/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/19/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			6/19/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035891-001C			6/19/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			6/19/2019		SM4500-H+B	pH	☐	☐	☐	WW
			6/19/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			6/19/2019			Total Dissolved Solids Prep	☐	☐	☐	WW
			6/19/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			6/19/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			6/19/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
N035891-001D			6/19/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035891-001E			6/19/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☑	SUB
N035891-002A	TW-03D-0619	6/5/2019 11:20:00 AM	6/19/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035891-002B			6/19/2019			AQPREP TOTAL METALS: ICP, FLAA	☑	☐	☐	WW
			6/19/2019		EPA 200.7	DISSOLVED METALS BY ICP	☑	☐	☐	WW
			6/19/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/19/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			6/19/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035891-002C			6/19/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

05-Jul-19

WorkOrder: N035891

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/5/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035891-002C	TW-03D-0619	6/5/2019 11:20:00 AM	6/19/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			6/19/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			6/19/2019			Total Dissolved Solids Prep	☐	☐	☐	WW
			6/19/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			6/19/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			6/19/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
N035891-002D			6/19/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035891-002E			6/19/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☑	SUB
N035891-003A	FOLDER	6/19/2019	6/19/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/19/2019		Folder	Folder	☐	☐	☐	LAB
			6/19/2019		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:
BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Field Sampler: Signed

01-Jul-19

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				EPA 200.7		
N035891-001E / PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	8OZP	1		
N035891-002E / TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	8OZP	1		

Please cc Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

PO #: N35891A

General Comments: Please email sample receipt acknowledgement to the PM. Please cc andrea.gallardo@assetlaboratories.com

Please use PO#:N35891B APlease email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: 2-day TAT.

Please analyze for Dissolved Metals by 200.7 (Ca, Fe, Mg, Na). EDD Requirement Labspec 7 edata.

GSO #: 545347231

	Date/Time		Date/Time
Relinquished by: YRJ	7/1/2019 17:00	**Received by:**	
Relinquished by:		**Received by:**	

ARCADIS

Project: PG&E Topock - PMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N035891

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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July 05, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N035891

RE: PG&E Topock - PMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on June 05, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucan for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035891

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Subcontracted Analyses:

Metals by EPA 200.7 was subcontracted to BC Labs- Bakersfield,CA.

Analytical Comments for EPA 200.8_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Chromium in QC samples N036000-001A-MS and N036000-001A-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *05-Jul-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - PMP, RC000753.801D
Lab Order: N035891
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N035891-001A	PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	6/5/2019	7/5/2019
N035891-001B	PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	6/5/2019	7/5/2019
N035891-001C	PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	6/5/2019	7/5/2019
N035891-001D	PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	6/5/2019	7/5/2019
N035891-001E	PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	6/5/2019	7/5/2019
N035891-002A	TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	6/5/2019	7/5/2019
N035891-002B	TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	6/5/2019	7/5/2019
N035891-002C	TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	6/5/2019	7/5/2019
N035891-002D	TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	6/5/2019	7/5/2019
N035891-002E	TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	6/5/2019	7/5/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190606B**	QC Batch: **R134349**			PrepDate			Analyst: **LR**
Specific Conductance	2000	0.10	0.10		umhos/cm	1	6/6/2019 09:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190606B**	QC Batch: **R134349**			PrepDate			Analyst: **LR**
Specific Conductance	7500	0.10	0.10		umhos/cm	1	6/6/2019 09:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID **N035889-001ADUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:			RunNo: **134349**		
Client ID: **ZZZZZZ**	Batch ID: **R134349**	TestNo: **EPA 120.1**		Analysis Date: **6/6/2019**			SeqNo: **3402592**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	7150.000	0.10						7140	0.140	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035891
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035891-001

Client Sample ID: PE-01-0619
Collection Date: 6/5/2019 11:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190606C**	QC Batch: **R134350**			PrepDate			Analyst: **LR**
pH	7.6	0.10	0.10	H	pH Units	1	6/6/2019 09:10 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/6/2019 09:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190606C**	QC Batch: **R134350**			PrepDate			Analyst: **LR**
pH	7.3	0.10	0.10	H	pH Units	1	6/6/2019 09:10 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/6/2019 09:10 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID **N035891-001CDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **134350**
Client ID: **ZZZZZZ** Batch ID: **R134350** TestNo: **SM4500-H+B** Analysis Date: **6/6/2019** SeqNo: **3402601**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.580	0.10						7.560	0.264	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035891
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035891-001

Client Sample ID: PE-01-0619
Collection Date: 6/5/2019 11:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190606F**	QC Batch: **74128**				PrepDate	**6/6/2019**	Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	1200	13	13		mg/L	1	6/6/2019 12:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL FILTERABLE RESIDUE							
			SM2540C				
RunID: **NV00922-WC_190606F**	QC Batch: **74128**			PrepDate	**6/6/2019**		Analyst: **LR**
Total Dissolved Solids (Residue, Filterable)	4200	50	50		mg/L	1	6/6/2019 12:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.1_2540C_W

Sample ID **LCS-74128**	SampType: **LCS**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **6/6/2019**	RunNo: **134385**
Client ID: **LCSW**	Batch ID: **74128**	TestNo: **SM2540C**		Analysis Date: **6/6/2019**	SeqNo: **3405303**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	976.000	10	1000	0	97.6	80	120				

Sample ID **MB-74128**	SampType: **MBLK**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **6/6/2019**	RunNo: **134385**
Client ID: **PBW**	Batch ID: **74128**	TestNo: **SM2540C**		Analysis Date: **6/6/2019**	SeqNo: **3405304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	ND	10									

Sample ID **N035889-001ADUP**	SampType: **DUP**	TestCode: **160.1_2540C**	Units: **mg/L**	Prep Date: **6/6/2019**	RunNo: **134385**
Client ID: **ZZZZZZ**	Batch ID: **74128**	TestNo: **SM2540C**		Analysis Date: **6/6/2019**	SeqNo: **3405306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Total Dissolved Solids (Residue, Filtera	4155.000	50						4150	0.120	5	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190614B**	QC Batch: **74203**			PrepDate	**6/13/2019**		Analyst: **CEI**
Manganese	460	1.3	2.5		µg/L	5	6/14/2019 02:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICPMS							
			EPA 200.8				
RunID: **NV00922-ICP7_190614B**	QC Batch: **74203**			PrepDate	**6/13/2019**		Analyst: **CEI**
Manganese	18	0.26	0.50		µg/L	1	6/14/2019 02:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID	MB-74203	SampType:	MBLK	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	PBW	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411234

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID	LCS-74203	SampType:	LCS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	LCSW	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411235

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	106.320	0.50	100.0	0	106	85	115				

Sample ID	N036000-001A-DUP	SampType:	DUP	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411238

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	57.836	0.50						57.37	0.808	20	

Sample ID	N036000-001A-MS	SampType:	MS	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411250

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	155.885	0.50	100.0	57.37	98.5	75	125				

Sample ID	N036000-001A-MSD	SampType:	MSD	TestCode:	200.8_WDISS	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411251

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	152.915	0.50	100.0	57.37	95.5	75	125	155.9	1.92	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035891
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035891-001

Client Sample ID: PE-01-0619
Collection Date: 6/5/2019 11:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190606A** QC Batch: **R134359**				PrepDate			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/6/2019 11:52 AM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190614B** QC Batch: **74203**				PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	ND	0.13	1.0		µg/L	1	6/14/2019 02:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190606A**	QC Batch: **R134359**			PrepDate			Analyst: **RAB**
Hexavalent Chromium	450	3.3	20		µg/L	100	6/6/2019 12:11 PM
DISSOLVED METALS BY ICP-MS							
			EPA 200.8				
RunID: **NV00922-ICP7_190614B**	QC Batch: **74203**			PrepDate	**6/13/2019**		Analyst: **CEI**
Chromium	440	0.65	5.0		µg/L	5	6/14/2019 02:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID	MB-74203	SampType:	MBLK	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	PBW	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411189

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	0.135	1.0									

Sample ID	LCS-74203	SampType:	LCS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	LCSW	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411190

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.086	1.0	10.00	0	101	85	115				

Sample ID	N036000-001A-DUP	SampType:	DUP	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411201

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1967.877	25						1915	2.74	20	

Sample ID	N036000-001A-MS	SampType:	MS	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411203

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1841.649	25	10.00	1915	-731	75	125				S

Sample ID	N036000-001A-MSD	SampType:	MSD	TestCode:	200.8DIS_Cr	Units:	µg/L	Prep Date:	6/13/2019	RunNo:	134513
Client ID:	ZZZZZZ	Batch ID:	74203	TestNo:	EPA 200.8			Analysis Date:	6/14/2019	SeqNo:	3411204

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1867.476	25	10.00	1915	-472	75	125	1842	1.39	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **MB-R134359**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **PBW**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **LCS-R134359**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **LCSW**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402692**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.065	0.20	5.000	0	101	90	110				

Sample ID **N035889-001BDUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ZZZZZZ**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402695**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	452.230	20						448.1	0.913	20	

Sample ID **N035890-001BMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ZZZZZZ**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2418.640	40	1000	1439	98.0	90	110				

Sample ID **N035890-001BMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ZZZZZZ**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	2419.900	40	1000	1439	98.1	90	110	2419	0.0521	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **N035891-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ZZZZZZ**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402705**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	945.280	20	500.0	447.0	99.7	90	110				

Sample ID **N035891-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ZZZZZZ**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402708**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.049	0.20	1.000	0	105	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **N036000-001A-PS**	SampType: **PS**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:					RunNo: **134513**		
Client ID: **ZZZZZZ**	Batch ID: **74203**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**					SeqNo: **3411202**		
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1840.509	25	10.00	1915	-742	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N035891
Project: PG&E Topock - PMP, RC000753.801D
Lab ID: N035891-001

Client Sample ID: PE-01-0619
Collection Date: 6/5/2019 11:30:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190606D**	QC Batch: **R134358**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	200	1.2	5.0		mg/L	1	6/6/2019 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ALKALINITY, SPECIATED							
			SM 2320 B				
RunID: **NV00922-WC_190606D**	QC Batch: **R134358**			PrepDate			Analyst: **LR**
Alkalinity, Total (As CaCO3)	160	1.2	5.0		mg/L	1	6/6/2019 01:30 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 2320_W_SP

Sample ID **LCS-R134358**	SampType: **LCS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **134358**			
Client ID: **LCSW**	Batch ID: **R134358**	TestNo: **SM 2320 B**		Analysis Date: **6/6/2019**			SeqNo: **3402677**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	98.060	5.0	100.0	0	98.1	85	115				

Sample ID **MB-R134358**	SampType: **MBLK**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **134358**			
Client ID: **PBW**	Batch ID: **R134358**	TestNo: **SM 2320 B**		Analysis Date: **6/6/2019**			SeqNo: **3402678**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	ND	5.0									

Sample ID **N035891-002CDUP**	SampType: **DUP**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **134358**			
Client ID: **ZZZZZZ**	Batch ID: **R134358**	TestNo: **SM 2320 B**		Analysis Date: **6/6/2019**			SeqNo: **3402681**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	161.638	5.0						161.6	0	30	

Sample ID **N035891-002CMS**	SampType: **MS**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **134358**			
Client ID: **ZZZZZZ**	Batch ID: **R134358**	TestNo: **SM 2320 B**		Analysis Date: **6/6/2019**			SeqNo: **3402682**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	256.466	5.0	100.0	161.6	94.8	75	125				

Sample ID **N035891-002CMSD**	SampType: **MSD**	TestCode: **2320_W_SP**	Units: **mg/L**	Prep Date:			RunNo: **134358**			
Client ID: **ZZZZZZ**	Batch ID: **R134358**	TestNo: **SM 2320 B**		Analysis Date: **6/6/2019**			SeqNo: **3402683**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Alkalinity, Total (As CaCO3)	256.466	5.0	100.0	161.6	94.8	75	125	256.5	0	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190606B** QC Batch: **R134375**				PrepDate			Analyst: **RAB**
Chloride	390	0.46	25		mg/L	50	6/6/2019 02:50 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190606B** QC Batch: **R134375**				PrepDate			Analyst: **RAB**
Sulfate	240	1.1	25		mg/L	50	6/6/2019 02:50 PM

Qualifiers:				
	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190606B**	QC Batch: **R134375**			PrepDate			Analyst: **RAB**
Chloride	2100	4.6	250		mg/L	500	6/6/2019 02:20 PM
ANIONS BY ION CHROMATOGRAPHY							
			EPA 300.0				
RunID: **NV00922-IC8_190606B**	QC Batch: **R134375**			PrepDate			Analyst: **RAB**
Sulfate	480	1.1	25		mg/L	50	6/6/2019 03:05 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	MB-R134375_CL	SampType:	MBLK	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	PBW	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403125

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.163	0.50									

Sample ID	LCS-R134375_CL	SampType:	LCS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	LCSW	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403126

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.049	0.50	2.000	0	102	90	110				

Sample ID	N035891-002CMS	SampType:	MS	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403131

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3126.900	250	1000	2052	108	80	120				

Sample ID	N035891-002CMSD	SampType:	MSD	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403132

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	3102.450	250	1000	2052	105	80	120	3127	0.785	20	

Sample ID	N035891-001CDUP	SampType:	DUP	TestCode:	300_W_CLP	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403133

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	391.790	25						385.9	1.52	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID	MB-R134375_SO4	SampType:	MBLK	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	PBW	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403142

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID	LCS-R134375_SO4	SampType:	LCS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	LCSW	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403143

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.965	0.50	4.000	0	99.1	90	110				

Sample ID	N035891-002CMS	SampType:	MS	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403149

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	695.750	25	200.0	483.6	106	80	120				

Sample ID	N035891-002CMSD	SampType:	MSD	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403150

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	685.740	25	200.0	483.6	101	80	120	695.8	1.45	20	

Sample ID	N035891-001CDUP	SampType:	DUP	TestCode:	300_W_SO4P	Units:	mg/L	Prep Date:		RunNo:	134375
Client ID:	ZZZZZZ	Batch ID:	R134375	TestNo:	EPA 300.0			Analysis Date:	6/6/2019	SeqNo:	3403151

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	245.490	25						242.6	1.17	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	PE-01-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:30:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190613D**	QC Batch: **R134491**		PrepDate				Analyst: **QBM**
Nitrate/Nitrite as N	ND	0.032	0.050		mg/L	1	6/13/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	TW-03D-0619
Lab Order:	N035891	**Collection Date:**	6/5/2019 11:20:00 AM
Project:	PG&E Topock - PMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N035891-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190612B**	QC Batch: **R134466**		PrepDate			Analyst: **QBM**	
Nitrate/Nitrite as N	2.6	0.16	0.25		mg/L	5	6/12/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
MB-R134466	**MBLK**	**4500N03F_W**	**mg/L**		**134466**
Client ID: **PBW**	Batch ID: **R134466**	TestNo: **SM4500-NO3**		Analysis Date: **6/12/2019**	SeqNo: **3408760**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
LCS-R134466	**LCS**	**4500N03F_W**	**mg/L**		**134466**
Client ID: **LCSW**	Batch ID: **R134466**	TestNo: **SM4500-NO3**		Analysis Date: **6/12/2019**	SeqNo: **3408761**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.480	0.050	0.5000	0	95.9	85	115				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N035891-002DDUP	**DUP**	**4500N03F_W**	**mg/L**		**134466**
Client ID: **ZZZZZZ**	Batch ID: **R134466**	TestNo: **SM4500-NO3**		Analysis Date: **6/12/2019**	SeqNo: **3408765**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	2.625	0.25						2.638	0.475	20	

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N035889-002DMS	**MS**	**4500N03F_W**	**mg/L**		**134466**
Client ID: **ZZZZZZ**	Batch ID: **R134466**	TestNo: **SM4500-NO3**		Analysis Date: **6/12/2019**	SeqNo: **3408767**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.517	0.25	2.500	2.847	107	75	125				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
N035889-002DMSD	**MSD**	**4500N03F_W**	**mg/L**		**134466**
Client ID: **ZZZZZZ**	Batch ID: **R134466**	TestNo: **SM4500-NO3**		Analysis Date: **6/12/2019**	SeqNo: **3408768**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	5.395	0.25	2.500	2.847	102	75	125	5.516	2.23	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID	MB-R134491	SampType:	MBLK	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134491
Client ID:	PBW	Batch ID:	R134491	TestNo:	SM4500-NO3			Analysis Date:	6/13/2019	SeqNo:	3409673

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID	LCS-R134491	SampType:	LCS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134491
Client ID:	LCSW	Batch ID:	R134491	TestNo:	SM4500-NO3			Analysis Date:	6/13/2019	SeqNo:	3409674

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.487	0.050	0.5000	0	97.4	85	115				

Sample ID	N035849-001EDUP	SampType:	DUP	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134491
Client ID:	ZZZZZZ	Batch ID:	R134491	TestNo:	SM4500-NO3			Analysis Date:	6/13/2019	SeqNo:	3409678

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.227	0.050						0.2467	8.45	20	

Sample ID	N035850-001EMS	SampType:	MS	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134491
Client ID:	ZZZZZZ	Batch ID:	R134491	TestNo:	SM4500-NO3			Analysis Date:	6/13/2019	SeqNo:	3409680

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.755	0.050	0.5000	0.2365	104	75	125				

Sample ID	N035850-001EMSD	SampType:	MSD	TestCode:	4500N03F_W	Units:	mg/L	Prep Date:		RunNo:	134491
Client ID:	ZZZZZZ	Batch ID:	R134491	TestNo:	SM4500-NO3			Analysis Date:	6/13/2019	SeqNo:	3409681

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.760	0.050	0.5000	0.2365	105	75	125	0.7547	0.673	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement	QA/QC	Sample Receipt Condition
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	Excel EDD	RTNE	Y N
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com	Address:	Geotracker	RWQCB ✓	1. Chilled
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivot.com	Labspec	CalTrans	2. Headspace
Submitted By:		P.O.# SWA-ASSET-C9817-051	Others ✓	LEVEL III	3. Container Intact
Title:	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	Specify: RWQCB	LEVEL IV	4. Seal Present
Signature: Date:	Sampled By: Spencer Doolittle	Matrix: Ground x Sediment; Potable Soil; NPDES Other Solid; Surface	Global ID:	Regulatory	5. IR number
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, data or time of collection is considered fraud and may be grounds for*			Specify State:	6. Method of Cooling: ICE
Project Name: PG&E Topock - PMP	Signature: SDoolittle Date: 6/5/2019				Sample Temp: 2.3
Project Number: RC000753.801D					Courier: Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 mL poly	1 L poly	Dissolved metals (EPA 200.8) FF; HNO3, 500 mL poly Cr, Mn	Dissolved metals (EPA200.7) FF; HNO3 Ca, Mg, Fe, Na,	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba	Total metals (SW6010B); HNO3 Fe 500 mL poly	Anions (E300.0); Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrate; H2SO4 125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N035891-01	PE-01-0619	6/5/2019	1130		X		X	X			X	X	X	X	X		X	E	4	P	BN	
2	-02	TW-03D-0619	6/5/2019	1120		X		X	X			X	X	X	X	X		X	E	4	P	BN	
3																							
4																							
5																							
6																							
7																							
8																							
9																							
10																							

Reliquished by (Signature and Printed Name): SDoolittle Spencer Doolittle Date/Time: 6/5/19 12:10
Reliquished by (Signature and Printed Name): Michael Andrews Date/Time: 6/5/19 12:40
Reliquished by (Signature and Printed Name): Michael Andrews 6/5/19 16:02 Date/Time:
Reliquished by (Signature and Printed Name): J JORDAN 6/6 Date/Time: 6/6/19 1632
Reliquished by (Signature and Printed Name): J Jordan 6/6 6-5-19 0828 Date/Time:
Reliquished by (Signature and Printed Name): J Jordan 6/6 6/5/19 0828 Date/Time:

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:
Tittle 22 Metals - Al, Sb, As, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Terms:
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	6/5/2019	Workorder:	N035891
Rep sample Temp (Deg C):	2.3	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YRJ 6/6/2019

Reviewed By: LG 060918

ASSET Laboratories

WORK ORDER Summary

05-Jul-19

WorkOrder: N035891

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/5/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035891-001A	PE-01-0619	6/5/2019 11:30:00 AM	6/19/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035891-001B			6/19/2019			AQPREP TOTAL METALS: ICP, FLAA	☑	☐	☐	WW
			6/19/2019		EPA 200.7	DISSOLVED METALS BY ICP	☑	☐	☐	WW
			6/19/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/19/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			6/19/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035891-001C			6/19/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			6/19/2019		SM4500-H+B	pH	☐	☐	☐	WW
			6/19/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			6/19/2019			Total Dissolved Solids Prep	☐	☐	☐	WW
			6/19/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			6/19/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			6/19/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
N035891-001D			6/19/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035891-001E			6/19/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☑	SUB
N035891-002A	TW-03D-0619	6/5/2019 11:20:00 AM	6/19/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N035891-002B			6/19/2019			AQPREP TOTAL METALS: ICP, FLAA	☑	☐	☐	WW
			6/19/2019		EPA 200.7	DISSOLVED METALS BY ICP	☑	☐	☐	WW
			6/19/2019			AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			6/19/2019		EPA 200.8	DISSOLVED METALS BY ICPMS	☐	☐	☐	WW
			6/19/2019		EPA 200.8	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N035891-002C			6/19/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

05-Jul-19

WorkOrder: N035891

Client ID: ARCUS02

Project: PG&E Topock - PMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/5/2019

Comments: Title 22 Metals :Al, Sb, Ba, Be, B, Ca, Cd, Co, Cr, Cu, Fe, Pb, Mg, Mn, Hg, Mo, Ni, Se, Ag, Tl, V, Zn, K, Na

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N035891-002C	TW-03D-0619	6/5/2019 11:20:00 AM	6/19/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			6/19/2019		SM2540C	TOTAL FILTERABLE RESIDUE	☐	☐	☐	WW
			6/19/2019			Total Dissolved Solids Prep	☐	☐	☐	WW
			6/19/2019		SM 2320 B	ALKALINITY, SPECIATED	☐	☐	☐	WW
			6/19/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
			6/19/2019		EPA 300.0	ANIONS BY ION CHROMATOGRAPHY	☐	☐	☐	WW
N035891-002D			6/19/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N035891-002E			6/19/2019		EPA 200.7	DISSOLVED METALS BY ICP	☐	☐	☑	SUB
N035891-003A	FOLDER	6/19/2019	6/19/2019		EDD	RWQCB	☐	☐	☐	LAB
			6/19/2019		Folder	Folder	☐	☐	☐	LAB
			6/19/2019		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories
3151-3153 W Post Rd., Las Vegas, NV 89118
www.atl-labs.com
TEL: 7023072659 *FAX: 7023072691*

CHAIN-OF-CUSTODY RECORD

QC Level: Level IV

Subcontractor:
BC Labs
4100 Atlas Court
Bakersfield, CA 93308

TEL: (661) 327-4911
FAX: (661) 327-1918
Acct #:

Field Sampler: Signed

01-Jul-19

Sample ID	Matrix	Date Collected	Bottle Type	Requested Tests		
				EPA 200.7		
N035891-001E / PE-01-0619	Groundwater	6/5/2019 11:30:00 AM	8OZP	1		
N035891-002E / TW-03D-0619	Groundwater	6/5/2019 11:20:00 AM	8OZP	1		

Please cc Report to Lucille Golosinda at lucille.golosinda@assetlaboratories.com

PO #: N35891A

General Comments: Please email sample receipt acknowledgement to the PM. Please cc andrea.gallardo@assetlaboratories.com

Please use PO#:N35891B APlease email Invoices and Account Receivable Statements to elvira@assetlaboratories.com. For questions, call Marlon at (702)-307-2659. Please e-mail results to reports.lv@assetlaboratories.com by: 2-day TAT.

Please analyze for Dissolved Metals by 200.7 (Ca, Fe, Mg, Na). EDD Requirement Labspec 7 edata.

GSO #: 545347231

	Date/Time		Date/Time
Relinquished by: YRJ	7/1/2019 17:00	**Received by:**	
Relinquished by:		**Received by:**	

List of Analysts

ASSET Laboratories Work Order: N035891

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 200.8_Dissolved
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540C, SM 2320 B
Ria Abes	EPA 218.6, EPA 300.0

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134349 **Analyst:** LSR

ASSET #: N035891 **Date Analyzed:** 6-Jun

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 6/10/2019

2nd Level Reviewer: 6/21/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 6/3/19 1716
Analyst: KR

Standard	Std ID	Reading	Comments
9.57 mS/cm	CNV-181218A	9.66 @24.4C	% Rec: (90-110%)
1411	190425C	1417 @24.3C	
10003	190516B	10080 @24.3C	
100390	190218C	100700 @24.2C	

	Sample ID	Matrix	Reading	Comments
1	NB35872-1A	H2O	891 @19.4C	
2	NB35873-1A		949 @18.4C	
3	1 1ADUP		952 @18.4C	
4	NB35874-1A		881 @19.5C	
5	NB35875-1A		1.06 @19.5C	
6				
7				
8				
9	1413 mS/cm	CNV-190313A	1450 @23.3C	
10	10000	B	9940 @23.5C	
Dup	99922	CNV-190111H	98100 @23.5C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: 6/6/19 930
Analyst: KR

Julia Ramit 6/10/2019

Standard	Std ID	Reading	Comments
9.98 uS/cm	CNV-190516A	10.14 @23.7C	% Rec: (90-110%)
1411	190425C	1409 @23.8C	
10003	190516B	10040 @23.8C	
100390	190218C	101800 @23.8C	

	Sample ID	Matrix	Reading	Comments
1	NB35889-1A	H2O	7140 @21.8C	
2	1ADUP		7150 @21.5C	
3	2B		7330 @21.5C	
4	NB35891-1C		1981 @22.4C	
5	2C		7540 @22.4C	
6				
7				
8				
9	1413 mS/cm	CNV-190313A	1441 @23.2C	
10	10000	B	10270 @23.5C	
Dup	99922	CNV-190111H	101800 @23.5C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Logbook # 7

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134350 **Instrument ID:** pH meter

ASSET #: N035891 **Analyst:** LSR

Date Analyzed: 6-Jun

Method: EPA 150.1

pH Meter Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?			X			
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 6/10/2019

2nd Level Reviewer Mary 7/5/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 6/5/19 945
Analyst: USR

Standard	Std ID	pH	Comments
Buffer 7	CINV-190422A	7.01 @25°C	
Buffer 4	" B	4.02 @25°C	
Buffer 10	CINV-190430A	10.02 @25°C	
Slope		98.3%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB35885-1A	Soil	8.16 @25°C	
2	" 1ADUP	"	8.19 @25°C	
3				
4				
5				
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer (7) 4, 10 (Circle one)	CINV-190422C	7.01 @25°C	Accept: +/-0.05 pH units from expected value

Date: 6/6/19 910
Analyst: USR

Julia Ramit 6/10/2019

Standard	Std ID	pH	Comments
Buffer 7	CINV-190422A	7.00 @25°C	
Buffer 4	" B	4.02 @25°C	
Buffer 10	CINV-190430A	10.02 @25°C	
Slope		98.8%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB35891-1C	H2O	7.56 @25°C	
2	" 1CDUP	"	7.58 @25°C	
3	" 2C	"	7.26 @25°C	
4				
5				
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer (7) 4, 10 (Circle one)	CINV-190422C	7.01 @25°C	Accept: +/-0.05 pH units from expected value

ASSET LABORATORIES
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CALIFORNIA | P:562.219.7435 F:562.219.7436
11110 Artesia Blvd., Ste B, Cerritos, CA 90703
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3151 W. Post Rd., Las Vegas, NV 89118
ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

SM 2540C

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74128 **Analyst:** LSR

ASSET #: N035891 **Date Analyzed:** 6-Jun

Method: EPA 160.1 / SM 2540C

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 6/10/2019

2nd Level Reviewer 6/21/2019 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540C
TEST NAME: Total Filterable Residue
MATRIX: Water

FORMULA:

Calculate TDS concentration in mg/L, in the original sample as follows:

$$\text{TDS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N035891-001C,** TDS concentration in mg/L is calculated as follows:

$$\text{TDS, mg/L} = \frac{(48.9847 - 48.8942)*1000000}{75}$$
$$= 1206.6667 \text{ mg/L}$$

Reporting result in two significant figures,

TDS= 1200 mg/L

Julia Ramit 6/10/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/6/2019 12:58:14 P**
Prep End Date: **6/7/2019 11:00:00 A**
Reviewed/ Date: 6/21/2019
Initials/ Date: Lilia Ramit 6/10/2019
Prep Batch **74128** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit**
Prep Factor Units: **mL / mL** Temp. (°C): **180**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74128	Water		100	☐	0	0	100	1.000		
MB-74128	Water		100	☐	0	0	100	1.000		
N035889-001A	Water		20	☐	0	0	100	5.000		
N035889-001A-DU	Water		20	☐	0	0	100	5.000		
N035889-002B	Water		20	☐	0	0	100	5.000		
N035891-001C	Groundwater		75	☐	0	0	100	1.333		
N035891-002C	Groundwater		20	☐	0	0	100	5.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10410	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190508A	1000 ppm NaCl	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/6/2019 12:58:14 P**
Prep End Date:
Reviewed/ Date: _____
Initials/ Date: Lilia Ramit 6/10/2019

Prep Batch **74128** Prep Code: **160.1_W_PRE** Technician: **Lilia Ramit** Prep Factor Units: **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74128	Water	IWST/90508A	100	☐	0	0	100	1.000		
MB-74128	Water		100	☐	0	0	100	1.000		
N035889-001A	Water	7140	100 /20	☐	0	0	100	1.000		
N035889-001A-DU	Water	1	100 /20	☐	0	0	100	1.000		
N035889-002B	Water	7220	100 /20	☐	0	0	100	1.000		
N035891-001C	Groundwater	1981	100 /75	☐	0	0	100	1.000		
N035891-002C	Groundwater	7540	100 /20	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10410

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
6/6/19 1258 HH	MB 74128	100	68.0586 68.0582	68.0589 68.0588	
NN	LCS 74128	100	69.8045 69.8043	69.9022 69.9019	
L	N035889-1A	20	49.7903 49.7904	49.8736 49.8734	
B	1A DUP	20	49.5951 49.5952	49.6787 49.6783	
D	2B	20	49.3185 49.3189	49.4020 49.4017	1
M	N035891-1C	75	48.8943 48.8942	48.9847 48.9847	
Q	2C	20	50.6352 50.6358	50.7196 50.7195	
	49.9997	@ 100	6/7/19	LSM	

ASSET Laboratories

Logbook#15

Julia Ramit 6/10/2019

TOTAL DISSOLVED SOLIDS, TDS

TDS, mg/L = (A-B) X 10000*PF

where:
A = weight in grams of dish + residue after drying
B = weight of dish in grams
PF = 100/volume of sample used in mL

Date Finished:	vol of sample (mL)	weight of dish in grams (B)	weight in grams of dish + residue after drying (A)	(A-B)*10000	prep fact (PF)	TDS, mg/L	CONDUCTIVITY	RATIO	Sample Type
6/7/2019									
MB-74128	100	68.0586	68.0588	2	1	2			MBLK
LCS-74128	100	69.8043	69.9019	976	1	976			LCS
N035889-001A	20	49.7904	49.8734	830	5	4150	7140	0.581	SAMP
N035889-001ADUP	20	49.5952	49.6783	831	5	4155	7140	0.582	DUP
N035889-002B	20	49.3189	49.4017	828	5	4140	7220	0.573	SAMP
N035891-001C	75	48.8942	48.9847	905	1.33333333	1206.66667	1981	0.609	SAMP
N035891-002C	20	50.6358	50.7195	837	5	4185	7540	0.555	SAMP

Julia Ramit 6/10/2019

EPA 200.8
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74203
ASSET #: N035891

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 3/14/2019 6/14/2019

Method:

[ ] EPA 6010B / 200.7
[X] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Cr in N036000-001A PS/MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/5/2019

2nd Level Reviewer NS 7/7/2019 Date:

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA ~~6020~~ 200.8
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Manganese concentration, in ug/L , in the original sample as follows:

Manganese , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N035891-001B** , the concentration in ug/L is calculated as follows:

Manganese , ug/L = 92.9147 * 5 *(25 / 25)

Manganese , ug/L = 464.5735

Reporting results in two significant figures,

Manganese , ug/L = 460

NS 7/7/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190614A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	7.98	15	PASS	0.1	4.43	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.51	2.72	15	PASS	0.55	7.88	15	PASS
Std3-5/50 ppb	ICAL	1	5.16	2.35	15	PASS	5.43	3.11	15	PASS
Std4-10/100 ppb	ICAL	1	10.2	1.97	15	PASS	10.76	1.95	15	PASS
Std5-20/200 ppb	ICAL	1	20.1	1.59	15	PASS	21.1	2.51	15	PASS
Std6-40/400 ppb	ICAL	1	40.13	1.15	15	PASS	41.93	1.59	15	PASS
Std7-100/1000 ppb	ICAL	1	97.65	1	15	PASS	102.33	1.16	15	PASS
Std8-200/2000 ppb	ICAL	1	201.13	1.0033	15	PASS	198.29	0.63	15	PASS
ICV	ICV	1	10.47	0.81	15	PASS	105.77	1.47	15	PASS
ICB	ICB	1	0.005	176.3	15	<PQL	<0.000	N/A	15	<PQL
LLICV	CCV1	1	1.058	0.92	20	PASS	0.57	1.62	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.37	2.24	15	PASS	17.75	2.53	15	PASS
LLICV	CCV1	1	0.99	2.81	20	PASS	0.55	5.93	20	PASS
MB-74203	MBLK	1	0.13	9.48	15	PASS	0.02	37.69	15	<PQL
LCS-74203	LCS	1	10.086	1.82	15	PASS	106.32	2.19	15	PASS
N036000-001A	SAMP	1	1748.16	0.83	15	PASS	57.37	1.11	15	PASS
N036000-001A	SAMP	5	381.89	2.23	15	PASS	12.26	1.79	15	PASS
N036000-001A-DUP	DUP	1	1785.007	2.11	15	PASS	57.84	1.98	15	PASS
N036000-001A-PS	PS	1	1736.64	1.056	15	PASS	154.48	0.77	15	PASS
N036000-001A-MS	MS	1	122418.2	1.059	15	PASS	10728.2	1.032	15	PASS
N036000-001A-MSD	MSD	1	139377.8	5.62	15	PASS	12203.04	5.54	15	PASS
N036000-001A	SAMP	25	76.59	2	15	PASS	2.6	1.4	15	PASS
N036000-001A	SAMP	125	16.18	1.81	15	PASS	0.55	4.64	15	PASS
CCV1	CCV	1	19.99	2.11	15	PASS	21.013	3.38	15	PASS
CCB1	CCB	1	0.041	12.093	15	PASS	<0.000	N/A	15	<PQL
N036000-001A-DUP	DUP	25	78.72	0.74	15	PASS	2.71	1.24	15	PASS
N036000-001A-PS	PS	25	73.62	1.99	15	PASS	7.058	1.8	15	PASS
N036000-001A-MS	MS	25	73.67	2.11	15	PASS	7.011	2.17	15	PASS
N036000-001A-MSD	MSD	25	74.7	2.35	15	PASS	7.038	2.26	15	PASS
N036000-001A-MS	MS	1	1768.93	1.89	15	PASS	155.88	1.53	15	PASS
N036000-001A-MSD	MSD	1	1734.25	1.91	15	PASS	152.91	1.73	15	PASS
N035891-001B	SAMP	1	0.33	17.23	15	<PQL	478.022	1.88	15	PASS
N035891-001B	SAMP	5	0.097	7.62	15	PASS	92.91	3.26	15	PASS
N035891-002B	SAMP	1	440.46	0.44	15	PASS	18.054	0.91	15	PASS
N035891-002B	SAMP	5	88.2	2.49	15	PASS	3.82	4.08	15	PASS
CCV2	CCV	1	20.16	2.52	15	PASS	21.21	2.3	15	PASS
CCB2	CCB	1	0.03	20.36	15	<PQL	<0.000	N/A	15	<PQL
N035939-001I	SAMP	1	3.019	18.88	15	NR!	59.53	0.51	15	PASS
N035939-001I	SAMP	5	0.63	3.24	15	PASS	12.74	1.23	15	PASS

PERCENT RSD SUMMARY: 190614A

Instrument ID: ICPMS-02

Sample Name	Type	DF	52 Cr [2]				55 Mn [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N035939-002I	SAMP	1	0.36	7.86	15	PASS	9.42	0.053	15	PASS
N035939-002I	SAMP	5	0.095	18.2	15	<PQL	1.99	3.039	15	PASS
N035939-001I	SAMP	25	0.14	5.16	15	PASS	2.79	1.37	15	PASS
N035939-001H	SAMP	1	5.74	0.98	15	PASS	152.7	1.35	15	PASS
N035939-001H	SAMP	5	1.27	1.5	15	PASS	33.31	0.99	15	PASS
N035939-002H	SAMP	1	1.099	4.24	15	PASS	13.72	0.92	15	PASS
N035939-002H	SAMP	5	0.25	2.26	15	PASS	2.97	2.57	15	PASS
N035737-001E	SAMP	1	4.23	0.63	15	PASS	740.25	2.33	15	PASS
CCV3	CCV	1	19.7	1.34	15	PASS	20.84	1.028	15	PASS
CCB3	CCB	1	0.0071	69.75	15	<PQL	0.002	280.19	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.24	1.8	15	PASS	17.62	0.81	15	PASS
ICSAB2	ICSAB	1	17.76	0.42	15	PASS	15.82	0.45	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190614A

Instrument ID: ICPMS-02

	Data File	Sample Name	Type	DF	Acq. Date-Time
	A0613001.D	RINSE	RINSE	1	06/14/19 11:32 AM
	A0613002.D	Cal Blank	IBLK	1	06/14/19 11:37 AM
	A0613003.D	Std1-0.1/1 ppb	ICAL	1	06/14/19 11:42 AM
	A0613004.D	Std2-0.5/5 ppb	ICAL	1	06/14/19 11:47 AM
	A0613005.D	Std3-5/50 ppb	ICAL	1	06/14/19 11:53 AM
	A0613006.D	Std4-10/100 ppb	ICAL	1	06/14/19 11:58 AM
	A0613007.D	Std5-20/200 ppb	ICAL	1	06/14/19 12:03 PM
	A0613008.D	Std6-40/400 ppb	ICAL	1	06/14/19 12:08 PM
	A0613009.D	Std7-100/1000 ppb	ICAL	1	06/14/19 12:13 PM
	A0613010.D	Std8-200/2000 ppb	ICAL	1	06/14/19 12:17 PM
	A0613011.D	ICV	ICV	1	06/14/19 12:29 PM
	A0613012.D	ICB	ICB	1	06/14/19 12:34 PM
	A0613013.D	LLICV	CCV1	1	06/14/19 12:39 PM
	A0613014.D	ICSA1	ICSA	1	06/14/19 12:44 PM
	A0613015.D	ICSAB1	ICSAB	1	06/14/19 12:50 PM
NR	A0613016.D	LLICV	CCV1	1	06/14/19 12:55 PM
	A0613017.D	MB-74203	MBLK	1	06/14/19 1:00 PM
	A0613018.D	LCS-74203	LCS	1	06/14/19 1:05 PM
	A0614019.D	N036000-001A	SAMP	1	06/14/19 1:10 PM
	A0614020.D	N036000-001A	SAMP	5	06/14/19 1:15 PM
	A0614021.D	N036000-001A-DUP	DUP	1	06/14/19 1:20 PM
	A0614022.D	N036000-001A-PS	PS	1	06/14/19 1:25 PM
	A0614023.D	N036000-001A-MS	MS	1	06/14/19 1:30 PM
	A0614024.D	N036000-001A-MSD	MSD	1	06/14/19 1:35 PM
	A0614025.D	N036000-001A	SAMP	25	06/14/19 1:40 PM
	A0614026.D	N036000-001A	SAMP	125	06/14/19 1:45 PM
	A0614027.D	CCV1	CCV	1	06/14/19 1:50 PM
	A0614028.D	CCB1	CCB	1	06/14/19 1:56 PM
	A0614029.D	N036000-001A-DUP	DUP	25	06/14/19 2:01 PM
	A0614030.D	N036000-001A-PS	PS	25	06/14/19 2:06 PM
	A0614031.D	N036000-001A-MS	MS	25	06/14/19 2:13 PM
	A0614032.D	N036000-001A-MSD	MSD	25	06/14/19 2:18 PM
	A0614033.D	N036000-001A-MS	MS	1	06/14/19 2:23 PM
	A0614034.D	N036000-001A-MSD	MSD	1	06/14/19 2:28 PM
	A0614035.D	N035891-001B	SAMP	1	06/14/19 2:33 PM
	A0614036.D	N035891-001B	SAMP	5	06/14/19 2:38 PM
	A0614037.D	N035891-002B	SAMP	1	06/14/19 2:43 PM
	A0614038.D	N035891-002B	SAMP	5	06/14/19 2:48 PM
	A0614039.D	CCV2	CCV	1	06/14/19 2:53 PM
	A0614040.D	CCB2	CCB	1	06/14/19 2:58 PM
	A0614041.D	N035939-001I	SAMP	1	06/14/19 3:03 PM
	A0614042.D	N035939-001I	SAMP	5	06/14/19 3:08 PM

INJECTION LOG: 190614A

Instrument ID: ICPMS-02

	Data File	Sample Name	Type	DF	Acq. Date-Time
	A0614043.D	N035939-002I	SAMP	1	06/14/19 3:13 PM
	A0614044.D	N035939-002I	SAMP	5	06/14/19 3:18 PM
	A0614045.D	N035939-001I	SAMP	25	06/14/19 3:23 PM
	A0614046.D	N035939-001H	SAMP	1	06/14/19 3:28 PM
	A0614047.D	N035939-001H	SAMP	5	06/14/19 3:33 PM
	A0614048.D	N035939-002H	SAMP	1	06/14/19 3:38 PM
	A0614049.D	N035939-002H	SAMP	5	06/14/19 3:43 PM
	A0614050.D	N035737-001E	SAMP	1	06/14/19 3:48 PM
	A0614051.D	CCV3	CCV	1	06/14/19 3:52 PM
	A0614052.D	CCB3	CCB	1	06/14/19 3:57 PM
	A0614053.D	ICSA2	ICSA	1	06/14/19 4:02 PM
	A0614054.D	ICSAB2	ICSAB	1	06/14/19 4:08 PM
NR	A0614055.D	ICSAB2	ICSAB	1	06/14/19 4:18 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/13/2019 1:00:00 P**
Prep End Date: **6/13/2019 5:00:00 P**
Prep Batch **74203** Prep Code: **200.8_PR**

Reviewed/ Date: NS 6/25/2019
Initials/ Date: for
Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-1**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74203	Aqueous		25	☐	0	0	25	1.000		
MB-74203	Aqueous		25	☐	0	0	25	1.000		
N035891-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N035891-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N035939-001H	Groundwater	<2	25	☐	0	0	25	1.000		
N035939-001I	Groundwater	<2	25	☐	0	0	25	1.000		
N035939-002H	Groundwater	<2	25	☐	0	0	25	1.000		
N035939-002I	Groundwater	<2	25	☐	0	0	25	1.000		
N036000-001A	Water	<2	25	☐	0	0	25	1.000		
N036000-001A-DU	Water	<2	25	☐	0	0	25	1.000		
N036000-001A-MS	Water	<2	25	☐	0	0	25	1.000		
N036000-001A-MS	Water	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 14 Jun 2019 11:23:08 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element		Actual	Required	Flag
9	Be	213841.00	0.00	
24	Mg	563643.00	0.00	
25	Mg	73874.10	0.00	
26	Mg	85617.90	0.00	
59	Co	664188.00	0.00	
115	In	969237.00	0.00	
206	Pb	292392.00	0.00	
207	Pb	252987.00	0.00	
208	Pb	627226.00	0.00	

RSD (%)

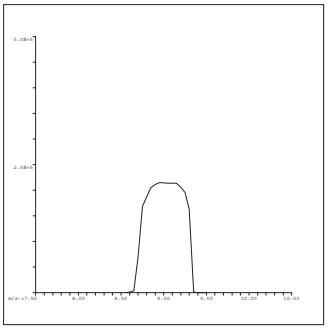
Element		Actual	Required	Flag
9	Be	0.78	5.00	
24	Mg	0.59	5.00	
25	Mg	0.18	5.00	
26	Mg	0.94	5.00	
59	Co	0.72	5.00	
115	In	0.53	5.00	
206	Pb	0.92	5.00	
207	Pb	0.65	5.00	
208	Pb	1.36	5.00	

Ion Ratio

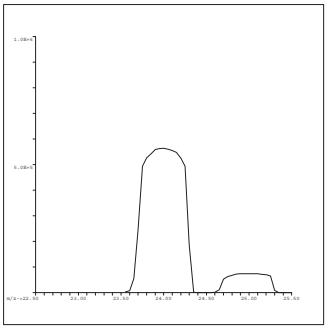
Element		Actual	Required	Flag
9	Be			
24	Mg			
25	Mg			
26	Mg			
59	Co			
115	In			
206	Pb			
207	Pb			
208	Pb			

Maximum Bkg. Count(CPS)

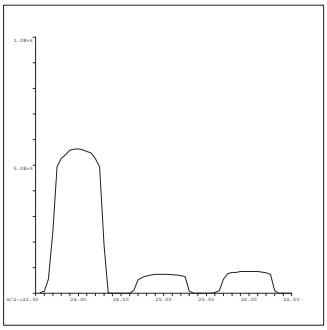
Element	Actual	Required	Flag



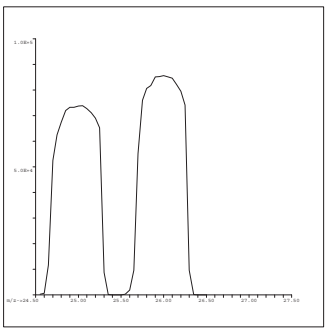
9 Be
Mass Calib.
Actual: 9.05
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



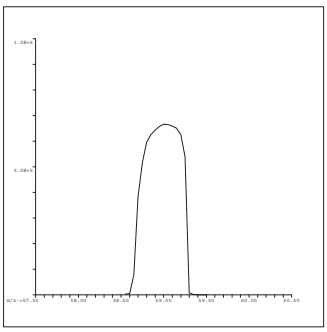
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



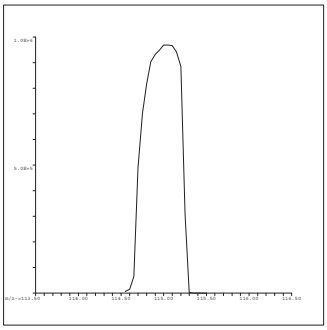
25 Mg
Mass Calib.
Actual: 25.00
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



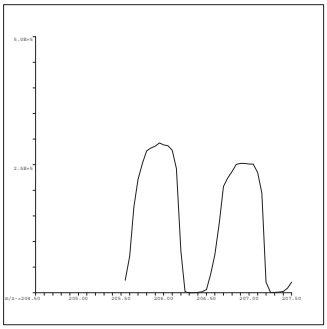
26 Mg
Mass Calib.
Actual: 26.00
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



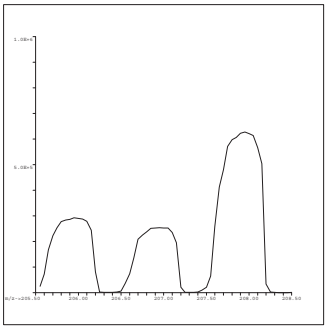
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



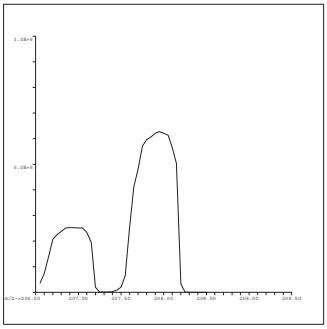
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190614A

Instrument ID: ICPMS-02

Analyte	Data File	A0613002.D	A0613004.D	A0613005.D	A0613006.D	A0613007.D	A0613008.D	A0613009.D	A0613010.D	
	Acq. Date-Time	06/14/2019 11:37 AM	06/14/2019 11:47 AM	06/14/2019 11:53 AM	06/14/2019 11:58 AM	06/14/2019 12:03 PM	06/14/2019 12:08 PM	06/14/2019 12:13 PM	06/14/2019 12:17 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	161967.9	157403	154118.8	154351.4	156635.9	153986.8	156385	154102.8	
55 Mn [2]	CPS	112.7	3438.9	32242.9	63893.5	127051.1	248136.6	614972.2	1174212.5	0.9999
52 Cr [2]	CPS	402.1	6351.3	59364.1	117242.7	234025	458911.3	1133521.6	2300416.5	0.9999

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICV**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	105.775	0.50	100.0	0	106	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ZZZZZZ**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	0.572	0.50	0.5000	0	114	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCV**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411244**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.013	0.50	20.00	0	105	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCV**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411256**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	21.211	0.50	20.00	0	106	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCV**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411268**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.842	0.50	20.00	0	104	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICV**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	10.474	1.0	10.00	0	105	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ZZZZZZ**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411185**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.058	1.0	1.000	0	106	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCV**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.994	1.0	20.00	0	100	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCV**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	20.164	1.0	20.00	0	101	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCV**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411223**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.699	1.0	20.00	0	98.5	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411229**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411257**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411269**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411184**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411212**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **CCB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411224**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICSA**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411231**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICSAB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411232**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.750	0.50	20.00	0	88.8	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICSA**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411270**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8_WDISS**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICSAB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	17.618	0.50	20.00	0	88.1	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICSA**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICSAB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.373	1.0	20.00	0	96.9	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICSA**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICSAB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.237	1.0	20.00	0	96.2	80	120				

not reported

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ICSAB**	Batch ID: **R134513**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	17.756	1.0	20.00	0	88.8	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190614A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	161967.9	161967.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	161969.4	161967.9	100	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	157403	161967.9	97.18	PASS	70-125
Std3-5/50 ppb	ICAL	1	154118.8	161967.9	95.15	PASS	70-125
Std4-10/100 ppb	ICAL	1	154351.4	161967.9	95.3	PASS	70-125
Std5-20/200 ppb	ICAL	1	156635.9	161967.9	96.71	PASS	70-125
Std6-40/400 ppb	ICAL	1	153986.8	161967.9	95.072	PASS	70-125
Std7-100/1000 ppb	ICAL	1	156385	161967.9	96.55	PASS	70-125
Std8-200/2000 ppb	ICAL	1	154102.8	161967.9	95.14	PASS	70-125
ICV	ICV	1	141306.8	161967.9	87.24	PASS	70-125
ICB	ICB	1	143699.2	161967.9	88.72	PASS	70-125
LLICV	CCV1	1	153264	161967.9	94.63	PASS	70-125
ICSA1	ICSA	1	153937.2	161967.9	95.042	PASS	70-125
ICSAB1	ICSAB	1	168231.3	161967.9	103.87	PASS	70-125
LLICV	CCV1	1	182971.4	161967.9	112.97	PASS	70-125
MB-74203	MBLK	1	162834.7	161967.9	100.54	PASS	70-125
LCS-74203	LCS	1	162529.5	161967.9	100.35	PASS	70-125
N036000-001A	SAMP	1	164861.7	161967.9	101.79	PASS	70-125
N036000-001A	SAMP	5	164487.6	161967.9	101.56	PASS	70-125
N036000-001A-DUP	DUP	1	164661.9	161967.9	101.66	PASS	70-125
N036000-001A-PS	PS	1	169934.8	161967.9	104.92	PASS	70-125
N036000-001A-MS	MS	1	2495.9	161967.9	1.54	NR!	70-125
N036000-001A-MSD	MSD	1	2209.2	161967.9	1.36	NR!	70-125
N036000-001A	SAMP	25	180443.7	161967.9	111.41	PASS	70-125
N036000-001A	SAMP	125	174557.8	161967.9	107.77	PASS	70-125
CCV1	CCV	1	175723.5	161967.9	108.49	PASS	70-125
CCB1	CCB	1	169162.7	161967.9	104.44	PASS	70-125
N036000-001A-DUP	DUP	25	161309.3	161967.9	99.59	PASS	70-125
N036000-001A-PS	PS	25	157824.5	161967.9	97.44	PASS	70-125
N036000-001A-MS	MS	25	158204.6	161967.9	97.68	PASS	70-125
N036000-001A-MSD	MSD	25	154079.3	161967.9	95.13	PASS	70-125
N036000-001A-MS	MS	1	167337.5	161967.9	103.32	PASS	70-125
N036000-001A-MSD	MSD	1	169932.9	161967.9	104.92	PASS	70-125
N035891-001B	SAMP	1	164169	161967.9	101.36	PASS	70-125
N035891-001B	SAMP	5	170321.8	161967.9	105.16	PASS	70-125
N035891-002B	SAMP	1	165732.8	161967.9	102.32	PASS	70-125
N035891-002B	SAMP	5	174119.5	161967.9	107.5	PASS	70-125
CCV2	CCV	1	180545	161967.9	111.47	PASS	70-125
CCB2	CCB	1	174995.4	161967.9	108.04	PASS	70-125
N035939-001I	SAMP	1	165518.1	161967.9	102.19	PASS	70-125
N035939-001I	SAMP	5	164693.9	161967.9	101.68	PASS	70-125

INTERNAL STANDARD: 190614A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N035939-002I	SAMP	1	161216.5	161967.9	99.54	PASS	70-125
N035939-002I	SAMP	5	160150.6	161967.9	98.88	PASS	70-125
N035939-001I	SAMP	25	159924.8	161967.9	98.74	PASS	70-125
N035939-001H	SAMP	1	164714.8	161967.9	101.7	PASS	70-125
N035939-001H	SAMP	5	162670.4	161967.9	100.43	PASS	70-125
N035939-002H	SAMP	1	158307.2	161967.9	97.74	PASS	70-125
N035939-002H	SAMP	5	154857.5	161967.9	95.61	PASS	70-125
N035737-001E	SAMP	1	161951.1	161967.9	99.99	PASS	70-125
CCV3	CCV	1	180974.3	161967.9	111.73	PASS	70-125
CCB3	CCB	1	170895.9	161967.9	105.51	PASS	70-125
ICSA2	ICSA	1	172200.1	161967.9	106.32	PASS	70-125
ICSAB2	ICSAB	1	176252.5	161967.9	108.82	PASS	70-125
ICSAB2	ICSAB	1	180699.9	161967.9	111.57	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N035891
Test Method: EPA 200.8
Analysis Date: 6/14/2019

Matrix: Groundwater
Batch No.: 74203

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036000-001A DT 125x	Chromium	Cr	µg/L	2022.166	PASS	1914.72	5.61%	10
N036000-001A DT 5x	Manganese	Mn	µg/L	61.31731	NA	57.37092	6.88%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8_WDISS

Sample ID **N036000-001A-PS** SampType: **PS** TestCode: **200.8_WDISS** Units: **µg/L** Prep Date: RunNo: **134513**
Client ID: **ZZZZZZ** Batch ID: **74203** TestNo: **EPA 200.8** Analysis Date: **6/14/2019** SeqNo: **3411239**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	154.480	0.50	100.0	57.37	97.1	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 200.8DIS_CrPGE

Sample ID **N036000-001A-PS**	SampType: **PS**	TestCode: **200.8DIS_Cr**	Units: **µg/L**	Prep Date:	RunNo: **134513**
Client ID: **ZZZZZZ**	Batch ID: **74203**	TestNo: **EPA 200.8**		Analysis Date: **6/14/2019**	SeqNo: **3411202**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1840.509	25	10.00	1915	-742	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

QC Batch Number: R134359
ASSET #: N035891

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 6/6/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [x] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X					X
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?	X					X
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 6/10/2019

2nd Level Reviewer: 2 Date: 6/10/2019

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Water

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N035891-002A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 4.4701 * 100$$

$$Cr^{+6}, \mu g/L = 447.0100$$

Reporting results in two significant figures,

$$\mathbf{Cr^{+6}, \mu g/L = 450}$$

NS 6/23/2019

ANALYSIS RUN LOG

INJECTION LOG: 190604A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	06/04/19 3:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/04/19 3:46 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	06/04/19 3:56 PM	Reported
13	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 4:05 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190604A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Jun/19 16:36:11**
No. of Injections:	**16**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		06/04/2019 15:37	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		06/04/2019 15:46	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		06/04/2019 15:56	Finished	ICB R190508A
13	BLANK	13	1000	Unknown		06/04/2019 16:05	Finished	BLANK
14	SHUTDOWN	14	1000	Unknown		06/04/2019 16:15	Finished	
15	Eluent: R190604A	15	1000	Unknown		n.a.	Finished	Eluent
16	PCR: R190604B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

INJECTION LOG: 190606A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	06/06/19 9:10 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	06/06/19 9:21 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	06/06/19 9:30 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/06/19 9:40 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	06/06/19 9:49 AM	Reported
15	MB-R134359	MBLK	1	Hexavalent Chromium	06/06/19 9:59 AM	Reported
16	LCS-R134359	LCS	1	Hexavalent Chromium	06/06/19 10:08 AM	Reported
17	N035890-001B	SAMP	200	Hexavalent Chromium	06/06/19 10:18 AM	Reported
18	N035889-001B	SAMP	100	Hexavalent Chromium	06/06/19 10:27 AM	Reported
19	N035889-001BDUP	DUP	100	Hexavalent Chromium	06/06/19 10:37 AM	Reported
20	N035889-001BMS	MS	100	Hexavalent Chromium	06/06/19 10:46 AM	Reported
21	N035889-002C	SAMP	1	Hexavalent Chromium	06/06/19 10:56 AM	Reported
22	N035889-002CMS	MS	1	Hexavalent Chromium	06/06/19 11:05 AM	Reported
23	N035890-001BMS	MS	200	Hexavalent Chromium	06/06/19 11:14 AM	Reported
24	N035890-001BMSD	MSD	200	Hexavalent Chromium	06/06/19 11:24 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	06/06/19 11:33 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	06/06/19 11:43 AM	Reported
27	N035891-001A	SAMP	1	Hexavalent Chromium	06/06/19 11:52 AM	Reported
28	N035891-001AMS	MS	1	Hexavalent Chromium	06/06/19 12:02 PM	Not Reported
29	N035891-002A	SAMP	100	Hexavalent Chromium	06/06/19 12:11 PM	Reported
30	N035891-002AMS	MS	100	Hexavalent Chromium	06/06/19 12:21 PM	Reported
31	CCV-3	CCV	1	Hexavalent Chromium	06/06/19 12:30 PM	Reported
32	CCB-3	CCB	1	Hexavalent Chromium	06/06/19 12:40 PM	Reported
33	N035891-001AMS	MS	1	Hexavalent Chromium	06/06/19 1:52 PM	Reported
34	CCV-4	CCV1	1	Hexavalent Chromium	06/06/19 2:03 PM	Reported
35	CCB-4	CCB	1	Hexavalent Chromium	06/06/19 2:13 PM	Reported
36	BLANK	BLANK	1	Hexavalent Chromium	06/06/19 2:22 PM	Not Reported
37	N035705-004A	SAMP	1	Hexavalent Chromium	06/06/19 3:02 PM	Not Reported
38	N035705-004AMS	MS	1	Hexavalent Chromium	06/06/19 3:13 PM	Not Reported
39	N035705-005A	SAMP	1	Hexavalent Chromium	06/06/19 3:23 PM	Not Reported
40	N035705-005AMS	MS	1	Hexavalent Chromium	06/06/19 3:32 PM	Not Reported
41	CCV-5	CCV	1	Hexavalent Chromium	06/06/19 3:42 PM	Not Reported
42	CCB-5	CCB	1	Hexavalent Chromium	06/06/19 3:51 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190606A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**06/Jun/19 15:04:08**
No. of Injections:	**45**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		06/06/2019 09:10	Finished	BLANK
11	BLANK	2	1000	Unknown		06/06/2019 09:21	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		06/06/2019 09:30	Finished	CCV @5ppb, IWST-190423A
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		06/06/2019 09:40	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		06/06/2019 09:49	Finished	CCB R190508A
15	MB-H2O,MBLK,1,	6	1000	Unknown		06/06/2019 09:59	Finished	MB R190508A
16	LCS-H2O,LCS,1,	7	1000	Unknown		06/06/2019 10:08	Finished	LCS @5ppb, IWST-190423B
17	N035890-001B,SAMP	8	1000	Unknown		06/06/2019 10:18	Finished	SAMP, 0.05>10mL
18	N035889-001B,SAMP	9	1000	Unknown		06/06/2019 10:27	Finished	SAMP,0.1> 10mL
19	N035889-001BDUP,D	10	1000	Unknown		06/06/2019 10:37	Finished	DUP,0.1> 10mL
20	N035889-001BMS,MS	11	1000	Unknown		06/06/2019 10:46	Finished	MS (5ppb), IWST-190423B,0.1
21	N035889-002C,SAMP	12	1000	Unknown		06/06/2019 10:56	Finished	SAMP,10mL
22	N035889-002CMS,MS	13	1000	Unknown		06/06/2019 11:05	Finished	MS (1ppb), IWST-190423B,10
23	N035890-001BMS,MS	14	1000	Unknown		06/06/2019 11:14	Finished	MS (5ppb), IWST-190423B,0.0
24	N035890-001BMSD,M	15	1000	Unknown		06/06/2019 11:24	Finished	MSD (5ppb), IWST-190423B,0
25	CCV-2,CCV1,1,	16	1000	Unknown		06/06/2019 11:33	Finished	CCV @10ppb, IWST-190423A
26	CCB-2,CCB,1,	17	1000	Unknown		06/06/2019 11:43	Finished	CCB R190508A
27	N035891-001A,SAMP	18	1000	Unknown		06/06/2019 11:52	Finished	SAMP,10mL
28	N035891-001AMS,MS	19	1000	Unknown		06/06/2019 12:02	Finished	MS (1ppb), IWST-190423B,10
29	N035891-002A,SAMP	20	1000	Unknown		06/06/2019 12:11	Finished	SAMP,0.1>10mL
30	N035891-002AMS,MS	21	1000	Unknown		06/06/2019 12:21	Finished	MS (5ppb), IWST-190423B,0.1
31	CCV-3,CCV,1,	22	1000	Unknown		06/06/2019 12:30	Finished	CCV @5ppb, IWST-190423A
32	CCB-3,CCB,1,	23	1000	Unknown		06/06/2019 12:40	Finished	CCB R190508A
33	N035891-001AMS,MS	25	1000	Unknown		06/06/2019 13:52	Finished	MS (1ppb), IWST-190423B,10
34	CCV-4,CCV1,1,	26	1000	Unknown		06/06/2019 14:03	Finished	CCV @10ppb, IWST-190423A
35	CCB-4,CCB,1,	27	1000	Unknown		06/06/2019 14:13	Finished	CCB R190508A
36	BLANK	28	1000	Unknown		06/06/2019 14:22	Finished	BLANK
37	N035705-004A,SAMP	30	1000	Unknown		06/06/2019 15:02	Finished	SAMP,10mL
38	N035705-004AMS,MS	31	1000	Unknown		06/06/2019 15:13	Finished	MS (5ppb), IWST-190423B,10
39	N035705-005A,SAMP	32	1000	Unknown		06/06/2019 15:23	Finished	SAMP,10mL
40	N035705-005AMS,MS	33	1000	Unknown		06/06/2019 15:32	Finished	MS (5ppb), IWST-190423B,10
41	CCV-5,CCV,1,	34	1000	Unknown		06/06/2019 15:42	Finished	CCV @5ppb, IWST-190423A
42	CCB-5,CCB,1,	35	1000	Unknown		06/06/2019 15:51	Finished	CCB R190508A
43	SHUTDOWN	36	1000	Unknown		n.a.	Running	
44	Eluent: R190604A	37	1000	Unknown		n.a.	Finished	Eluent
45	PCR: R190604B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 6/5/19
Time Prepared: 0844H
Prepared By: MBA

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CNV-190329A
NH4OH + NH4SO4 eluent: M90604A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N035884-001B	9.37	-	-250ml	-250ml		
2)							
3)							
4)							
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 6/6/19
Time Prepared: 0925H
Prepared By: MBA

Slope: 98.8%
pH4: 4.02
7: 7.00
10: 10.02
US: 6.9%

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CNV-190329A
NH4OH + NH4SO4 eluent: M90604A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N035889-001B	7.32	9.33	-250ml	-100ml		
2)	↓ 2C	7.20	9.53	↓	↓		
3)	N035890-1B	9.30	-	↓	-250ml		
4)	N035891-1A	9.34	-	↓	↓		
5)	2A	9.31	-	↓	↓		
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 6/4/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0517	0.2582	1.2770	2.5503	3.8530	5.1464	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ICV**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/4/2019**	SeqNo: **3402685**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.971	0.20	5.000	0	99.4	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ZZZZZZ**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/4/2019**	SeqNo: **3402686**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.199	0.20	0.2000	0	99.4	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **CCV**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402688**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.012	0.20	5.000	0	100	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ZZZZZZ**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.197	0.20	0.2000	0	98.2	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ZZZZZZ**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402701**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.888	0.20	10.00	0	98.9	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **CCV**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402706**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.990	0.20	5.000	0	99.8	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ZZZZZZ**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402709**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.907	0.20	10.00	0	99.1	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **ICB**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/4/2019**	SeqNo: **3402687**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **CCB**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **CCB**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402702**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **CCB**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402707**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134359**
Client ID: **CCB**	Batch ID: **R134359**	TestNo: **EPA 218.6**		Analysis Date: **6/6/2019**	SeqNo: **3402710**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 6/6/2019

Sample Name	Retention Time	Evaluation
ICV	4.740	
CCV-1	4.723	
CCV-2	4.715	
CCV-3	4.740	
CCV-4	4.731	
Average	4.727	
Actual RT Window	4.647 - 4.807	
Applied RT Window	4.527 - 4.927	
MB-R134359	N.A.	N.A.
LCS-R134359	4.740	PASS
N035890-001B	4.740	PASS
N035889-001B	4.740	PASS
N035889-001BDUP	4.740	PASS
N035889-001BMS	4.731	PASS
N035889-002C	4.631	PASS
N035889-002CMS	4.615	PASS
N035890-001BMS	4.740	PASS
N035890-001BMSD	4.740	PASS
N035891-001A	N.A.	N.A.
N035891-001AMS	4.715	PASS
N035891-002A	4.740	PASS
N035891-002AMS	4.740	PASS
N035891-001AMS	4.723	PASS
N035705-004A	4.498	FAIL
N035705-004AMS	4.490	FAIL
N035705-005A	4.498	FAIL
N035705-005AMS	4.498	FAIL

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190604A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	06/04/19 3:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/04/19 3:46 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	06/04/19 3:56 PM	Reported
13	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 4:05 PM	Not Reported

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Injection Log Summary

Sequence Details

Name:	**IC-07_190604A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Jun/19 16:36:11**
No. of Injections:	**16**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		06/04/2019 15:37	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		06/04/2019 15:46	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		06/04/2019 15:56	Finished	ICB R190508A
13	BLANK	13	1000	Unknown		06/04/2019 16:05	Finished	BLANK
14	SHUTDOWN	14	1000	Unknown		06/04/2019 16:15	Finished	
15	Eluent: R190604A	15	1000	Unknown		n.a.	Finished	Eluent
16	PCR: R190604B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

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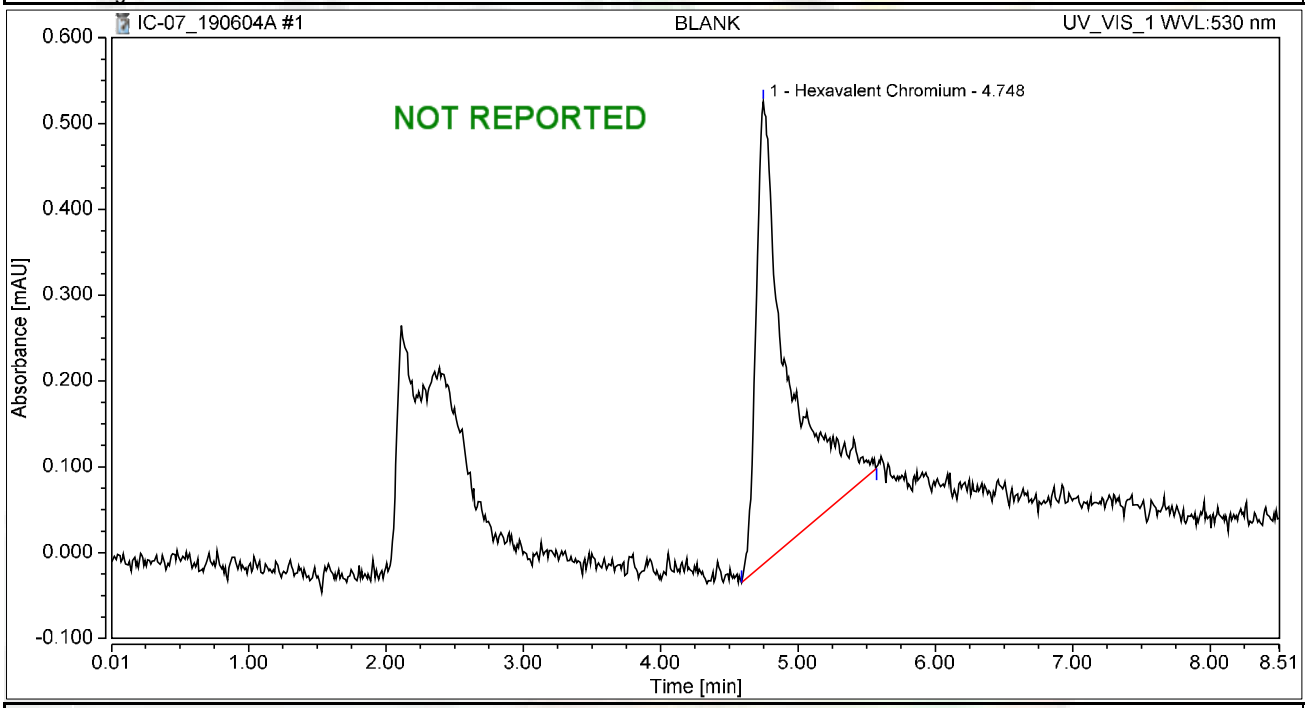
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

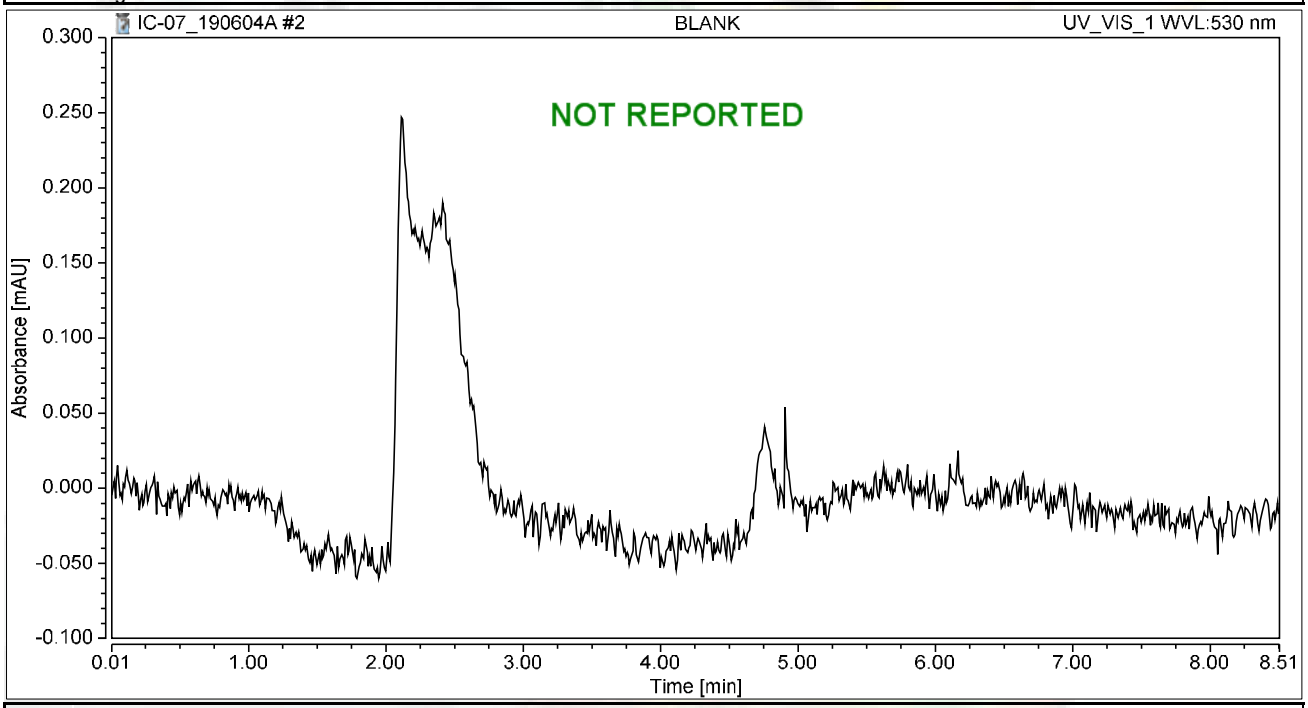
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.144	0.538	100.00	100.00	0.5608
Total:			**0.144**	**0.538**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

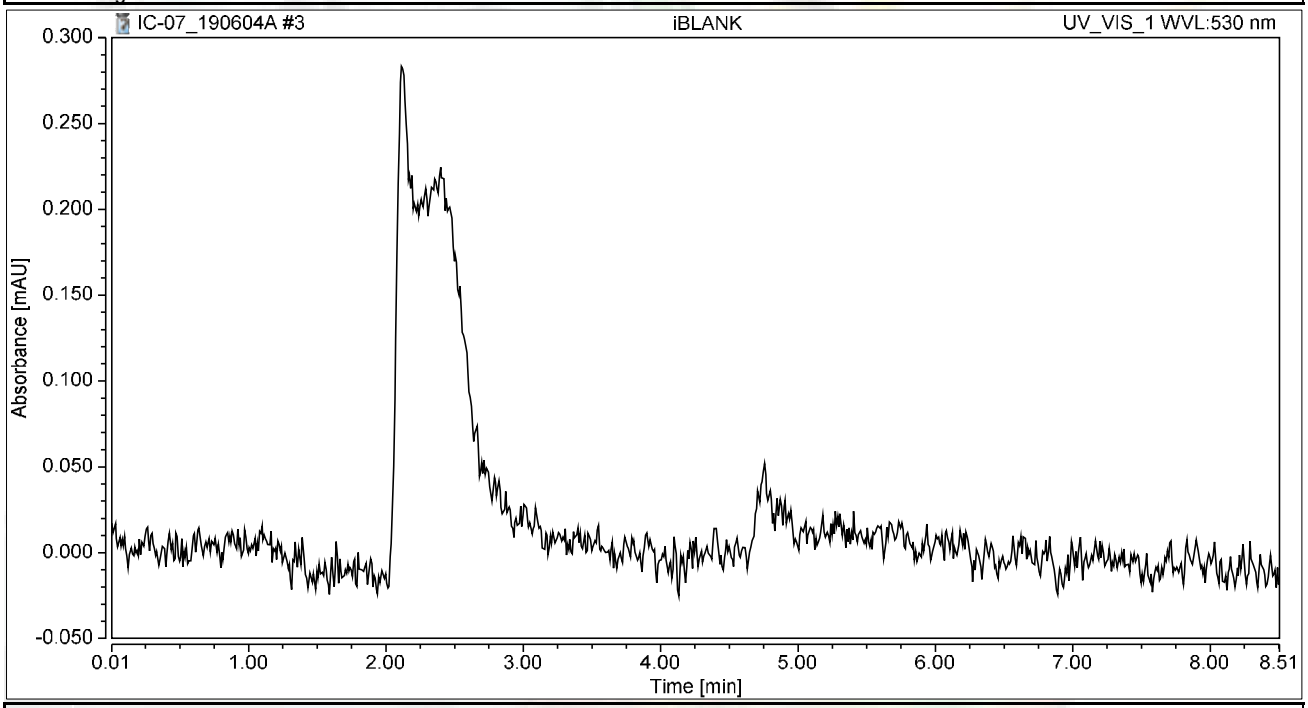
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

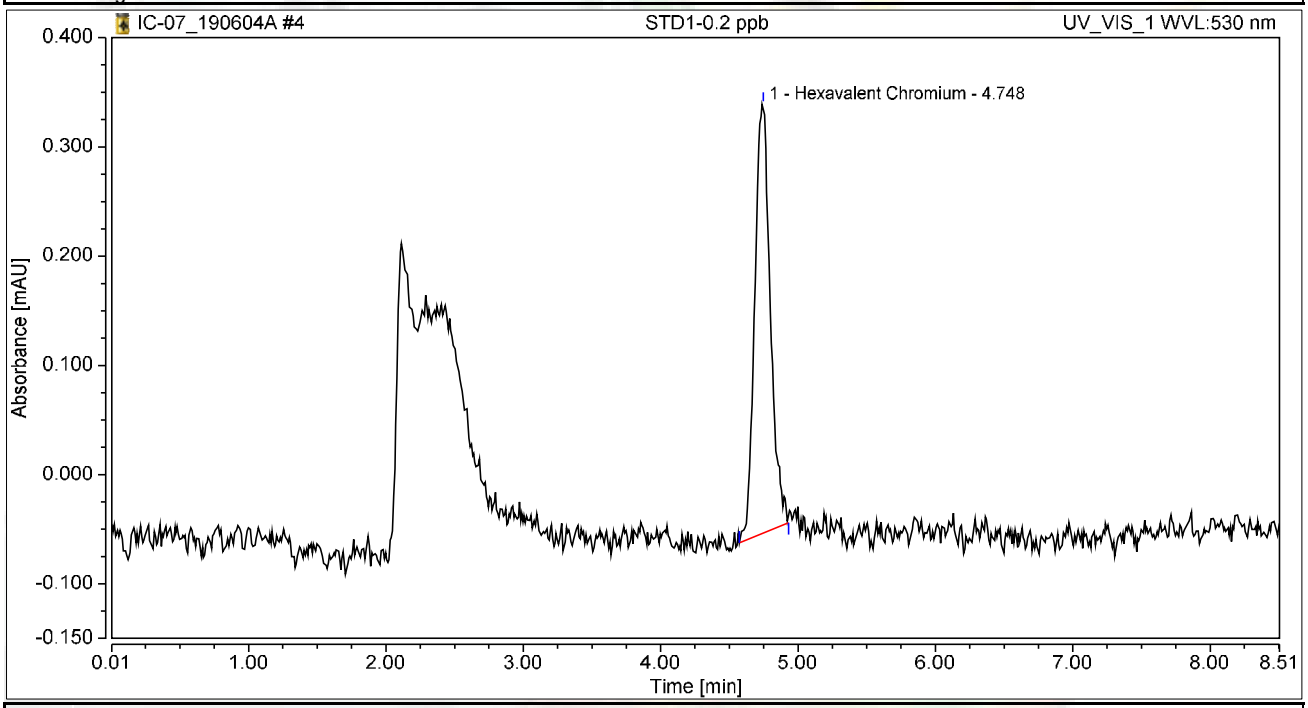
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

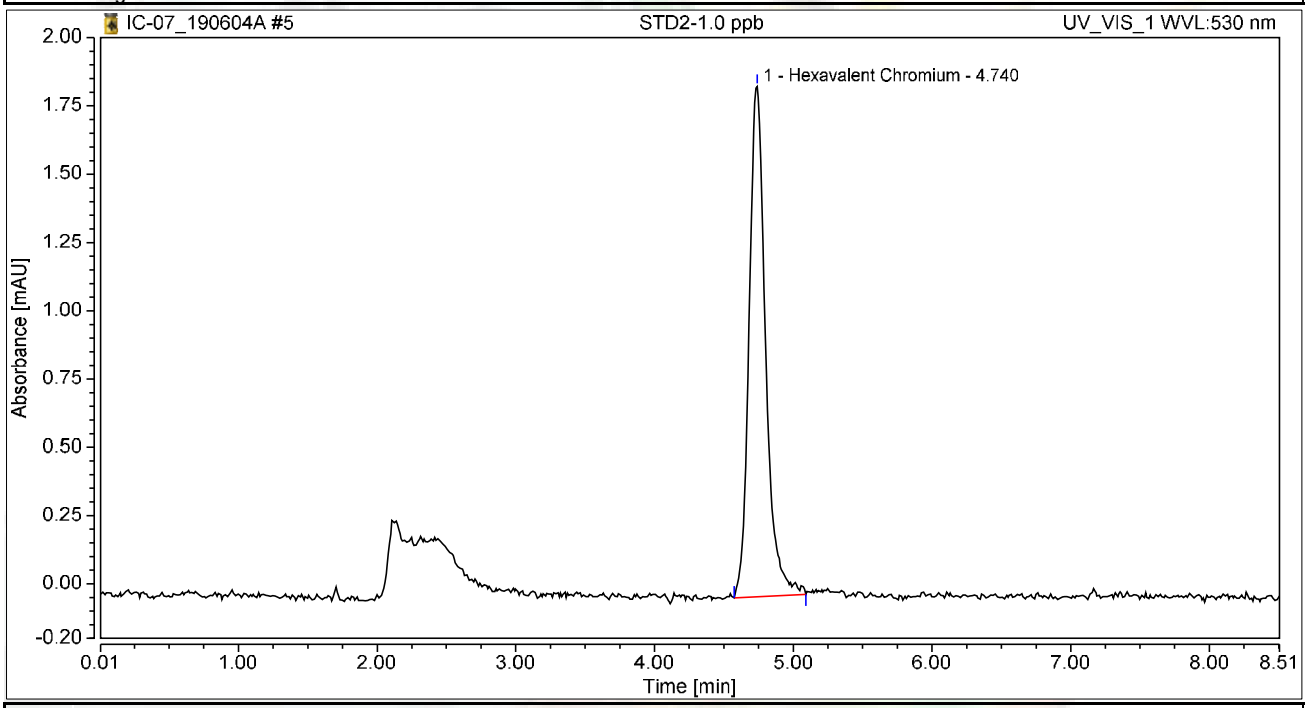
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.052	0.392	100.00	100.00	0.2013
Total:			**0.052**	**0.392**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

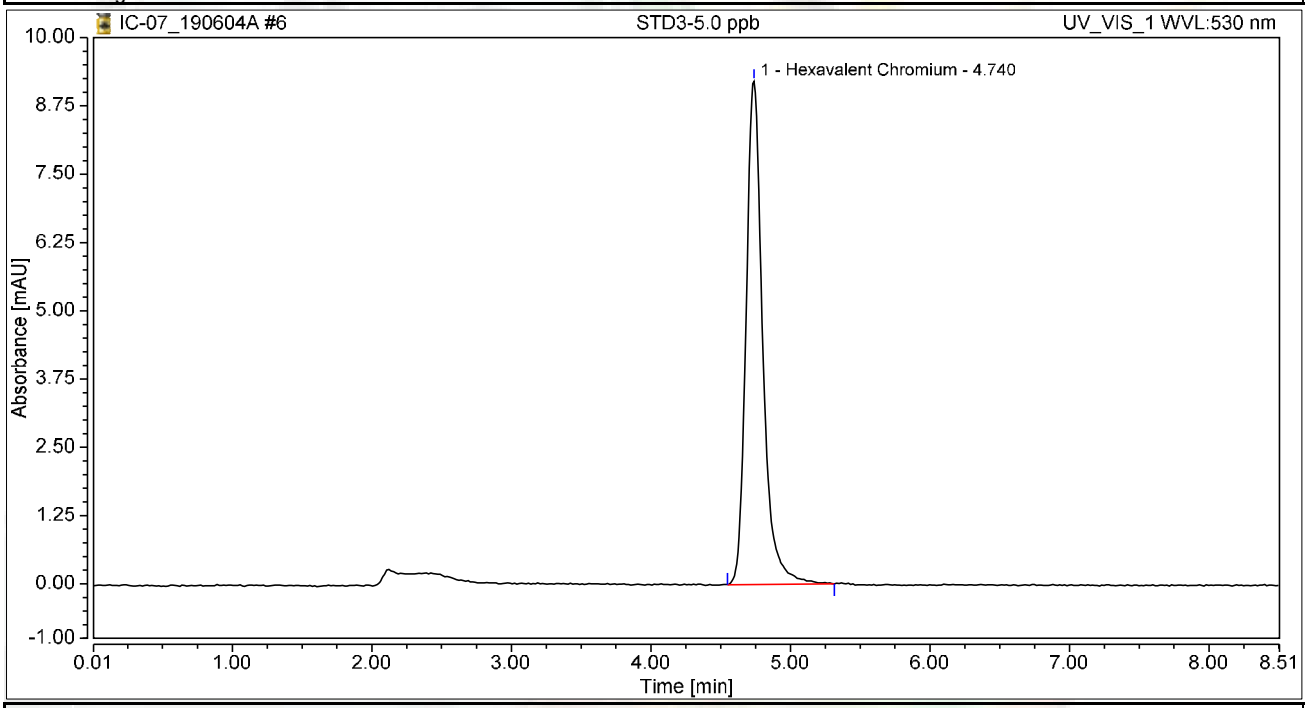
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.258	1.868	100.00	100.00	1.0056
Total:			**0.258**	**1.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

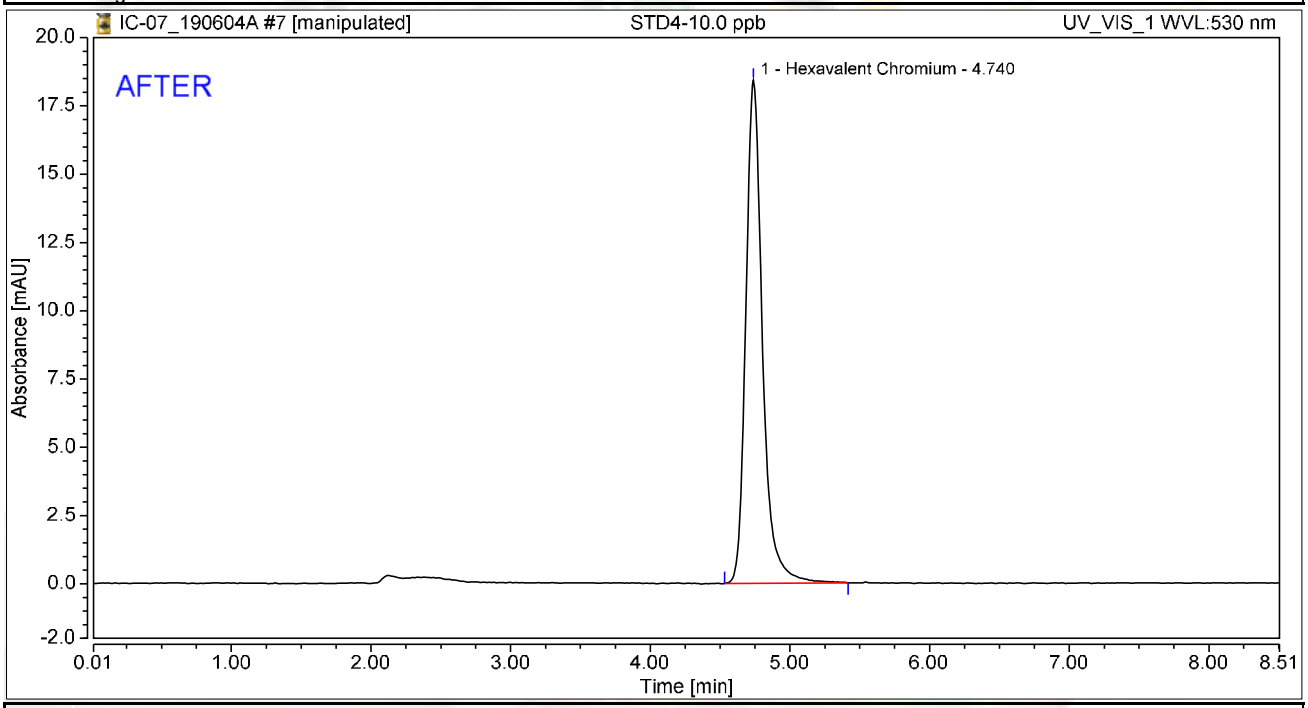
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.277	9.214	100.00	100.00	4.9723
Total:			**1.277**	**9.214**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.550	18.422	100.00	100.00	9.9303
Total:			**2.550**	**18.422**	**100.00**	**100.00**	

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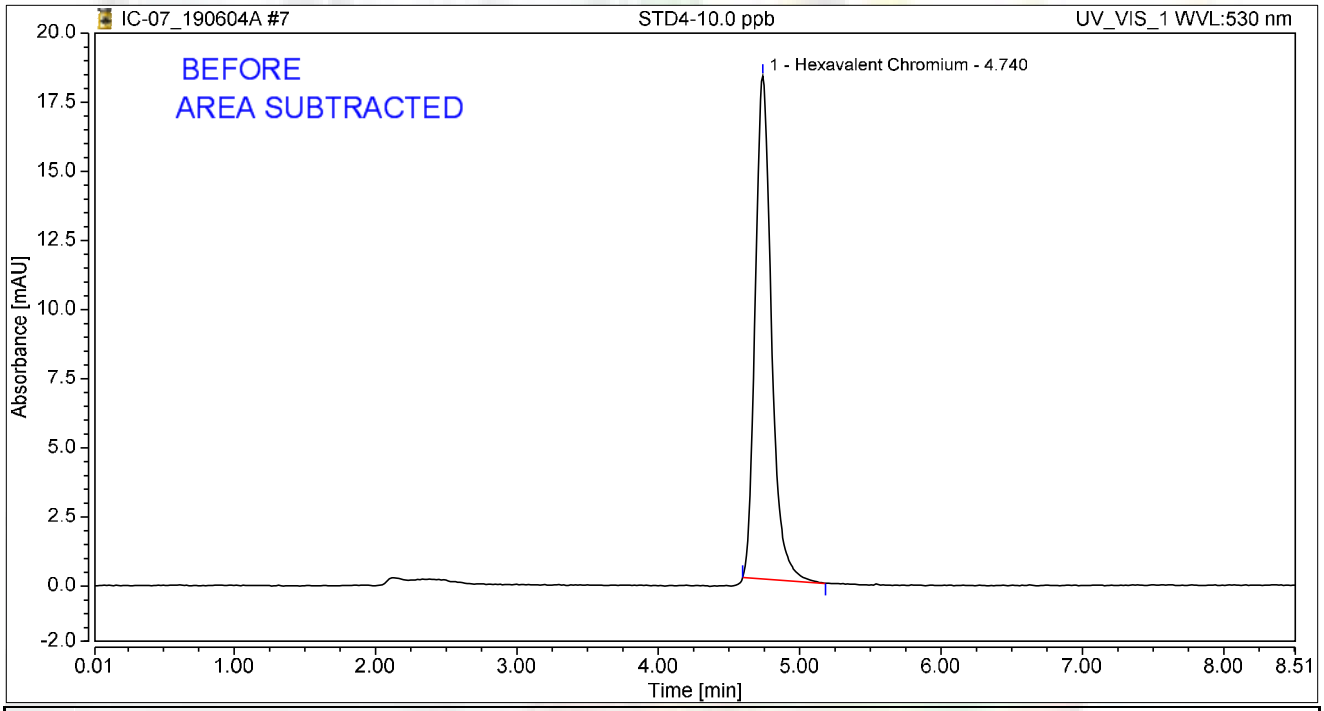
Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.429	18.178	100.00	100.00	9.5179
Total:			**2.429**	**18.178**	**100.00**	**100.00**	

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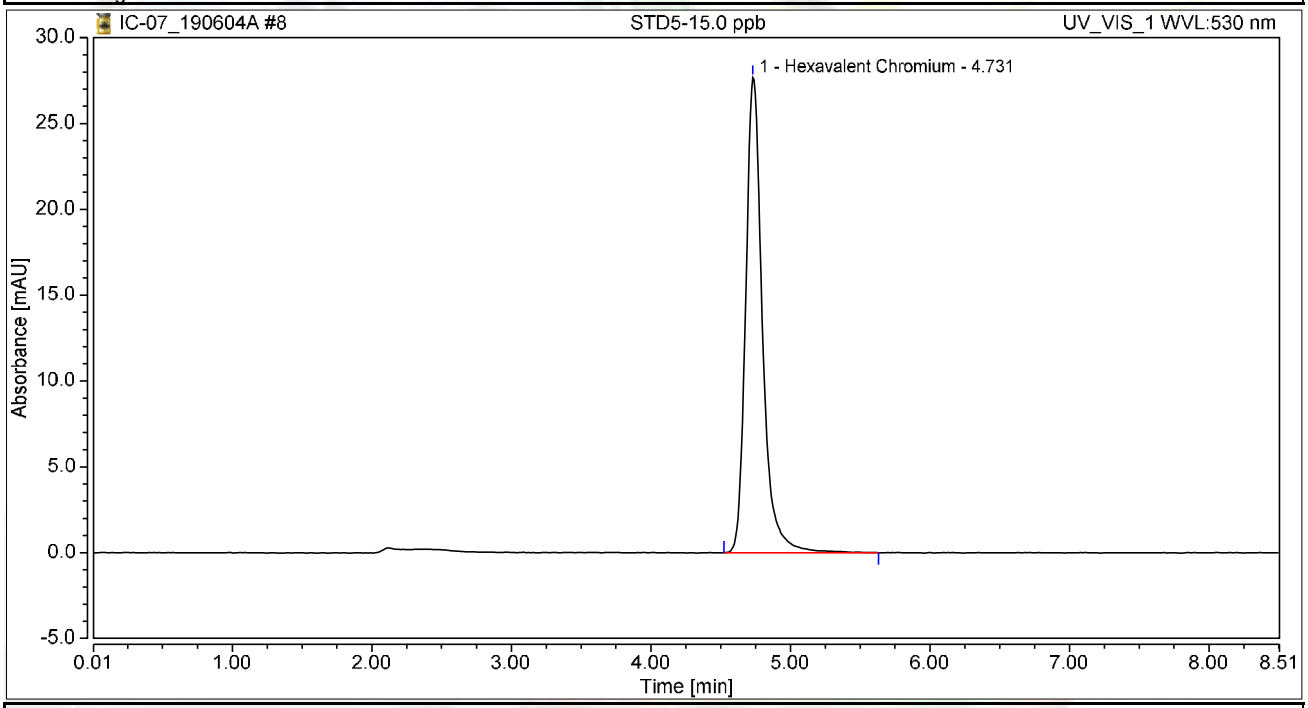
Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

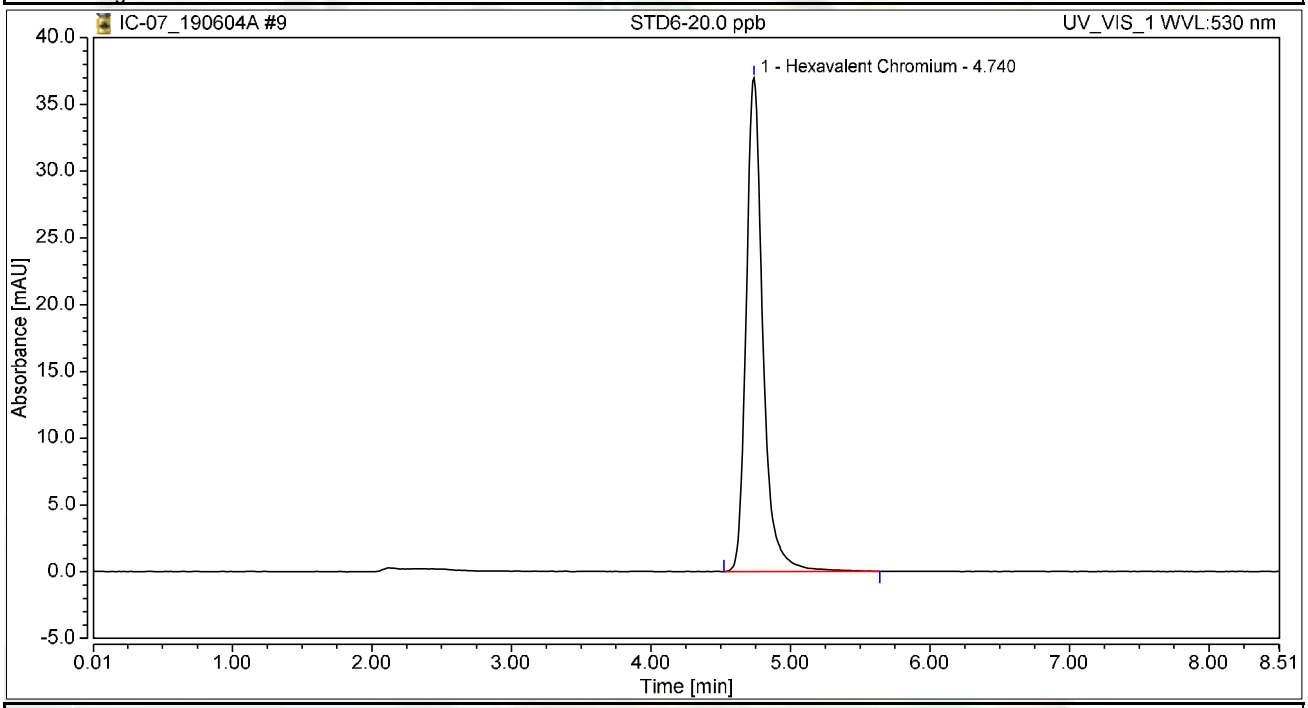
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.853	27.685	100.00	100.00	15.0030
Total:			**3.853**	**27.685**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:28**	*Sample Weight:*	**1.0000**

Chromatogram



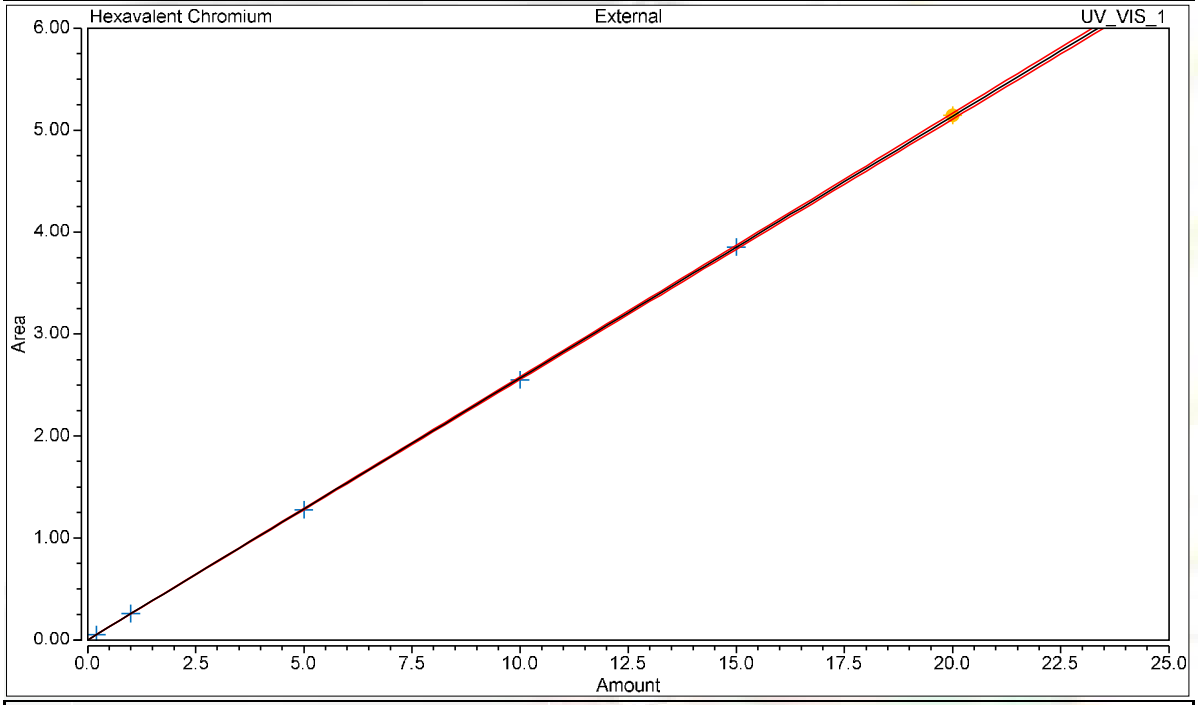
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	5.146	36.991	100.00	100.00	20.0393
Total:			**5.146**	**36.991**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2568
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

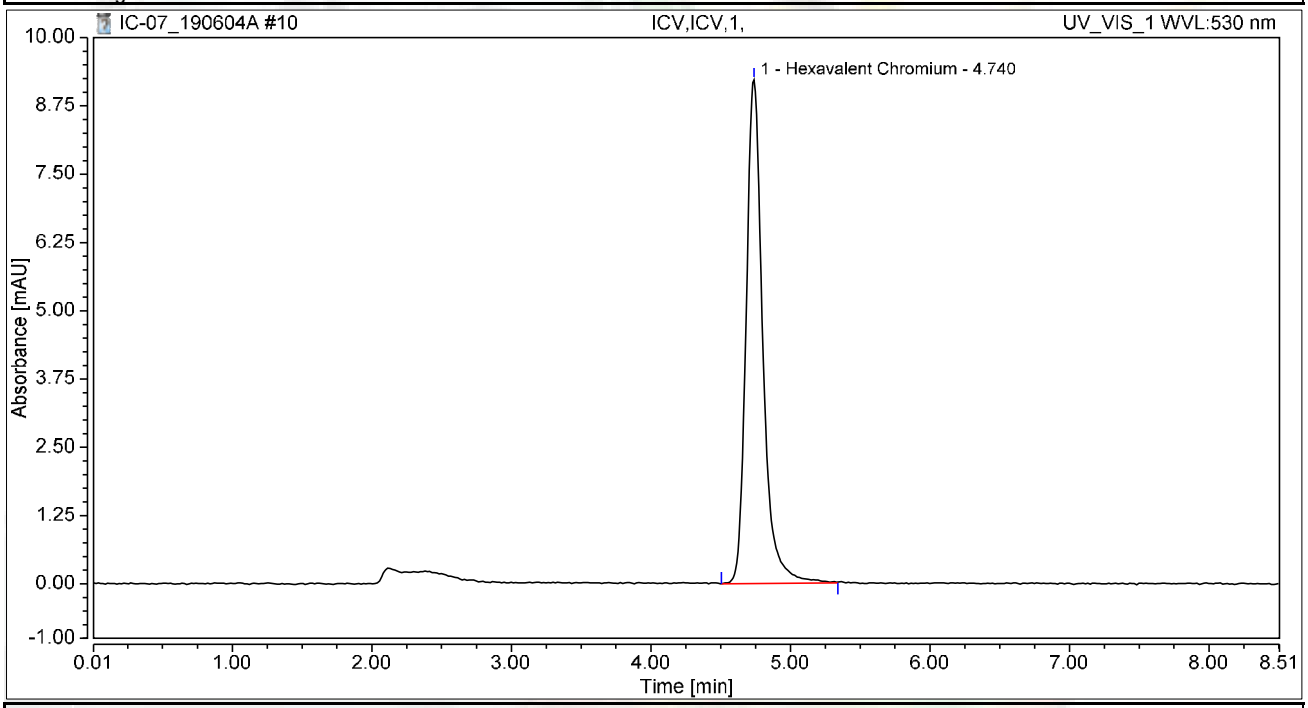
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0517	0.052	0.392
5	STD2-1.0 ppb	02	1.0000	0.2582	0.258	1.868
6	STD3-5.0 ppb	03	5.0000	1.2770	1.277	9.214
7	STD4-10.0 ppb	04	10.0000	2.5503	2.550	18.422
8	STD5-15.0 ppb	05	15.0000	3.8530	3.853	27.685
9	STD6-20.0 ppb	06	20.0000	5.1464	5.146	36.991

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

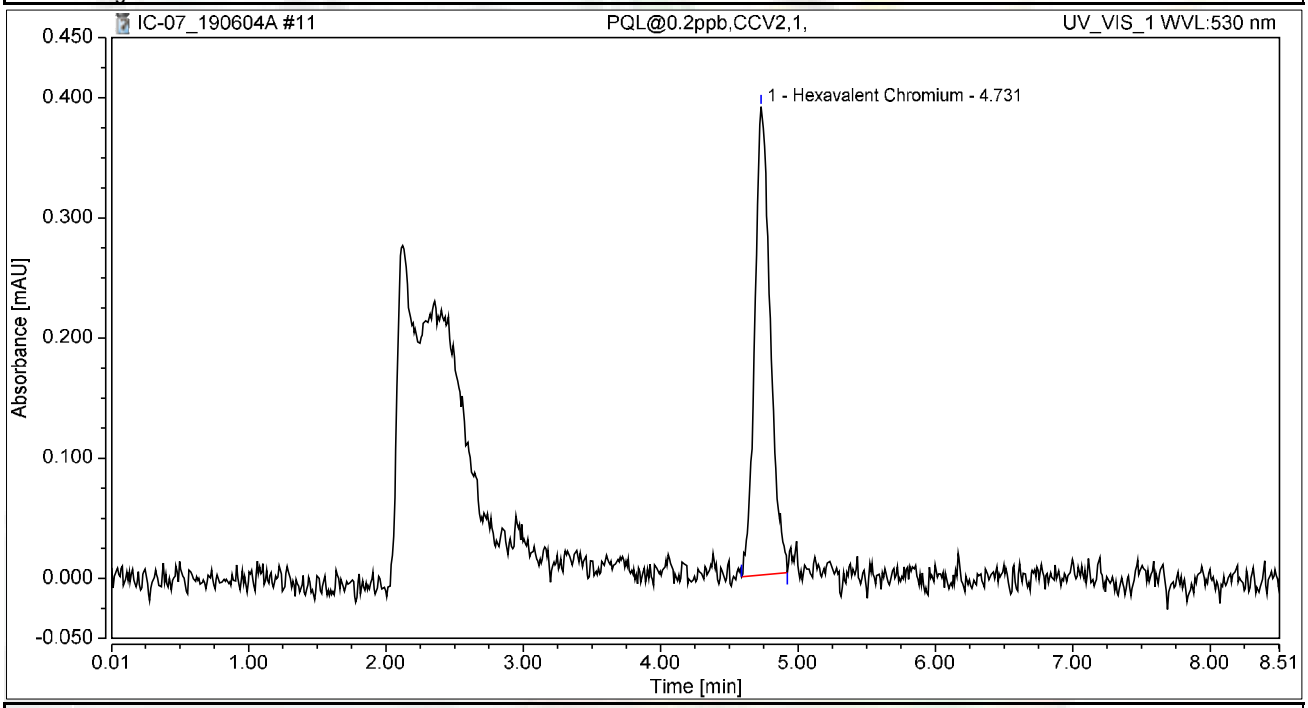
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.277	9.219	100.00	100.00	4.9710
Total:			**1.277**	**9.219**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

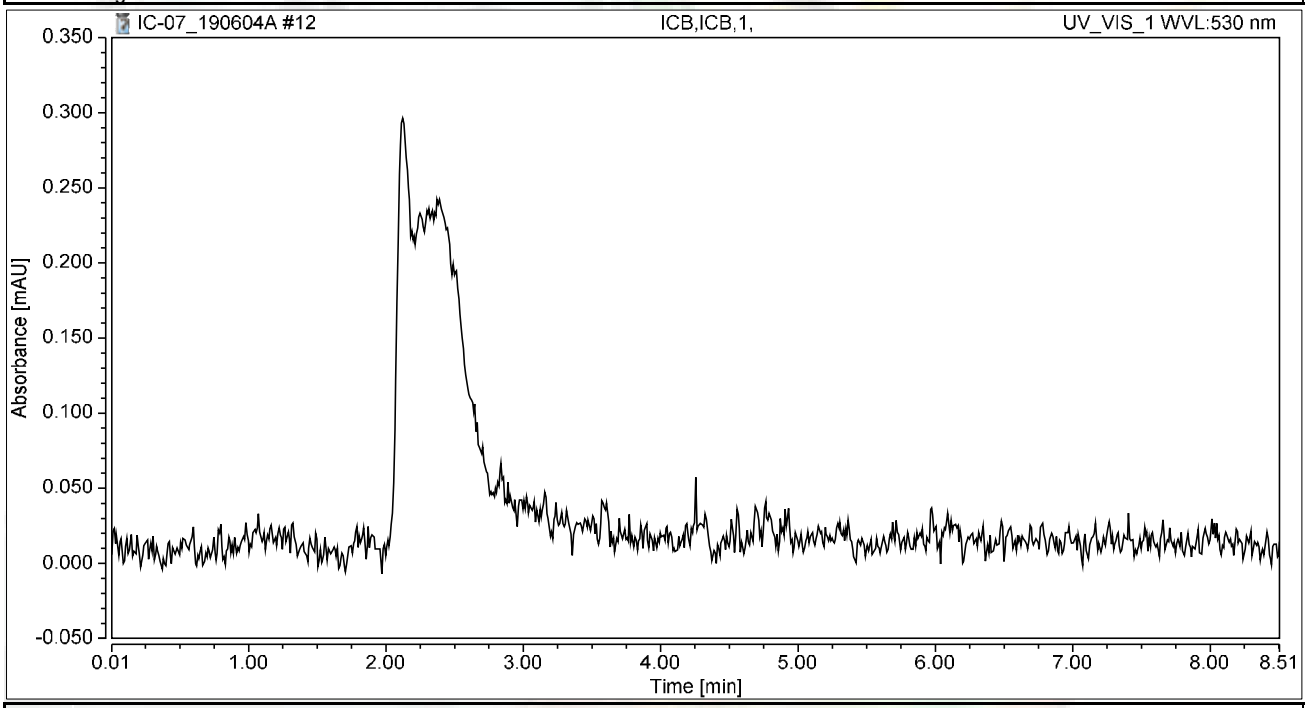
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.051	0.390	100.00	100.00	0.1988
Total:			**0.051**	**0.390**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

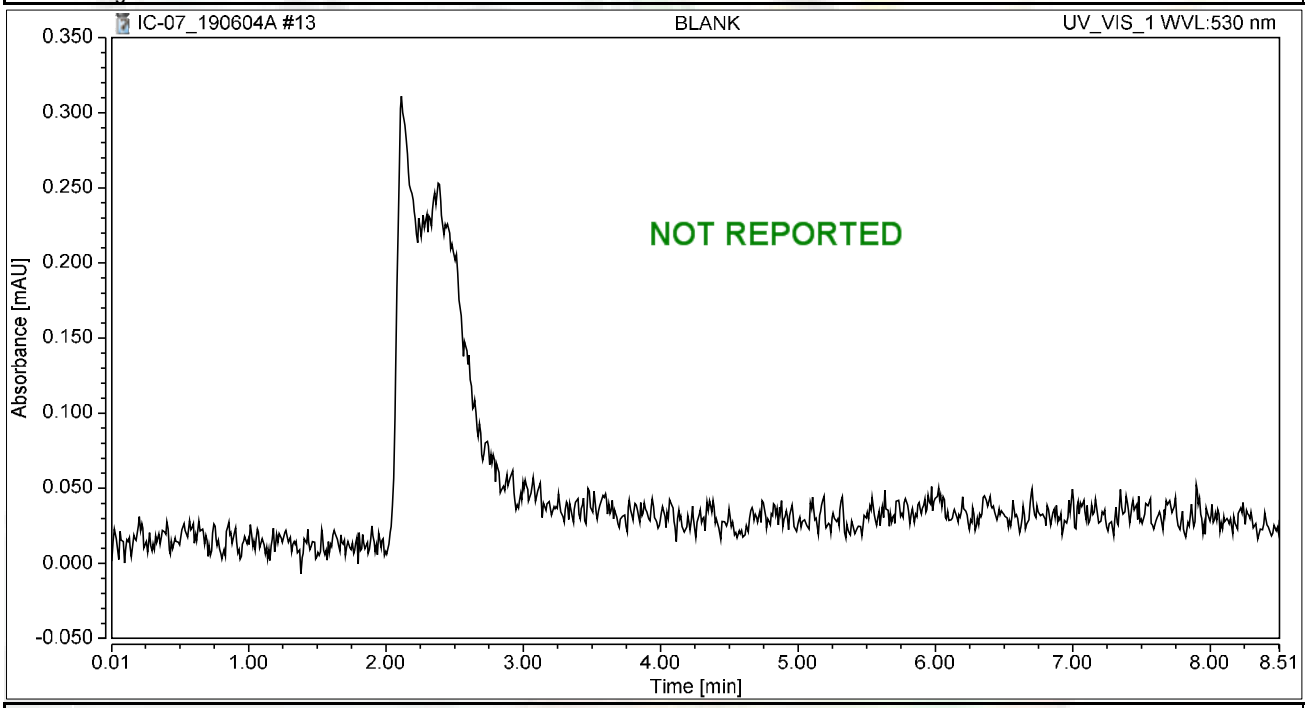
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 16:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190606A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	06/06/19 9:10 AM	Not Reported
11	BLANK	BLANK	1	Hexavalent Chromium	06/06/19 9:21 AM	Not Reported
12	CCV-1	CCV	1	Hexavalent Chromium	06/06/19 9:30 AM	Reported
13	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/06/19 9:40 AM	Reported
14	CCB-1	CCB	1	Hexavalent Chromium	06/06/19 9:49 AM	Reported
15	MB-R134359	MBLK	1	Hexavalent Chromium	06/06/19 9:59 AM	Reported
16	LCS-R134359	LCS	1	Hexavalent Chromium	06/06/19 10:08 AM	Reported
17	N035890-001B	SAMP	200	Hexavalent Chromium	06/06/19 10:18 AM	Reported
18	N035889-001B	SAMP	100	Hexavalent Chromium	06/06/19 10:27 AM	Reported
19	N035889-001BDUP	DUP	100	Hexavalent Chromium	06/06/19 10:37 AM	Reported
20	N035889-001BMS	MS	100	Hexavalent Chromium	06/06/19 10:46 AM	Reported
21	N035889-002C	SAMP	1	Hexavalent Chromium	06/06/19 10:56 AM	Reported
22	N035889-002CMS	MS	1	Hexavalent Chromium	06/06/19 11:05 AM	Reported
23	N035890-001BMS	MS	200	Hexavalent Chromium	06/06/19 11:14 AM	Reported
24	N035890-001BMSD	MSD	200	Hexavalent Chromium	06/06/19 11:24 AM	Reported
25	CCV-2	CCV1	1	Hexavalent Chromium	06/06/19 11:33 AM	Reported
26	CCB-2	CCB	1	Hexavalent Chromium	06/06/19 11:43 AM	Reported
27	N035891-001A	SAMP	1	Hexavalent Chromium	06/06/19 11:52 AM	Reported
28	N035891-001AMS	MS	1	Hexavalent Chromium	06/06/19 12:02 PM	Not Reported
29	N035891-002A	SAMP	100	Hexavalent Chromium	06/06/19 12:11 PM	Reported
30	N035891-002AMS	MS	100	Hexavalent Chromium	06/06/19 12:21 PM	Reported
31	CCV-3	CCV	1	Hexavalent Chromium	06/06/19 12:30 PM	Reported
32	CCB-3	CCB	1	Hexavalent Chromium	06/06/19 12:40 PM	Reported
33	N035891-001AMS	MS	1	Hexavalent Chromium	06/06/19 1:52 PM	Reported
34	CCV-4	CCV1	1	Hexavalent Chromium	06/06/19 2:03 PM	Reported
35	CCB-4	CCB	1	Hexavalent Chromium	06/06/19 2:13 PM	Reported
36	BLANK	BLANK	1	Hexavalent Chromium	06/06/19 2:22 PM	Not Reported
37	N035705-004A	SAMP	1	Hexavalent Chromium	06/06/19 3:02 PM	Not Reported
38	N035705-004AMS	MS	1	Hexavalent Chromium	06/06/19 3:13 PM	Not Reported
39	N035705-005A	SAMP	1	Hexavalent Chromium	06/06/19 3:23 PM	Not Reported
40	N035705-005AMS	MS	1	Hexavalent Chromium	06/06/19 3:32 PM	Not Reported
41	CCV-5	CCV	1	Hexavalent Chromium	06/06/19 3:42 PM	Not Reported
42	CCB-5	CCB	1	Hexavalent Chromium	06/06/19 3:51 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190606A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**06/Jun/19 15:04:08**
No. of Injections:	**45**	*Updated By:*	**ics 5000**

Injection Details

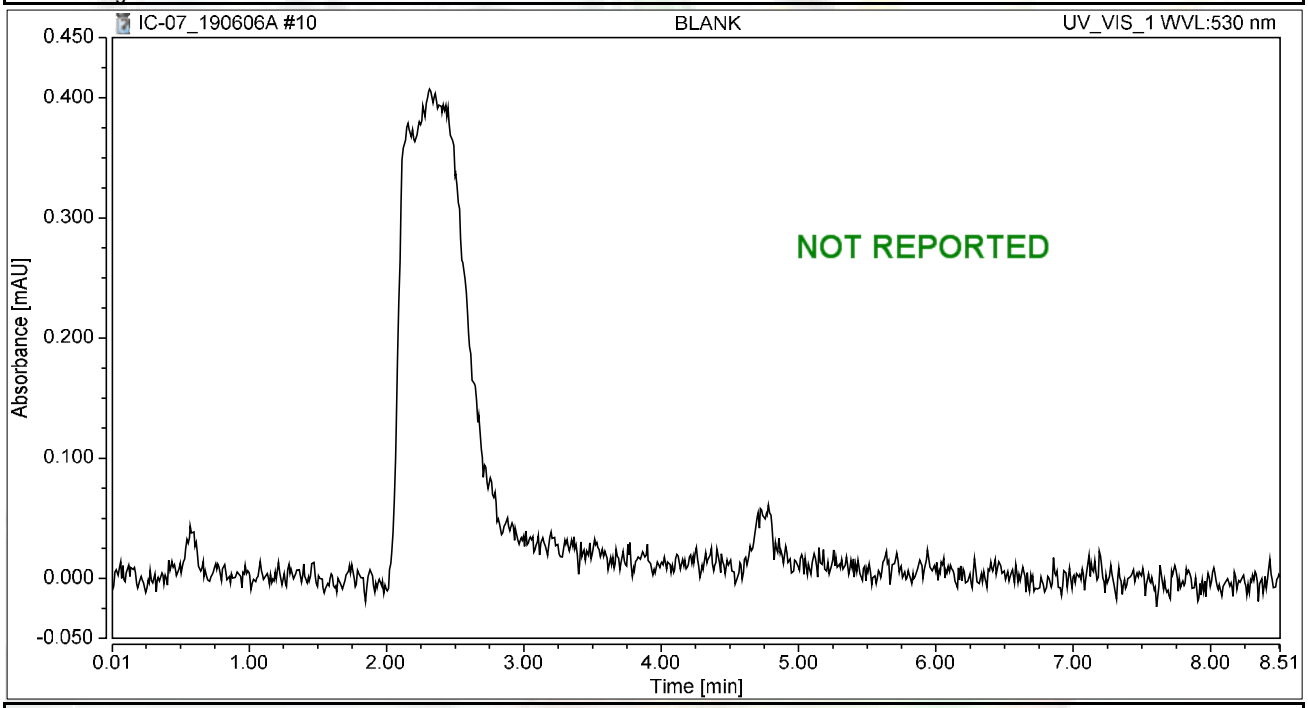
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		06/06/2019 09:10	Finished	BLANK
11	BLANK	2	1000	Unknown		06/06/2019 09:21	Finished	BLANK
12	CCV-1,CCV,1,	3	1000	Unknown		06/06/2019 09:30	Finished	CCV @5ppb, IWST-190423A
13	PQL@0.2ppb,CCV2,1	4	1000	Unknown		06/06/2019 09:40	Finished	PQL @ 0.2ppb
14	CCB-1,CCB,1,	5	1000	Unknown		06/06/2019 09:49	Finished	CCB R190508A
15	MB-H2O,MBLK,1,	6	1000	Unknown		06/06/2019 09:59	Finished	MB R190508A
16	LCS-H2O,LCS,1,	7	1000	Unknown		06/06/2019 10:08	Finished	LCS @5ppb, IWST-190423B
17	N035890-001B,SAMP	8	1000	Unknown		06/06/2019 10:18	Finished	SAMP, 0.05>10mL
18	N035889-001B,SAMP	9	1000	Unknown		06/06/2019 10:27	Finished	SAMP,0.1> 10mL
19	N035889-001BDUP,D	10	1000	Unknown		06/06/2019 10:37	Finished	DUP,0.1> 10mL
20	N035889-001BMS,MS	11	1000	Unknown		06/06/2019 10:46	Finished	MS (5ppb), IWST-190423B,0.1
21	N035889-002C,SAMP	12	1000	Unknown		06/06/2019 10:56	Finished	SAMP,10mL
22	N035889-002CMS,MS	13	1000	Unknown		06/06/2019 11:05	Finished	MS (1ppb), IWST-190423B,10
23	N035890-001BMS,MS	14	1000	Unknown		06/06/2019 11:14	Finished	MS (5ppb), IWST-190423B,0.0
24	N035890-001BMSD,M	15	1000	Unknown		06/06/2019 11:24	Finished	MSD (5ppb), IWST-190423B,0.
25	CCV-2,CCV1,1,	16	1000	Unknown		06/06/2019 11:33	Finished	CCV @10ppb, IWST-190423A
26	CCB-2,CCB,1,	17	1000	Unknown		06/06/2019 11:43	Finished	CCB R190508A
27	N035891-001A,SAMP	18	1000	Unknown		06/06/2019 11:52	Finished	SAMP,10mL
28	N035891-001AMS,MS	19	1000	Unknown		06/06/2019 12:02	Finished	MS (1ppb), IWST-190423B,10
29	N035891-002A,SAMP	20	1000	Unknown		06/06/2019 12:11	Finished	SAMP,0.1>10mL
30	N035891-002AMS,MS	21	1000	Unknown		06/06/2019 12:21	Finished	MS (5ppb), IWST-190423B,0.1
31	CCV-3,CCV,1,	22	1000	Unknown		06/06/2019 12:30	Finished	CCV @5ppb, IWST-190423A
32	CCB-3,CCB,1,	23	1000	Unknown		06/06/2019 12:40	Finished	CCB R190508A
33	N035891-001AMS,MS	25	1000	Unknown		06/06/2019 13:52	Finished	MS (1ppb), IWST-190423B,10
34	CCV-4,CCV1,1,	26	1000	Unknown		06/06/2019 14:03	Finished	CCV @10ppb, IWST-190423A
35	CCB-4,CCB,1,	27	1000	Unknown		06/06/2019 14:13	Finished	CCB R190508A
36	BLANK	28	1000	Unknown		06/06/2019 14:22	Finished	BLANK
37	N035705-004A,SAMP	30	1000	Unknown		06/06/2019 15:02	Finished	SAMP,10mL
38	N035705-004AMS,MS	31	1000	Unknown		06/06/2019 15:13	Finished	MS (5ppb), IWST-190423B,10
39	N035705-005A,SAMP	32	1000	Unknown		06/06/2019 15:23	Finished	SAMP,10mL
40	N035705-005AMS,MS	33	1000	Unknown		06/06/2019 15:32	Finished	MS (5ppb), IWST-190423B,10
41	CCV-5,CCV,1,	34	1000	Unknown		06/06/2019 15:42	Finished	CCV @5ppb, IWST-190423A
42	CCB-5,CCB,1,	35	1000	Unknown		06/06/2019 15:51	Finished	CCB R190508A
43	SHUTDOWN	36	1000	Unknown		n.a.	Running	
44	Eluent: R190604A	37	1000	Unknown		n.a.	Finished	Eluent
45	PCR: R190604B	38	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 09:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

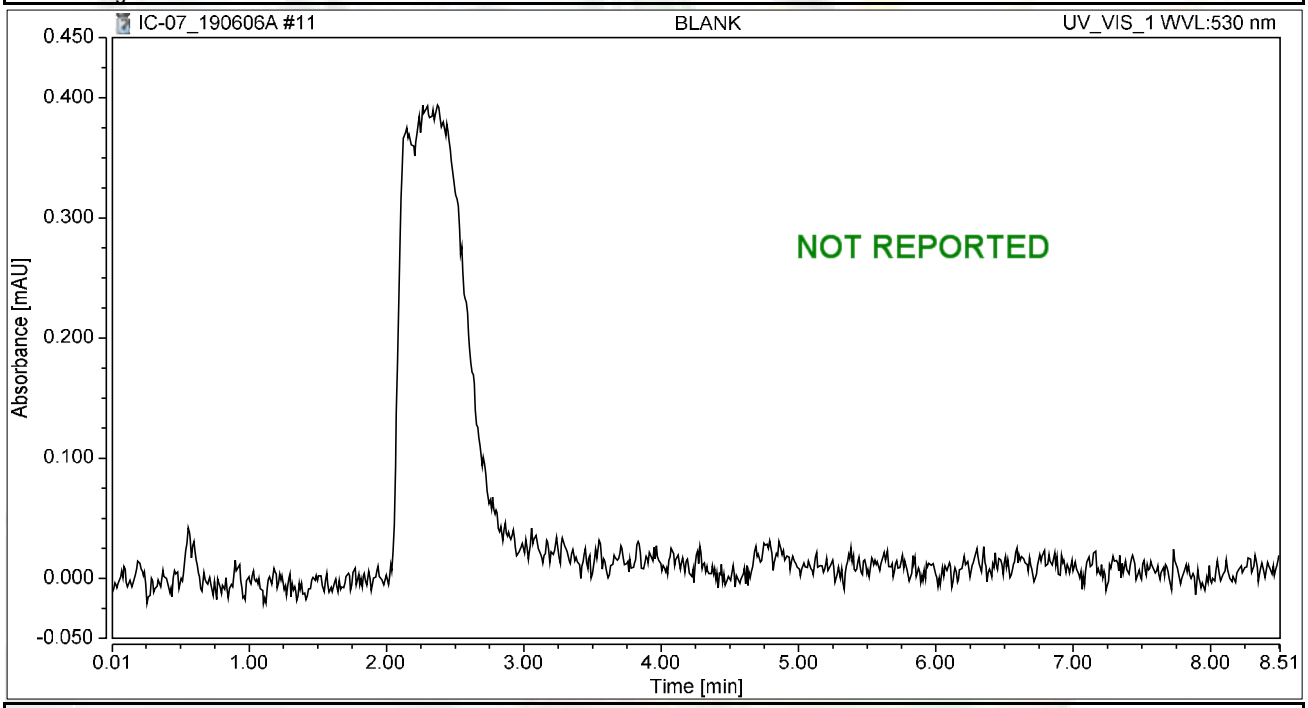
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 09:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

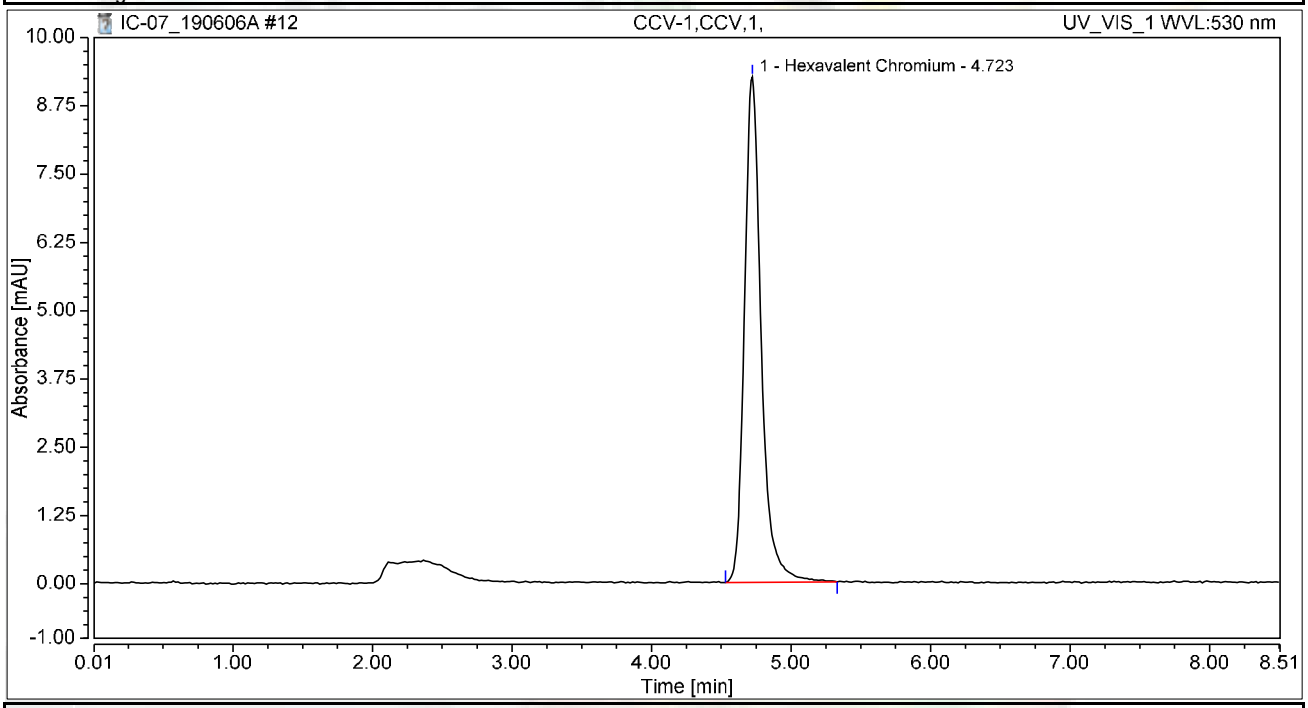
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 09:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

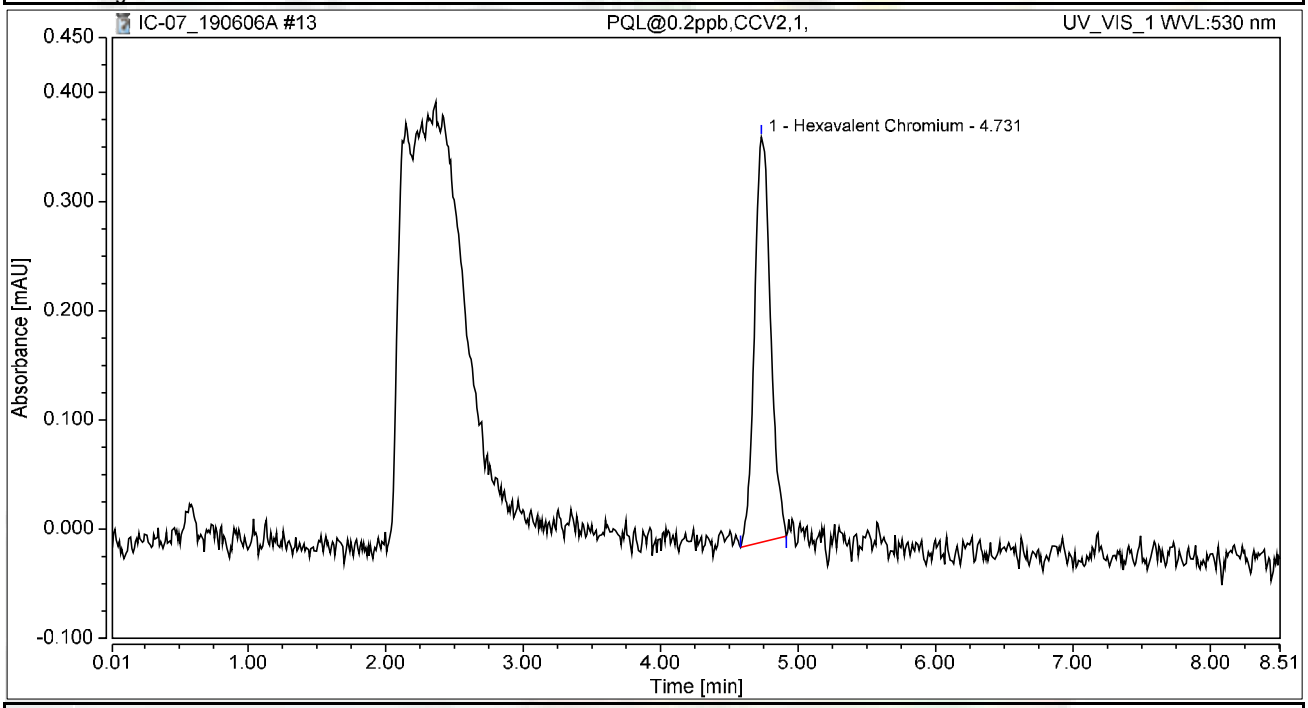
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.287	9.253	100.00	100.00	5.0124
Total:			**1.287**	**9.253**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 09:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

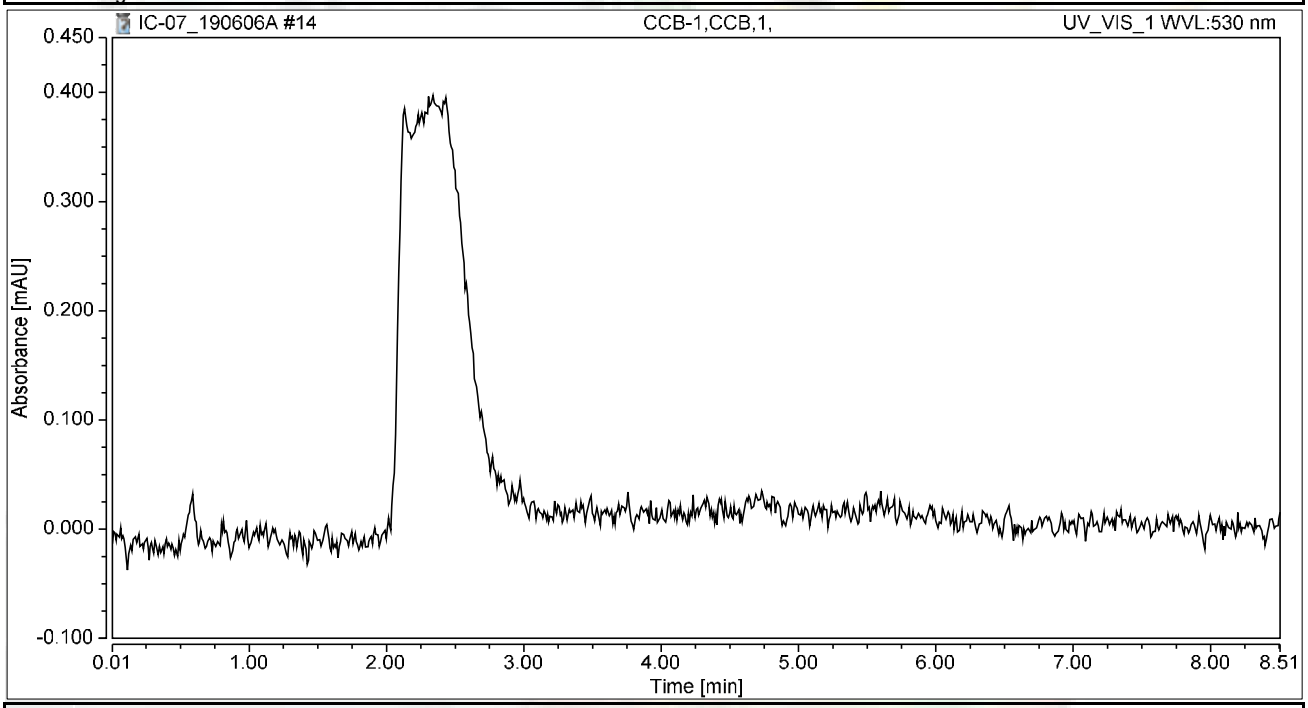
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.050	0.371	100.00	100.00	0.1965
Total:			**0.050**	**0.371**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 09:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

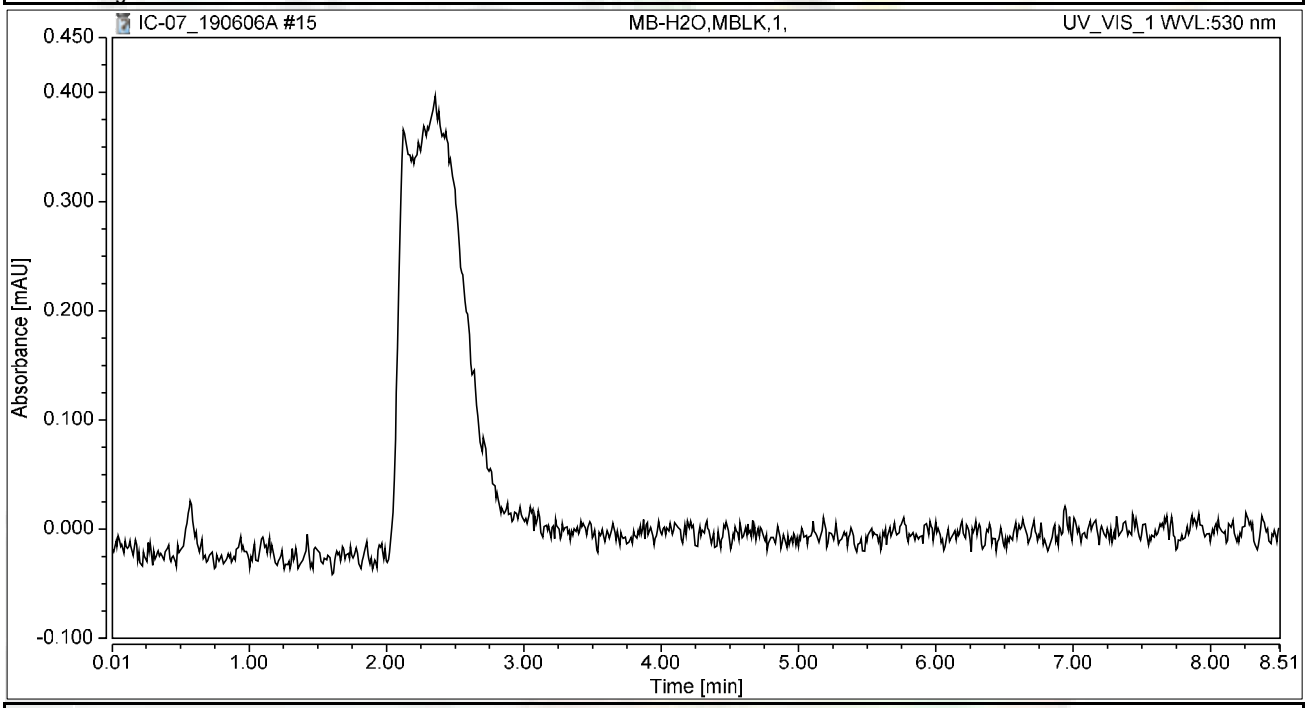
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 09:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

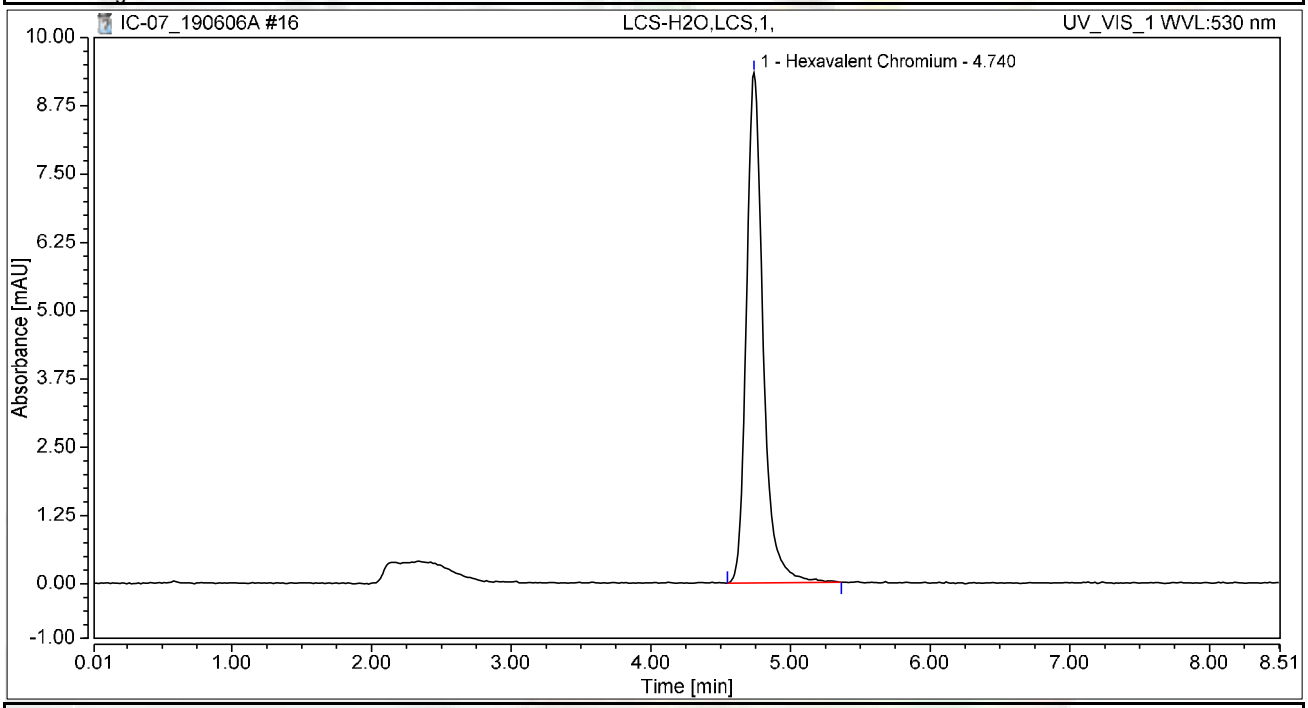
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 10:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

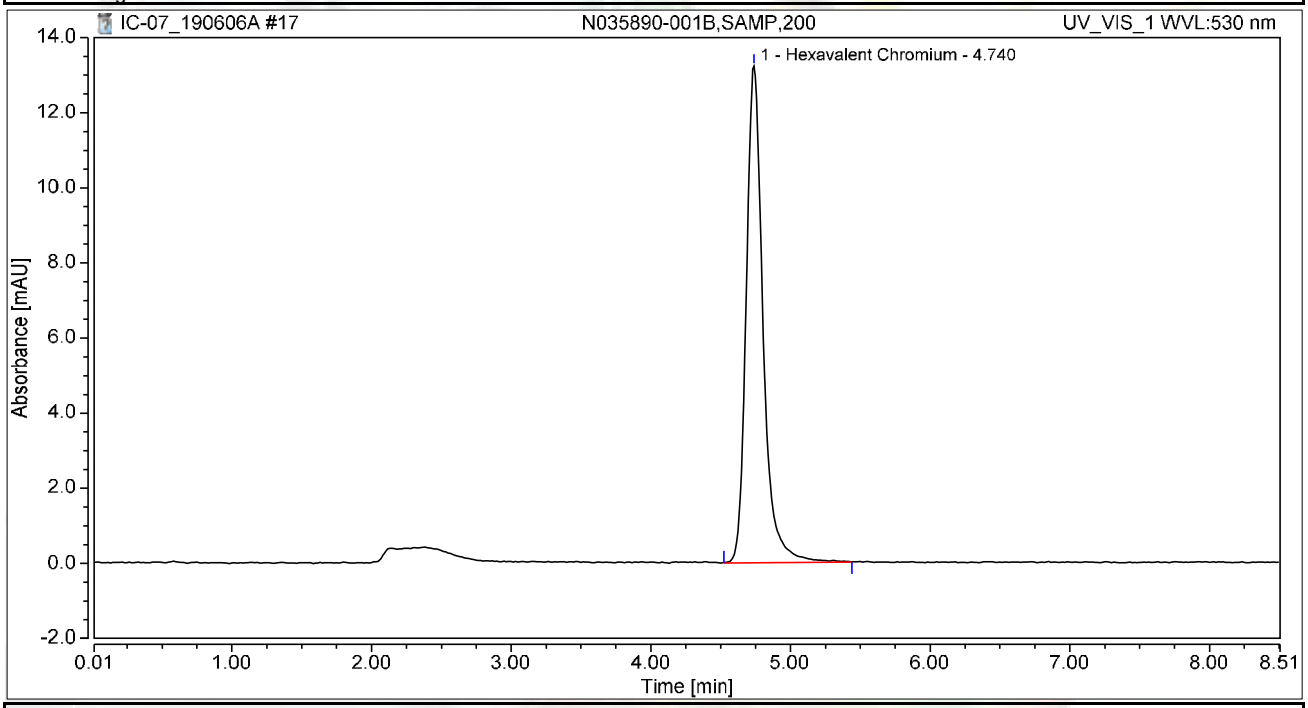
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.301	9.347	100.00	100.00	5.0648
Total:			**1.301**	**9.347**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035890-001B,SAMP,200**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 10:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

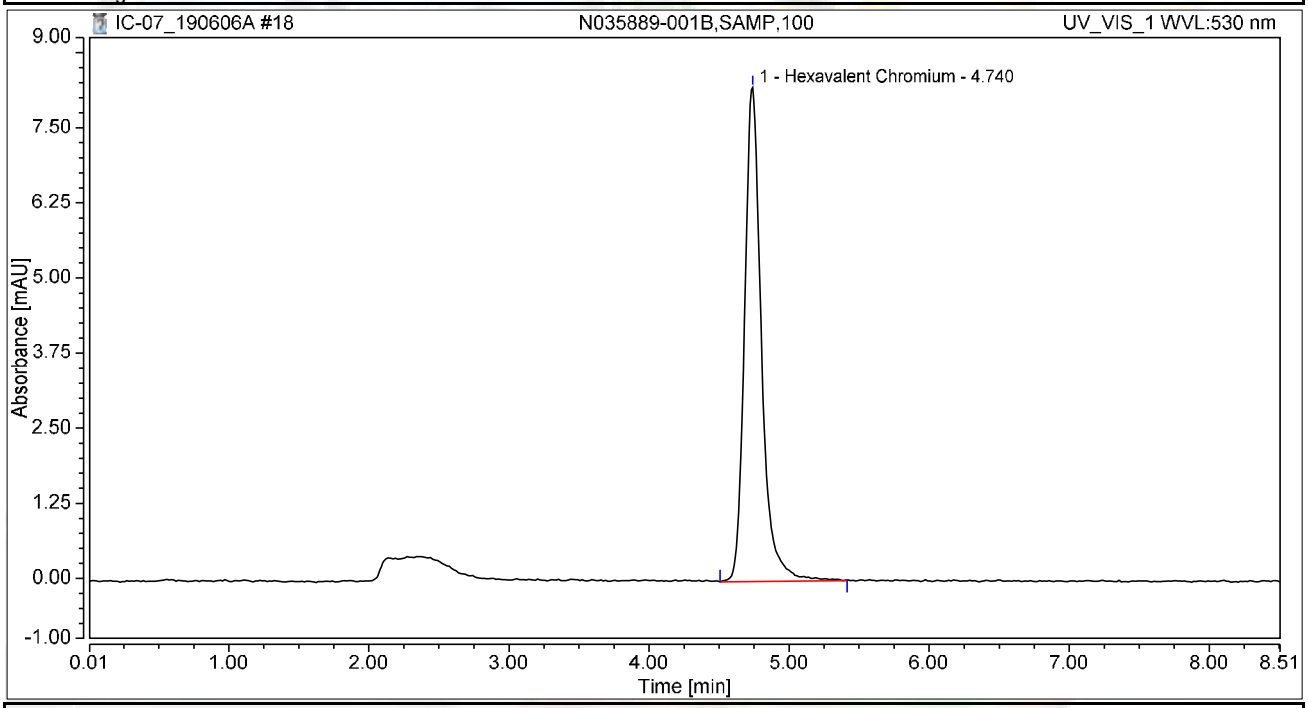
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.848	13.224	100.00	100.00	7.1941
Total:			**1.848**	**13.224**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035889-001B,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 10:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

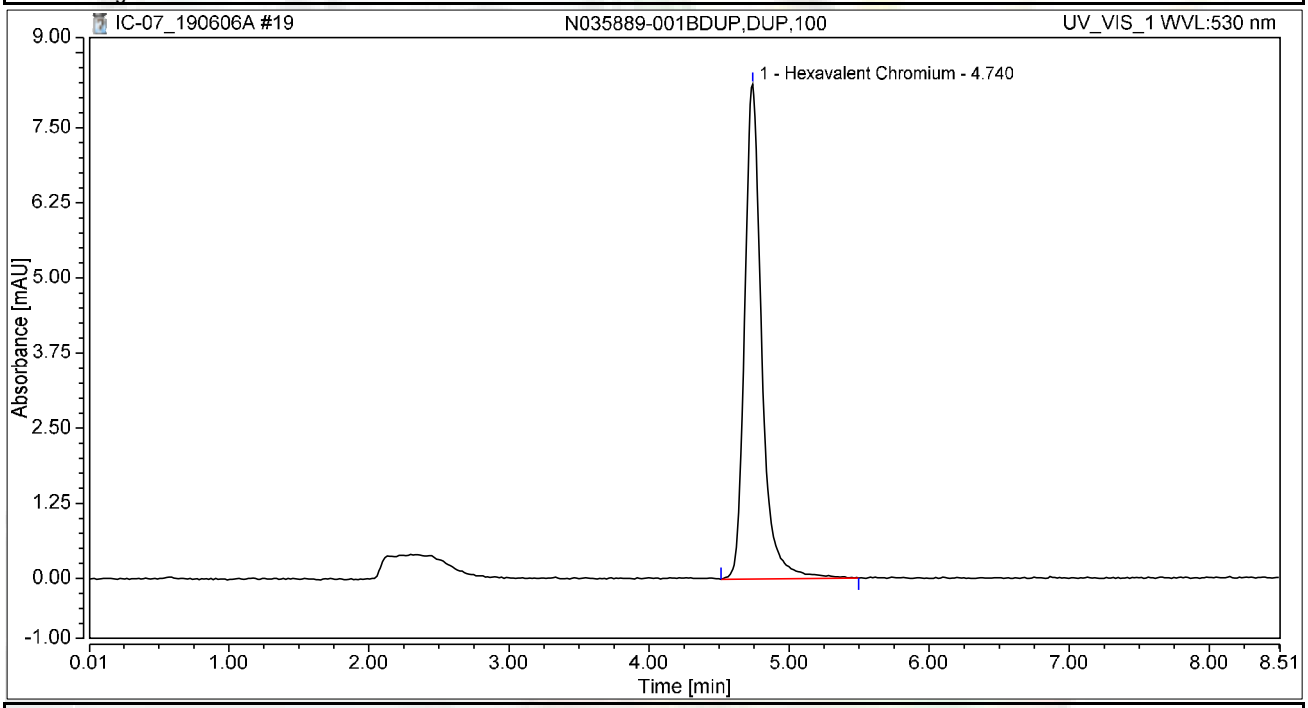
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.151	8.217	100.00	100.00	4.4812
Total:			**1.151**	**8.217**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035889-001BDUP,DUP,100**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 10:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

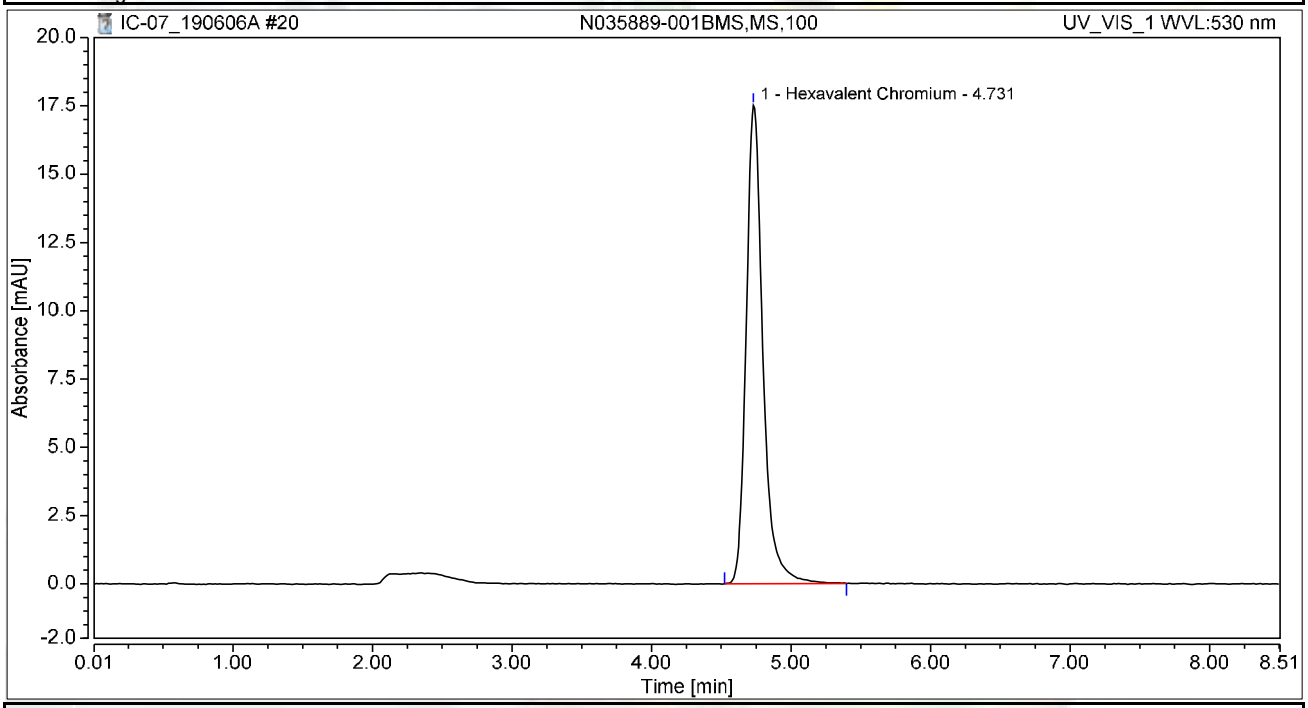
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.161	8.232	100.00	100.00	4.5223
Total:			**1.161**	**8.232**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035889-001BMS,MS,100**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 10:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

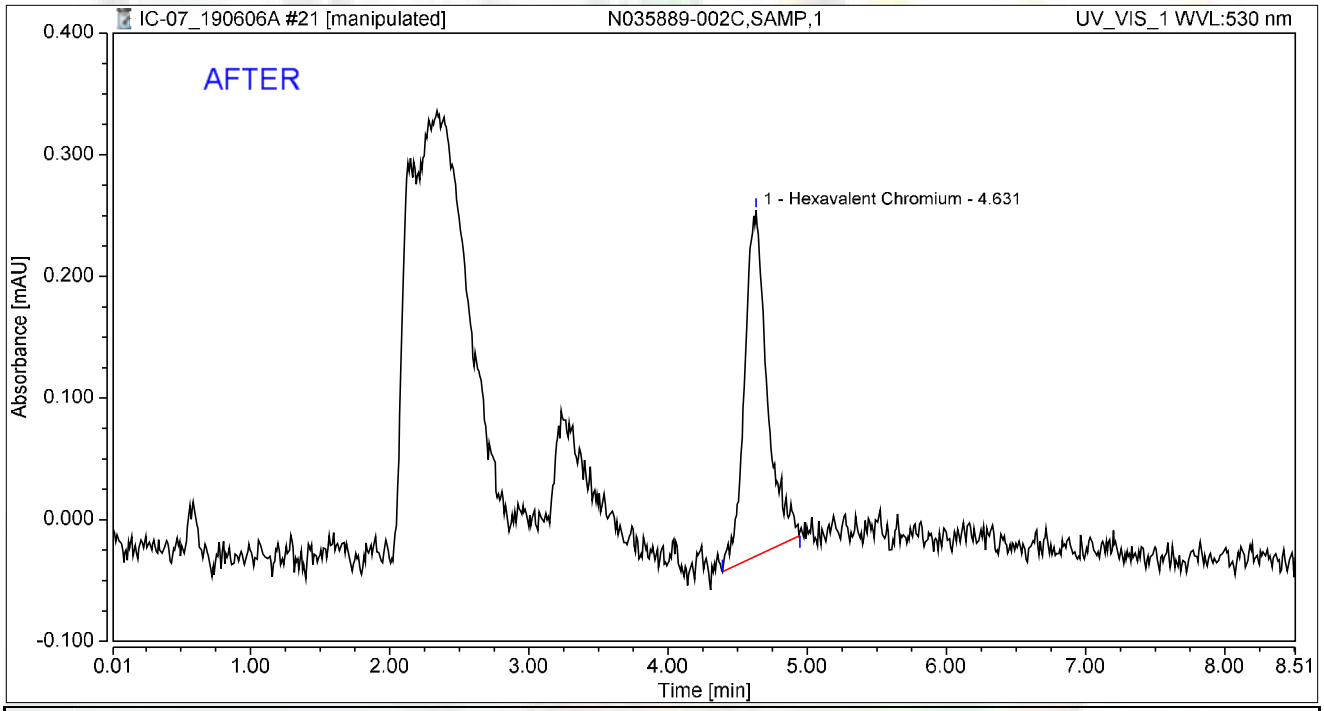
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.444	17.529	100.00	100.00	9.5181
Total:			**2.444**	**17.529**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035889-002C,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 10:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.631	0.053	0.284	100.00	100.00	0.2083
Total:			**0.053**	**0.284**	**100.00**	**100.00**	

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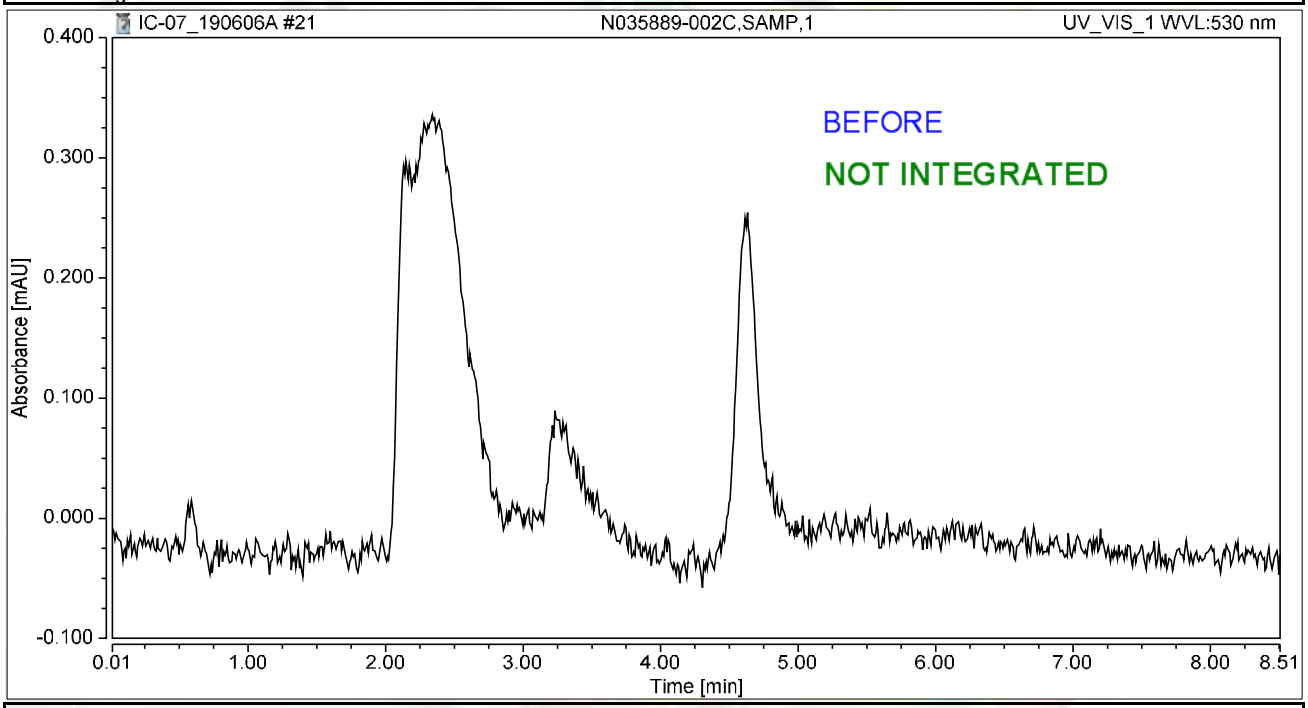
Chromatogram and Results

Injection Details

Injection Name:	**N035889-002C,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 10:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

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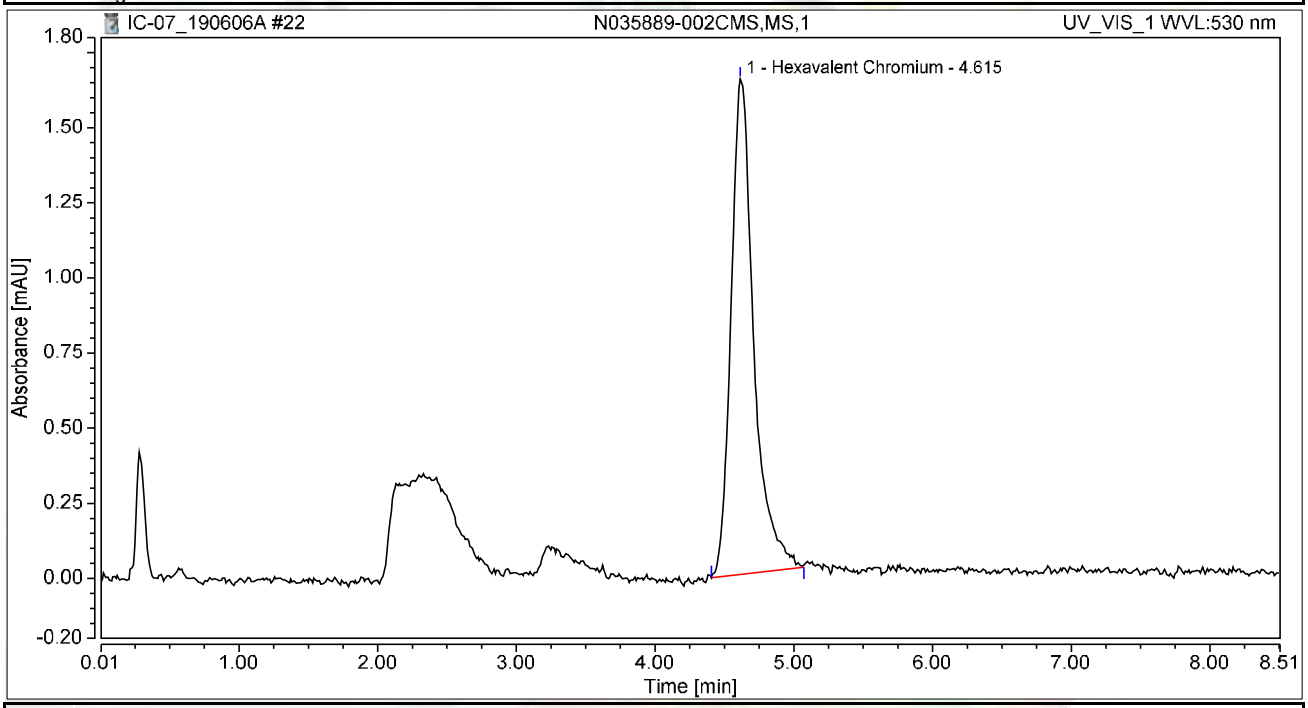
Chromatogram and Results

Injection Details

Injection Name:	**N035889-002CMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 11:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

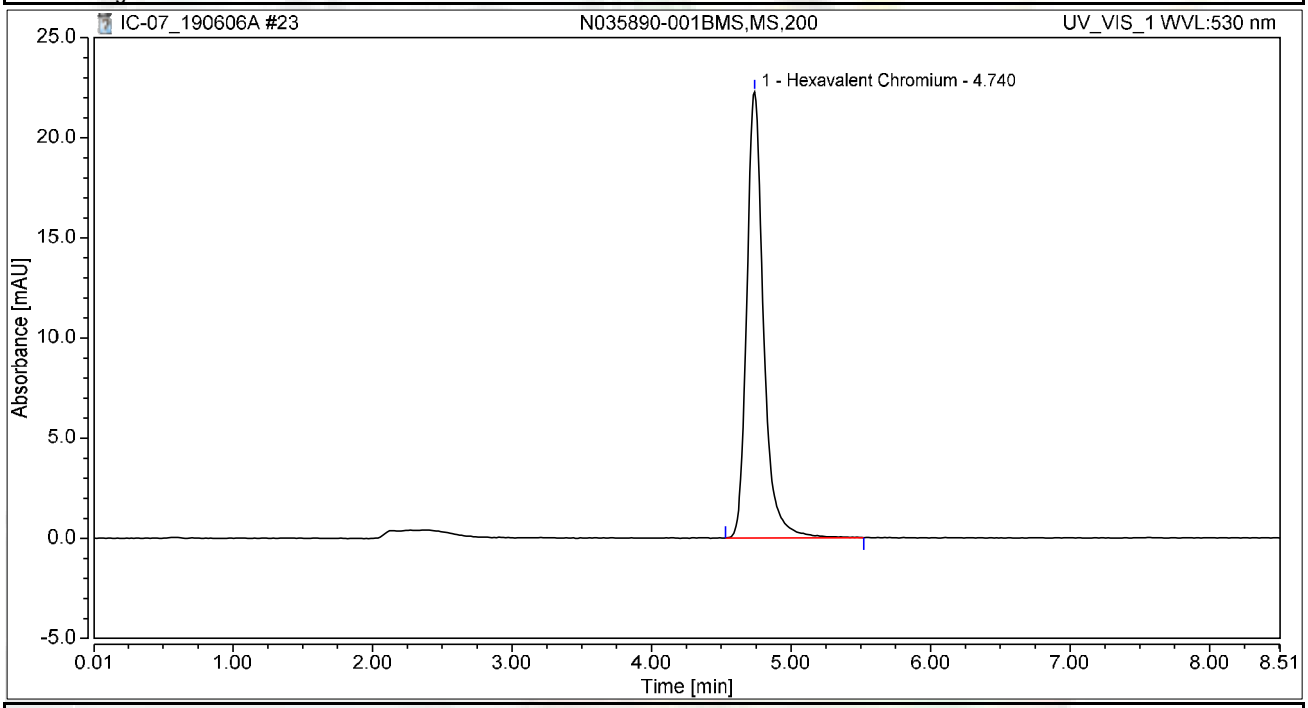
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.615	0.313	1.649	100.00	100.00	1.2193
Total:			**0.313**	**1.649**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035890-001BMS,MS,200**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 11:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

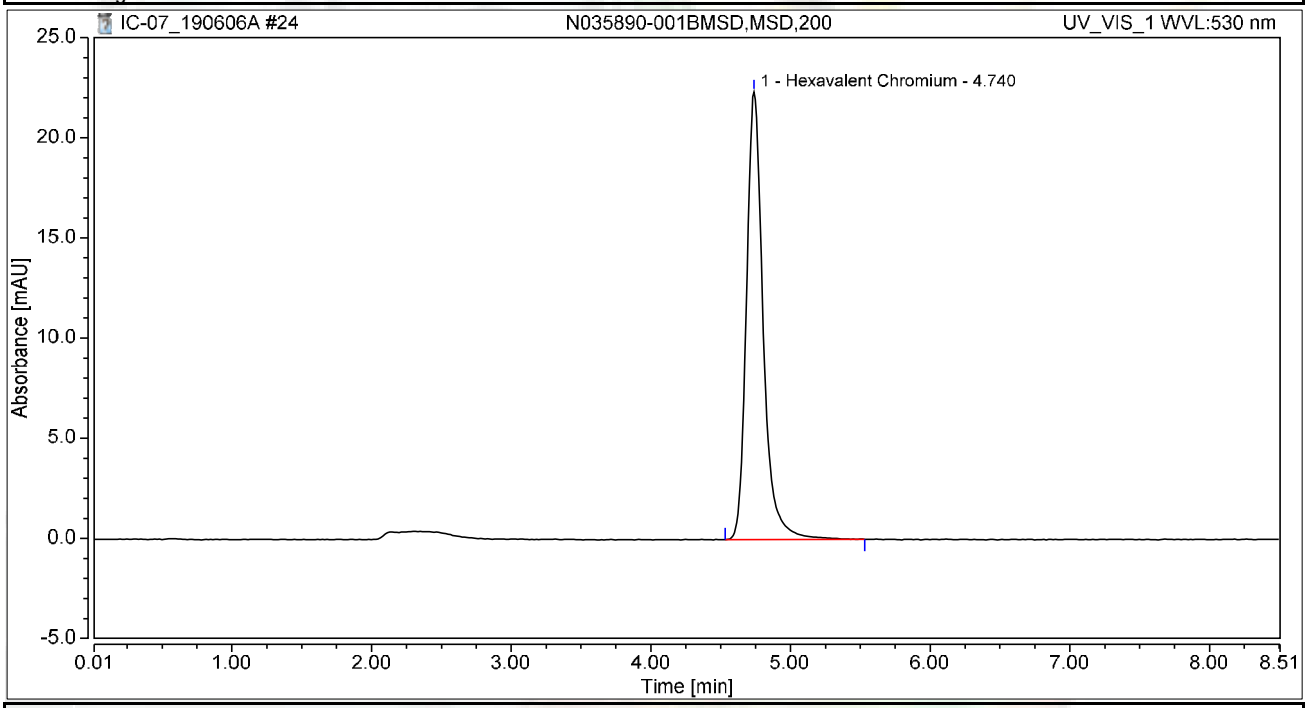
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.106	22.280	100.00	100.00	12.0932
Total:			**3.106**	**22.280**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035890-001BMSD,MSD,200**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 11:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

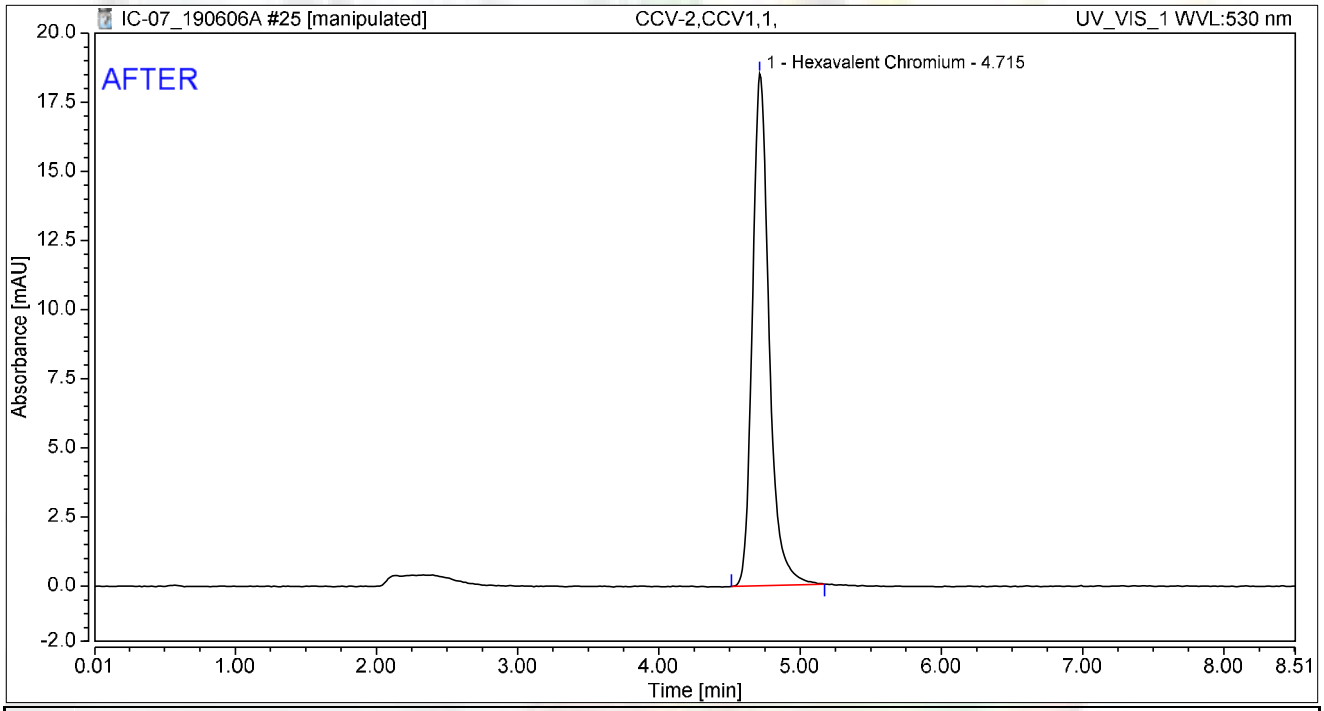
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.107	22.354	100.00	100.00	12.0995
Total:			**3.107**	**22.354**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.539	18.524	100.00	100.00	9.8878
Total:			**2.539**	**18.524**	**100.00**	**100.00**	

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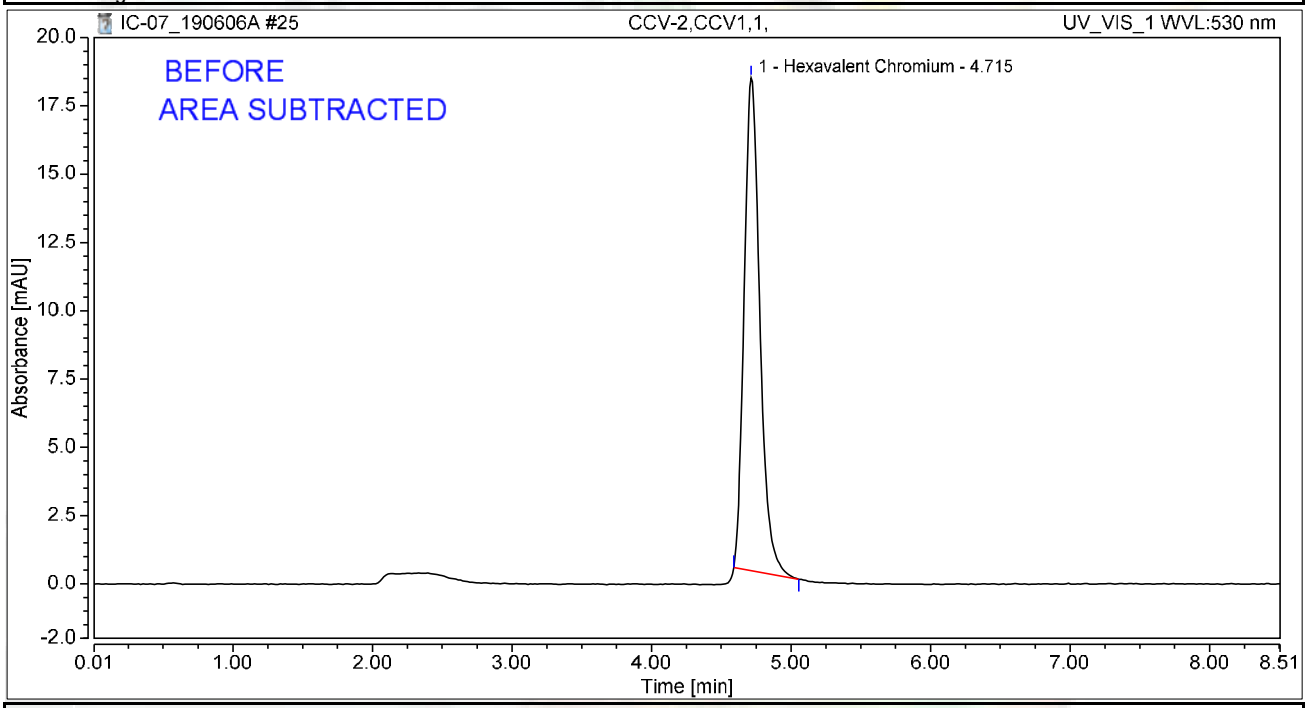
Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 11:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.356	18.052	100.00	100.00	9.1755
Total:			**2.356**	**18.052**	**100.00**	**100.00**	

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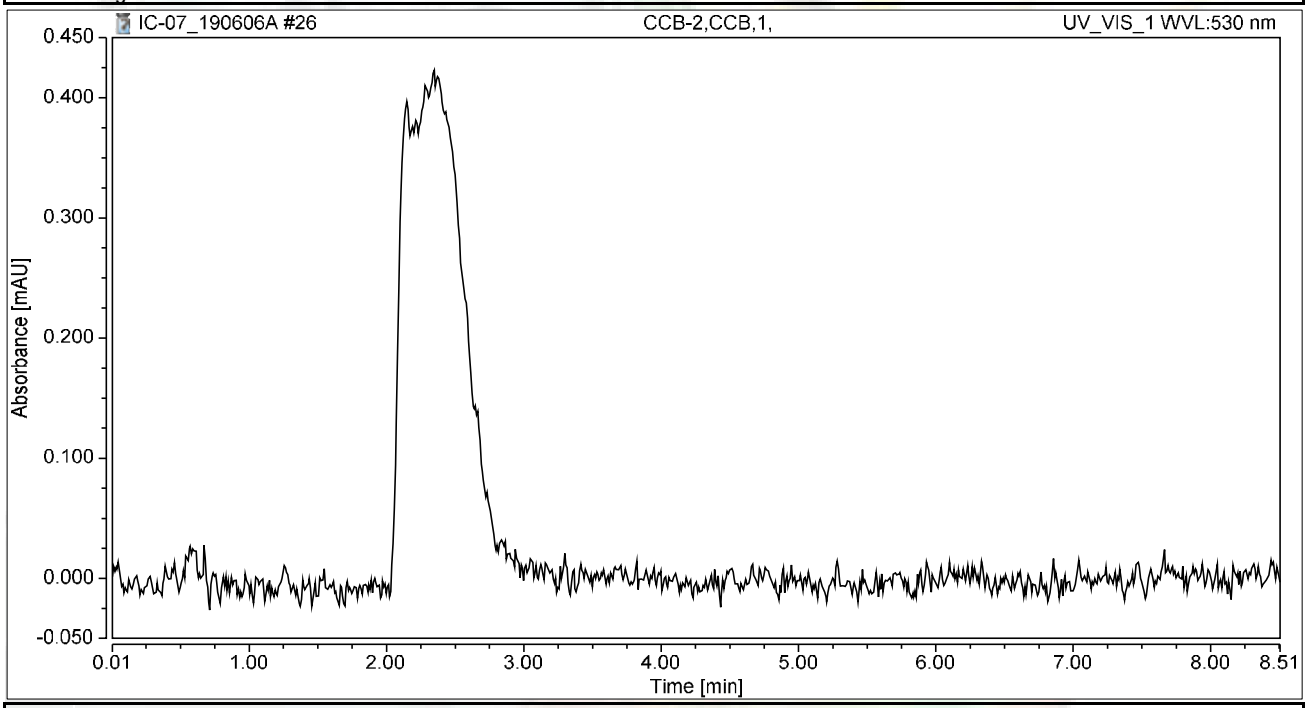
Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 11:43**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

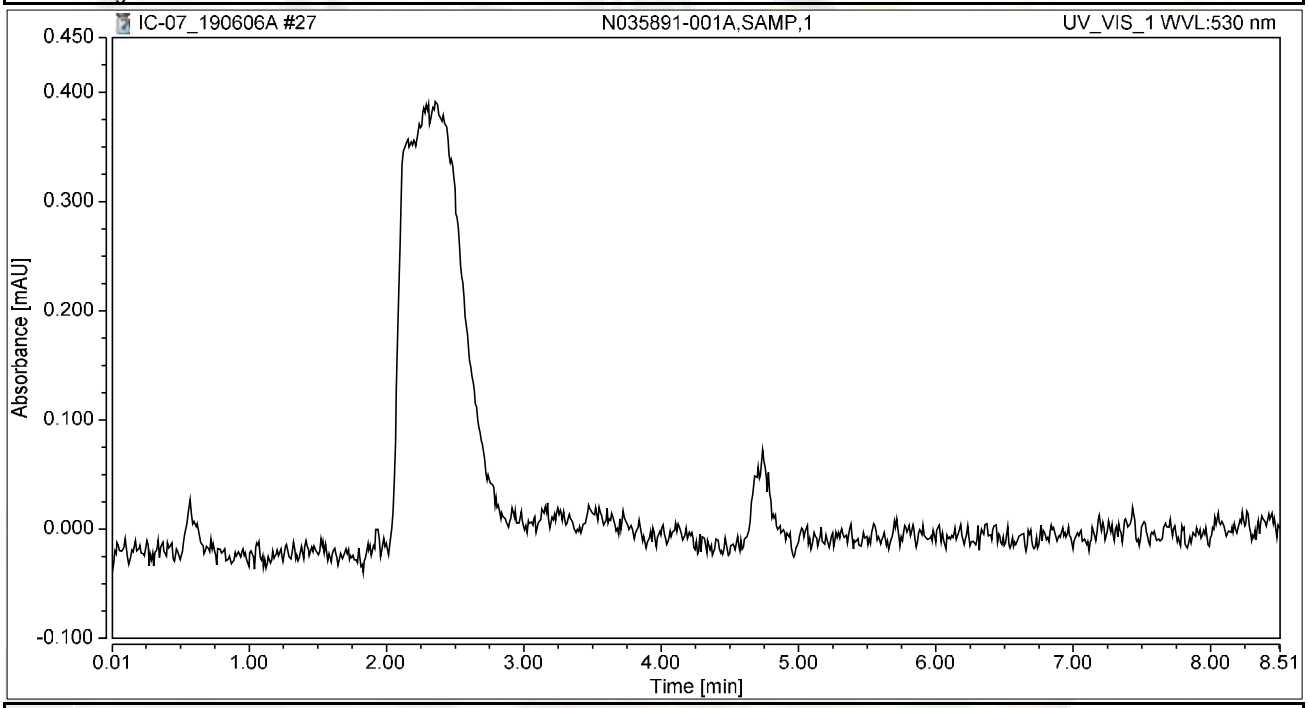
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035891-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 11:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

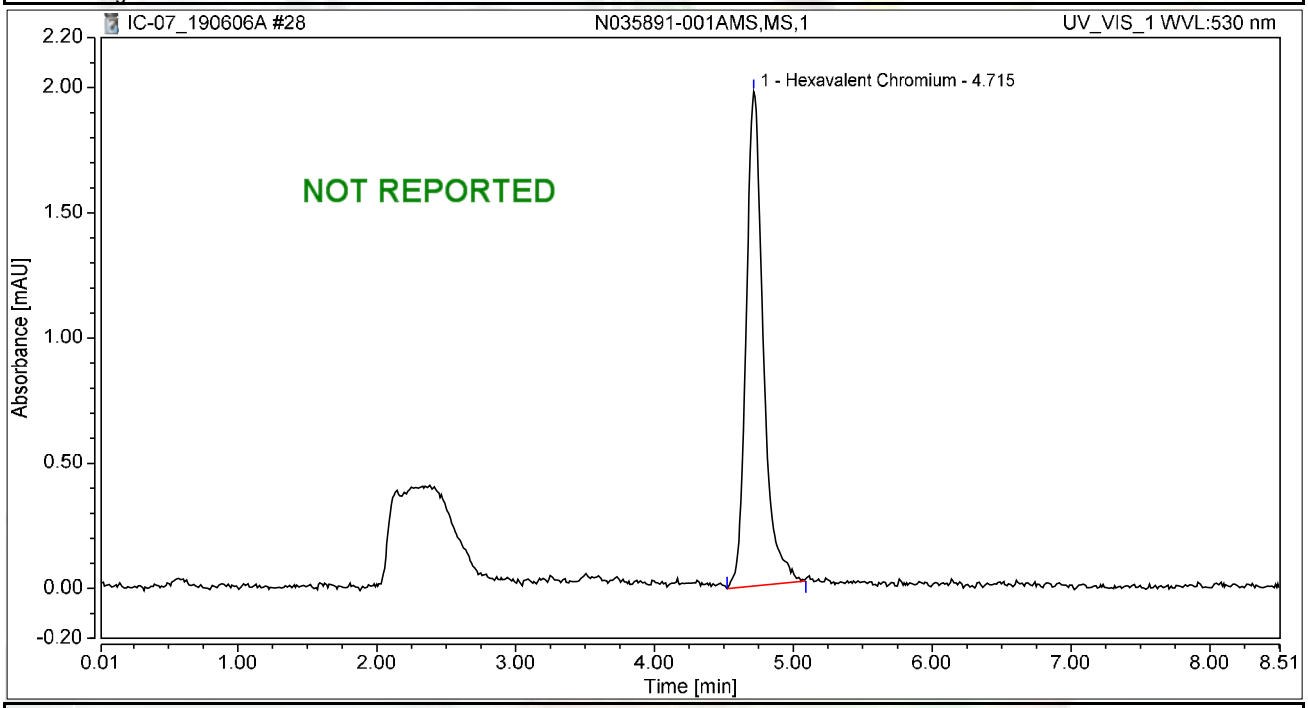
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035891-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 12:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

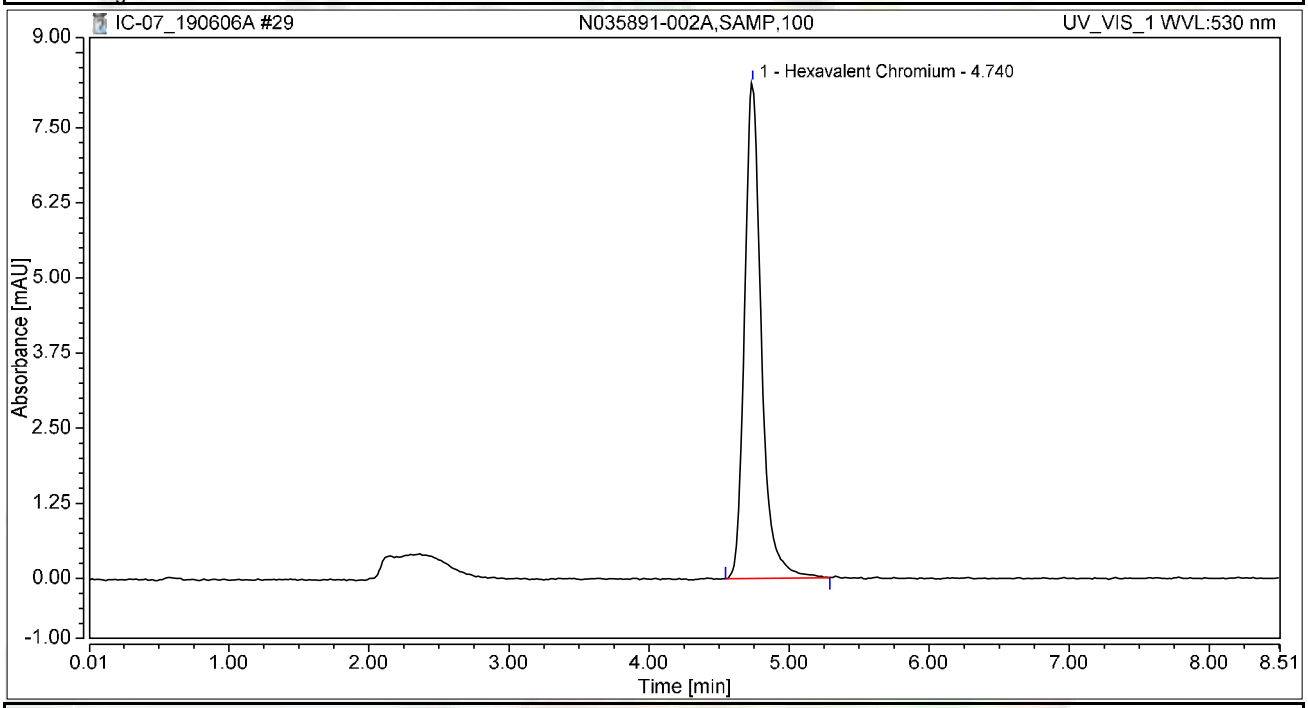
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.283	1.975	100.00	100.00	1.1031
Total:			**0.283**	**1.975**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035891-002A,SAMP,100**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 12:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

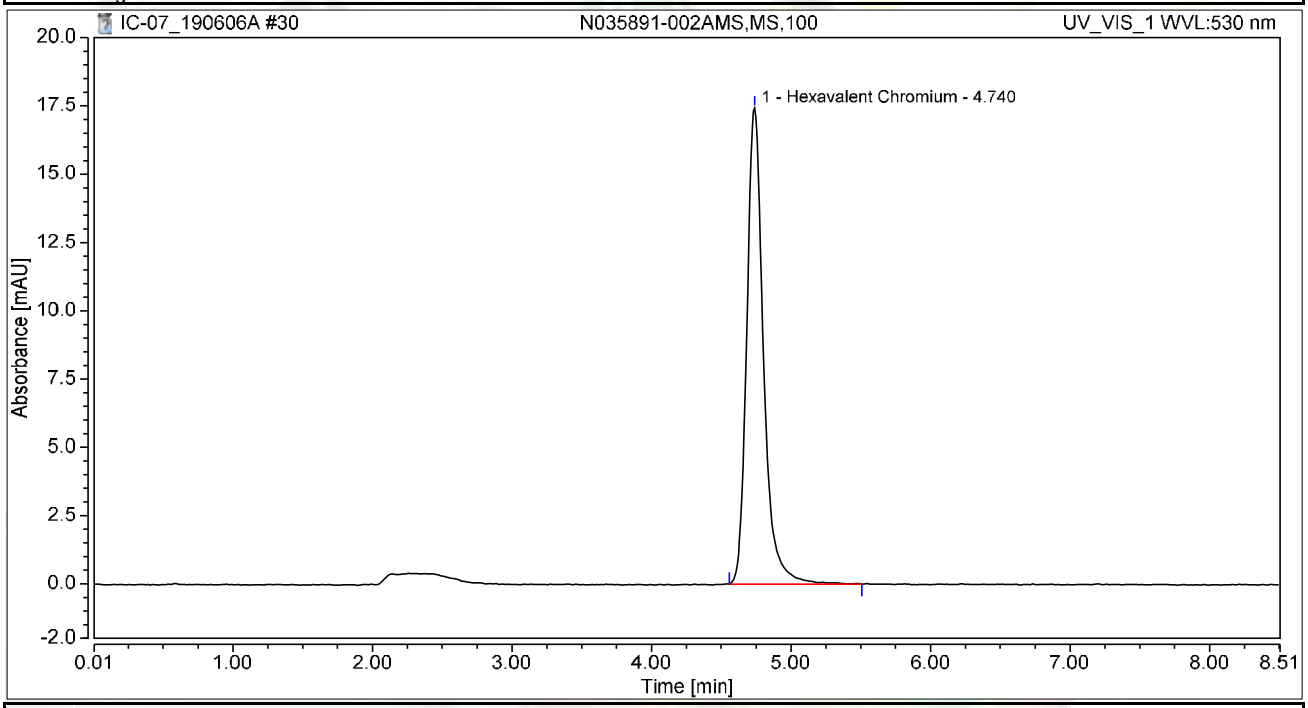
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.148	8.254	100.00	100.00	4.4701
Total:			**1.148**	**8.254**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035891-002AMS,MS,100**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 12:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

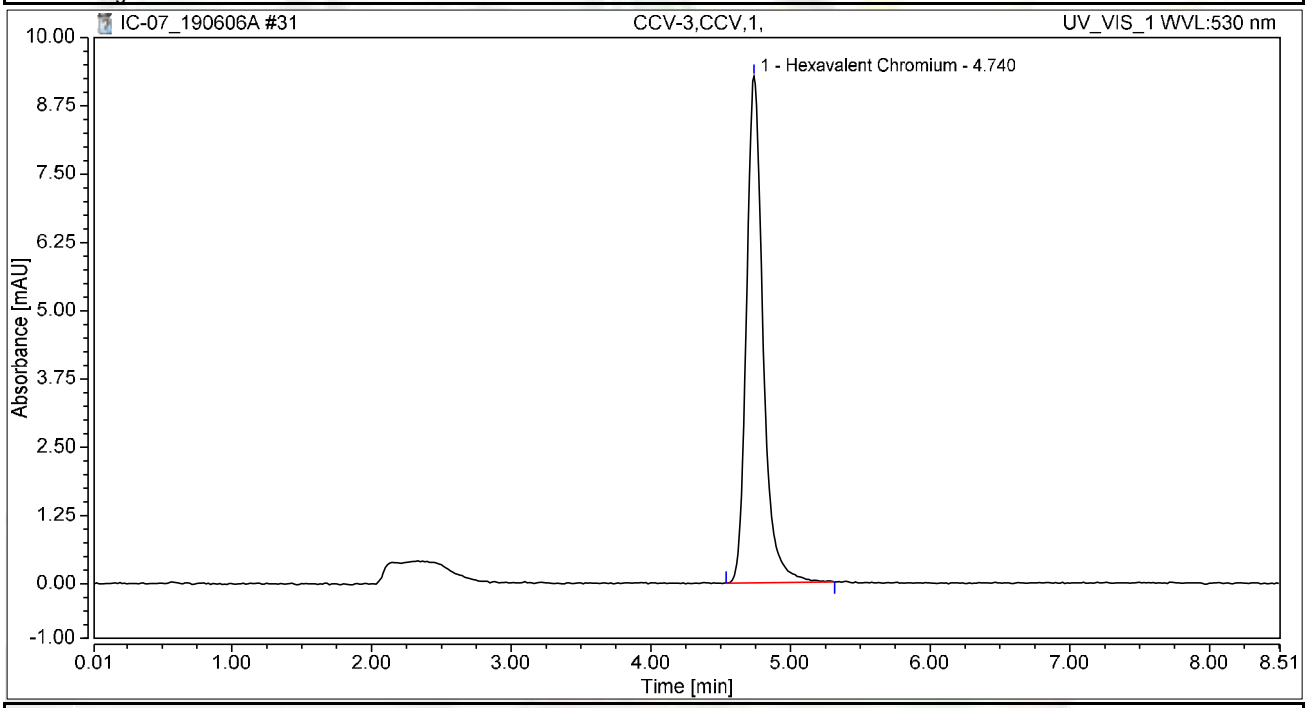
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.428	17.440	100.00	100.00	9.4528
Total:			**2.428**	**17.440**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 12:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

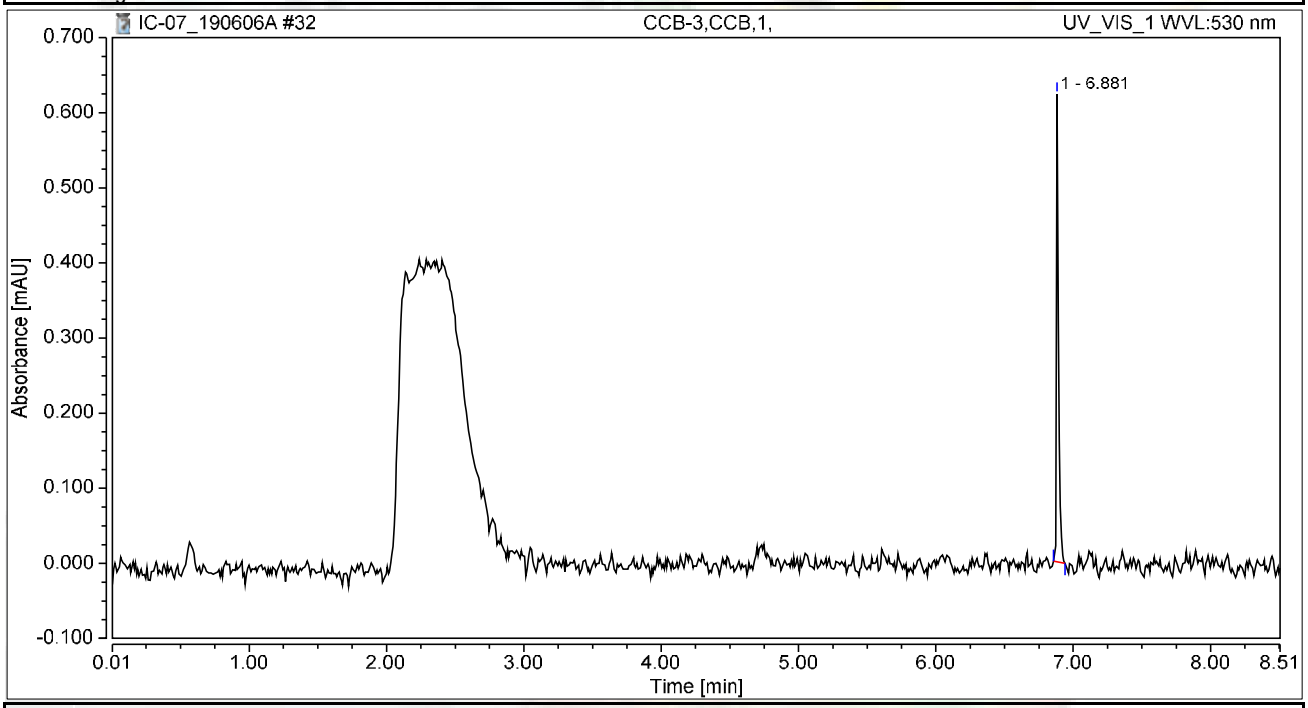
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.281	9.275	100.00	100.00	4.9895
Total:			**1.281**	**9.275**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 12:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

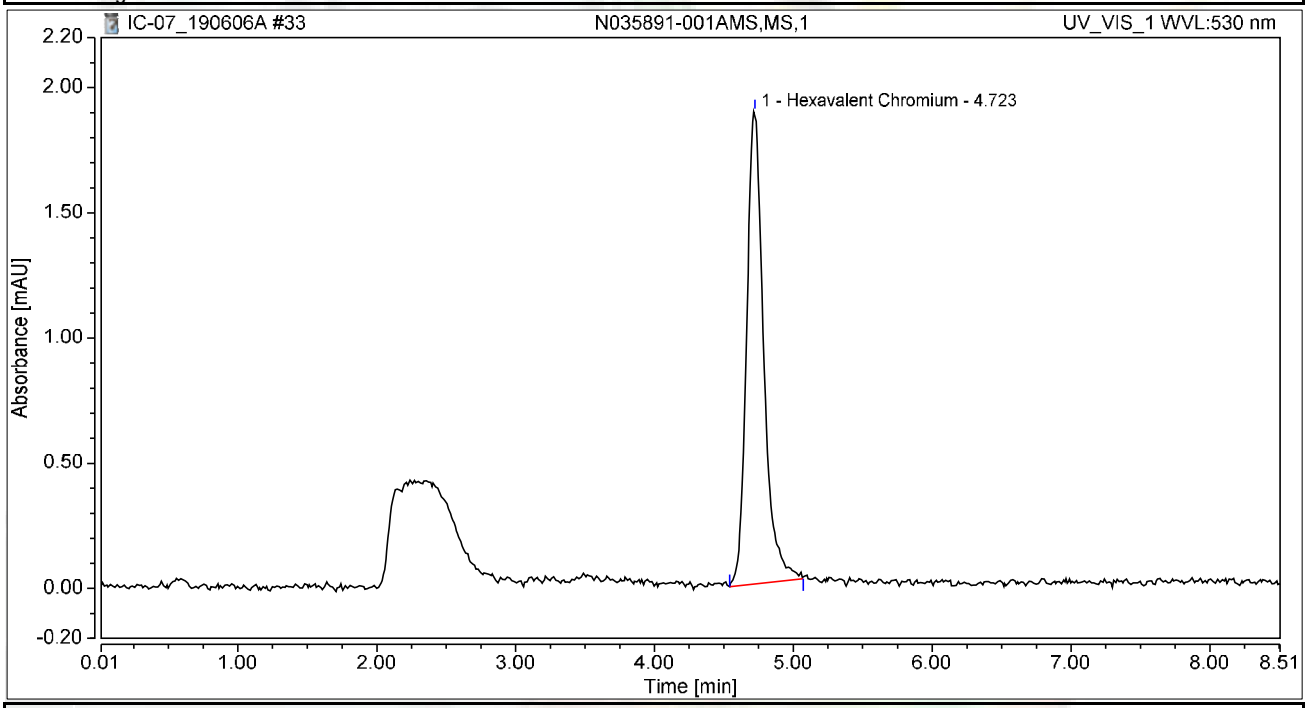
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
1		6.881	0.010	0.623	100.00	100.00	n.a.
Total:			**0.010**	**0.623**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035891-001AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 13:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

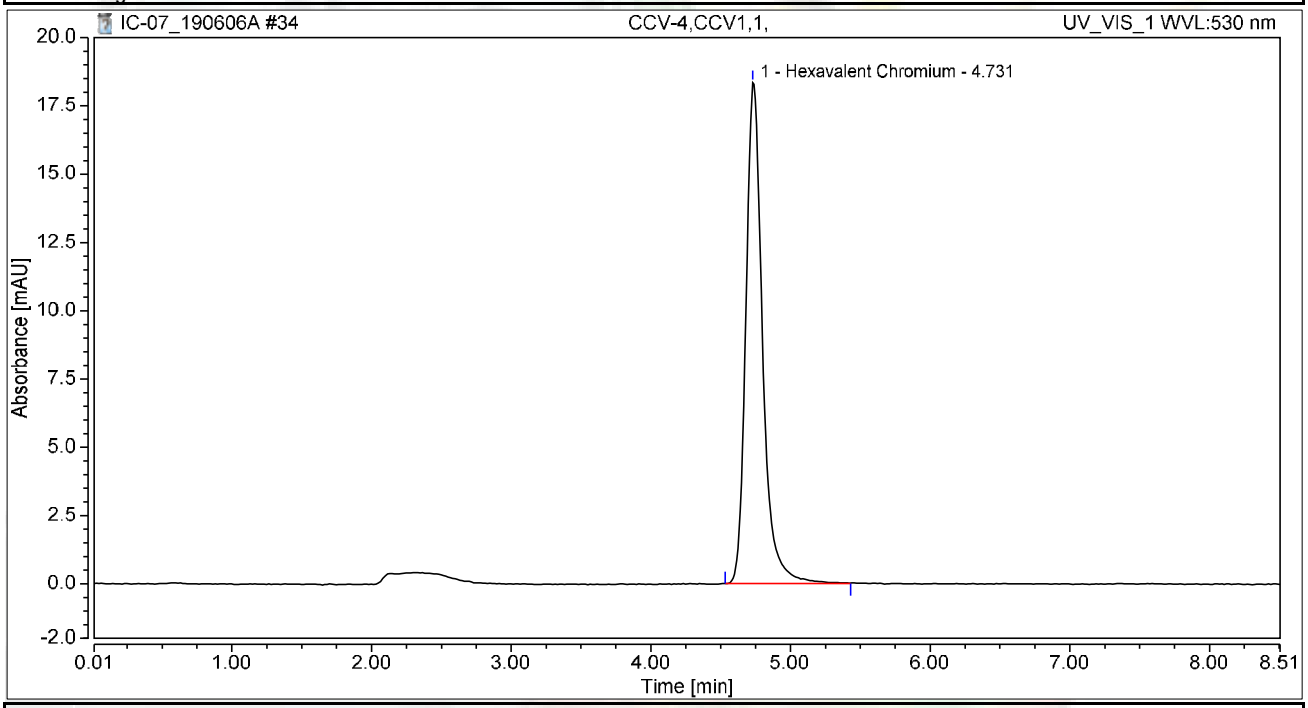
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.269	1.887	100.00	100.00	1.0490
Total:			**0.269**	**1.887**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 14:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

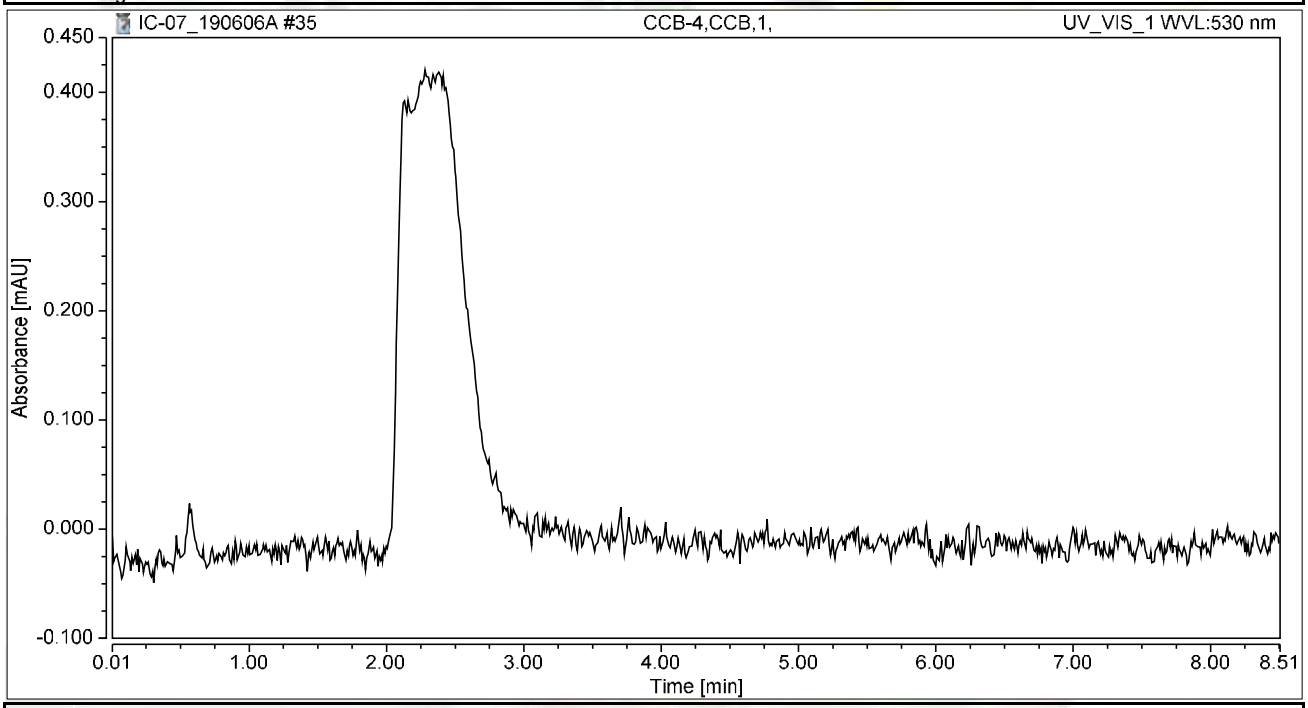
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	2.544	18.344	100.00	100.00	9.9065
Total:			**2.544**	**18.344**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 14:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

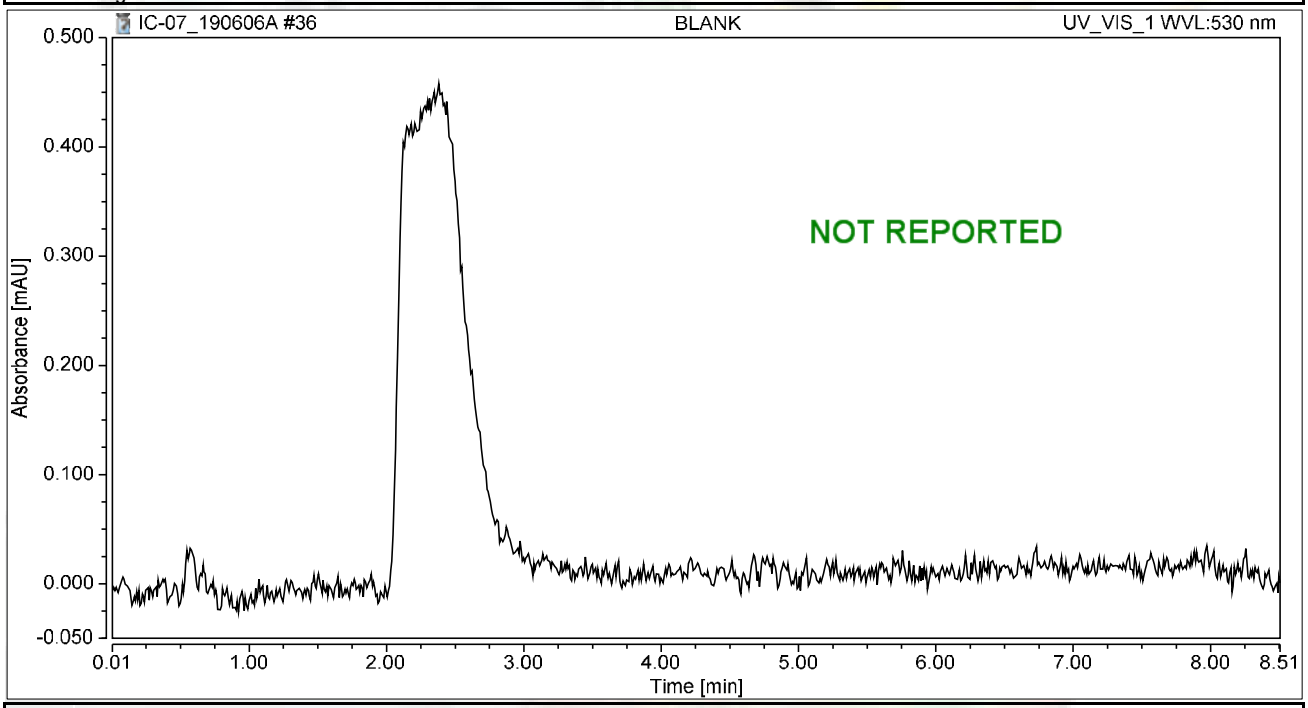
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 14:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

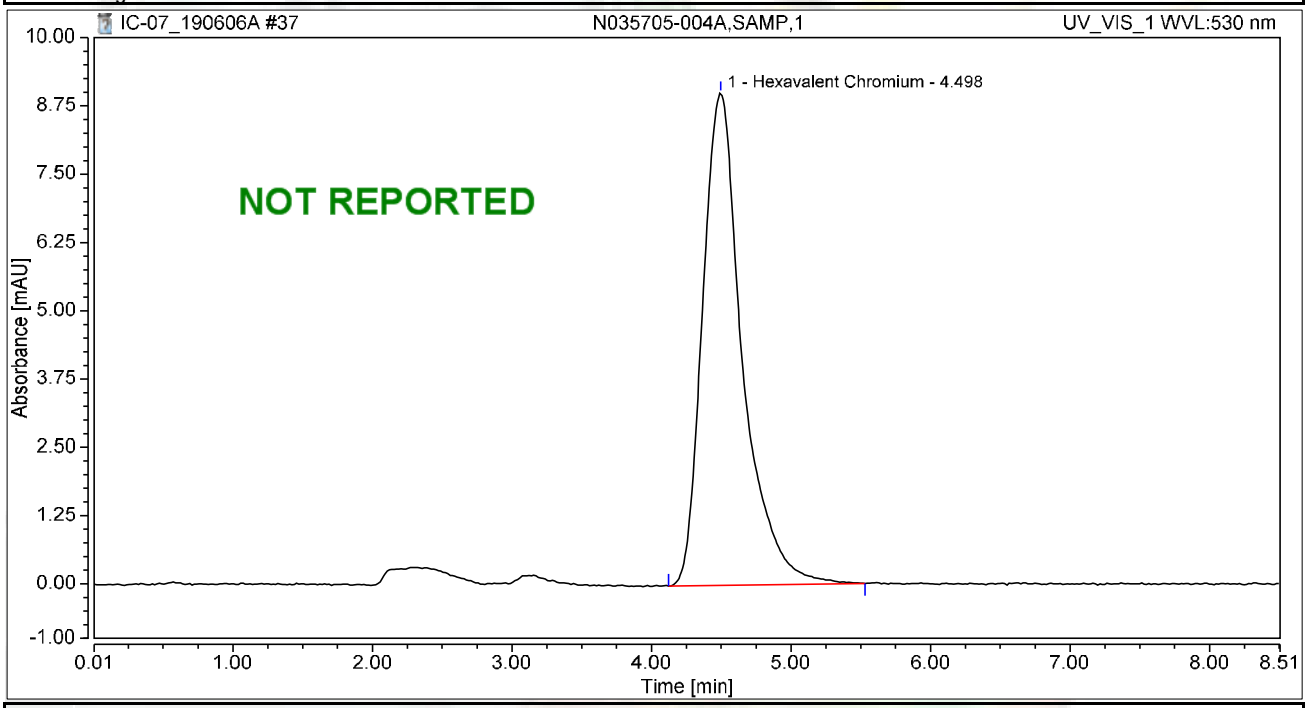
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-004A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 15:02**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

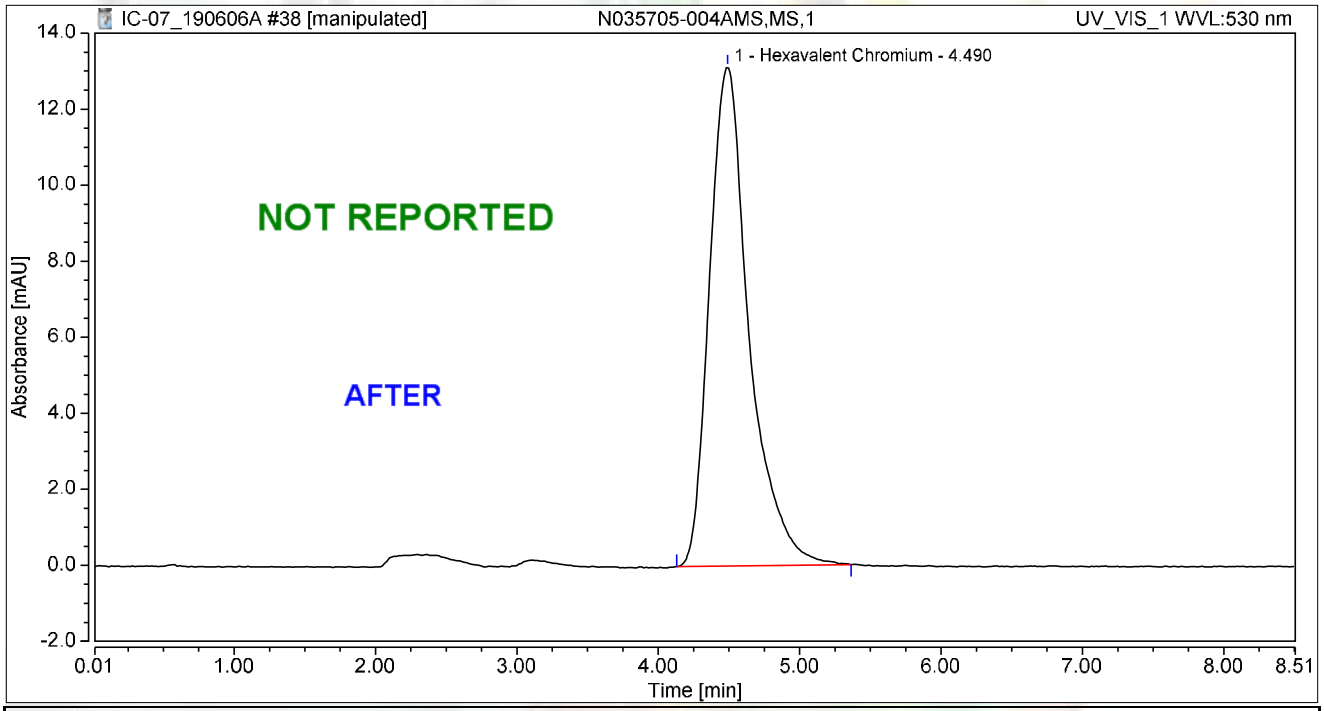
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.498	2.983	9.013	100.00	100.00	11.6168
Total:			**2.983**	**9.013**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035705-004AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 15:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.490	4.266	13.127	100.00	100.00	16.6095
Total:			**4.266**	**13.127**	**100.00**	**100.00**	

rba 6/7/2019

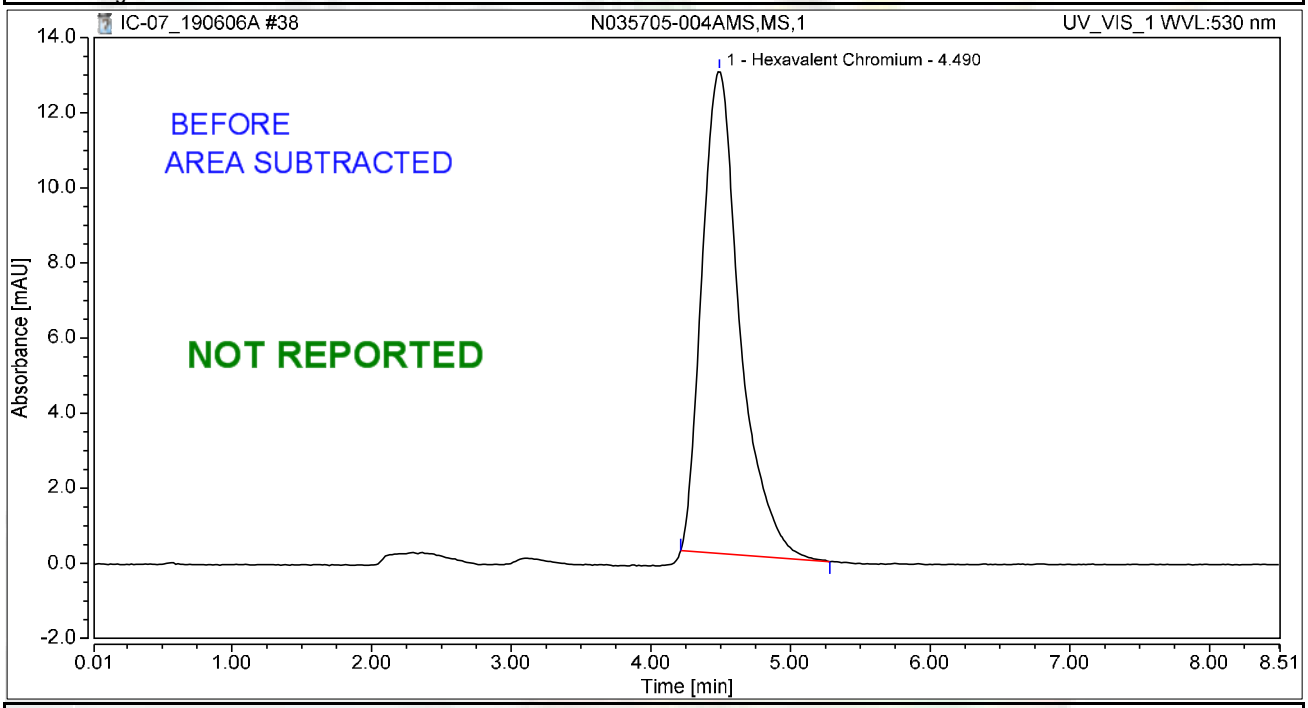
6/10/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035705-004AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 15:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.490	4.046	12.847	100.00	100.00	15.7536
Total:			**4.046**	**12.847**	**100.00**	**100.00**	

rba 6/7/2019

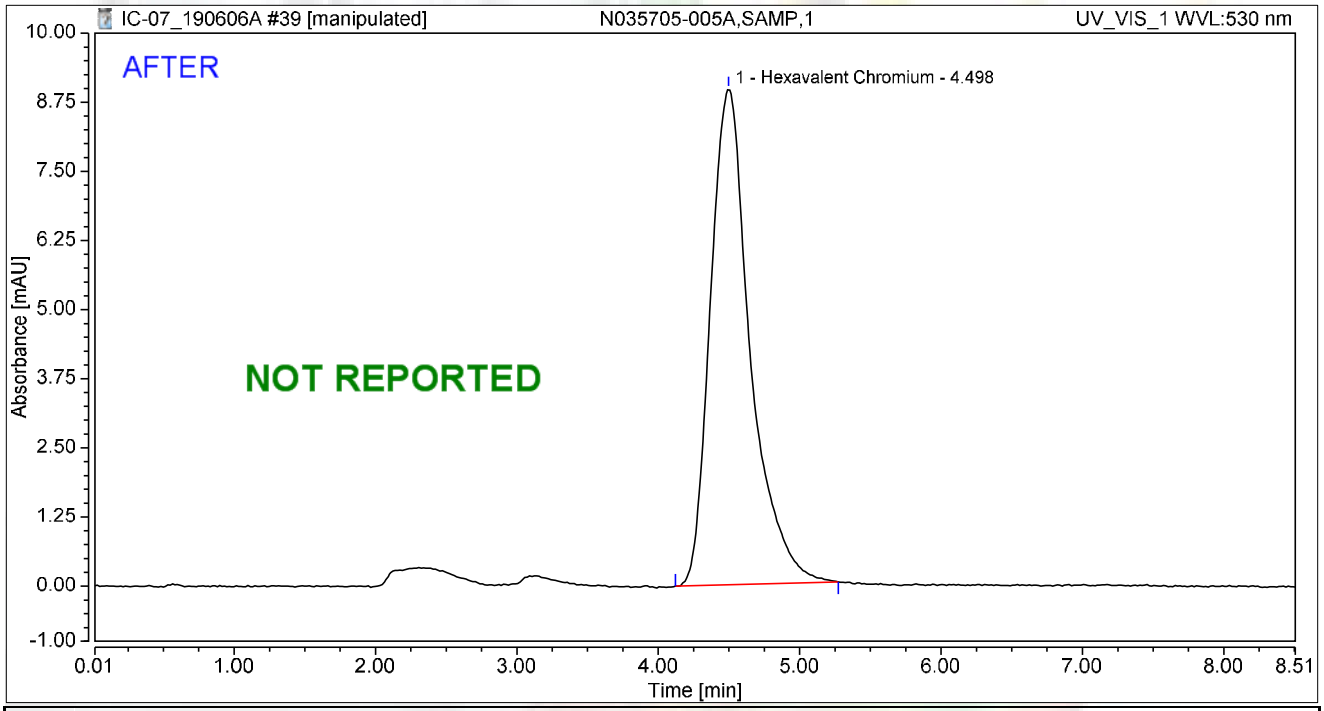
6/10/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035705-005A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 15:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.498	2.924	8.964	100.00	100.00	11.3844
Total:			**2.924**	**8.964**	**100.00**	**100.00**	

rba 6/7/2019

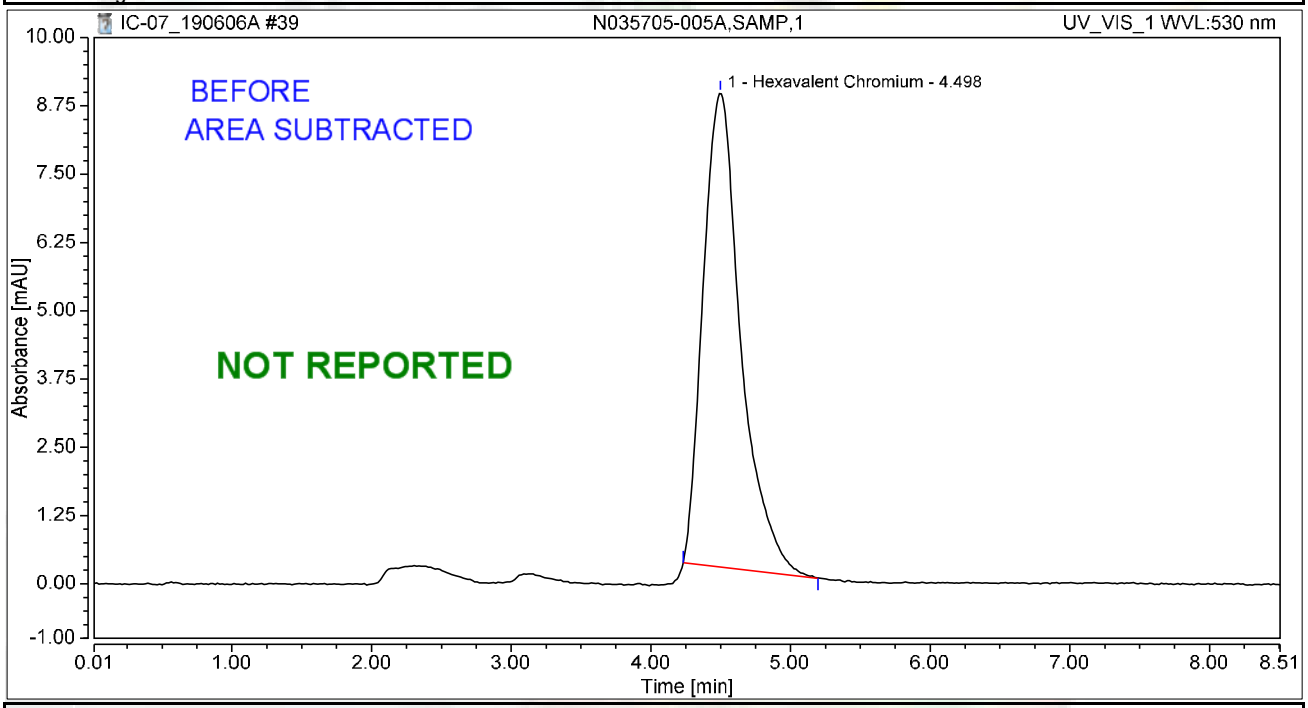
6/10/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035705-005A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 15:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.498	2.711	8.679	100.00	100.00	10.5568
Total:			**2.711**	**8.679**	**100.00**	**100.00**	

rba 6/7/2019

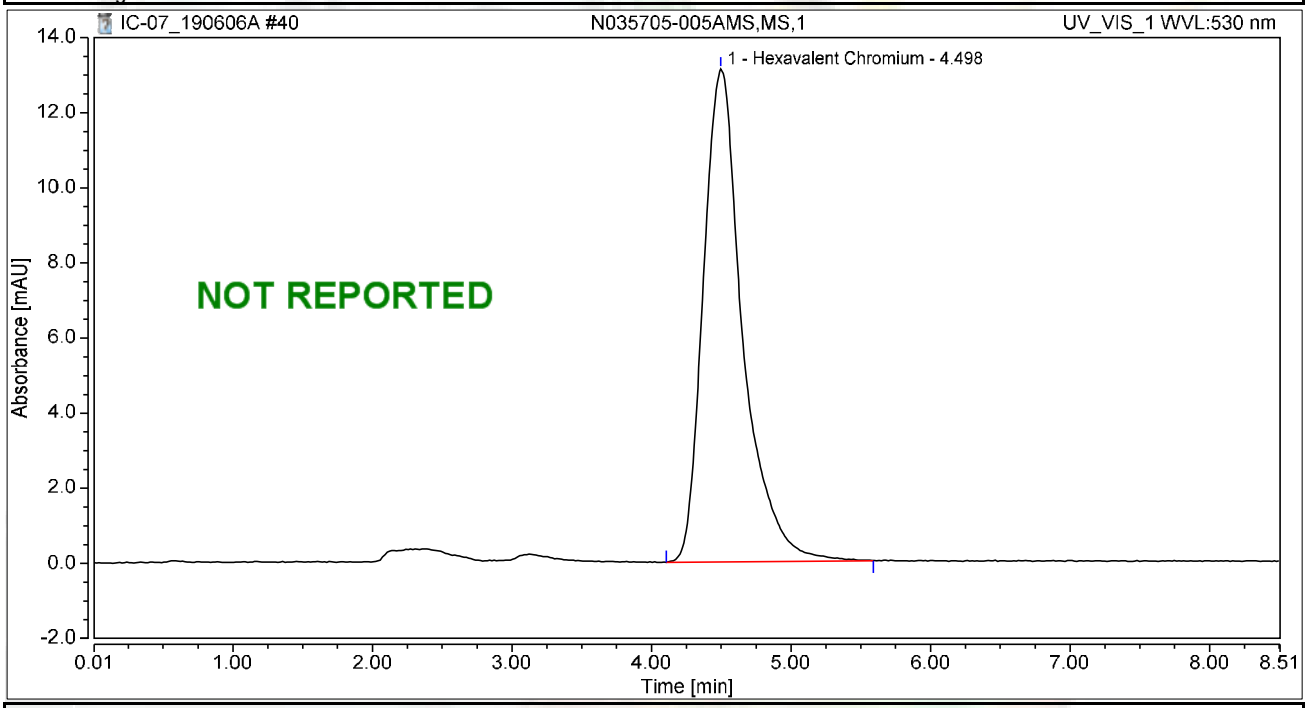
6/10/2019

Chromatogram and Results

Injection Details

Injection Name:	**N035705-005AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 15:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

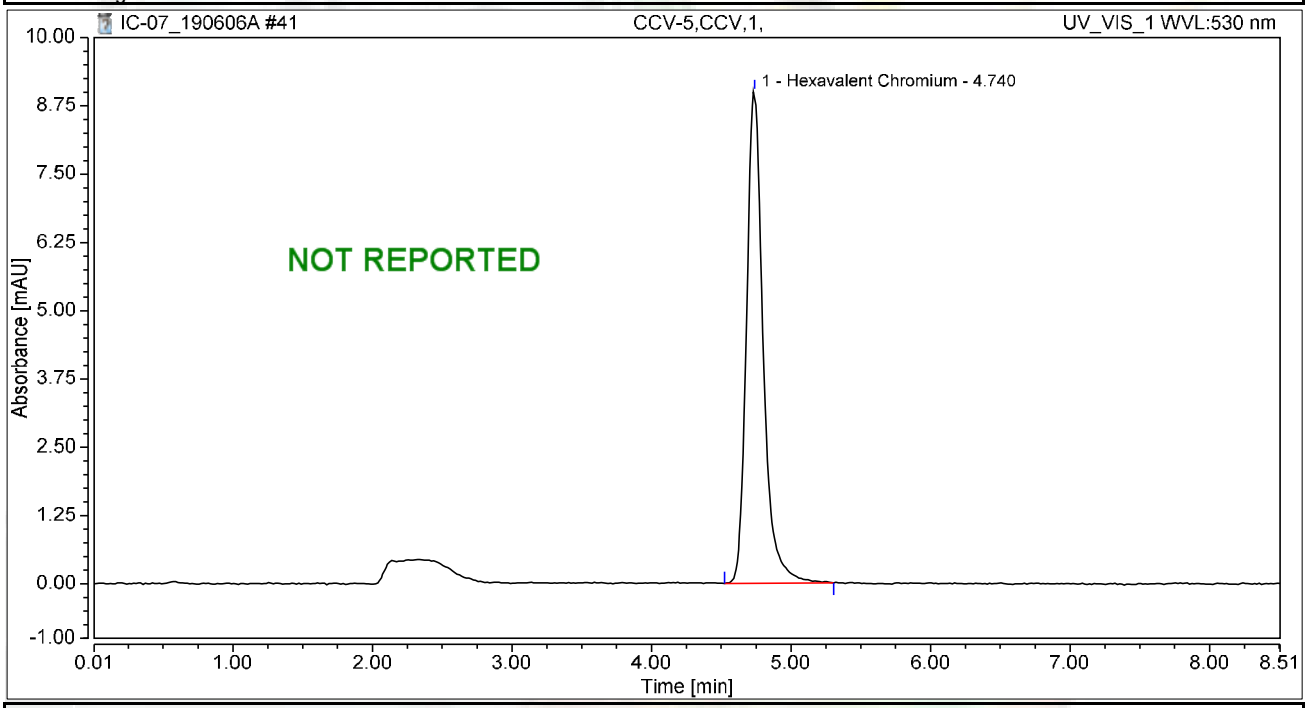
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.498	4.304	13.125	100.00	100.00	16.7576
Total:			**4.304**	**13.125**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 15:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

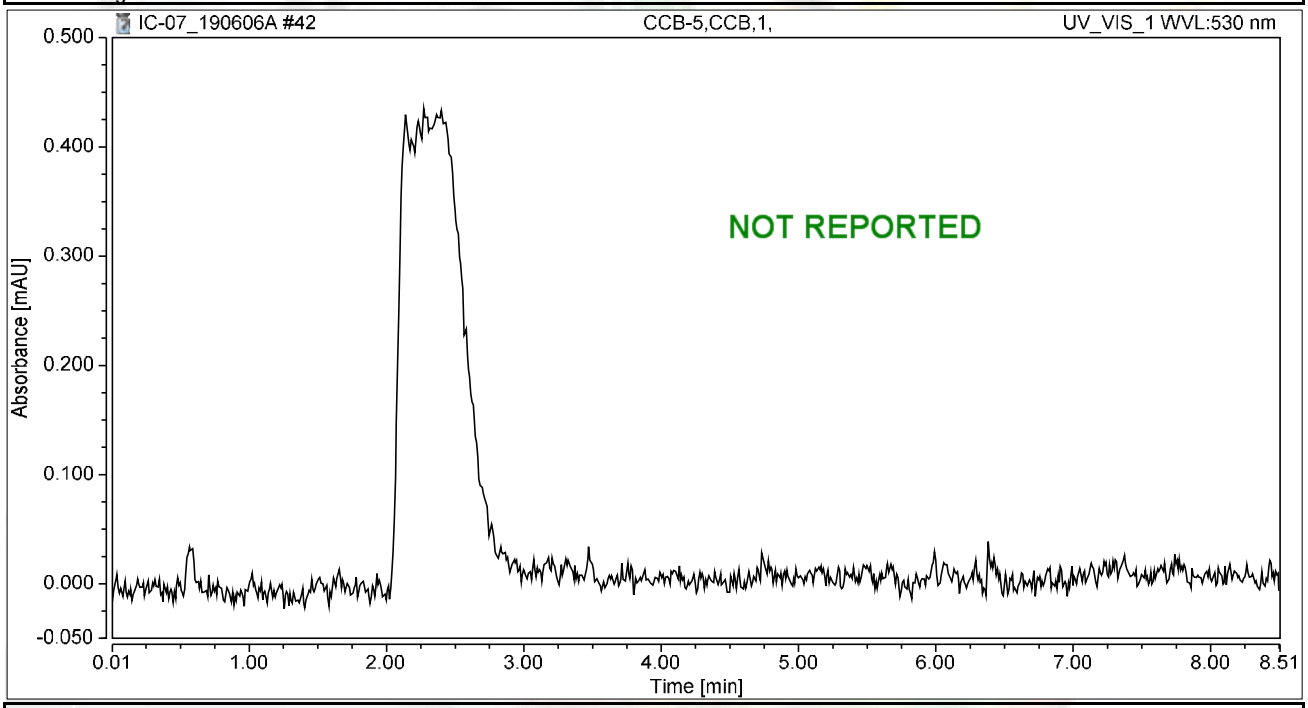
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.251	8.999	100.00	100.00	4.8699
Total:			**1.251**	**8.999**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**06/Jun/19 15:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 2320 B

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134358 **Analyst:** LSR

ASSET #: N035891 **Date Analyzed:** 6-Jun

Method: EPA 2320

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 6/10/2019

2nd Level Reviewer: Nancy 7/5/2019 Date: —

SAMPLE CALCULATION

Sample ID: **N035891-001C @ pH 7.71**

A. Standardization of Sulfuric Acid (titrant):

Normality of acid = (A) (B)/ (53.00) (C)

Where:

A, grams weighed for Na_2CO_3 solution (Na_2CO_3 Standardization Solution)
B, mL Na2CO3 solution taken for titration, and
C, ml of sulfuric acid used to inflection point

Spike Standards

Na_2CO_3 Standardization Solution, ACS Grade (1.00 ml = 2500ug as $CaCO_3$): Dissolve 2.650 grams of Na_2CO_3 in distilled water and dilute to 1 liter.

LCS/MS/MSD Stock $NaHCO_3$, ACS Grade (1.00 ml = 5000 ug as $CaCO_3$): Dissolve 0.8398 grams of $NaHCO_3$ in distilled water and dilute to 1 liter.

Therefore,

Normality of Acid = (2.65 g/L) (5mL) / (53.00) (11.60 mL)

= **0.02155 N**

B. CALCULATION OF ALKALINITY (for a 50 ml sample)

Total Alkalinity (as $CaCO_3$), mg/L = $M_{vol.}$ * N H_2SO_4 * DF * 1000

Where:

$M_{vol.}$ volume titrant used to reach pH 4.5, ml
N, Normality of H_2SO_4
DF, Dilution Factor = (50 ml) / (Vol. of Sample used)

Therefore,

Total Alkalinity (as $CaCO_3$), mg/L = (9.10) (0.02155 N) (1) * 1000

= 196.1050 mg**/L**

Reporting results in two significant figures,

= 200 as CaCO3

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C. SPECIATED ALKALINITY:

Phenolphthalein Alkalinity

P alkalinity, mg/L as $CaCO_3$ = $P_{vol.}$ * N H_2SO_4 * DF * 1000

= (0.00) (0.02155 N) (1) * 1000

= **0**

Total Alkalinity

T alkalinity, mg/L as $CaCO_3$ = $M_{vol.}$ * N H_2SO_4 * DF * 1000

= (9.10 mL) (0.02155) (1) * 1000

= 196.1050 **mg/L** as CaCO3

Where:

$P_{vol.}$ - Volume titrant used to reach pH 8.3, ml
$M_{vol.}$ - Volume titrant used to reach pH 4.5, ml
N - Normality of H_2SO_4
DF - Dilution Factor = (50 ml) / (Vol. of Sample used)

Then OH, CO_3, HCO_3 alkalinities as $CaCO_3$ will be calculated as follows:

Result of Titration	**OH Alkalinity as $CaCO_3$**	**CO_3 Alkalinity as $CaCO_3$**	**HCO_3 Alkalinity as $CaCO_3$**
P = 0	0	0	T
P < ½ T	0	2P	T – 2P
P = ½ T	0	2P	0
P > ½ T	2P – T	2(T – P)	0
P = T	T	0	0

Therefore,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = 196.1050 **mg/L**

Reporting results in two significant figures,

OH Alkalinity as $CaCO_3$ = **0**

CO_3 Alkalinity as $CaCO_3$ = **0**

HCO_3 Alkalinity as $CaCO_3$ = **200 mg/L**

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LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SAMPLE	PH SAMPLE	AMOUNT	V@8.3	VT TO 4.5	Sample Type
MB-1	5.49	50	0.00	0.050	MBLK
LCS-1	8.56	50	0.05	4.55	LCS
N035891-001C	7.71	50	0.00	9.10	SAMP
N035891-002C	7.63	50	0.00	7.50	SAMP
N035891-002CDUP	7.62	50	0.00	7.50	DUP
N035891-002CMS	7.90	50	0.00	11.90	MS
N035891-002CMSD	7.95	50	0.00	11.90	MSD

Standardization:		
Spike amt:	**5**	ml
Titrant used:	**11.600**	ml
N H2SO4	**0.02155**	Normal
Date Analyzed:	**6/6/19**	
Time:	**1:30 PM**	
Analyzed By:	**LSR**	
Sodium Carbonate:	**CINV-161205A**	
Sodium Bicarbonate:	**CINV-180510A**	
Sulfuric Acid:	**R190524A**	

Silvia Ramit 6/10/2019

Date Analyzed:	6/6/19		Reagents:					Standardization:					P = 0
Time Started:	1:30 PM			Sodium Carbonate:		CINV-161205A			Spike amt:	5	mL		P < 1/2 T
Analyzed By:	LSR			Hydrochloric Acid:		0			Titrant used:	11.6	mL		P = 1/2 T
				Sulfuric Acid:		R190524A							P > 1/2 T
									N H2SO4	0.02155	N		P = T

Sample ID	Sample Vol/Wt.	Sample pH	Std. Code	Spike Amount	Spike Conc.	Normality, Titrant	Vol. Used to pH 8.3, ml.	Vol. Used pH 8.3 to 4.5, ml.	Total Vol. Used, ml.	DF (50ml/Vsamp.)	P Alkalinity	T Alkalinity	Comments
MB-1	50	5.49				0.02155	0.00	0.05	0.05	1	0.00	1.08	
LCS-1	50	8.56				0.02155	0.05	4.50	4.55	1	1.08	98.06	
N035891-001C	50	7.71				0.02155	0.00	9.10	9.10	1	0.00	196.12	
N035891-002C	50	7.63				0.02155	0.00	7.50	7.50	1	0.00	161.64	
N035891-002CDU	50	7.62				0.02155	0.00	7.50	7.50	1	0.00	161.64	
N035891-002CMS	50	7.9				0.02155	0.00	11.90	11.90	1	0.00	256.47	
N035891-002CMS	50	7.95				0.02155	0.00	11.90	11.90	1	0.00	256.47	

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Speciated, Alkalinity as CaCO3

SM 2320B

Date Analyzed:	6/6/19
Time:	1:30 PM
Analyzed By:	LSR

SAMPLE ID	OH	CO3	HCO3	TOTAL	CHECK	COMMENT	REMARKS
MB-1	0.00	0.00	1.08	1.08	1.08		P = 0
LCS-1	0.00	2.16	95.91	98.06	98.06		P < 1/2 T
N035891-001C	0.00	0.00	196.12	196.12	196.12		P = 0
N035891-002C	0.00	0.00	161.64	161.64	161.64		P = 0
N035891-002CDUP	0.00	0.00	161.64	161.64	161.64		P = 0
N035891-002CMS	0.00	0.00	256.47	256.47	256.47		P = 0
N035891-002CMSD	0.00	0.00	256.47	256.47	256.47		P = 0

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Alkalinity Preparation and Runlog

Matrix: H_2O

Date Extracted: 6/6/19
Time Extracted: 6/6/19
Extracted By: LSR

Date Analyzed: 6/6/19
Time Analyzed: 1330
Analyzed By: LSR

Reagent Lot # / Reagent ID
Sodium Carbonate: CINV-161205A
Hydrochloric Acid: -
Sulfuric Acid: R190524A
Sodium Bicarbonate: CINV-180510A

pH meter Calibration:
SLOPE: 98.8%
pH 7 - 7.00 - CINV 190422A
4 - 4.02 - B
10 - 10.02 - CINV 190430A

	Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added	Spike Conc.	Norm. Titrant	Vol. At pH = 8.3	Vol. At pH = 4.5	Dilution (F/I)	Calculations	Comments
	STANDARD DATION											
	#1	50mL	10.61	1WST190603A	5mL	0.05N		-	11.65	50/50	N H_2SO_4 = (265g/L)(5mL) / (53)(V titrant)	=0.021459227
	#2		10.60						11.55			=0.021645021
1)	MBLK	50mL	5.49	-	-	-	0.02155	0	0.15	50/50		Ave: 0.021552124
2)	LCS		8.56	1WST190603B	1mL	0.05N		0.05	4.55			
3)	N035891-1C		7.71	-	-	-		0	9.10			
4)	2C		7.63	-	-	-		0	7.50			
5)	2CDUP		7.62	-	-	-		0	7.50			
6)	2CMS		7.90	1WST190603B	1mL	0.05N		0	11.90			
7)	2CMSD		7.95					0	11.90			
8)												
9)												
10)												
11)												
12)												
13)												
14)												
15)												
16)												
17)												
18)												
19)												
20)												
	MS										Julia Ramit 6/10/2019	
	MSD											
	LCS											

$$P = \frac{(V\ pH\ 8.3)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$$

$$T = \frac{(V\ pH\ 4.5)(N\ H_2SO_4)(50{,}000)}{V_{sx}}$$

EPA 300.0

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: ~~R134374~~ R134375
ASSET #: N035891

Instrument ID: IC-08
Analyst: RBA
Date Analyzed: 6/6/2019

Method:

[X] EPA 300.0
[ ] EPA 7199
[ ] EPA 218.6/EPA 218.7
[ ] EPA 218.6/EPA 218.7 LL
[ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X					
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X					
3. ICV within ± 10% of expected value.	X					
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X					
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X					
6. Calibration blanks run after ICV and CCV?	X					
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)			X			
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X					
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?			X			
Sample Information						
10. All samples are within linear range.	X					
11. All samples pH within 9.3-9.7 when analyzed?			X			
12. Duplicate sample injections for every sample. (7199 only)			X			
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)			X			
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)			X			
19. EPA 3060A digestion performed on solid samples (7199 only)			X			
20. Are all peaks within RT window, ± 0.2 min?	X					
21. Are all samples analyzed within hold time?	X					
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X					
24. LCS compounds are within control limits.	X					
25. MS/MSD, RPD's are within control limits.	X					
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X					
28. Extraction log complete and included in package (if applicable)			X			
29. All manual integrations initialed, date and reasons included.	X					
30. Before and after manual integration chromatogram included in the package	X					
31. All samples and QC raw data present in package.	X					
Preliminary Report						
32. Does the raw data match the preliminary report?	X					
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X					
34 Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Is QC present and complete?			
4. Are analytical results correct? (dilutions,calculations)			
5. Is first level review correct and complete?			

1st Level Reviewer rba Date: 6/7/2019

2nd Level Reviewer 6/21/2019 Date: –

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 300
TEST NAME: INORGANIC ANIONS BY IC
MATRIX: GROUNDWATER

FORMULA:

Calculate the Sulfate concentration, in mg/L, in the orignal sample as follows:

Sulfate, mg/L = A * DF

where:

A = mg/L, IC calculated concentration
DF = dilution factor

For **N035891-001C** concentration in mg/L is calculated as follows:

Sulfate, mg/L = 4.8527 * 50

= 242.635

Reporting result in two significant values,

Sulfate, mg/L = 240

NS 6/24/2019

ANALYSIS RUN LOG

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 54
Created: 5/29/2019 7:48:03 AM by IC-05
Last Update: 5/29/2019 1:12:56 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
2	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
3	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
4	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
5	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
6	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
7	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
8	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
9	ICV,ICV,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
10	ICB,ICB,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
11	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
12	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
13	N035728-003B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
14	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
15	N035728-001B,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
16	N035728-004B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
17	N035728-006B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
18	N035728-006B,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
19	N035728-001BMS,MS,2000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
20	N035728-001BMSD,MSD,2000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
21	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
22	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
23	N035728-004BMS,MS,1000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
24	N035728-006BDUP,DUP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
25	N035728-006BDUP,DUP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
26	N035728-002B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
27	N035728-003B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
28	N035728-005B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
29	N035728-002B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
30	N035728-003B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
31	N035728-005B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
32	N035728-007B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
33	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
34	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
35	N035728-007B,SAMP,10000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
36	N035728-008B,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
37	N035728-008B,SAMP,10000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
38	N035728-009B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
39	N035728-009B,SAMP,5000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
40	N035728-010B,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
41	N035728-010B,SAMP,10000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished

rba 5/30/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 54
Created: 5/29/2019 7:48:03 AM by IC-05
Last Update: 5/29/2019 1:12:56 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK	5/29/2019 7:48:23 AM	BLANK
2	BLANK,BLANK	5/29/2019 8:03:12 AM	BLANK
3	Std - 0	5/29/2019 8:17:59 AM	IBLANK
4	Std - 1	5/29/2019 8:32:48 AM	STD-LOW
5	Std - 2	5/29/2019 8:47:36 AM	STD
6	Std - 3	5/29/2019 9:02:24 AM	STD
7	Std - 4	5/29/2019 9:17:12 AM	STD
8	Std - 5	5/29/2019 9:31:59 AM	STD-HIGH
9	ICV,ICV,1	5/29/2019 9:50:28 AM	ICV
10	ICB,ICB,1	5/29/2019 10:05:16 AM	ICB
11	MB-H2O,MBLK,1	5/29/2019 10:20:03 AM	METHOD BLANK
12	LCS-H2O,LCS,1	5/29/2019 10:34:51 AM	LCS
13	N035728-003B,SAMP,20	5/29/2019 10:51:39 AM	SAMP,0.5>10mL 9056
14	BLANK	5/29/2019 11:09:03 AM	BLANK
15	N035728-001B,SAMP,2000	5/29/2019 11:23:51 AM	SAMP,0.01>10mL 9056
16	N035728-004B,SAMP,1000	5/29/2019 11:38:38 AM	SAMP,0.01>10mL 9056
17	N035728-006B,SAMP,1000	5/29/2019 11:53:26 AM	SAMP,0.01>10mL 9056
18	N035728-006B,SAMP,2000	5/29/2019 12:08:14 PM	SAMP,0.005>10mL 9056
19	N035728-001BMS,MS,2000	5/29/2019 12:23:02 PM	MS,0.005>10mL 9056
20	N035728-001BMSD,MSD,2000	5/29/2019 12:37:50 PM	MSD,0.005>10mL 9056
21	CCV-1,CCV,1	5/29/2019 12:52:37 PM	CCV
22	CCB-2,CCB,1	5/29/2019 1:07:25 PM	CCB
23	N035728-004BMS,MS,1000	5/29/2019 1:22:13 PM	MS,0.01>10mL 9056
24	N035728-006BDUP,DUP,1000	5/29/2019 1:37:01 PM	DUP,0.01>10mL 9056
25	N035728-006BDUP,DUP,2000	5/29/2019 1:51:49 PM	DUP,0.005>10mL 9056
26	N035728-002B,SAMP,1000	5/29/2019 2:06:37 PM	SAMP,0.01>10mL 9056
27	N035728-003B,SAMP,1000	5/29/2019 2:21:24 PM	SAMP,0.01>10mL 9056
28	N035728-005B,SAMP,1000	5/29/2019 2:36:12 PM	SAMP,0.01>10mL 9056
29	N035728-002B,SAMP,5000	5/29/2019 2:51:00 PM	SAMP,0.002>10mL 9056
30	N035728-003B,SAMP,5000	5/29/2019 3:05:48 PM	SAMP,0.002>10mL 9056
31	N035728-005B,SAMP,5000	5/29/2019 3:20:36 PM	SAMP,0.002>10mL 9056
32	N035728-007B,SAMP,5000	5/29/2019 3:35:24 PM	SAMP,0.002>10mL 9056
33	CCV-2,CCV,1	5/29/2019 3:50:11 PM	CCV
34	CCB-2,CCB,1	5/29/2019 4:04:59 PM	CCB
35	N035728-007B,SAMP,10000	5/29/2019 4:19:47 PM	SAMP,0.001>10mL 9056
36	N035728-008B,SAMP,2000	5/29/2019 4:34:35 PM	SAMP,0.005>10mL 9056
37	N035728-008B,SAMP,10000	5/29/2019 4:49:23 PM	SAMP,0.001>10mL 9056
38	N035728-009B,SAMP,1000	5/29/2019 5:04:11 PM	SAMP,0.01>10mL 9056
39	N035728-009B,SAMP,5000	5/29/2019 5:18:58 PM	SAMP,0.002>10mL 9056
40	N035728-010B,SAMP,1000	5/29/2019 5:33:46 PM	SAMP,0.01>10mL 9056
41	N035728-010B,SAMP,10000	5/29/2019 5:48:34 PM	SAMP,0.001>10mL 9056

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 54
Created: 5/29/2019 7:48:03 AM by IC-05
Last Update: 5/29/2019 1:12:56 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	N035728-011B,SAMP,2000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
43	N035728-011B,SAMP,10000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
44	N035760-001A,SAMP,1000	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
45	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
46	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
47	N035760-001A,SAMP,200	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
48	N035728-005B,SAMP,20	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
49	N035728-003BDUP,DUP,20	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
50	N035728-003BMS,MS,20	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
51	N035728-003BMSD,MSD,20	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
52	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
53	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
54	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished

rba 5/30/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 54
Created: 5/29/2019 7:48:03 AM by IC-05
Last Update: 5/29/2019 1:12:56 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	N035728-011B,SAMP,2000	5/29/2019 6:03:22 PM	SAMP,0.005>10mL 9056
43	N035728-011B,SAMP,10000	5/29/2019 6:18:10 PM	SAMP,0.001>10mL 9056
44	N035760-001A,SAMP,1000	5/29/2019 6:32:58 PM	SAMP,0.01>10mL
45	CCV-3,CCV,1	5/29/2019 6:47:46 PM	CCV
46	CCB-3,CCB,1	5/29/2019 7:02:34 PM	CCB
47	N035760-001A,SAMP,200	5/29/2019 7:17:21 PM	SAMP,0.05>10mL
48	N035728-005B,SAMP,20	5/29/2019 7:32:09 PM	SAMP,0.5>10mL 9056
49	N035728-003BDUP,DUP,20	5/29/2019 7:46:57 PM	DUP,0.5>10mL 9056
50	N035728-003BMS,MS,20	5/29/2019 8:01:45 PM	MS,0.5>10mL 9056
51	N035728-003BMSD,MSD,20	5/29/2019 8:16:33 PM	MSD,0.5>10mL 9056
52	BLANK	5/29/2019 8:31:21 PM	BLANK
53	CCV-4,CCV,1	5/29/2019 8:46:09 PM	CCV
54	CCB-4,CCB,1	5/29/2019 9:00:57 PM	CCB

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 42
Created: 6/6/2019 8:50:46 AM by IC-05
Last Update: 6/6/2019 3:42:33 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
1	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
2	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
3	Std - 0	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
4	Std - 1	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
5	Std - 2	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
6	Std - 3	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
7	Std - 4	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
8	Std - 5	Standard	1000.0	Anions Default	EPA 300_0_190529	Finished
9	BLANK,BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
10	CCV-1,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
11	CCB-1,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
12	MB-SOIL,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
13	LCS-SOIL,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
14	N035885-001B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
15	N035885-001B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
16	N035885-001BDUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
17	N035885-001BMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
18	N035885-001BMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
19	N035885-001BPS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
20	MB-H2O,MBLK,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
21	LCS-H2O,LCS,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
22	CCV-2,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
23	CCB-2,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
24	N035891-001C,SAMP,100	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
25	N035891-002C,SAMP,500	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
26	N035889-002B,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
27	N035891-001C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
28	N035891-002C,SAMP,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
29	N035891-002CMS,MS,500	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
30	N035891-002CMSD,MSD,500	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
31	N035891-002CMS,MS,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
32	N035891-002CMSD,MSD,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
33	N035891-001CDUP,DUP,50	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
34	CCV-3,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
35	CCB-3,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
36	N035889-002B,SAMP,5	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
37	N035889-002BDUP,DUP,5	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
38	N035889-002BMS,MS,5	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
39	N035889-002BMSD,MSD,5	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
40	CCV-4,CCV,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished
41	CCB-4,CCB,1	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished

rba 6/7/2019

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 42
Created: 6/6/2019 8:50:46 AM by IC-05
Last Update: 6/6/2019 3:42:33 PM by IC-05

No.	Name	Inj. Date/Time	Comment
1	BLANK,BLANK	5/29/2019 7:48:23 AM	BLANK
2	BLANK,BLANK	5/29/2019 8:03:12 AM	BLANK
3	Std - 0	5/29/2019 8:17:59 AM	IBLANK
4	Std - 1	5/29/2019 8:32:48 AM	STD-LOW
5	Std - 2	5/29/2019 8:47:36 AM	STD
6	Std - 3	5/29/2019 9:02:24 AM	STD
7	Std - 4	5/29/2019 9:17:12 AM	STD
8	Std - 5	5/29/2019 9:31:59 AM	STD-HIGH
9	BLANK,BLANK	6/6/2019 8:51:28 AM	BLANK
10	CCV-1,CCV,1	6/6/2019 9:06:16 AM	CCV
11	CCB-1,CCB,1	6/6/2019 9:21:04 AM	CCB
12	MB-SOIL,MBLK,1	6/6/2019 9:42:14 AM	METHOD BLANK
13	LCS-SOIL,LCS,1	6/6/2019 9:57:02 AM	LCS
14	N035885-001B,SAMP,5	6/6/2019 10:11:50 AM	SAMP,2>10mL
15	N035885-001B,SAMP,50	6/6/2019 10:38:26 AM	SAMP,0.2>10mL
16	N035885-001BDUP,DUP,50	6/6/2019 10:53:13 AM	DUP,0.2>10mL
17	N035885-001BMS,MS,50	6/6/2019 11:08:01 AM	MS,0.2>10mL
18	N035885-001BMSD,MSD,50	6/6/2019 11:22:49 AM	MSD,0.2>10mL
19	N035885-001BPS,MS,50	6/6/2019 11:37:37 AM	PS,0.2>10mL
20	MB-H2O,MBLK,1	6/6/2019 11:52:25 AM	METHOD BLANK
21	LCS-H2O,LCS,1	6/6/2019 12:07:13 PM	LCS
22	CCV-2,CCV,1	6/6/2019 12:22:01 PM	CCV
23	CCB-2,CCB,1	6/6/2019 12:36:48 PM	CCB
24	N035891-001C,SAMP,100	6/6/2019 2:05:59 PM	SAMP,0.1>10mL
25	N035891-002C,SAMP,500	6/6/2019 2:20:47 PM	SAMP,0.02>10mL
26	N035889-002B,SAMP,50	6/6/2019 2:35:35 PM	SAMP,0.2>10mL
27	N035891-001C,SAMP,50	6/6/2019 2:50:23 PM	SAMP,0.2>10mL
28	N035891-002C,SAMP,50	6/6/2019 3:05:11 PM	SAMP,0.2>10mL
29	N035891-002CMS,MS,500	6/6/2019 3:19:59 PM	MS,0.02>10mL
30	N035891-002CMSD,MSD,500	6/6/2019 3:34:47 PM	MSD,0.02>10mL
31	N035891-002CMS,MS,50	6/6/2019 3:49:34 PM	MS,0.2>10mL
32	N035891-002CMSD,MSD,50	6/6/2019 4:04:22 PM	MSD,0.2>10mL
33	N035891-001CDUP,DUP,50	6/6/2019 4:19:10 PM	DUP,0.2>10mL
34	CCV-3,CCV,1	6/6/2019 4:33:58 PM	CCV
35	CCB-3,CCB,1	6/6/2019 4:48:46 PM	CCB
36	N035889-002B,SAMP,5	6/6/2019 5:03:34 PM	SAMP,2>10mL
37	N035889-002BDUP,DUP,5	6/6/2019 5:18:22 PM	DUP,2>10mL
38	N035889-002BMS,MS,5	6/6/2019 5:33:09 PM	MS,2>10mL
39	N035889-002BMSD,MSD,5	6/6/2019 5:47:57 PM	MSD,2>10mL
40	CCV-4,CCV,1	6/6/2019 6:02:45 PM	CCV
41	CCB-4,CCB,1	6/6/2019 6:17:34 PM	CCB

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Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 42
Created: 6/6/2019 8:50:46 AM by IC-05
Last Update: 6/6/2019 3:42:33 PM by IC-05

No.	Name	Type	Inj. Vol.	Program	Method	Status
42	BLANK	Unknown	1000.0	Anions Default	EPA 300_0_190529	Finished

rba 6/7/2019

Title:
Datasource: D1NZHKQ1_local
Location: IC-08_ANIONS\2_Data\2018_Anions
Timebase: IC-08_ANIONS
#Samples: 42
Created: 6/6/2019 8:50:46 AM by IC-05
Last Update: 6/6/2019 3:42:33 PM by IC-05

No.	Name	Inj. Date/Time	Comment
42	BLANK	6/6/2019 6:32:21 PM	BLANK

INITIAL CALIBRATION DATA SUMMARY

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 5/29/2019

Initial Calibration:

Chloride	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	1	2	5	10	R^2
Area,mAU*min	0.0000	0.0739	0.1534	0.3108	0.7983	1.6932	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914B

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

(EPA 300) - INITIAL CALIBRATION

Instrument ID: IC-08
Date Calibrated: 5/29/2019

Initial Calibration:

Sulfate	STD0	STD1	STD2	STD3	STD4	STD5	
COMPOUND, in ug/L	0	0.5	2	4	10	20	R^2
Area,mAU*min	0.0000	0.0563	0.2342	0.4725	1.2046	2.5342	0.999

	Stock
Standard Concentration:	1000000 PPB
Standard ID:	ISST-180914G

Calibration Acceptance Criteria: > 0.995 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **ICV**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **5/29/2019**	SeqNo: **3403114**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.001	0.50	2.000	0	100	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCV**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403116**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.959	0.50	2.000	0	97.9	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCV**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403127**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.965	0.50	2.000	0	98.2	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCV**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	1.955	0.50	2.000	0	97.7	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_CLP**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCV**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	2.020	0.50	2.000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **ICV**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **5/29/2019**	SeqNo: **3403138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.959	0.50	4.000	0	99.0	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCV**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.003	0.50	4.000	0	100	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCV**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.001	0.50	4.000	0	100	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCV**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403152**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	4.012	0.50	4.000	0	100	90	110				

Sample ID **CCV-4**	SampType: **CCV**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCV**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403154**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	3.975	0.50	4.000	0	99.4	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_CLPGE

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
ICB	**ICB**	**300_W_CLP**	**mg/L**		**134375**
Client ID: **ICB**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **5/29/2019**	SeqNo: **3403115**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	ND	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-1	**CCB**	**300_W_CLP**	**mg/L**		**134375**
Client ID: **CCB**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403117**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.151	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-2	**CCB**	**300_W_CLP**	**mg/L**		**134375**
Client ID: **CCB**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403128**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.154	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-3	**CCB**	**300_W_CLP**	**mg/L**		**134375**
Client ID: **CCB**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403135**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.151 ~~ND~~	0.50									

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCB-4	**CCB**	**300_W_CLP**	**mg/L**		**134375**
Client ID: **CCB**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403137**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chloride	0.164	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

6/21/2019
for RBA

ANALYTICAL QC SUMMARY REPORT

TestCode: 300_W_SO4PGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **ICB**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **5/29/2019**	SeqNo: **3403139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCB**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403141**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCB**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCB**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403153**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **300_W_SO4P**	Units: **mg/L**	Prep Date:	RunNo: **134375**
Client ID: **CCB**	Batch ID: **R134375**	TestNo: **EPA 300.0**		Analysis Date: **6/6/2019**	SeqNo: **3403155**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Sulfate	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 6/6/2019

Sample Name		Retention Time	Evaluation
ICV	Chloride	4.050	
CCV-1	Chloride	4.037	
CCV-2	Chloride	4.034	
CCV-3	Chloride	4.034	
CCV-4	Chloride	4.037	
	Average	4.036	
	Applied RT Window	3.836 - 4.236	
MB-R134375_CL	Chloride	4.027	PASS
LCS-R134375_CL	Chloride	4.034	PASS
N035891-002C	Chloride	4.034	PASS
N035891-001C	Chloride	4.037	PASS
N035891-002CMS	Chloride	4.037	PASS
N035891-002CMSD	Chloride	4.037	PASS
N035891-001CDUP	Chloride	4.037	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-08

Analytical Sequence

Date Analyzed: 6/6/2019

Sample Name		Retention Time	Evaluation
ICV	Sulfate	8.803	
CCV-1	Sulfate	8.727	
CCV-2	Sulfate	8.724	
CCV-3	Sulfate	8.717	
CCV-4	Sulfate	8.710	
	Average	8.720	
	Applied RT Window	8.520 - 8.920	
MB-R134375_SO4	Sulfate	N.A.	N.A.
LCS-R134375_SO4	Sulfate	8.710	PASS
N035891-001C	Sulfate	8.707	PASS
N035891-002C	Sulfate	8.710	PASS
N035891-002CMS	Sulfate	8.713	PASS
N035891-002CMSD	Sulfate	8.714	PASS
N035891-001CDUP	Sulfate	8.707	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **INORGANIC IONS by Ion Chromatography**
Method Number: EPA 300.0
Analysis Date(s): 5/23/2017 ; 5/24/2017; 5/25/2017
Analyst/Technician: Ria Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Acceptance Criteria: MDL < spike < 10XMDL

Datafile	170523A D36	170523A D37	170523A D38	170524A D17	170524A D18	170525A D45	170525A D46					
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**MDL**	**LOD**	**PQL**
Fluoride	0.020	0.022	0.021	0.020	0.023	0.026	0.024	0.020	0.0021	**0.0065**	0.020	0.10
Chloride	0.133	0.136	0.136	0.133	0.141	0.133	0.136	0.025	0.0029	**0.0091**	0.020	0.50
Nitrite	0.030	0.028	0.027	0.028	0.028	0.027	0.027	0.020	0.0010	**0.0030**	0.010	0.05
Bromide	0.037	0.042	0.043	0.038	0.040	0.032	0.025	0.040	0.0062	**0.0196**	0.040	0.20
Nitrate	0.035	0.034	0.033	0.033	0.033	0.031	0.030	0.020	0.0016	**0.0050**	0.010	0.05
Phosphate	0.047	0.051	0.049	0.046	0.052	0.047	0.059	0.040	0.0043	**0.0135**	0.030	0.10
Sulfate	0.213	0.199	0.208	0.216	0.199	0.201	0.198	0.050	0.0073	**0.0229**	0.050	0.50

MDL/LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Inorganic Ions by Ion Chromatography (Low Level)**
Method Number: EPA Method 300.0
Analysis Date(s): 3/29-30/2018
Analyst: Ria B. Abes

Matrix: **WATER**
Unit: mg/L

Instrument Name: **IC-08**

Compound	MDL	LOD Spike Conc., mg/L	LOD Actual Conc., mg/L	PQL Spike Conc., mg/L	PQL Actual Conc., mg/L	%Recovery
Fluoride	**0.0065**	0.020	0.0252	0.10	0.087	**87**
Chloride	**0.0091**	0.020	0.1193	0.50	0.5757	**115**
Nitrite	**0.0030**	0.010	0.0237	0.05	0.0638	**128**
Bromide	**0.0196**	0.040	0.0405	0.20	0.1993	**100**
Nitrate	**0.0050**	0.010	0.0191	0.05	0.0561	**112**
Phosphate	**0.0135**	0.030	0.0415	0.10	0.1216	**122**
Sulfate	**0.0229**	0.050	0.3682	0.50	0.6549	**131**

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134466 **Analyst:** QBM

ASSET #: N035891 **Date Analyzed:** 6/12/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			~~X~~	X	
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

%Rec of Nitrate/Nitrite as N in CCV-2/CCV-3 failed, low bias. However, N035891 samples were closed by CCV-1.

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 6/21/2019

2nd Level Reviewer NS 6/21/2019 Date: ~

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134491 **Analyst:** QBM

ASSET #: N035891 **Date Analyzed:** 6/13/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X	X	
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

%Rec of Nitrate/Nitrite as N in CCV-3 failed, low bias. However, N035891 sample was closed by CCV-2.

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 6/21/2019

2nd Level Reviewer NS 6/21/2019 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N035891-002D**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.5275	*	5
	=	2.6375	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 2.6 mg/L

NS 6/23/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

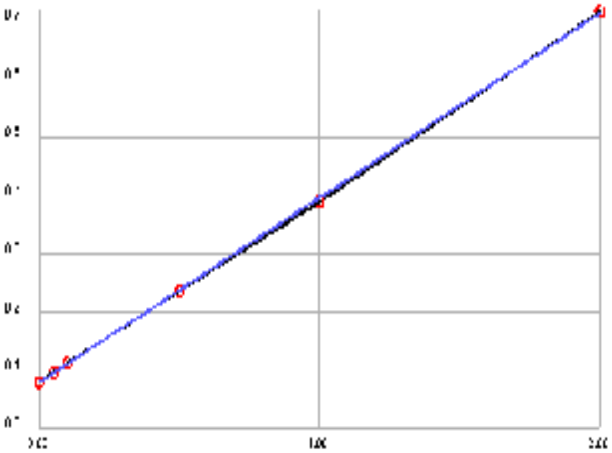
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3164x + 0.0782
Correlation	.999896

Calibrant	Energy	Set	Conc
1	0.0786	0.0000	0.0014
2	0.0961	0.0500	0.0567
3	0.1110	0.1000	0.1038
4	0.2361	0.5000	0.4991
5	0.3878	1.0000	0.9785
6	0.7144	2.0000	2.0106

Notes:

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

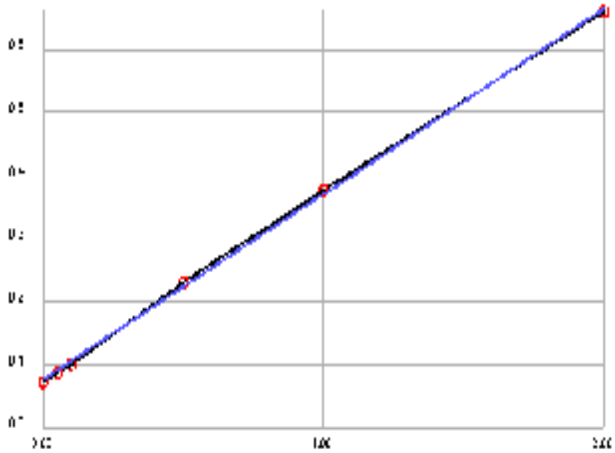
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2945x + 0.0759
Correlation	.999698

Calibrant	Energy	Set	Conc
1	0.0727	0.0000	-0.0107
2	0.0884	0.0500	0.0426
3	0.1013	0.1000	0.0864
4	0.2307	0.5000	0.5258
5	0.3771	1.0000	1.0230
6	0.6598	2.0000	1.9829

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134466**
Client ID: **ICV**	Batch ID: **R134466**	TestNo: **SM4500-NO3**		Analysis Date: **6/12/2019**	SeqNo: **3408758**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.499	0.050	0.5000	0	99.7	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134466**
Client ID: **CCV**	Batch ID: **R134466**	TestNo: **SM4500-NO3**		Analysis Date: **6/12/2019**	SeqNo: **3408769**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.505	0.050	0.5000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134491**
Client ID: **ICV**	Batch ID: **R134491**	TestNo: **SM4500-NO3**		Analysis Date: **6/13/2019**	SeqNo: **3409671**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.486	0.050	0.5000	0	97.2	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134491**
Client ID: **CCV**	Batch ID: **R134491**	TestNo: **SM4500-NO3**		Analysis Date: **6/13/2019**	SeqNo: **3409682**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.514	0.050	0.5000	0	103	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134491**
Client ID: **CCV**	Batch ID: **R134491**	TestNo: **SM4500-NO3**		Analysis Date: **6/13/2019**	SeqNo: **3409689**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.497	0.050	0.5000	0	99.4	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N035891
Project: PG&E Topock - PMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134466**
Client ID: **ICB**	Batch ID: **R134466**	TestNo: **SM4500-NO3**		Analysis Date: **6/12/2019**	SeqNo: **3408759**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134466**
Client ID: **CCB**	Batch ID: **R134466**	TestNo: **SM4500-NO3**		Analysis Date: **6/12/2019**	SeqNo: **3408770**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134491**
Client ID: **ICB**	Batch ID: **R134491**	TestNo: **SM4500-NO3**		Analysis Date: **6/13/2019**	SeqNo: **3409672**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134491**
Client ID: **CCB**	Batch ID: **R134491**	TestNo: **SM4500-NO3**		Analysis Date: **6/13/2019**	SeqNo: **3409683**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134491**
Client ID: **CCB**	Batch ID: **R134491**	TestNo: **SM4500-NO3**		Analysis Date: **6/13/2019**	SeqNo: **3409690**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 06-12-2019 17:53
Time end: 06-12-2019 20:30

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	19:54:45	0.0052		0.0798
2	<BLANK>	19:55:44	-0.0005		0.0780
3	<CAL1>	19:56:40	0.0014	[0]	0.0786
4	<CAL2>	19:57:35	0.0567	[0.05]	0.0961
5	<CAL3>	19:58:36	0.1038	[0.1]	0.1110
6	<CAL4>	19:59:31	0.4991	[0.5]	0.2361
7	<CAL5>	20:00:26	0.9785	[1]	0.3878
8	<CAL6>	20:01:22	2.0106	[2]	0.7144
9	,BLANK,BLANK,1, NOT REPORTED	20:02:22	0.0194		0.0843
10	,ICV,ICV,1,	20:03:17	0.4985		0.2359
11	,ICB,ICB,1,	20:04:13	0.0055		0.0799
12	,MB-H2O,MBLK,1,	20:05:14	-0.0018		0.0776
13	,LCS-H2O,LCS,1,	20:06:08	0.4795		0.2299
14	,N035815-001E,SAMP,1,	20:07:04	0.2554		0.1590
15	,N035891-001D,SAMP,1,	20:08:00	0.0788		0.1031
16	,N035891-002D,SAMP,5,	20:09:00	0.5275		0.2451
17	,N035891-002DDUP,DUP,5,	20:09:55	0.5250		0.2443
18	,N035889-002D,SAMP,5,	20:10:51	0.5693		0.2583
19	,N035889-002DMS,MS,5,	20:11:53	1.1033		0.4273
20	,N035889-002DMSD,MSD,5,	20:12:47	1.0790		0.4196
21	,BLANK, NOT REPORTED	20:13:42	0.0077		0.0806
22	,CCV-1,CCV,1,	20:14:44	0.5048		0.2379
23	,CCB-1,CCB,1,	20:15:26	-0.0012		0.0778
24	,N035694-001E,SAMP,100, NOT REPORTED	20:16:09	0.0317		0.0882
25	,N035695-001E,SAMP,100, NOT REPORTED	20:16:57	0.0285		0.0872
26	,N035696-001E,SAMP,100, NOT REPORTED	20:17:40	0.0554		0.0957

			EPA 353.2 NO3 as N		
				ppm Flags	OD
27	,N035697-001E,SAMP,100,	NOT REPORTED	20:18:24	0.0361	0.0896
28	,N035847-001E,SAMP,1,	NOT REPORTED	20:19:12	0.2093	0.1444
29	,N035848-001E,SAMP,1,	NOT REPORTED	20:19:55	0.2422	0.1548
30	,N035849-001E,SAMP,1,	NOT REPORTED	20:20:37	0.1847	0.1366
31	,N035850-001E,SAMP,1,	NOT REPORTED	20:21:27	0.1954	0.1400
32	,N035872-001E,SAMP,1,	NOT REPORTED	20:22:09	0.1948	0.1398
33	,BLANK,	NOT REPORTED	20:22:52	-0.0053	0.0765
34	,CCV-2,CCV,1,	NOT REPORTED	20:23:42	0.3970	0.2038
35	,CCB-2,CCB,1,	NOT REPORTED	20:24:24	-0.0125	0.0742
36	,N035873-001E,SAMP,1,	NOT REPORTED	20:25:07	0.2030	0.1424
37	,N035874-001E,SAMP,1,	NOT REPORTED	20:25:55	0.1227	0.1170
38	,N035875-001E,SAMP,1,	NOT REPORTED	20:26:38	0.0241	0.0858
39	,BLANK,	NOT REPORTED	20:27:20	-0.0132	0.0740
40	,CCV-3,CCV,1,	NOT REPORTED	20:28:03	0.4251	0.2127
41	,CCB-3,CCB,1,	NOT REPORTED	20:28:51	-0.0081	0.0756

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Time start: 06-13-2019 18:04
Time end: 06-13-2019 20:31

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	19:58:32	0.0114		0.0792
2	<BLANK>	19:59:33	-0.0053		0.0743
3	<CAL1>	20:00:27	-0.0107	[0]	0.0727
4	<CAL2>	20:01:28	0.0426	[0.05]	0.0884
5	<CAL3>	20:02:24	0.0864	[0.1]	0.1013
6	<CAL4>	20:03:18	0.5258	[0.5]	0.2307
7	<CAL5>	20:04:13	1.0230	[1]	0.3771
8	<CAL6>	20:05:14	1.9829	[2]	0.6598
9	,BLANK,BLANK,1, NOT REPORTED	20:06:10	0.0127		0.0796
10	,ICV,ICV,1,	20:07:04	0.4861		0.2190
11	,ICB,ICB,1,	20:08:05	-0.0121		0.0723
12	,MB-H2O,MBLK,1,	20:09:01	-0.0161		0.0711
13	,LCS-H2O,LCS,1,	20:09:55	0.4871		0.2193
14	,N035847-001E,SAMP,1,	20:10:56	0.2705		0.1555
15	,N035848-001E,SAMP,1,	20:11:52	0.3051		0.1657
16	,N035849-001E,SAMP,1,	20:12:47	0.2467		0.1485
17	,N035849-001EDUP,DUP,1,	20:13:48	0.2267		0.1426
18	,N035850-001E,SAMP,1,	20:14:43	0.2365		0.1455
19	,N035850-001EMS,MS,1,	20:15:39	0.7547		0.2981
20	,N035850-001EMSD,MSD,1,	20:16:27	0.7598		0.2996
21	,BLANK, NOT REPORTED	20:17:10	-0.0080		0.0735
22	,CCV-1,CCV,1,	20:17:58	0.5143		0.2273
23	,CCB-1,CCB,1,	20:18:42	-0.0131		0.0720
24	,N035891-001D,SAMP,1,	20:19:25	-0.0056		0.0742
25	,N035872-001E,SAMP,1,	20:20:07	0.2603		0.1525
26	,N035873-001E,SAMP,1,	20:20:56	0.2433		0.1475

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N035874-001E,SAMP,1,	20:21:38	0.1604		0.1231
28	,N035875-001E,SAMP,1,	20:22:22	0.0168		0.0808
29	,BLANK, NOT REPORTED	20:23:10	-0.0185		0.0704
30	,CCV-2,CCV,1,	20:23:53	0.4970		0.2222
31	,CCB-2,CCB,1,	20:24:35	-0.0134		0.0719
32	,N035694-001E,SAMP,100, NOT REPORTED	20:25:18	0.0232		0.0827
33	,N035695-001E,SAMP,100, NOT REPORTED	20:26:08	-0.0019		0.0753
34	,N035696-001E,SAMP,100, NOT REPORTED	20:26:50	0.0385		0.0872
35	,N035697-001E,SAMP,100, NOT REPORTED	20:27:33	0.0365		0.0866
36	,BLANK, NOT REPORTED	20:28:21	-0.0100		0.0729
37	,CCV-3,CCV,1, NOT REPORTED	20:29:05	0.2993		0.1640
38	,CCB-3,CCB,1, NOT REPORTED	20:29:47	-0.0158		0.0712

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 6/12/2019
Time Analyzed: 5:53 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035694-001E		8.71							
N035695-001E		6.53							
N035696-001E		6.61							
N035697-001E		6.95							
N035815-001E		7.59							
N035847-001E		8.63							
N035848-001E		7.34							
N035849-001E		7.87							
N035850-001E		7.54							
N035872-001E		6.17							
N035873-001E		6.59							
N035874-001E		7.48							
N035875-001E		8.02							
N035889-002D		8.50							
N035891-001D		7.96							
N035891-002D		8.00							

Advanced Technology Laboratories, Inc.
Book # 1

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 6/13/2019
Time Analyzed: 6:04 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N035694-001E		8.75							
N035695-001E		7.12							
N035696-001E		7.23							
N035697-001E		7.05							
N035847-001E		8.50							
N035848-001E		7.56							
N035849-001E		7.93							
N035850-001E		7.99							
N035872-001E		6.87							
N035873-001E		7.52							
N035874-001E		7.84							
N035875-001E		8.32							
N035891-001D		8.04							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

July 15, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N036115

RE: PG&E Topock - RMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on June 18, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N036115

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 6010B_Total:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria in QC samples N036115-001C-MS1 and N036115-001C-MSD1 possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Barium in QC samples N036115-001B-MS and N036115-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *15-Jul-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N036115
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036115-001A	C-R22A-D-Q219	Groundwater	6/18/2019 10:50:00 AM	6/18/2019	7/15/2019
N036115-001B	C-R22A-D-Q219	Groundwater	6/18/2019 10:50:00 AM	6/18/2019	7/15/2019
N036115-001C	C-R22A-D-Q219	Groundwater	6/18/2019 10:50:00 AM	6/18/2019	7/15/2019
N036115-001D	C-R22A-D-Q219	Groundwater	6/18/2019 10:50:00 AM	6/18/2019	7/15/2019
N036115-001E	C-R22A-D-Q219	Groundwater	6/18/2019 10:50:00 AM	6/18/2019	7/15/2019
N036115-002A	C-R22A-S-Q219	Groundwater	6/18/2019 11:10:00 AM	6/18/2019	7/15/2019
N036115-002B	C-R22A-S-Q219	Groundwater	6/18/2019 11:10:00 AM	6/18/2019	7/15/2019
N036115-002C	C-R22A-S-Q219	Groundwater	6/18/2019 11:10:00 AM	6/18/2019	7/15/2019
N036115-002D	C-R22A-S-Q219	Groundwater	6/18/2019 11:10:00 AM	6/18/2019	7/15/2019
N036115-002E	C-R22A-S-Q219	Groundwater	6/18/2019 11:10:00 AM	6/18/2019	7/15/2019
N036115-003A	C-R27-D-Q219	Groundwater	6/18/2019 12:25:00 PM	6/18/2019	7/15/2019
N036115-003B	C-R27-D-Q219	Groundwater	6/18/2019 12:25:00 PM	6/18/2019	7/15/2019
N036115-003C	C-R27-D-Q219	Groundwater	6/18/2019 12:25:00 PM	6/18/2019	7/15/2019
N036115-003D	C-R27-D-Q219	Groundwater	6/18/2019 12:25:00 PM	6/18/2019	7/15/2019
N036115-003E	C-R27-D-Q219	Groundwater	6/18/2019 12:25:00 PM	6/18/2019	7/15/2019
N036115-004A	C-R27-S-Q219	Groundwater	6/18/2019 12:40:00 PM	6/18/2019	7/15/2019
N036115-004B	C-R27-S-Q219	Groundwater	6/18/2019 12:40:00 PM	6/18/2019	7/15/2019
N036115-004C	C-R27-S-Q219	Groundwater	6/18/2019 12:40:00 PM	6/18/2019	7/15/2019
N036115-004D	C-R27-S-Q219	Groundwater	6/18/2019 12:40:00 PM	6/18/2019	7/15/2019
N036115-004E	C-R27-S-Q219	Groundwater	6/18/2019 12:40:00 PM	6/18/2019	7/15/2019
N036115-005A	C-TAZ-D-Q219	Groundwater	6/18/2019 8:40:00 AM	6/18/2019	7/15/2019
N036115-005B	C-TAZ-D-Q219	Groundwater	6/18/2019 8:40:00 AM	6/18/2019	7/15/2019
N036115-005C	C-TAZ-D-Q219	Groundwater	6/18/2019 8:40:00 AM	6/18/2019	7/15/2019
N036115-005D	C-TAZ-D-Q219	Groundwater	6/18/2019 8:40:00 AM	6/18/2019	7/15/2019
N036115-005E	C-TAZ-D-Q219	Groundwater	6/18/2019 8:40:00 AM	6/18/2019	7/15/2019
N036115-006A	C-TAZ-S-Q219	Groundwater	6/18/2019 9:00:00 AM	6/18/2019	7/15/2019
N036115-006B	C-TAZ-S-Q219	Groundwater	6/18/2019 9:00:00 AM	6/18/2019	7/15/2019
N036115-006C	C-TAZ-S-Q219	Groundwater	6/18/2019 9:00:00 AM	6/18/2019	7/15/2019
N036115-006D	C-TAZ-S-Q219	Groundwater	6/18/2019 9:00:00 AM	6/18/2019	7/15/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N036115
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036115-006E	C-TAZ-S-Q219	Groundwater	6/18/2019 9:00:00 AM	6/18/2019	7/15/2019
N036115-007A	R-28-Q219	Groundwater	6/18/2019 1:10:00 PM	6/18/2019	7/15/2019
N036115-007B	R-28-Q219	Groundwater	6/18/2019 1:10:00 PM	6/18/2019	7/15/2019
N036115-007C	R-28-Q219	Groundwater	6/18/2019 1:10:00 PM	6/18/2019	7/15/2019
N036115-007D	R-28-Q219	Groundwater	6/18/2019 1:10:00 PM	6/18/2019	7/15/2019
N036115-007E	R-28-Q219	Groundwater	6/18/2019 1:10:00 PM	6/18/2019	7/15/2019
N036115-008A	R63-Q219	Groundwater	6/18/2019 10:20:00 AM	6/18/2019	7/15/2019
N036115-008B	R63-Q219	Groundwater	6/18/2019 10:20:00 AM	6/18/2019	7/15/2019
N036115-008C	R63-Q219	Groundwater	6/18/2019 10:20:00 AM	6/18/2019	7/15/2019
N036115-008D	R63-Q219	Groundwater	6/18/2019 10:20:00 AM	6/18/2019	7/15/2019
N036115-008E	R63-Q219	Groundwater	6/18/2019 10:20:00 AM	6/18/2019	7/15/2019
N036115-009A	SW1-Q219	Groundwater	6/18/2019 2:10:00 PM	6/18/2019	7/15/2019
N036115-009B	SW1-Q219	Groundwater	6/18/2019 2:10:00 PM	6/18/2019	7/15/2019
N036115-009C	SW1-Q219	Groundwater	6/18/2019 2:10:00 PM	6/18/2019	7/15/2019
N036115-010A	SW2-Q219	Groundwater	6/18/2019 2:30:00 PM	6/18/2019	7/15/2019
N036115-010B	SW2-Q219	Groundwater	6/18/2019 2:30:00 PM	6/18/2019	7/15/2019
N036115-010C	SW2-Q219	Groundwater	6/18/2019 2:30:00 PM	6/18/2019	7/15/2019
N036115-011A	AB1-Q219	Groundwater	6/18/2019 8:50:00 AM	6/18/2019	7/15/2019
N036115-012A	AB2-Q219	Groundwater	6/18/2019 1:15:00 PM	6/18/2019	7/15/2019
N036115-013A	C-BNS-Q219	Groundwater	6/18/2019 11:55:00 AM	6/18/2019	7/15/2019
N036115-013B	C-BNS-Q219	Groundwater	6/18/2019 11:55:00 AM	6/18/2019	7/15/2019
N036115-013C	C-BNS-Q219	Groundwater	6/18/2019 11:55:00 AM	6/18/2019	7/15/2019
N036115-013D	C-BNS-Q219	Groundwater	6/18/2019 11:55:00 AM	6/18/2019	7/15/2019
N036115-013E	C-BNS-Q219	Groundwater	6/18/2019 11:55:00 AM	6/18/2019	7/15/2019
N036115-014A	C-I-3-D-Q219	Groundwater	6/18/2019 9:35:00 AM	6/18/2019	7/15/2019
N036115-014B	C-I-3-D-Q219	Groundwater	6/18/2019 9:35:00 AM	6/18/2019	7/15/2019
N036115-014C	C-I-3-D-Q219	Groundwater	6/18/2019 9:35:00 AM	6/18/2019	7/15/2019
N036115-014D	C-I-3-D-Q219	Groundwater	6/18/2019 9:35:00 AM	6/18/2019	7/15/2019
N036115-014E	C-I-3-D-Q219	Groundwater	6/18/2019 9:35:00 AM	6/18/2019	7/15/2019
N036115-015A	MW-916-Q219	Groundwater	6/18/2019 9:45:00 AM	6/18/2019	7/15/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N036115
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036115-015B	MW-916-Q219	Groundwater	6/18/2019 9:45:00 AM	6/18/2019	7/15/2019
N036115-015C	MW-916-Q219	Groundwater	6/18/2019 9:45:00 AM	6/18/2019	7/15/2019
N036115-015D	MW-916-Q219	Groundwater	6/18/2019 9:45:00 AM	6/18/2019	7/15/2019
N036115-015E	MW-916-Q219	Groundwater	6/18/2019 9:45:00 AM	6/18/2019	7/15/2019
N036115-016A	C-I-3-S-Q219	Groundwater	6/18/2019 9:55:00 AM	6/18/2019	7/15/2019
N036115-016B	C-I-3-S-Q219	Groundwater	6/18/2019 9:55:00 AM	6/18/2019	7/15/2019
N036115-016C	C-I-3-S-Q219	Groundwater	6/18/2019 9:55:00 AM	6/18/2019	7/15/2019
N036115-016D	C-I-3-S-Q219	Groundwater	6/18/2019 9:55:00 AM	6/18/2019	7/15/2019
N036115-016E	C-I-3-S-Q219	Groundwater	6/18/2019 9:55:00 AM	6/18/2019	7/15/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	890	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	890	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:00:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:20:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	860	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 2:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 2:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	940	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-015

Client Sample ID: MW-916-Q219
Collection Date: 6/18/2019 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	890	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	900	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N036115-009CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **134596**
Client ID: **ZZZZZZ**	Batch ID: **R134596**	TestNo: **EPA 120.1**		Analysis Date: **6/19/2019**	SeqNo: **3415370**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	950.000	0.10						947.0	0.316	2	

Sample ID: **N036115-016DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **134596**
Client ID: **ZZZZZZ**	Batch ID: **R134596**	TestNo: **EPA 120.1**		Analysis Date: **6/19/2019**	SeqNo: **3415377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	899.000	0.10						897.0	0.223	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-004

Client Sample ID: C-R27-S-Q219
Collection Date: 6/18/2019 12:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:00:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:20:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 2:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	7.3	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-010

Client Sample ID: SW2-Q219
Collection Date: 6/18/2019 2:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-015

Client Sample ID: MW-916-Q219
Collection Date: 6/18/2019 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: **N036115-001DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **134595**
Client ID: **ZZZZZZ** Batch ID: **R134595** TestNo: **SM4500-H+B** Analysis Date: **6/19/2019** SeqNo: **3415346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.250	0.10						8.220	0.364	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID: **N036115-016DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **134595**
Client ID: **ZZZZZZ** Batch ID: **R134595** TestNo: **SM4500-H+B** Analysis Date: **6/19/2019** SeqNo: **3415360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.060	0.10						8.110	0.618	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C**	QC Batch: **74267**			PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:00:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C**	QC Batch: **74267**			PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190619C** QC Batch: **74267**					PrepDate: **6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:20:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C**	QC Batch: **74267**			PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C**	QC Batch: **74267**			PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-916-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E** QC Batch: **74301**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E**	QC Batch: **74301**			PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-74267**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/19/2019**	RunNo: **134599**
Client ID: **LCSW**	Batch ID: **74267**	TestNo: **SM2540D**		Analysis Date: **6/19/2019**	SeqNo: **3415388**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	909.000	10	1000	0	90.9	80	120				

Sample ID: **MB-74267**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/19/2019**	RunNo: **134599**
Client ID: **PBW**	Batch ID: **74267**	TestNo: **SM2540D**		Analysis Date: **6/19/2019**	SeqNo: **3415389**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N036115-001DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/19/2019**	RunNo: **134599**
Client ID: **ZZZZZZ**	Batch ID: **74267**	TestNo: **SM2540D**		Analysis Date: **6/19/2019**	SeqNo: **3415391**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-74301**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **LCSW**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	914.000	10	1000	0	91.4	80	120				

Sample ID: **MB-74301**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **PBW**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N036115-015DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **ZZZZZZ**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 01:05 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 01:24 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 03:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 01:42 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 03:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 02:01 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 03:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 02:39 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 03:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:00:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 02:58 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 03:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 03:17 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:20:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 03:36 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 2:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 03:55 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 2:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 04:57 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 05:26 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A**	QC Batch: **R134634**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 05:44 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**			PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-916-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 06:03 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A**	QC Batch: **R134634**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 06:41 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**			PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R134634**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **PBW**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R134634**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **LCSW**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.021	0.20	5.000	0	100	90	110				

Sample ID: **N036115-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ZZZZZZ**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.065	0.20	1.000	0	107	90	110				

Sample ID: **N036115-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ZZZZZZ**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.084	0.20	1.000	0	108	90	110				

Sample ID: **N036115-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ZZZZZZ**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.075	0.20	1.000	0	107	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036115-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.058	0.20	1.000	0	106	90	110				

Sample ID: **N036115-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.038	0.20	1.000	0	104	90	110				

Sample ID: **N036115-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0	104	90	110				

Sample ID: **N036115-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.063	0.20	1.000	0	106	90	110				

Sample ID: **N036115-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.045	0.20	1.000	0.05410	99.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036115-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.024	0.20	1.000	0	102	90	110				

Sample ID: **N036115-003AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.070	0.20	1.000	0	107	90	110	1.075	0.420	20	

Sample ID: **N036115-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID: **N036115-007ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID: **N036115-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.056	0.20	1.000	0	106	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036115-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.035	0.20	1.000	0	104	90	110				

Sample ID: **N036115-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID: **N036115-016AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.062	0.20	1.000	0	106	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **LCS-74411**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **LCSW**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430283**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.571	1.0	10.00	0	95.7	85	115				

Sample ID: **N036115-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **ZZZZZZ**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.705	1.0	10.00	0	97.0	75	125				

Sample ID: **N036115-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **ZZZZZZ**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.466	1.0	10.00	0	94.7	75	125	9.705	2.49	20	

Sample ID: **MB-74411**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **PBW**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**		PrepDate:				Analyst: **QBM**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**		PrepDate:				Analyst: **QBM**
Nitrate/Nitrite as N	0.41	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**		PrepDate:				Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:00:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:20:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**		PrepDate:				Analyst: **QBM**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.40	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-916-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134642**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **PBW**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134642**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **LCSW**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.506	0.050	0.5000	0	101	85	115				

Sample ID: **N036115-003EDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **ZZZZZZ**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417299**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.402	0.050						0.3892	3.14	20	

Sample ID: **N036115-004EMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **ZZZZZZ**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417301**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.892	0.050	0.5000	0.4060	97.2	75	125				

Sample ID: **N036115-004EMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **ZZZZZZ**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.893	0.050	0.5000	0.4060	97.4	75	125	0.8922	0.0672	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134671**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **PBW**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418285**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134671**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **LCSW**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.495	0.050	0.5000	0	99.1	85	115				

Sample ID: **N036155-002EDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **ZZZZZZ**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.395	0.050						0.3731	5.63	20	

Sample ID: **N036155-003EMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **ZZZZZZ**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.883	0.050	0.5000	0.3629	104	75	125				

Sample ID: **N036155-003EMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **ZZZZZZ**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.899	0.050	0.5000	0.3629	107	75	125	0.8828	1.80	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-001

Client Sample ID: C-R22A-D-Q219
Collection Date: 6/18/2019 10:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 12:25 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	85	18	20		ug/L	1	7/13/2019 02:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-002

Client Sample ID: C-R22A-S-Q219
Collection Date: 6/18/2019 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 12:46 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	33	18	20		ug/L	1	7/13/2019 02:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-003

Client Sample ID: C-R27-D-Q219
Collection Date: 6/18/2019 12:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 12:51 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	38	18	20		ug/L	1	7/13/2019 02:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-004

Client Sample ID: C-R27-S-Q219
Collection Date: 6/18/2019 12:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 12:55 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	24	18	20		ug/L	1	7/13/2019 02:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-005

Client Sample ID: C-TAZ-D-Q219
Collection Date: 6/18/2019 8:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:08 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	32	18	20		ug/L	1	7/13/2019 02:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-006

Client Sample ID: C-TAZ-S-Q219
Collection Date: 6/18/2019 9:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**				PrepDate:	**7/1/2019**	Analyst: **CEI**
Iron	29	18	20		ug/L	1	7/13/2019 01:12 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**				PrepDate:	**7/1/2019**	Analyst: **CEI**
Iron	20	18	20		ug/L	1	7/13/2019 02:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-007

Client Sample ID: R-28-Q219
Collection Date: 6/18/2019 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**				PrepDate:	**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:16 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**				PrepDate:	**7/1/2019**	Analyst: **CEI**
Iron	51	18	20		ug/L	1	7/13/2019 03:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-008

Client Sample ID: R63-Q219
Collection Date: 6/18/2019 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**				PrepDate:	**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:21 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**				PrepDate:	**7/1/2019**	Analyst: **CEI**
Iron	21	18	20		ug/L	1	7/13/2019 03:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-013

Client Sample ID: C-BNS-Q219
Collection Date: 6/18/2019 11:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:25 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	22	18	20		ug/L	1	7/13/2019 03:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-014

Client Sample ID: C-I-3-D-Q219
Collection Date: 6/18/2019 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:29 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	150	18	20		ug/L	1	7/13/2019 03:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-015

Client Sample ID: MW-916-Q219
Collection Date: 6/18/2019 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:33 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	25	18	20		ug/L	1	7/13/2019 03:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-016

Client Sample ID: C-I-3-S-Q219
Collection Date: 6/18/2019 9:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:38 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	41	18	20		ug/L	1	7/13/2019 03:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-74407**	SampType: **MBLK**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135068**
Client ID: **PBW**	Batch ID: **74407**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437177**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID: **LCS-74407**	SampType: **LCS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135068**
Client ID: **LCSW**	Batch ID: **74407**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437178**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	106.475	20	100.0	0	106	85	115				

Sample ID: **N036115-001B-MS**	SampType: **MS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74407**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	109.431	20	100.0	0	109	75	125				

Sample ID: **N036115-001B-MSD**	SampType: **MSD**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74407**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	108.399	20	100.0	0	108	75	125	109.4	0.948	20	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID: **MB-74405**	SampType: **MBLK**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135069**
Client ID: **PBW**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID: **LCS1-74405**	SampType: **LCS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135069**
Client ID: **LCSW**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437301**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	99.118	20	100.0	0	99.1	85	115				

Sample ID: **N036115-001C-MS1**	SampType: **MS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	132.468	20	100.0	84.56	47.9	75	125				S

Sample ID: **N036115-001C-MSD**	SampType: **MSD**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	132.730	20	100.0	84.56	48.2	75	125	132.5	0.198	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N036115-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74407**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437181**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	104.174	20	100.0	0	104	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID: **N036115-001C-PS**	SampType: **PS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	153.288	20	100.0	84.56	68.7	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190703A** QC Batch: **74411** PrepDate: **7/1/2019** Analyst: **HG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 05:01 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 05:01 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 05:21 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/3/2019 05:01 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/3/2019 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 03:28 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 03:28 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 05:46 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/3/2019 03:28 PM
Selenium	1.5	0.36	0.50		µg/L	1	7/3/2019 03:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.1	0.081	0.10		µg/L	1	7/3/2019 03:33 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 03:33 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 05:51 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/3/2019 03:33 PM
Selenium	1.7	0.36	0.50		µg/L	1	7/3/2019 05:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**			PrepDate:		**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 03:38 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 03:38 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 05:56 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	7/3/2019 03:38 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/3/2019 03:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.3	0.081	0.10		µg/L	1	7/3/2019 03:53 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 03:53 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:11 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	7/3/2019 03:53 PM
Selenium	1.3	0.36	0.50		µg/L	1	7/3/2019 03:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:00:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 03:58 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 03:58 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:16 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/3/2019 03:58 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/3/2019 05:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-007

Client Sample ID: R-28-Q219
Collection Date: 6/18/2019 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**			PrepDate:		**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 04:03 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:03 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:21 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/3/2019 04:03 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/3/2019 05:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:20:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-008		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190703A** QC Batch: **74411** PrepDate: **7/1/2019** Analyst: **HG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.4	0.081	0.10		µg/L	1	7/3/2019 04:08 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:08 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:26 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	7/3/2019 04:08 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/3/2019 04:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 04:23 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:23 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:41 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/3/2019 04:23 PM
Selenium	1.5	0.36	0.50		µg/L	1	7/3/2019 05:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.3	0.081	0.10		µg/L	1	7/3/2019 04:28 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:28 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:46 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	7/3/2019 04:28 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/3/2019 04:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-916-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 04:33 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:33 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:51 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/3/2019 04:33 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/3/2019 04:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-016

Client Sample ID: C-I-3-S-Q219
Collection Date: 6/18/2019 9:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**			PrepDate:		**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 04:38 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:38 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:56 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/3/2019 04:38 PM
Selenium	1.5	0.36	0.50		µg/L	1	7/3/2019 04:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-74411**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **LCSW**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430194**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.101	0.10	10.00	0	101	85	115				
Barium	10.212	1.0	10.00	0	102	85	115				
Molybdenum	9.683	0.50	10.00	0	96.8	85	115				
Selenium	9.674	0.50	10.00	0	96.7	85	115				

Sample ID: **N036115-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **ZZZZZZ**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.449	0.10	10.00	2.163	103	75	125				
Barium	120.566	1.0	10.00	108.0	126	75	125				S
Molybdenum	14.733	0.50	10.00	4.085	106	75	125				
Selenium	10.760	0.50	10.00	1.588	91.7	75	125				

Sample ID: **N036115-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **ZZZZZZ**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.158	0.10	10.00	2.163	100	75	125	12.45	2.36	20	
Barium	125.892	1.0	10.00	108.0	179	75	125	120.6	4.32	20	S
Molybdenum	14.795	0.50	10.00	4.085	107	75	125	14.73	0.421	20	
Selenium	11.095	0.50	10.00	1.588	95.1	75	125	10.76	3.06	20	

Sample ID: **MB-74411**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **PBW**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-74411**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **PBW**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-74511**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **PBW**	Batch ID: **74511**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID: **LCS-74511**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **LCSW**	Batch ID: **74511**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	104.421	0.50	100.0	0	104	85	115				

Sample ID: **N036115-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74511**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	100.024	0.50	100.0	0	100	75	125				

Sample ID: **N036115-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74511**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	100.437	0.50	100.0	0	100	75	125	100.0	0.412	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N036115-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **ZZZZZZ** Batch ID: **74411** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/3/2019** SeqNo: **3430197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.703	0.10	10.00	2.163	105	80	120				
Barium	119.722	1.0	10.00	108.0	118	80	120				
Molybdenum	15.325	0.50	10.00	4.085	112	80	120				
Selenium	11.018	0.50	10.00	1.588	94.3	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N036115-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74511**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	98.497	0.50	100.0	0	98.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 6/18/19	Sampled By: Nara Tep		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - RMP	Signature: Date: 6/18/19		
Project Number: RC000753.0801			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE				
Geotracker		RWQCB	✓	1. Chilled	✓	
Labspec		CalTrans		2. Headspace		
Others	✓	LEVEL III		3. Container Intact		
Specify: RWQCB		LEVEL IV		4. Seal Present		
Global ID:		Regulatory		5. IR number	2	
		Specify State:		6. Method of Cooling: ICE		
				Sample Temp: 5.3/5.3/4.1/1.8		

Matrix: Ground x | Sediment | Potable | Soil | NPDES | Other Solid | Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly)	Oxygen and deuterium stable isotopes (CFIRM) (1 250 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		~~C-NR4-S-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	⑥
2	N036115-01	C-R22A-D-Q219	6/18/19	1050		X		X		X	X		X	X			X	X		E	7/8	P	BNS	
3	-02	C-R22A-S-Q219	6/18/19	1110		X		X		X	X		X	X			X	X		E	7/8	P	BNS	
4	-03	C-R27-D-Q219	6/18/19	1225		X		X		X	X		X	X			X	X		E	7/8	P	BNS	
5	-04	C-R27-S-Q219	6/18/19	~~0940~~ 1240		X		X		X	X		X	X			X	X		E	7/8	P	BNS	
	-05	C-TAZ-D-Q219	6/18/19	0840		X		X		X	X		X	X			X	X		E	7/8	P	BNS	
7		~~MW-918-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	④
8	-06	C-TAZ-S-Q219	6/18/19	0900		X		X		X	X		X	X			X	X		E	7/8	P	BNS	
9		~~R-19-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	①
10	-07	R-28-Q219	6/18/19	1310		X		X		X	X		X	X			X	X		E	7/8	P	BNS	
11	-08	R63-Q219	6/18/19	1020		X		X		X	X		X	X			X	X		E	7/8	P	BNS	
12		~~RRB-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	③
13	-09	SW1-Q219	6/18/19	1410		X		X					X	X						E	5/8	P	BNS	
14	-10	SW2-Q219	6/18/19	1430		X		X					X	X						E	5/8	P	BNS	

Courier:
Tracking No.:

Reliquished by (Signature and Printed Name):	Date/Time:	Reliquished by (Signature and Printed Name):	Date/Time:
Nara Tep	6/18/19 1600	JORDAN IGE	6/18/19 1600
JORDAN IGE	6/18/19 1805	JORDAN IGE	6/18/19 1805

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
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www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	
Submitted By: Nava Tey		Phone: 949-727-1400, ext 200 Fax:	
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 6/18/19	Sampled By: Nava Tey		
I Hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - RMP	Signature: Date: 6/18/19		
Project Number: RC000753.0801			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Sample Receipt Condition (Y / N):
1. Chilled ✓
2. Headspace
3. Container Intact ✓
4. Seal Present
5. IR number
6. Method of Cooling: ICE
Sample Temp: 5.3/5.3/4.1/4.8

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
	N036115-11	AB1-Q219	6/18/19	0850			X												E	1	P	BN	Hold
	-12	AB2-Q219	6/18/19	1315			X												E	1	P	BN	Hold
		~~AB3-Q219~~					X												E	1	P	BN	Hold

Reliquished by (Signature and Printed Name): Nava Tey 6/18/19 1600 — Received by: JORDAN IGO 6/18/19 1600
Reliquished by (Signature and Printed Name): JORDAN IGO 6/18/19 1805 — Received by: JORDAN IGO 6/18/19 1805
Reliquished by (Signature and Printed Name): — Date/Time: — Received by: — Date/Time:

Turn Around Time (TAT)
- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

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1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
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6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives: H=HCL; N=HNO_3; S=H_2SO_4; C=4°C; Z=$Zn(AC)_2$; O=NaOH; T=$Na_2S_2O_3$; Others/Specify: B (NH4)2SO4/NH4OH

Container Type: T=Tube; V=VOA; P=Pint; J=Jar; B=Tedlar; G=Glass; M=Metal; M=Metal; C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 6/18/19	Sampled By: Nara Tep		
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*		
Project Name: PG&E Topock - RMP	Signature: Date: 6/18/19		
Project Number: RC000753.801D			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled		
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact		
Others	✓	LEVEL III		4. Seal Present		
Specify: RWQCB		LEVEL IV		5. IR number	2	
Global ID:		Regulatory		6. Method of Cooling:		
		Specify State:		Ice		

Sample Temp: 5.3 3.3 4.1 1.8

Courier:

Tracking No.:

Matrix: Ground x | Potable | NPDES | Surface; Sediment | Soil | Other Solid

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1	N036115-13	C-BNS-Q219	6/18/19	1155		X		X		X	X		X	X			X	X	E	7	P	BNS	
2		~~C-CON-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
3		~~C-CON-S-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
4	-14	C-I-3-D-Q219	6/18/19	0935		X		X		X	X		X	X			X	X	E	7	P	BNS	
5	-15	MW-916-Q219	6/18/19	0945		X		X		X	X		X	X			X	X	E	7	P	BNS	
6	-16	C-I-3-S-Q219	6/18/19	0955		X		X		X	X		X	X			X	X	E	7	P	BNS	
7		~~C-MAR-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
8		~~C-MAR-S-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
9		~~C-NR1-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
10		~~C-NR1-S-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
11		~~C-NR3-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
12		~~C-NR3-S-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
13		~~MW-917-Q219~~				X		X		X	X		X	X			X	X	E	3	P	BNS	
14		~~C-NR4-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nara Tep	6/18/19 1600	J&R D/Ann Log	6/18/19 1600
J&R D/Ann Log	6/18/19 1805	J&R D/Ann Log	6/18/19 1805

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		
Others/Specify:	B	(NH4)2SO4/NH4OH		

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	6/18/2019	Workorder:	N036115
Rep sample Temp (Deg C):	5.3/3.3/4.1/1.8	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 6/21/2019

Reviewed By: LG 062519

ASSET Laboratories

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-001A	C-R22A-D-Q219	6/18/2019 10:50:00 AM	7/2/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-001B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-001C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-001D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-001E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-002A	C-R22A-S-Q219	6/18/2019 11:10:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-002B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-002C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-002D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-002D	C-R22A-S-Q219	6/18/2019 11:10:00 AM	7/2/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-002E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-003A	C-R27-D-Q219	6/18/2019 12:25:00 PM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-003B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-003C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-003D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-003E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-004A	C-R27-S-Q219	6/18/2019 12:40:00 PM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-004B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-004B	C-R27-S-Q219	6/18/2019 12:40:00 PM	7/2/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-004C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-004D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-004E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-005A	C-TAZ-D-Q219	6/18/2019 8:40:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-005B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-005C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-005D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-005E	C-TAZ-D-Q219	6/18/2019 8:40:00 AM	7/2/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-006A	C-TAZ-S-Q219	6/18/2019 9:00:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-006B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-006C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-006D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-006E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-007A	R-28-Q219	6/18/2019 1:10:00 PM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-007B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-007C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-007C	R-28-Q219	6/18/2019 1:10:00 PM	7/2/2019	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-007D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-007E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-008A	R63-Q219	6/18/2019 10:20:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-008B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-008C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-008D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-008E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-009A	SW1-Q219	6/18/2019 2:10:00 PM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-009B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-009B	SW1-Q219	6/18/2019 2:10:00 PM	7/2/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-009C			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
N036115-010A	SW2-Q219	6/18/2019 2:30:00 PM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-010B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-010C			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
N036115-011A	AB1-Q219	6/18/2019 8:50:00 AM					☐	☐	☐	WW
N036115-012A	AB2-Q219	6/18/2019 1:15:00 PM					☐	☐	☐	WW
N036115-013A	C-BNS-Q219	6/18/2019 11:55:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-013B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-013C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-013D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR

ASSET Laboratories

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-013E	C-BNS-Q219	6/18/2019 11:55:00 AM	7/2/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-014A	C-I-3-D-Q219	6/18/2019 9:35:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-014B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-014C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-014D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-014E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-015A	MW-916-Q219	6/18/2019 9:45:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-015B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-015C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-015C	MW-916-Q219	6/18/2019 9:45:00 AM	7/2/2019	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-015D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-015E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-016A	C-I-3-S-Q219	6/18/2019 9:55:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-016B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-016C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-016D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-016E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-017A	FOLDER	7/2/2019	7/2/2019		EDD	RWQCB	☐	☐	☐	LAB
			7/2/2019		Folder	Folder	☐	☐	☐	LAB

ASSET Laboratories

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-017A	FOLDER	7/2/2019	7/2/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - RMP

Project No.: RC000753.0801

ASSET Laboratories Work Order:

N036115

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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July 15, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N036115

RE: PG&E Topock - RMP, RC000753.0801

Attention: Dan Bush

Enclosed are the results for sample(s) received on June 18, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Liburdi for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N036115

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Analytical Comments for EPA 6010B_Total:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria in QC samples N036115-001C-MS1 and N036115-001C-MSD1 possibly due to matrix interference. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

Analytical Comments for EPA 6020_Dissolved:

Matrix Spike (MS) and Matrix Spike Duplicate (MSD) are outside recovery criteria for Barium in QC samples N036115-001B-MS and N036115-001B-MSD since the analyte concentration in the sample is disproportionate to the spike level. Post Spike (PS) and Dilution Test (DT) were performed however, PS failed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *15-Jul-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N036115
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036115-001A	C-R22A-D-Q219	Groundwater	6/18/2019 10:50:00 AM	6/18/2019	7/15/2019
N036115-001B	C-R22A-D-Q219	Groundwater	6/18/2019 10:50:00 AM	6/18/2019	7/15/2019
N036115-001C	C-R22A-D-Q219	Groundwater	6/18/2019 10:50:00 AM	6/18/2019	7/15/2019
N036115-001D	C-R22A-D-Q219	Groundwater	6/18/2019 10:50:00 AM	6/18/2019	7/15/2019
N036115-001E	C-R22A-D-Q219	Groundwater	6/18/2019 10:50:00 AM	6/18/2019	7/15/2019
N036115-002A	C-R22A-S-Q219	Groundwater	6/18/2019 11:10:00 AM	6/18/2019	7/15/2019
N036115-002B	C-R22A-S-Q219	Groundwater	6/18/2019 11:10:00 AM	6/18/2019	7/15/2019
N036115-002C	C-R22A-S-Q219	Groundwater	6/18/2019 11:10:00 AM	6/18/2019	7/15/2019
N036115-002D	C-R22A-S-Q219	Groundwater	6/18/2019 11:10:00 AM	6/18/2019	7/15/2019
N036115-002E	C-R22A-S-Q219	Groundwater	6/18/2019 11:10:00 AM	6/18/2019	7/15/2019
N036115-003A	C-R27-D-Q219	Groundwater	6/18/2019 12:25:00 PM	6/18/2019	7/15/2019
N036115-003B	C-R27-D-Q219	Groundwater	6/18/2019 12:25:00 PM	6/18/2019	7/15/2019
N036115-003C	C-R27-D-Q219	Groundwater	6/18/2019 12:25:00 PM	6/18/2019	7/15/2019
N036115-003D	C-R27-D-Q219	Groundwater	6/18/2019 12:25:00 PM	6/18/2019	7/15/2019
N036115-003E	C-R27-D-Q219	Groundwater	6/18/2019 12:25:00 PM	6/18/2019	7/15/2019
N036115-004A	C-R27-S-Q219	Groundwater	6/18/2019 12:40:00 PM	6/18/2019	7/15/2019
N036115-004B	C-R27-S-Q219	Groundwater	6/18/2019 12:40:00 PM	6/18/2019	7/15/2019
N036115-004C	C-R27-S-Q219	Groundwater	6/18/2019 12:40:00 PM	6/18/2019	7/15/2019
N036115-004D	C-R27-S-Q219	Groundwater	6/18/2019 12:40:00 PM	6/18/2019	7/15/2019
N036115-004E	C-R27-S-Q219	Groundwater	6/18/2019 12:40:00 PM	6/18/2019	7/15/2019
N036115-005A	C-TAZ-D-Q219	Groundwater	6/18/2019 8:40:00 AM	6/18/2019	7/15/2019
N036115-005B	C-TAZ-D-Q219	Groundwater	6/18/2019 8:40:00 AM	6/18/2019	7/15/2019
N036115-005C	C-TAZ-D-Q219	Groundwater	6/18/2019 8:40:00 AM	6/18/2019	7/15/2019
N036115-005D	C-TAZ-D-Q219	Groundwater	6/18/2019 8:40:00 AM	6/18/2019	7/15/2019
N036115-005E	C-TAZ-D-Q219	Groundwater	6/18/2019 8:40:00 AM	6/18/2019	7/15/2019
N036115-006A	C-TAZ-S-Q219	Groundwater	6/18/2019 9:00:00 AM	6/18/2019	7/15/2019
N036115-006B	C-TAZ-S-Q219	Groundwater	6/18/2019 9:00:00 AM	6/18/2019	7/15/2019
N036115-006C	C-TAZ-S-Q219	Groundwater	6/18/2019 9:00:00 AM	6/18/2019	7/15/2019
N036115-006D	C-TAZ-S-Q219	Groundwater	6/18/2019 9:00:00 AM	6/18/2019	7/15/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N036115
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036115-006E	C-TAZ-S-Q219	Groundwater	6/18/2019 9:00:00 AM	6/18/2019	7/15/2019
N036115-007A	R-28-Q219	Groundwater	6/18/2019 1:10:00 PM	6/18/2019	7/15/2019
N036115-007B	R-28-Q219	Groundwater	6/18/2019 1:10:00 PM	6/18/2019	7/15/2019
N036115-007C	R-28-Q219	Groundwater	6/18/2019 1:10:00 PM	6/18/2019	7/15/2019
N036115-007D	R-28-Q219	Groundwater	6/18/2019 1:10:00 PM	6/18/2019	7/15/2019
N036115-007E	R-28-Q219	Groundwater	6/18/2019 1:10:00 PM	6/18/2019	7/15/2019
N036115-008A	R63-Q219	Groundwater	6/18/2019 10:20:00 AM	6/18/2019	7/15/2019
N036115-008B	R63-Q219	Groundwater	6/18/2019 10:20:00 AM	6/18/2019	7/15/2019
N036115-008C	R63-Q219	Groundwater	6/18/2019 10:20:00 AM	6/18/2019	7/15/2019
N036115-008D	R63-Q219	Groundwater	6/18/2019 10:20:00 AM	6/18/2019	7/15/2019
N036115-008E	R63-Q219	Groundwater	6/18/2019 10:20:00 AM	6/18/2019	7/15/2019
N036115-009A	SW1-Q219	Groundwater	6/18/2019 2:10:00 PM	6/18/2019	7/15/2019
N036115-009B	SW1-Q219	Groundwater	6/18/2019 2:10:00 PM	6/18/2019	7/15/2019
N036115-009C	SW1-Q219	Groundwater	6/18/2019 2:10:00 PM	6/18/2019	7/15/2019
N036115-010A	SW2-Q219	Groundwater	6/18/2019 2:30:00 PM	6/18/2019	7/15/2019
N036115-010B	SW2-Q219	Groundwater	6/18/2019 2:30:00 PM	6/18/2019	7/15/2019
N036115-010C	SW2-Q219	Groundwater	6/18/2019 2:30:00 PM	6/18/2019	7/15/2019
N036115-011A	AB1-Q219	Groundwater	6/18/2019 8:50:00 AM	6/18/2019	7/15/2019
N036115-012A	AB2-Q219	Groundwater	6/18/2019 1:15:00 PM	6/18/2019	7/15/2019
N036115-013A	C-BNS-Q219	Groundwater	6/18/2019 11:55:00 AM	6/18/2019	7/15/2019
N036115-013B	C-BNS-Q219	Groundwater	6/18/2019 11:55:00 AM	6/18/2019	7/15/2019
N036115-013C	C-BNS-Q219	Groundwater	6/18/2019 11:55:00 AM	6/18/2019	7/15/2019
N036115-013D	C-BNS-Q219	Groundwater	6/18/2019 11:55:00 AM	6/18/2019	7/15/2019
N036115-013E	C-BNS-Q219	Groundwater	6/18/2019 11:55:00 AM	6/18/2019	7/15/2019
N036115-014A	C-I-3-D-Q219	Groundwater	6/18/2019 9:35:00 AM	6/18/2019	7/15/2019
N036115-014B	C-I-3-D-Q219	Groundwater	6/18/2019 9:35:00 AM	6/18/2019	7/15/2019
N036115-014C	C-I-3-D-Q219	Groundwater	6/18/2019 9:35:00 AM	6/18/2019	7/15/2019
N036115-014D	C-I-3-D-Q219	Groundwater	6/18/2019 9:35:00 AM	6/18/2019	7/15/2019
N036115-014E	C-I-3-D-Q219	Groundwater	6/18/2019 9:35:00 AM	6/18/2019	7/15/2019
N036115-015A	MW-916-Q219	Groundwater	6/18/2019 9:45:00 AM	6/18/2019	7/15/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.0801
Lab Order: N036115
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036115-015B	MW-916-Q219	Groundwater	6/18/2019 9:45:00 AM	6/18/2019	7/15/2019
N036115-015C	MW-916-Q219	Groundwater	6/18/2019 9:45:00 AM	6/18/2019	7/15/2019
N036115-015D	MW-916-Q219	Groundwater	6/18/2019 9:45:00 AM	6/18/2019	7/15/2019
N036115-015E	MW-916-Q219	Groundwater	6/18/2019 9:45:00 AM	6/18/2019	7/15/2019
N036115-016A	C-I-3-S-Q219	Groundwater	6/18/2019 9:55:00 AM	6/18/2019	7/15/2019
N036115-016B	C-I-3-S-Q219	Groundwater	6/18/2019 9:55:00 AM	6/18/2019	7/15/2019
N036115-016C	C-I-3-S-Q219	Groundwater	6/18/2019 9:55:00 AM	6/18/2019	7/15/2019
N036115-016D	C-I-3-S-Q219	Groundwater	6/18/2019 9:55:00 AM	6/18/2019	7/15/2019
N036115-016E	C-I-3-S-Q219	Groundwater	6/18/2019 9:55:00 AM	6/18/2019	7/15/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	890	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	890	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-003

Client Sample ID: C-R27-D-Q219
Collection Date: 6/18/2019 12:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-005

Client Sample ID: C-TAZ-D-Q219
Collection Date: 6/18/2019 8:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-006

Client Sample ID: C-TAZ-S-Q219
Collection Date: 6/18/2019 9:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	870	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-008

Client Sample ID: R63-Q219
Collection Date: 6/18/2019 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	860	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW1-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 2:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	950	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 2:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	940	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-014

Client Sample ID: C-I-3-D-Q219
Collection Date: 6/18/2019 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	880	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-015

Client Sample ID: MW-916-Q219
Collection Date: 6/18/2019 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	890	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190619B**	QC Batch: **R134596**			PrepDate:			Analyst: **LR**
Specific Conductance	900	0.10	0.10		umhos/cm	1	6/19/2019 10:30 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N036115-009CDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **134596**
Client ID: **ZZZZZZ**	Batch ID: **R134596**	TestNo: **EPA 120.1**		Analysis Date: **6/19/2019**	SeqNo: **3415370**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	950.000	0.10						947.0	0.316	2	

Sample ID: **N036115-016DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **134596**
Client ID: **ZZZZZZ**	Batch ID: **R134596**	TestNo: **EPA 120.1**		Analysis Date: **6/19/2019**	SeqNo: **3415377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	899.000	0.10						897.0	0.223	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-001

Client Sample ID: C-R22A-D-Q219
Collection Date: 6/18/2019 10:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-004

Client Sample ID: C-R27-S-Q219
Collection Date: 6/18/2019 12:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-005

Client Sample ID: C-TAZ-D-Q219
Collection Date: 6/18/2019 8:40:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-006

Client Sample ID: C-TAZ-S-Q219
Collection Date: 6/18/2019 9:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-007

Client Sample ID: R-28-Q219
Collection Date: 6/18/2019 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:20:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-009

Client Sample ID: SW1-Q219
Collection Date: 6/18/2019 2:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	7.3	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-010

Client Sample ID: SW2-Q219
Collection Date: 6/18/2019 2:30:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	7.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-013

Client Sample ID: C-BNS-Q219
Collection Date: 6/18/2019 11:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-014

Client Sample ID: C-I-3-D-Q219
Collection Date: 6/18/2019 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-015

Client Sample ID: MW-916-Q219
Collection Date: 6/18/2019 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190619A**	QC Batch: **R134595**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/19/2019 09:40 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/19/2019 09:40 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: **N036115-001DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **134595**
Client ID: **ZZZZZZ** Batch ID: **R134595** TestNo: **SM4500-H+B** Analysis Date: **6/19/2019** SeqNo: **3415346**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.250	0.10						8.220	0.364	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID: **N036115-016DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **134595**
Client ID: **ZZZZZZ** Batch ID: **R134595** TestNo: **SM4500-H+B** Analysis Date: **6/19/2019** SeqNo: **3415360**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.060	0.10						8.110	0.618	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190619C**	QC Batch: **74267**				PrepDate: **6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C**	QC Batch: **74267**			PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:00:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190619C**	QC Batch: **74267**			PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:20:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190619C** QC Batch: **74267**				PrepDate:	**6/19/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/19/2019 09:17 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-916-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E**	QC Batch: **74301**				PrepDate:	**6/21/2019**	Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E**	QC Batch: **74301**			PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-74267**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/19/2019**	RunNo: **134599**
Client ID: **LCSW**	Batch ID: **74267**	TestNo: **SM2540D**		Analysis Date: **6/19/2019**	SeqNo: **3415388**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	909.000	10	1000	0	90.9	80	120				

Sample ID: **MB-74267**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/19/2019**	RunNo: **134599**
Client ID: **PBW**	Batch ID: **74267**	TestNo: **SM2540D**		Analysis Date: **6/19/2019**	SeqNo: **3415389**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N036115-001DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/19/2019**	RunNo: **134599**
Client ID: **ZZZZZZ**	Batch ID: **74267**	TestNo: **SM2540D**		Analysis Date: **6/19/2019**	SeqNo: **3415391**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-74301**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **LCSW**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	914.000	10	1000	0	91.4	80	120				

Sample ID: **MB-74301**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **PBW**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N036115-015DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **ZZZZZZ**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 01:05 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-002

Client Sample ID: C-R22A-S-Q219
Collection Date: 6/18/2019 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 01:24 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 03:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-003

Client Sample ID: C-R27-D-Q219
Collection Date: 6/18/2019 12:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 01:42 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 03:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-004

Client Sample ID: C-R27-S-Q219
Collection Date: 6/18/2019 12:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 02:01 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 03:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 02:39 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 03:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-006

Client Sample ID: C-TAZ-S-Q219
Collection Date: 6/18/2019 9:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 02:58 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 03:58 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 03:17 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:20:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 03:36 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-009

Client Sample ID: SW1-Q219
Collection Date: 6/18/2019 2:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 03:55 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	SW2-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 2:30:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 04:57 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 05:26 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:23 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 05:44 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-916-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:45:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-015		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 06:03 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190619A** QC Batch: **R134634**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/19/2019 06:41 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190703A** QC Batch: **74411**				PrepDate:	**7/1/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/3/2019 04:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R134634**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **PBW**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416836**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R134634**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **LCSW**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416837**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.021	0.20	5.000	0	100	90	110				

Sample ID: **N036115-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ZZZZZZ**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416839**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.065	0.20	1.000	0	107	90	110				

Sample ID: **N036115-002AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ZZZZZZ**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416841**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.084	0.20	1.000	0	108	90	110				

Sample ID: **N036115-003AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ZZZZZZ**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416843**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.075	0.20	1.000	0	107	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036115-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416845**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.058	0.20	1.000	0	106	90	110				

Sample ID: **N036115-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416849**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.038	0.20	1.000	0	104	90	110				

Sample ID: **N036115-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416851**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0	104	90	110				

Sample ID: **N036115-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416853**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.063	0.20	1.000	0	106	90	110				

Sample ID: **N036115-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416855**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.045	0.20	1.000	0.05410	99.1	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036115-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416857**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.024	0.20	1.000	0	102	90	110				

Sample ID: **N036115-003AMSD** SampType: **MSD** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416860**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.070	0.20	1.000	0	107	90	110	1.075	0.420	20	

Sample ID: **N036115-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416862**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID: **N036115-007ADUP** SampType: **DUP** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416863**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20						0	0	20	

Sample ID: **N036115-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416865**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.056	0.20	1.000	0	106	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036115-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416867**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.035	0.20	1.000	0	104	90	110				

Sample ID: **N036115-015AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416869**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.034	0.20	1.000	0	103	90	110				

Sample ID: **N036115-016AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134634**
Client ID: **ZZZZZZ** Batch ID: **R134634** TestNo: **EPA 218.6** Analysis Date: **6/19/2019** SeqNo: **3416873**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.062	0.20	1.000	0	106	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **LCS-74411**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **LCSW**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430283**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.571	1.0	10.00	0	95.7	85	115				

Sample ID: **N036115-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **ZZZZZZ**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430287**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.705	1.0	10.00	0	97.0	75	125				

Sample ID: **N036115-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **ZZZZZZ**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430288**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.466	1.0	10.00	0	94.7	75	125	9.705	2.49	20	

Sample ID: **MB-74411**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **PBW**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.41	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:00:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.39	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-008

Client Sample ID: R63-Q219
Collection Date: 6/18/2019 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.40	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-015

Client Sample ID: MW-916-Q219
Collection Date: 6/18/2019 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190620G**	QC Batch: **R134642**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/20/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134642**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134642**			
Client ID: **PBW**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**			SeqNo: **3417294**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134642**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134642**			
Client ID: **LCSW**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**			SeqNo: **3417295**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.506	0.050	0.5000	0	101	85	115				

Sample ID: **N036115-003EDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134642**			
Client ID: **ZZZZZZ**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**			SeqNo: **3417299**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.402	0.050						0.3892	3.14	20	

Sample ID: **N036115-004EMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134642**			
Client ID: **ZZZZZZ**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**			SeqNo: **3417301**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.892	0.050	0.5000	0.4060	97.2	75	125				

Sample ID: **N036115-004EMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134642**			
Client ID: **ZZZZZZ**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**			SeqNo: **3417302**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.893	0.050	0.5000	0.4060	97.4	75	125	0.8922	0.0672	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134671** SampType: **MBLK** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **134671**
Client ID: **PBW** Batch ID: **R134671** TestNo: **SM4500-NO3** Analysis Date: **6/21/2019** SeqNo: **3418285**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134671** SampType: **LCS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **134671**
Client ID: **LCSW** Batch ID: **R134671** TestNo: **SM4500-NO3** Analysis Date: **6/21/2019** SeqNo: **3418286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.495	0.050	0.5000	0	99.1	85	115				

Sample ID: **N036155-002EDUP** SampType: **DUP** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **134671**
Client ID: **ZZZZZZ** Batch ID: **R134671** TestNo: **SM4500-NO3** Analysis Date: **6/21/2019** SeqNo: **3418290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.395	0.050						0.3731	5.63	20	

Sample ID: **N036155-003EMS** SampType: **MS** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **134671**
Client ID: **ZZZZZZ** Batch ID: **R134671** TestNo: **SM4500-NO3** Analysis Date: **6/21/2019** SeqNo: **3418292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.883	0.050	0.5000	0.3629	104	75	125				

Sample ID: **N036155-003EMSD** SampType: **MSD** TestCode: **4500N03F_W** Units: **mg/L** Prep Date: RunNo: **134671**
Client ID: **ZZZZZZ** Batch ID: **R134671** TestNo: **SM4500-NO3** Analysis Date: **6/21/2019** SeqNo: **3418293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.899	0.050	0.5000	0.3629	107	75	125	0.8828	1.80	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-001

Client Sample ID: C-R22A-D-Q219
Collection Date: 6/18/2019 10:50:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 12:25 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	85	18	20		ug/L	1	7/13/2019 02:00 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-002

Client Sample ID: C-R22A-S-Q219
Collection Date: 6/18/2019 11:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 12:46 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	33	18	20		ug/L	1	7/13/2019 02:21 PM

Qualifiers:	B	Analyte detected in the associated Method Blank
	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded
	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference
		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-003

Client Sample ID: C-R27-D-Q219
Collection Date: 6/18/2019 12:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 12:51 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	38	18	20		ug/L	1	7/13/2019 02:25 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-004

Client Sample ID: C-R27-S-Q219
Collection Date: 6/18/2019 12:40:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 12:55 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	24	18	20		ug/L	1	7/13/2019 02:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:08 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	32	18	20		ug/L	1	7/13/2019 02:33 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-006

Client Sample ID: C-TAZ-S-Q219
Collection Date: 6/18/2019 9:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	29	18	20		ug/L	1	7/13/2019 01:12 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	20	18	20		ug/L	1	7/13/2019 02:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-007

Client Sample ID: R-28-Q219
Collection Date: 6/18/2019 1:10:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:16 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	51	18	20		ug/L	1	7/13/2019 03:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-008

Client Sample ID: R63-Q219
Collection Date: 6/18/2019 10:20:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:21 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	21	18	20		ug/L	1	7/13/2019 03:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:25 PM
TOTAL METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	22	18	20		ug/L	1	7/13/2019 03:12 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-014

Client Sample ID: C-I-3-D-Q219
Collection Date: 6/18/2019 9:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:29 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	150	18	20		ug/L	1	7/13/2019 03:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-015

Client Sample ID: MW-916-Q219
Collection Date: 6/18/2019 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:33 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	25	18	20		ug/L	1	7/13/2019 03:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-016

Client Sample ID: C-I-3-S-Q219
Collection Date: 6/18/2019 9:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74407**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 01:38 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74405**			PrepDate:		**7/1/2019**	Analyst: **CEI**
Iron	41	18	20		ug/L	1	7/13/2019 03:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-74407**	SampType: **MBLK**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135068**
Client ID: **PBW**	Batch ID: **74407**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437177**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID: **LCS-74407**	SampType: **LCS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135068**
Client ID: **LCSW**	Batch ID: **74407**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437178**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	106.475	20	100.0	0	106	85	115				

Sample ID: **N036115-001B-MS**	SampType: **MS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74407**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437182**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	109.431	20	100.0	0	109	75	125				

Sample ID: **N036115-001B-MSD**	SampType: **MSD**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74407**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437183**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	108.399	20	100.0	0	108	75	125	109.4	0.948	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID: **MB-74405**	SampType: **MBLK**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135069**
Client ID: **PBW**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437300**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID: **LCS1-74405**	SampType: **LCS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135069**
Client ID: **LCSW**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437301**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	99.118	20	100.0	0	99.1	85	115				

Sample ID: **N036115-001C-MS1**	SampType: **MS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437307**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	132.468	20	100.0	84.56	47.9	75	125				S

Sample ID: **N036115-001C-MSD**	SampType: **MSD**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/1/2019**	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437308**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	132.730	20	100.0	84.56	48.2	75	125	132.5	0.198	20	S

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N036115-001B-PS** SampType: **PS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ZZZZZZ** Batch ID: **74407** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **7/13/2019** SeqNo: **3437181**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	104.174	20	100.0	0	104	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID: **N036115-001C-PS**	SampType: **PS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	153.288	20	100.0	84.56	68.7	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:50:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-001		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190703A** QC Batch: **74411** PrepDate: **7/1/2019** Analyst: **HG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 05:01 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 05:01 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 05:21 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/3/2019 05:01 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/3/2019 05:01 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R22A-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:10:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**			PrepDate:		**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 03:28 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 03:28 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 05:46 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/3/2019 03:28 PM
Selenium	1.5	0.36	0.50		µg/L	1	7/3/2019 03:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**			PrepDate:	**7/1/2019**		Analyst: **HG**
Arsenic	2.1	0.081	0.10		µg/L	1	7/3/2019 03:33 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 03:33 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 05:51 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/3/2019 03:33 PM
Selenium	1.7	0.36	0.50		µg/L	1	7/3/2019 05:40 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-R27-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 12:40:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 03:38 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 03:38 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 05:56 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	7/3/2019 03:38 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/3/2019 03:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 8:40:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.3	0.081	0.10		µg/L	1	7/3/2019 03:53 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 03:53 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:11 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	7/3/2019 03:53 PM
Selenium	1.3	0.36	0.50		µg/L	1	7/3/2019 03:53 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-TAZ-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:00:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 03:58 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 03:58 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:16 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/3/2019 03:58 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/3/2019 05:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-28-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 1:10:00 PM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**			PrepDate:		**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 04:03 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:03 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:21 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/3/2019 04:03 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/3/2019 05:45 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R63-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 10:20:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-008		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190703A** QC Batch: **74411** PrepDate: **7/1/2019** Analyst: **HG**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.4	0.081	0.10		µg/L	1	7/3/2019 04:08 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:08 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:26 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	7/3/2019 04:08 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/3/2019 04:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-BNS-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 11:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 04:23 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:23 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:41 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/3/2019 04:23 PM
Selenium	1.5	0.36	0.50		µg/L	1	7/3/2019 05:31 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-D-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:35:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.3	0.081	0.10		µg/L	1	7/3/2019 04:28 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:28 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:46 AM
Molybdenum	4.4	0.21	0.50		µg/L	1	7/3/2019 04:28 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/3/2019 04:28 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036115
Project: PG&E Topock - RMP, RC000753.0801
Lab ID: N036115-015

Client Sample ID: MW-916-Q219
Collection Date: 6/18/2019 9:45:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**			PrepDate:		**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 04:33 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:33 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:51 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/3/2019 04:33 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/3/2019 04:33 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-I-3-S-Q219
Lab Order:	N036115	**Collection Date:**	6/18/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.0801	**Matrix:**	GROUNDWATER
Lab ID:	N036115-016		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190703A**	QC Batch: **74411**				PrepDate:	**7/1/2019**	Analyst: **HG**
Arsenic	2.2	0.081	0.10		µg/L	1	7/3/2019 04:38 PM
Barium	110	0.15	1.0		µg/L	1	7/3/2019 04:38 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 06:56 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/3/2019 04:38 PM
Selenium	1.5	0.36	0.50		µg/L	1	7/3/2019 04:38 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **LCS-74411** SampType: **LCS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **7/1/2019** RunNo: **134899**
Client ID: **LCSW** Batch ID: **74411** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/3/2019** SeqNo: **3430194**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.101	0.10	10.00	0	101	85	115				
Barium	10.212	1.0	10.00	0	102	85	115				
Molybdenum	9.683	0.50	10.00	0	96.8	85	115				
Selenium	9.674	0.50	10.00	0	96.7	85	115				

Sample ID: **N036115-001B-MS** SampType: **MS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **7/1/2019** RunNo: **134899**
Client ID: **ZZZZZZ** Batch ID: **74411** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/3/2019** SeqNo: **3430198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.449	0.10	10.00	2.163	103	75	125				
Barium	120.566	1.0	10.00	108.0	126	75	125				S
Molybdenum	14.733	0.50	10.00	4.085	106	75	125				
Selenium	10.760	0.50	10.00	1.588	91.7	75	125				

Sample ID: **N036115-001B-MSD** SampType: **MSD** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **7/1/2019** RunNo: **134899**
Client ID: **ZZZZZZ** Batch ID: **74411** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/3/2019** SeqNo: **3430199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.158	0.10	10.00	2.163	100	75	125	12.45	2.36	20	
Barium	125.892	1.0	10.00	108.0	179	75	125	120.6	4.32	20	S
Molybdenum	14.795	0.50	10.00	4.085	107	75	125	14.73	0.421	20	
Selenium	11.095	0.50	10.00	1.588	95.1	75	125	10.76	3.06	20	

Sample ID: **MB-74411** SampType: **MBLK** TestCode: **6020_DIS** Units: **µg/L** Prep Date: **7/1/2019** RunNo: **134899**
Client ID: **PBW** Batch ID: **74411** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/3/2019** SeqNo: **3430217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-74411**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/1/2019**	RunNo: **134899**
Client ID: **PBW**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-74511**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **PBW**	Batch ID: **74511**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433669**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID: **LCS-74511**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **LCSW**	Batch ID: **74511**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433670**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	104.421	0.50	100.0	0	104	85	115				

Sample ID: **N036115-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74511**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433674**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	100.024	0.50	100.0	0	100	75	125				

Sample ID: **N036115-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74511**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433675**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	100.437	0.50	100.0	0	100	75	125	100.0	0.412	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N036115-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **ZZZZZZ** Batch ID: **74411** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/3/2019** SeqNo: **3430197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.703	0.10	10.00	2.163	105	80	120				
Barium	119.722	1.0	10.00	108.0	118	80	120				
Molybdenum	15.325	0.50	10.00	4.085	112	80	120				
Selenium	11.018	0.50	10.00	1.588	94.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N036115-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74511**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433673**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	98.497	0.50	100.0	0	98.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
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CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III ✓; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	Sample Receipt Condition (Y / N): 1. Chilled ✓; 2. Headspace; 3. Container Intact; 4. Seal Present; 5. IR number 2; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Sample Temp: 5.3/5.3/4.1/1.8
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200 Fax:	
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 6/18/19	Sampled By: Nara Tep		Courier:
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		Tracking No.:
Project Name: PG&E Topock - RMP	Signature: Date: 6/18/19		
Project Number: RC000753.0801			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF: HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF: HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF: HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly)	Oxygen and deuterium stable isotopes (CFIRM) (1 250 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		~~C-NR4-S-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	⑥
2	N036115-01	C-R22A-D-Q219	6/18/19	1050		X		X		X	X		X	X			X	X		E	7⑧	P	BNS	
3	-02	C-R22A-S-Q219	6/18/19	1110		X		X		X	X		X	X			X	X		E	7⑥	P	BNS	
4	-03	C-R27-D-Q219	6/18/19	1225		X		X		X	X		X	X			X	X		E	7⑥	P	BNS	
5	-04	C-R27-S-Q219	6/18/19	~~0940~~ 1240		X		X		X	X		X	X			X	X		E	7⑧	P	BNS	
	-05	C-TAZ-D-Q219	6/18/19	0840		X		X		X	X		X	X			X	X		E	7⑧	P	BNS	
7		~~MW-918-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	④
8	-06	C-TAZ-S-Q219	6/18/19	0900		X		X		X	X		X	X			X	X		E	7⑥	P	BNS	
9		~~R-19-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	①
10	-07	R-28-Q219	6/18/19	1310		X		X		X	X		X	X			X	X		E	7⑧	P	BNS	
11	-08	R63-Q219	6/18/19	1020		X		X		X	X		X	X			X	X		E	7⑧	P	BNS	
12		~~RRB-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	②
13	-09	SW1-Q219	6/18/19	1410		X		X					X	X						E	5⑧	P	BNS	
14	-10	SW2-Q219	6/18/19	1430		X		X					X	X						E	5⑧	P	BNS	

Relinquished by (Signature and Printed Name)	Date/Time	Received by (Signature and Printed Name)	Date/Time
Nara Tep	6/18/19 1600	JORDAN IGC	6/18/19 1600
JORDAN IGC	6/18/19 1805	JORDAN IGC	6/18/19 1805

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=Zn(AC)$_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nava Tey		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 6/18/19	Sampled By: Nava Tey		
Project Name: PG&E Topock - RMP	Signature: Date: 6/18/19		
Project Number: RC000753.0801			

I hereby authorize ASSET Labs to perform the tests indicated below.

I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled		
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact		
Others	✓	LEVEL III		4. Seal Present		
Specify: RWQCB		LEVEL IV		5. IR number		
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 5.3/5.3/4.1/4.8		

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (250 ml Poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
	N036115-11	AB1-Q219	6/18/19	0850			X												E	1	P	BN	Hold
	-12	AB2-Q219	6/18/19	1315			X												E	1	P	BN	Hold
		~~AB3-Q219~~					X												E	1	P	BN	Hold

Courier:

Tracking No.:

Reliquished by (Signature and Printed Name):	Date/Time:	Reliquished by (Signature and Printed Name):	Date/Time:
Nava Tey	6/18/19 1600	JORDAN IGO	6/18/19 1600
JORDAN IGO	6/18/19 1805	JORDAN IGO	6/18/19 1805

Turn Around Time (TAT)

- [ ] A = < 24 Hrs or Same Day TAT
- [ ] B = Next Workday
- [ ] C = 2 Workdays
- [ ] D = 3 Workdays
- [x] E = Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs =200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:				Container Type:		
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C	T=Tube	V=VOA	P=Pint
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$		J=Jar	B=Tedlar	G=Glass
Others/Specify:	B	(NH4)2SO4/NH4OH		M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 6/18/19	Sampled By: Nara Tep		
I hereby authorize ASSET Labs to perform the tests indicated below.	*I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for*		
Project Name: PG&E Topock - RMP	Signature: Date: 6/18/19		
Project Number: RC000753.801D			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled		
Geotracker		RWQCB	✓	2. Headspace		
Labspec		CalTrans		3. Container Intact		
Others	✓	LEVEL III		4. Seal Present		
Specify: RWQCB		LEVEL IV		5. IR number	2	
Global ID:		Regulatory		6. Method of Cooling:		
		Specify State:		Sample Temp:		

Courier:

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba	Total metals (SW6010B); HNO3 Fe	Anions (E300.0); Br, Cl, SO4	Specific Conductance (E120.1)	pH (SM4500HB)	TDS (SM2540C)	Alkalinity (Total, reported as CaCO3) (SM2320B)	TSS (SM2540)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
		Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface				3x250 mL poly		3x500mL poly	3x500mL poly	3x500mL poly	500 mL poly	1 liter poly	1 liter poly	1 liter poly	1 liter poly	1 liter poly	1 liter poly	125 mL poly					
1	N036115-13	C-BNS-Q219	6/18/19	1155		X		X		X	X		X	X			X	X	E	7	P	BNS	
2		~~C-CON-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
3		~~C-CON-S-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
4	-14	C-I-3-D-Q219	6/18/19	0935		X		X		X	X		X	X			X	X	E	7	P	BNS	
5	-15	MW-916-Q219	6/18/19	0945		X		X		X	X		X	X			X	X	E	7	P	BNS	
6	-16	C-I-3-S-Q219	6/18/19	0955		X		X		X	X		X	X			X	X	E	7	P	BNS	
7		~~C-MAR-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
8		~~C-MAR-S-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
9		~~C-NR1-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
10		~~C-NR1-S-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
11		~~C-NR3-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
12		~~C-NR3-S-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	
13		~~MW-917-Q219~~				X		X		X	X		X	X			X	X	E	3	P	BNS	
14		~~C-NR4-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS	

Relinquished by (Signature and Printed Name):	Date/Time:	Relinquished by (Signature and Printed Name):	Date/Time:
Nara Tep	6/18/19 1600	JORDAN LEE	6/18/19 1600
JORDAN LEE	6/18/19 1805	JORDAN LEE	6/18/19 1805

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Preservatives:

H=HCL	$N=HNO_3$	$S=H_2SO_4$	C=4°C
$Z=Zn(AC)_2$	O=NaOH	$T=Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	6/18/2019	Workorder:	N036115
Rep sample Temp (Deg C):	5.3/3.3/4.1/1.8	IR Gun ID:	2
Temp Blank:	☑ Yes ☐ No		
Carrier name:	ASSET		
Last 4 digits of Tracking No.:	NA	Packing Material Used:	None
Cooling process:	☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None		

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☑	No ☐	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☐	No ☐	NA ☑
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments:

Checklist Completed By: YR YRJ 6/21/2019

Reviewed By: LG 062519

ASSET Laboratories

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-001A	C-R22A-D-Q219	6/18/2019 10:50:00 AM	7/2/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-001B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-001C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-001D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-001E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-002A	C-R22A-S-Q219	6/18/2019 11:10:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-002B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-002C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-002D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-002D	C-R22A-S-Q219	6/18/2019 11:10:00 AM	7/2/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-002E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-003A	C-R27-D-Q219	6/18/2019 12:25:00 PM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-003B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-003C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-003D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-003E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-004A	C-R27-S-Q219	6/18/2019 12:40:00 PM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-004B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-004B	C-R27-S-Q219	6/18/2019 12:40:00 PM	7/2/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-004C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-004D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-004E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-005A	C-TAZ-D-Q219	6/18/2019 8:40:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-005B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-005C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-005D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-005E	C-TAZ-D-Q219	6/18/2019 8:40:00 AM	7/2/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-006A	C-TAZ-S-Q219	6/18/2019 9:00:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-006B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-006C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-006D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-006E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-007A	R-28-Q219	6/18/2019 1:10:00 PM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-007B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-007C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-007C	R-28-Q219	6/18/2019 1:10:00 PM	7/2/2019	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-007D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-007E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-008A	R63-Q219	6/18/2019 10:20:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-008B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-008C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-008D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-008E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-009A	SW1-Q219	6/18/2019 2:10:00 PM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-009B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-009B	SW1-Q219	6/18/2019 2:10:00 PM	7/2/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-009C			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
N036115-010A	SW2-Q219	6/18/2019 2:30:00 PM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-010B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-010C			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
N036115-011A	AB1-Q219	6/18/2019 8:50:00 AM					☐	☐	☐	WW
N036115-012A	AB2-Q219	6/18/2019 1:15:00 PM					☐	☐	☐	WW
N036115-013A	C-BNS-Q219	6/18/2019 11:55:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-013B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-013C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-013D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-013E	C-BNS-Q219	6/18/2019 11:55:00 AM	7/2/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-014A	C-I-3-D-Q219	6/18/2019 9:35:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-014B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-014C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-014D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-014E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-015A	MW-916-Q219	6/18/2019 9:45:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-015B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-015C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-015C	MW-916-Q219	6/18/2019 9:45:00 AM	7/2/2019	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-015D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-015E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-016A	C-I-3-S-Q219	6/18/2019 9:55:00 AM	7/2/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036115-016B			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/2/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036115-016C			7/2/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/2/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036115-016D			7/2/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	LSR
			7/2/2019		SM4500-H+B	pH	☐	☐	☐	LSR
			7/2/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	LSR
			7/2/2019			Total Suspended Solids Prep	☐	☐	☐	LSR
N036115-016E			7/2/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036115-017A	FOLDER	7/2/2019	7/2/2019		EDD	RWQCB	☐	☐	☐	LAB
			7/2/2019		Folder	Folder	☐	☐	☐	LAB

WORK ORDER Summary

19-Jun-19

WorkOrder: N036115

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.0801 **QC Level:** Level IV **Date Received:** 6/18/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036115-017A	FOLDER	7/2/2019	7/2/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N036115

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6010B_Dissolved, EPA 6010B
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540D
Ria Abes	EPA 218.6
Hanah Glodoviza	EPA 6020_Dissolved

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134596 **Analyst:** LSR

ASSET #: N036115 **Date Analyzed:** 19-Jun

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			**X**			
16. Digestion log complete and included in package (if applicable)			**X**			
Preliminary Report						
17. Does the raw data match the preliminary report?	**X**					
18. Are analytical results correct?	**X**					
19. Is the QC summary report present and complete?	**X**					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Julia Ramit Date: 6/24/2019

2nd Level Reviewer: 7/11/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 6/19/19 1030

Analyst: LSR

Standard	Std ID	Reading	Comments
9.98 µS/cm	CINV – 190516A	10.12 @ 22.9C	% Rec: (90-110%)
1411	190425C	1414 @ 23.3	
10003	190516B	9970 @ 23.5C	
100390	190218C	100460 @ 23.5C	

	Sample ID	Matrix	Reading	Comments
1	N036115-1D	H2O	887 @ 22.1C	
2	2D		891 @ 21.8C	
3	3D		880 @ 22.1C	
4	4D		883 @ 21.9C	
5	5D		866 @ 21.8C	
6	6D		877 @ 21.8C	
7	7D		869 @ 21.5C	
8	8D		864 @ 21.9C	
9	9C		947 @ 22.2C	
10	9C DUP		950 @ 22.1C	
Dup	10C		943 @ 22.4C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Date: _____ Julia Ramit 6/24/2019

Analyst: _____

Standard	Std ID	Reading	Comments
1413 µS/cm	CINV – 190313A	1442 @ 23.2C	% Rec: (90-110%)
18000	B	9980 @ 23.8C	
99999	CINV – 190524A	100100 @ 23.9C	

	Sample ID	Matrix	Reading	Comments
1	N036115-13D	H2O	885 @ 22.1C	
2	14D		885 @ 22.2C	
3	15D		892 @ 21.5C	
4	16D		897 @ 21.5C	
5	16D DUP		899 @ 21.3C	
6				
7				
8				
9				
10	1413 µS/cm	CINV – 190313A	1458 @ 23.8C	
Dup	18000	B	10150 @ 23.7C	RPD Criteria: 2%
	Std Chk: 99999	CINV – 190524A	100800 @ 23.7C	% Rec: (90-110%)

Logbook # 7

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134595 **Instrument ID:** pH meter

ASSET #: N036115 **Analyst:** LSR

Date Analyzed: 19-Jun

Method: EPA 150.1

pH Meter Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?	X					
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 6/21/2019

2nd Level Reviewer 7/11/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 6/19/19 940
Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CNW-190422A	6.96 @ 25°C	
Buffer 4	1 B	4.04 @ 25°C	
Buffer 10	CNW-190430A	10.02 @ 25°C	
Slope		98.6%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB36115-1D	H2O	8.22 @ 25°C	
2	1D DUP		8.25 @ 25°C	
3	2D		8.15 @ 25°C	
4	3D		8.13 @ 25°C	
5	4D		8.15 @ 25°C	
6	5D		8.14 @ 25°C	
7	6D		8.15 @ 25°C	
8	7D		8.18 @ 25°C	
9	8D		8.24 @ 25°C	
10	9C		7.34 @ 25°C	
Dup	10C		7.23 @ 25°C	Accept: 10% water, 20% soil
	Buffer (7), 4, 10 (Circle one)	CNW-190422C	6.95 @ 25°C	Accept: +/-0.05 pH units from expected value

Date: _____ Julia Ramit 6/21/2019
Analyst: _____

Standard	Std ID	pH	Comments
Buffer 7			
Buffer 4	CONTD		
Buffer 10			
Slope			Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NB36115-13D	H2O	8.11 @ 25°C	
2	14D		8.17 @ 25°C	
3	15D		8.19 @ 25°C	
4	16D		8.11 @ 25°C	
5	16D DUP		8.06 @ 25°C	
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer (7), 4, 10 (Circle one)	CNW-190422C	6.96 @ 25°C	Accept: +/-0.05 pH units from expected value

logbook #15

SM 2540D

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74267/74301 **Analyst:** LSR

ASSET #: N036115 **Date Analyzed:** 6/19,6/21/19

Method: EPA 160.2 / SM 2540D

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			**X**			
16. Digestion log complete and included in package (if applicable)			**X**			
Preliminary Report						
17. Does the raw data match the preliminary report?	**X**					
18. Are analytical results correct?	**X**					
19. Is the QC summary report present and complete?	**X**					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 6/24/2019

2nd Level Reviewer 7/11/2019 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540D
TEST NAME: Total Non-Filterable Residue
MATRIX: Water

FORMULA:

Calculate TSS concentration in mg/L, in the original sample as follows:

$$\text{TSS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N036115-001D,** TSS concentration in mg/L is calculated as follows:

$$\text{TSS, mg/L} = \frac{(1.4296 - 1.4292) *1000000}{200}$$
$$= 2 \text{ mg/L}$$

Since reporting limit is 10 mg/L, therefore:

TSS = ND mg/L

Sirisha Ramisetty 6/24/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/19/2019 9:17:52 A**
Prep End Date: **6/19/2019 2:30:00 P**

Reviewed/ Date: 7/11/2019

Initials/ Date: Lilia Ramit 6/24/2019

Prep Batch **74267** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74267	Water		100	☐	0	0	100	1.000		
MB-74267	Water		100	☐	0	0	100	1.000		
N036115-001D	Groundwater		200	☐	0	0	100	0.500		
N036115-001D-DU	Groundwater		200	☐	0	0	100	0.500		
N036115-002D	Groundwater		200	☐	0	0	100	0.500		
N036115-003D	Groundwater		200	☐	0	0	100	0.500		
N036115-004D	Groundwater		200	☐	0	0	100	0.500		
N036115-005D	Groundwater		200	☐	0	0	100	0.500		
N036115-006D	Groundwater		200	☐	0	0	100	0.500		
N036115-007D	Groundwater		200	☐	0	0	100	0.500		
N036115-008D	Groundwater		200	☐	0	0	100	0.500		
N036115-013D	Groundwater		200	☐	0	0	100	0.500		
N036115-014D	Groundwater		200	☐	0	0	100	0.500		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10410	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190619A	1000 ppm Talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/19/2019 9:17:52 A**
Prep End Date:

Reviewed/ Date:
Initials/ Date: Julia Ramit 6/24/2019

Prep Batch **74267** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74267	Water	IWSTI90619A	100	☐	0	0	100	1.000		
MB-74267	Water		100	☐	0	0	100	1.000		
N036115-001D	Groundwater		100	☐	0	0	100	1.000		
N036115-001D-DU	Groundwater		100	☐	0	0	100	1.000		
N036115-002D	Groundwater		100	☐	0	0	100	1.000		
N036115-003D	Groundwater		100	☐	0	0	100	1.000		
N036115-004D	Groundwater		100	☐	0	0	100	1.000		
N036115-005D	Groundwater		100	☐	0	0	100	1.000		
N036115-006D	Groundwater		100	☐	0	0	100	1.000		
N036115-007D	Groundwater		100	☐	0	0	100	1.000		
N036115-008D	Groundwater		100	☐	0	0	100	1.000		
N036115-013D	Groundwater		100	☐	0	0	100	1.000		
N036115-014D	Groundwater		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10 4/20

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/21/2019 9:05:36 A**
Prep End Date: **6/21/2019 2:45:00 P**

Reviewed/ Date: 7/11/2019
Initials/ Date: Lilia Ramit 6/24/2019

Prep Batch **74301** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74301	Water		100	☐	0	0	100	1.000		
MB-74301	Water		100	☐	0	0	100	1.000		
N036115-015D	Groundwater		200	☐	0	0	100	0.500		
N036115-015D-DU	Groundwater		200	☐	0	0	100	0.500		
N036115-016D	Groundwater		200	☐	0	0	100	0.500		
N036155-011D	Groundwater		200	☐	0	0	100	0.500		
N036155-012D	Groundwater		200	☐	0	0	100	0.500		
N036155-013D	Groundwater		200	☐	0	0	100	0.500		
N036155-014D	Groundwater		200	☐	0	0	100	0.500		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10411	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190619A	1000 ppm Talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/21/2019 9:05:36 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Julia Ramit 6/24/2019

Prep Batch **74301** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74301	Water	IWST190619A	100	☐	0	0	100	1.000		
MB-74301	Water		100	☐	0	0	100	1.000		
N036115-015D	Groundwater		100	☐	0	0	100	1.000		
N036115-015D-DU	Groundwater		100	☐	0	0	100	1.000		
N036115-016D	Groundwater		100	☐	0	0	100	1.000		
N036155-011D	Groundwater		100	☐	0	0	100	1.000		
N036155-012D	Groundwater		100	☐	0	0	100	1.000		
N036155-013D	Groundwater		100	☐	0	0	100	1.000		
N036155-014D	Groundwater		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

6/11

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST: TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
6/19/19 917	MB 74267	100	1.4035 1.4034	1.4033 1.4035	
	LCS 74267	100	1.4077 1.4080	1.4986 1.4989	
1	NOB0115-1D	200	1.4294 1.4292	1.4298 1.4296	
DUP	1D DUP	200	1.3961 1.3957	1.3963 1.3960	
2	2D	200	1.4134 1.4131	1.4138 1.4138	1
3	3D	200	1.4088 1.4086	1.4094 1.4091	
4	4D	200	1.4011 1.4013	1.4016 1.4017	
5	5D	200	1.4048 1.4051	1.4052 1.4052	
6	6D	200	1.4141 1.4144	1.4148 1.4148	
7	7D	200	1.4278 1.4277	1.4279 1.4281	

Julia Ramit 6/24/2019

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ORELAP/NELAP Cert 4046

SOLIDS RAW DATA

TEST (TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
6/19/19 8	NOV0115-8D	200	1.3886 1.3887	1.3890 1.3890	
9	13D	200	1.4002 1.3999	1.4003 1.4003	
10	14D	200	1.4234 1.4232	1.4235 1.4237	
					1
	Julia Ramit	6/24/2019			

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TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
6/19/2019							
MB-74267	100	1.4034	1.4035	1.0000	1.00	1	MBLK
LCS-74267	100	1.4080	1.4989	909.0000	1.00	909	LCS
N036115-001D	200	1.4292	1.4296	4.0000	0.50	2	SAMP
N036115-001DDUP	200	1.3957	1.396	3.0000	0.50	1.5	DUP
N036115-002D	200	1.4131	1.4138	7.0000	0.50	3.5	SAMP
N036115-003D	200	1.4086	1.4091	5.0000	0.50	2.5	SAMP
N036115-004D	200	1.4013	1.4017	4.0000	0.50	2	SAMP
N036115-005D	200	1.4051	1.4052	1.0000	0.50	0.5	SAMP
N036115-006D	200	1.4144	1.4148	4.0000	0.50	2	SAMP
N036115-007D	200	1.4277	1.4281	4.0000	0.50	2	SAMP
N036115-008D	200	1.3887	1.389	3.0000	0.50	1.5	SAMP
N036115-013D	200	1.3999	1.4003	4.0000	0.50	2	SAMP
N036115-014D	200	1.4232	1.4237	5.0000	0.50	2.5	SAMP

Julia Ramit 6/24/2019

SOLIDS RAW DATA

TEST (TSS)/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
6/21/19 905	MB 714301	100	~~1.4080~~ 1.4058 1.4055	1.4055 1.4052	
	LCS 714301	100	1.4269 1.4266	1.45180 1.5180	
12	N036115-15D	200	1.4086 1.4084	1.40859 1.4087	
13	15D DUP	200	1.3980 1.3977	1.3982 1.3980	
14	16D	200	1.4020 1.4021	1.4022 1.4022	1
15	N036155-11D	200	1.4086 1.4088	1.4093 1.4091	
16	12D	200	1.3943 1.3940	1.3946 1.3946	
17	13D	200	1.4045 1.4044	1.4048 1.4049	
18	14D	200	1.4265 1.4268	1.4270 1.4270	
	0.9999 C	1445	6/21/19 LM		

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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
6/21/2019							
MB-74301	100	1.4055	1.4056	1.0000	1.00	1	MBLK
LCS-74301	100	1.4266	1.5180	914.0000	1.00	914	LCS
N036115-015D	200	1.4084	1.4087	3.0000	0.50	1.5	SAMP
N036115-015DDUP	200	1.3977	1.398	3.0000	0.50	1.5	DUP
N036115-016D	200	1.4021	1.4022	1.0000	0.50	0.5	SAMP
N036155-011D	200	1.4088	1.4091	3.0000	0.50	1.5	SAMP
N036155-012D	200	1.394	1.3946	6.0000	0.50	3	SAMP
N036155-013D	200	1.4044	1.4049	5.0000	0.50	2.5	SAMP
N036155-014D	200	1.4268	1.427	2.0000	0.50	1	SAMP

Julia Ramit 6/24/2019

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R134634
ASSET #: N036115

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 6/19/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			X		
3. ICV within ± 10% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			X		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			X		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			X		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			X		
Sample Information						
10. All samples are within linear range.	X			X		
11. All samples pH within 9.3-9.7 when analyzed?	X			X		
12. Duplicate sample injections for every sample. (7199 only)			X			X
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			X		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			X
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			X
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			X		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			X
20. Are all peaks within RT window, ± 0.2 min?	X			X		
21. Are all samples analyzed within hold time?	X			X		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			X
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			X		
24. LCS compounds are within control limits.	X			X		
25. MS/MSD, RPD's are within control limits.	X			X		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			X
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			X		
28. Extraction log complete and included in package (if applicable)			X			X
29. All manual integrations initialed, date and reasons included.	X			X		
30. Before and after manual integration chromatogram included in the package	X			X		
31. All samples and QC raw data present in package.	X			X		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			X		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
34 Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 7/11/2019

2nd Level Reviewer: NS 7/11/2019 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N036115-008A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0541 * 1$$

$$Cr^{+6}, \mu g/L = 0.0541$$

Since PQL is 0.2 µg/L,

$$\mathbf{Cr^{+6}, \mu g/L = ND}$$

NS 7/11/2019

ANALYSIS RUN LOG

INJECTION LOG: 190604A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	06/04/19 3:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/04/19 3:46 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	06/04/19 3:56 PM	Reported
13	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 4:05 PM	Not Reported

jrba 6/7/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190604A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Jun/19 16:36:11**
No. of Injections:	**16**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		06/04/2019 15:37	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		06/04/2019 15:46	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		06/04/2019 15:56	Finished	ICB R190508A
13	BLANK	13	1000	Unknown		06/04/2019 16:05	Finished	BLANK
14	SHUTDOWN	14	1000	Unknown		06/04/2019 16:15	Finished	
15	Eluent: R190604A	15	1000	Unknown		n.a.	Finished	Eluent
16	PCR: R190604B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 6/7/2019

INJECTION LOG: 190619A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	06/19/19 12:06 PM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	06/19/19 12:17 PM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/19/19 12:27 PM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	06/19/19 12:36 PM	Reported
14	MB-R134634	MBLK	1	Hexavalent Chromium	06/19/19 12:46 PM	Reported
15	LCS-R134634	LCS	1	Hexavalent Chromium	06/19/19 12:55 PM	Reported
16	N036115-001A	SAMP	1	Hexavalent Chromium	06/19/19 1:05 PM	Reported
17	N036115-001AMS	MS	1	Hexavalent Chromium	06/19/19 1:14 PM	Reported
18	N036115-002A	SAMP	1	Hexavalent Chromium	06/19/19 1:24 PM	Reported
19	N036115-002AMS	MS	1	Hexavalent Chromium	06/19/19 1:33 PM	Reported
20	N036115-003A	SAMP	1	Hexavalent Chromium	06/19/19 1:42 PM	Reported
21	N036115-003AMS	MS	1	Hexavalent Chromium	06/19/19 1:52 PM	Reported
22	N036115-004A	SAMP	1	Hexavalent Chromium	06/19/19 2:01 PM	Reported
23	N036115-004AMS	MS	1	Hexavalent Chromium	06/19/19 2:11 PM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	06/19/19 2:20 PM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	06/19/19 2:30 PM	Reported
26	N036115-005A	SAMP	1	Hexavalent Chromium	06/19/19 2:39 PM	Reported
27	N036115-005AMS	MS	1	Hexavalent Chromium	06/19/19 2:49 PM	Reported
28	N036115-006A	SAMP	1	Hexavalent Chromium	06/19/19 2:58 PM	Reported
29	N036115-006AMS	MS	1	Hexavalent Chromium	06/19/19 3:08 PM	Reported
30	N036115-007A	SAMP	1	Hexavalent Chromium	06/19/19 3:17 PM	Reported
31	N036115-007AMS	MS	1	Hexavalent Chromium	06/19/19 3:27 PM	Reported
32	N036115-008A	SAMP	1	Hexavalent Chromium	06/19/19 3:36 PM	Reported
33	N036115-008AMS	MS	1	Hexavalent Chromium	06/19/19 3:45 PM	Reported
34	N036115-009A	SAMP	1	Hexavalent Chromium	06/19/19 3:55 PM	Reported
35	N036115-009AMS	MS	1	Hexavalent Chromium	06/19/19 4:04 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	06/19/19 4:14 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	06/19/19 4:23 PM	Reported
38	N036115-003AMSD	MSD	1	Hexavalent Chromium	06/19/19 4:46 PM	Reported
39	N036115-010A	SAMP	1	Hexavalent Chromium	06/19/19 4:57 PM	Reported
40	N036115-010AMS	MS	1	Hexavalent Chromium	06/19/19 5:07 PM	Reported
41	N036115-007ADUP	DUP	1	Hexavalent Chromium	06/19/19 5:16 PM	Reported
42	N036115-013A	SAMP	1	Hexavalent Chromium	06/19/19 5:26 PM	Reported

INJECTION LOG: 190619A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N036115-013AMS	MS	1	Hexavalent Chromium	06/19/19 5:35 PM	Reported
44	N036115-014A	SAMP	1	Hexavalent Chromium	06/19/19 5:44 PM	Reported
45	N036115-014AMS	MS	1	Hexavalent Chromium	06/19/19 5:54 PM	Reported
46	N036115-015A	SAMP	1	Hexavalent Chromium	06/19/19 6:03 PM	Reported
47	N036115-015AMS	MS	1	Hexavalent Chromium	06/19/19 6:13 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	06/19/19 6:22 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	06/19/19 6:32 PM	Reported
50	N036115-016A	SAMP	1	Hexavalent Chromium	06/19/19 6:41 PM	Reported
51	N036115-016AMS	MS	1	Hexavalent Chromium	06/19/19 6:51 PM	Reported
52	N035913-003A	SAMP	1	Hexavalent Chromium	06/19/19 7:00 PM	Not Reported
53	N035913-003AMS	MS	1	Hexavalent Chromium	06/19/19 7:10 PM	Not Reported
54	CCV-5	CCV	1	Hexavalent Chromium	06/19/19 7:19 PM	Reported
55	CCB-5	CCB	1	Hexavalent Chromium	06/19/19 7:29 PM	Reported
56	BLANK	BLANK	1	Hexavalent Chromium	06/19/19 7:38 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190619A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**19/Jun/19 20:08:49**
No. of Injections:	**59**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		06/19/2019 12:06	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		06/19/2019 12:17	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		06/19/2019 12:27	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		06/19/2019 12:36	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		06/19/2019 12:46	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		06/19/2019 12:55	Finished	LCS @5ppb, IWST-190423B
16	N036115-001A,SAMF	7	1000	Unknown		06/19/2019 13:05	Finished	SAMP, 10mL
17	N036115-001AMS,MS	8	1000	Unknown		06/19/2019 13:14	Finished	MS (1ppb), IWST-190423B,10
18	N036115-002A,SAMF	9	1000	Unknown		06/19/2019 13:24	Finished	SAMP, 10mL
19	N036115-002AMS,MS	10	1000	Unknown		06/19/2019 13:33	Finished	MS (1ppb), IWST-190423B,10
20	N036115-003A,SAMF	11	1000	Unknown		06/19/2019 13:42	Finished	SAMP, 10mL
21	N036115-003AMS,MS	12	1000	Unknown		06/19/2019 13:52	Finished	MS (1ppb), IWST-190423B,10
22	N036115-004A,SAMF	13	1000	Unknown		06/19/2019 14:01	Finished	SAMP, 10mL
23	N036115-004AMS,MS	14	1000	Unknown		06/19/2019 14:11	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	15	1000	Unknown		06/19/2019 14:20	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	16	1000	Unknown		06/19/2019 14:30	Finished	CCB R190508A
26	N036115-005A,SAMF	17	1000	Unknown		06/19/2019 14:39	Finished	SAMP, 10mL
27	N036115-005AMS,MS	18	1000	Unknown		06/19/2019 14:49	Finished	MS (1ppb), IWST-190423B,10
28	N036115-006A,SAMF	19	1000	Unknown		06/19/2019 14:58	Finished	SAMP, 10mL
29	N036115-006AMS,MS	20	1000	Unknown		06/19/2019 15:08	Finished	MS (1ppb), IWST-190423B,10
30	N036115-007A,SAMF	21	1000	Unknown		06/19/2019 15:17	Finished	SAMP, 10mL
31	N036115-007AMS,MS	22	1000	Unknown		06/19/2019 15:27	Finished	MS (1ppb), IWST-190423B,10
32	N036115-008A,SAMF	23	1000	Unknown		06/19/2019 15:36	Finished	SAMP, 10mL
33	N036115-008AMS,MS	24	1000	Unknown		06/19/2019 15:45	Finished	MS (1ppb), IWST-190423B,10
34	N036115-009A,SAMF	25	1000	Unknown		06/19/2019 15:55	Finished	SAMP, 10mL
35	N036115-009AMS,MS	26	1000	Unknown		06/19/2019 16:04	Finished	MS (1ppb), IWST-190423B,10
36	CCV-3,CCV,1,	27	1000	Unknown		06/19/2019 16:14	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	28	1000	Unknown		06/19/2019 16:23	Finished	CCB R190508A
38	N036115-003AMSD,M	1	1000	Unknown		06/19/2019 16:46	Finished	MSD (1ppb), IWST-190423B,10
39	N036115-010A,SAMF	2	1000	Unknown		06/19/2019 16:57	Finished	SAMP, 10mL
40	N036115-010AMS,MS	3	1000	Unknown		06/19/2019 17:07	Finished	MS (1ppb), IWST-190423B,10
41	N036115-007ADUP,D	4	1000	Unknown		06/19/2019 17:16	Finished	DUP, 10mL
42	N036115-013A,SAMF	5	1000	Unknown		06/19/2019 17:26	Finished	SAMP, 10mL
43	N036115-013AMS,MS	6	1000	Unknown		06/19/2019 17:35	Finished	MS (1ppb), IWST-190423B,10
44	N036115-014A,SAMF	7	1000	Unknown		06/19/2019 17:44	Finished	SAMP, 10mL
45	N036115-014AMS,MS	8	1000	Unknown		06/19/2019 17:54	Finished	MS (1ppb), IWST-190423B,10
46	N036115-015A,SAMF	9	1000	Unknown		06/19/2019 18:03	Finished	SAMP, 10mL
47	N036115-015AMS,MS	10	1000	Unknown		06/19/2019 18:13	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	11	1000	Unknown		06/19/2019 18:22	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	12	1000	Unknown		06/19/2019 18:32	Finished	CCB R190508A
50	N036115-016A,SAMF	13	1000	Unknown		06/19/2019 18:41	Finished	SAMP, 10mL
51	N036115-016AMS,MS	14	1000	Unknown		06/19/2019 18:51	Finished	MS (1ppb), IWST-190423B,10
52	N035913-003A,SAMF	15	1000	Unknown		06/19/2019 19:00	Finished	SAMP, 10mL
53	N035913-003AMS,MS	16	1000	Unknown		06/19/2019 19:10	Finished	MS (1ppb), IWST-190423B,10
54	CCV-5,CCV,1,	17	1000	Unknown		06/19/2019 19:19	Finished	CCV @5ppb, IWST-190423A
55	CCB-5,CCB,1,	18	1000	Unknown		06/19/2019 19:29	Finished	CCB R190508A
56	BLANK	19	1000	Unknown		06/19/2019 19:38	Finished	BLANK
57	SHUTDOWN	20	1000	Unknown		06/19/2019 19:47	Finished	
58	Eluent: R190617A	21	1000	Unknown		n.a.	Finished	Eluent
59	PCR: R190618A	22	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 6/18/19
Time Prepared: 1857 H
Prepared By: MSA

Slope: 98.6%
pH 4: 4.01
7: 7.01
10: 10.02
Cu: 7.01

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-1903294
NH4OH + NH4SO4 eluent: M90618A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N036101-001A	9.37	-	-250ml	-250ml		
2)	2A	9.45	-				
3)	N036109-001C	7.11		-250ml			
4)	2C	6.85					
5)	3C	7.14					
6)	4C	7.07					
7)	5C	7.56					
8)	6C	7.64					
9)	7C	7.17					
10)	8C	6.94					
11)	9C	6.91					
12)	10C	6.90					
13)	11C	7.49					
14)	12C	7.20					
15)	13C	7.10					

Sample Preparation

Date Prepared: 6/19/19
Time Prepared: 1211 H
Prepared By: MSA

Slope: 98.6%
pH 4: 4.04
7: 6.96
10: 10.02

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-1903294
NH4OH + NH4SO4 eluent: M90618A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N036115-001A	9.39	-	-250ml	-250ml		1/3
2)	1A	9.33	-				2/3
3)	1A	9.35	-				3/3
4)	2A	9.34	-				1/3
5)	2A	9.36	-				2/3
6)	2A	9.37	-				3/3
7)	3A	9.47	-				1/3
8)	3A	9.42	-				2/3
9)	3A	9.44	-				3/3
10)	4A	9.55	-				1/3
11)	4A	9.50	-				2/3
12)	4A	9.52	-				3/3
13)	5A	9.41					1/3
14)	5A	9.39	-				2/3
15)	5A	9.41	-				3/3
	6A	9.40	-				1/3

Logbook No. 16

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 6/19/19
Time Prepared: 1211H
Prepared By: NSA

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90618A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N036115-006A	9.37	–	-250ml	-250ml	2/3	
2)	6A	9.36	–			3/3	
3)	7A	9.39	–			1/3	
4)	7A	9.39	–			2/3	
5)	7A	9.38	–			3/3	
6)	8A	9.38	–			1/3	
7)	8A	9.35	–			2/3	
8)	8A	9.38	–			3/3	
9)	9A	9.32	–			1/3	
10)	9A	9.30	–			2/3	
11)	9A	9.32	–			3/3	
12)	10A	9.37	–			1/3	
13)	10A	9.35	–			2/3	
14)	10A	9.36	–			3/3	
15)	13A	9.39	–			1/3	
	13A	9.36	–			2/3	

Sample Preparation

Date Prepared: 6/19/19
Time Prepared: 1211H
Prepared By: NSA

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-190329A
NH4OH + NH4SO4 eluent: M90618A
NH4OH + NH4SO4 buffer: M90508A

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	N036115-013A	9.42	–	-250ml	-250ml	3/3	
2)	14A	9.42	–			1/3	
3)	14A	9.43	–			2/3	
4)	14A	9.44	–			3/3	
5)	15A	9.35	–			1/3	
6)	15A	9.38	–			2/3	
7)	15A	9.37	–			3/3	
8)	16A	9.35	–			1/3	
9)	16A	9.33	–			2/3	
10)	16A	9.33	–			3/3	
11)							
12)							
13)							
14)							
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 6/4/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0517	0.2582	1.2770	2.5503	3.8530	5.1464	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ICV**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/4/2019**	SeqNo: **3416830**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.971	0.20	5.000	0	99.4	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ZZZZZZ**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/4/2019**	SeqNo: **3416831**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.199	0.20	0.2000	0	99.4	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **CCV**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416833**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.004	0.20	5.000	0	100	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ZZZZZZ**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416834**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.205	0.20	0.2000	0	102	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ZZZZZZ**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416846**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.935	0.20	10.00	0	99.4	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **CCV**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416858**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.997	0.20	5.000	0	99.9	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ZZZZZZ**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416870**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	9.956	0.20	10.00	0	99.6	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **CCV**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416874**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.020	0.20	5.000	0	100	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **ICB**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/4/2019**	SeqNo: **3416832**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **CCB**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416835**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **CCB**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416847**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **CCB**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416859**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **CCB**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416871**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134634**
Client ID: **CCB**	Batch ID: **R134634**	TestNo: **EPA 218.6**		Analysis Date: **6/19/2019**	SeqNo: **3416875**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 6/19/2019

Sample Name	Retention Time	Evaluation
ICV	4.740	
CCV-1	4.723	
CCV-2	4.715	
CCV-3	4.723	
CCV-4	4.715	
CCV-5	4.723	
Average	4.720	
Actual RT Window	4.640 - 4.800	
Applied RT Window	4.520 - 4.920	
MB-R134634	N.A.	N.A.
LCS-R134634	4.723	PASS
N036115-001A	N.A.	N.A.
N036115-001AMS	4.715	PASS
N036115-002A	N.A.	N.A.
N036115-002AMS	4.715	PASS
N036115-003A	N.A.	N.A.
N036115-003AMS	4.715	PASS
N036115-004A	N.A.	N.A.
N036115-004AMS	4.715	PASS
N036115-005A	N.A.	N.A.
N036115-005AMS	4.723	PASS
N036115-006A	N.A.	N.A.
N036115-006AMS	4.715	PASS
N036115-007A	N.A.	N.A.
N036115-007AMS	4.715	PASS
N036115-008A	4.706	PASS
N036115-008AMS	4.715	PASS
N036115-009A	N.A.	N.A.
N036115-009AMS	4.723	PASS
N036115-003AMSD	4.715	PASS
N036115-010A	N.A.	N.A.

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 6/19/2019

Sample Name	Retention Time	Evaluation
ICV	4.740	
CCV-1	4.723	
CCV-2	4.715	
CCV-3	4.723	
CCV-4	4.715	
CCV-5	4.723	
Average	4.720	
Actual RT Window	4.640 - 4.800	
Applied RT Window	4.520 - 4.920	
N036115-010AMS	4.723	PASS
N036115-007ADUP	N.A.	N.A.
N036115-013A	N.A.	N.A.
N036115-013AMS	4.715	PASS
N036115-014A	N.A.	N.A.
N036115-014AMS	4.715	PASS
N036115-015A	N.A.	N.A.
N036115-015AMS	4.723	PASS
N036115-016A	N.A.	N.A.
N036115-016AMS	4.715	PASS
N035913-003A	4.648	PASS
N035913-003AMS	4.656	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190604A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	06/04/19 3:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/04/19 3:46 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	06/04/19 3:56 PM	Reported
13	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 4:05 PM	Not Reported

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Injection Log Summary

Sequence Details

Name:	**IC-07_190604A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Jun/19 16:36:11**
No. of Injections:	**16**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		06/04/2019 15:37	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		06/04/2019 15:46	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		06/04/2019 15:56	Finished	ICB R190508A
13	BLANK	13	1000	Unknown		06/04/2019 16:05	Finished	BLANK
14	SHUTDOWN	14	1000	Unknown		06/04/2019 16:15	Finished	
15	Eluent: R190604A	15	1000	Unknown		n.a.	Finished	Eluent
16	PCR: R190604B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

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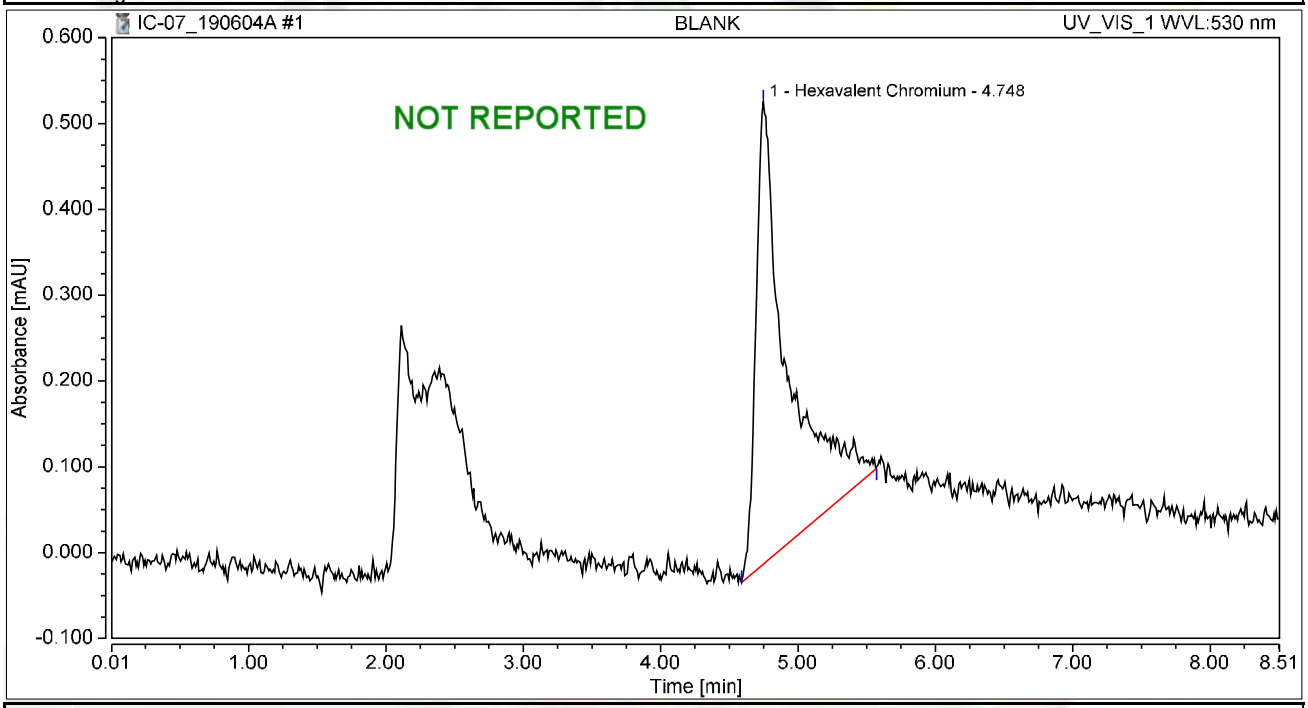
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

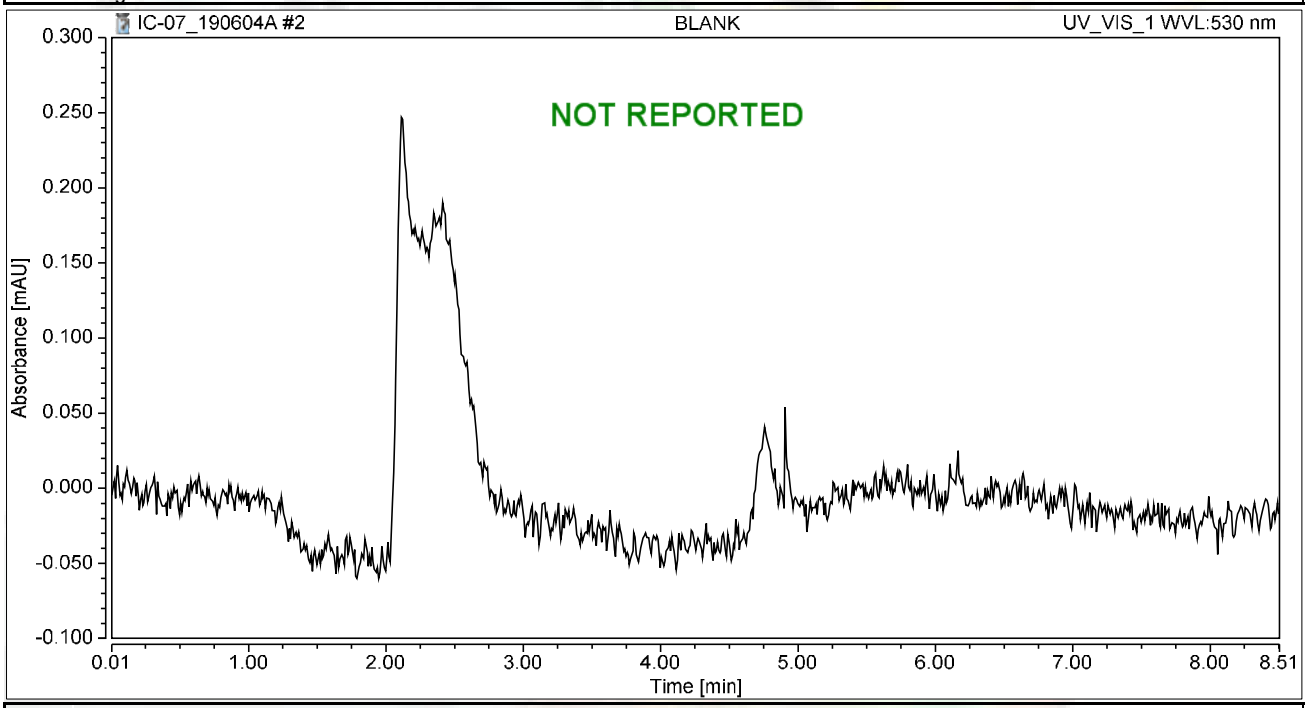
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.144	0.538	100.00	100.00	0.5608
Total:			**0.144**	**0.538**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

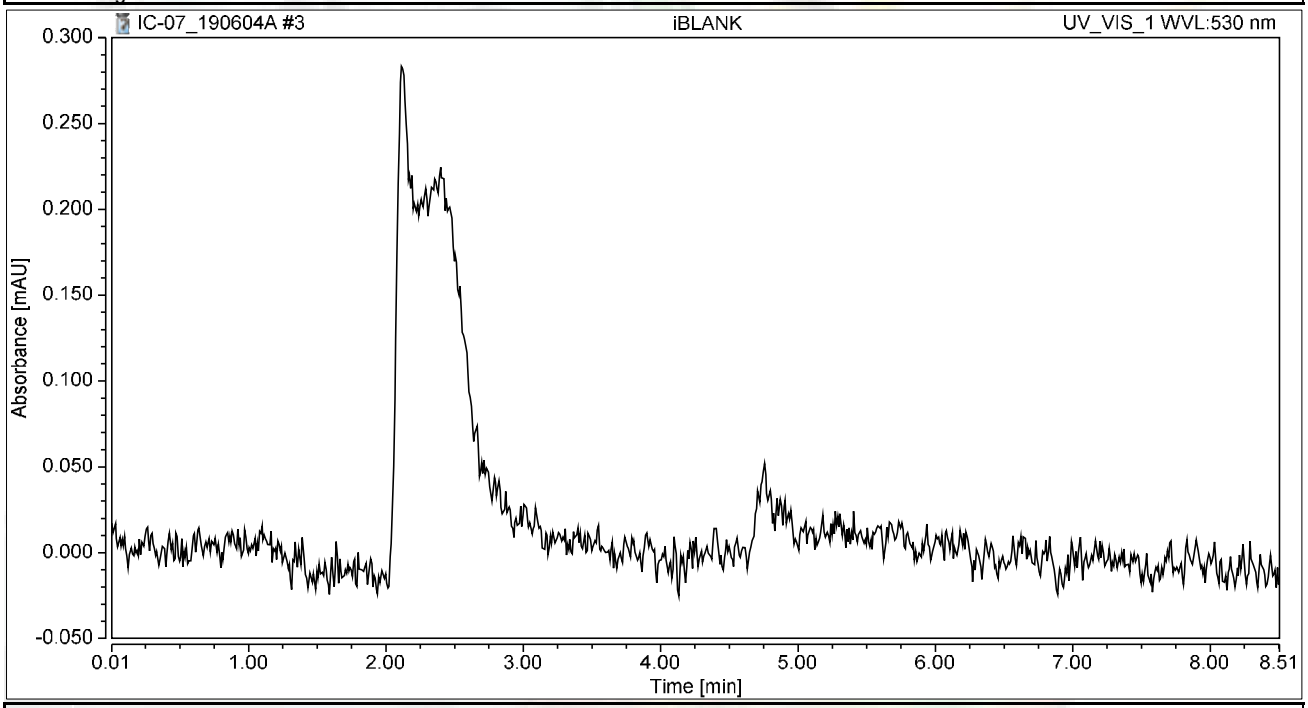
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

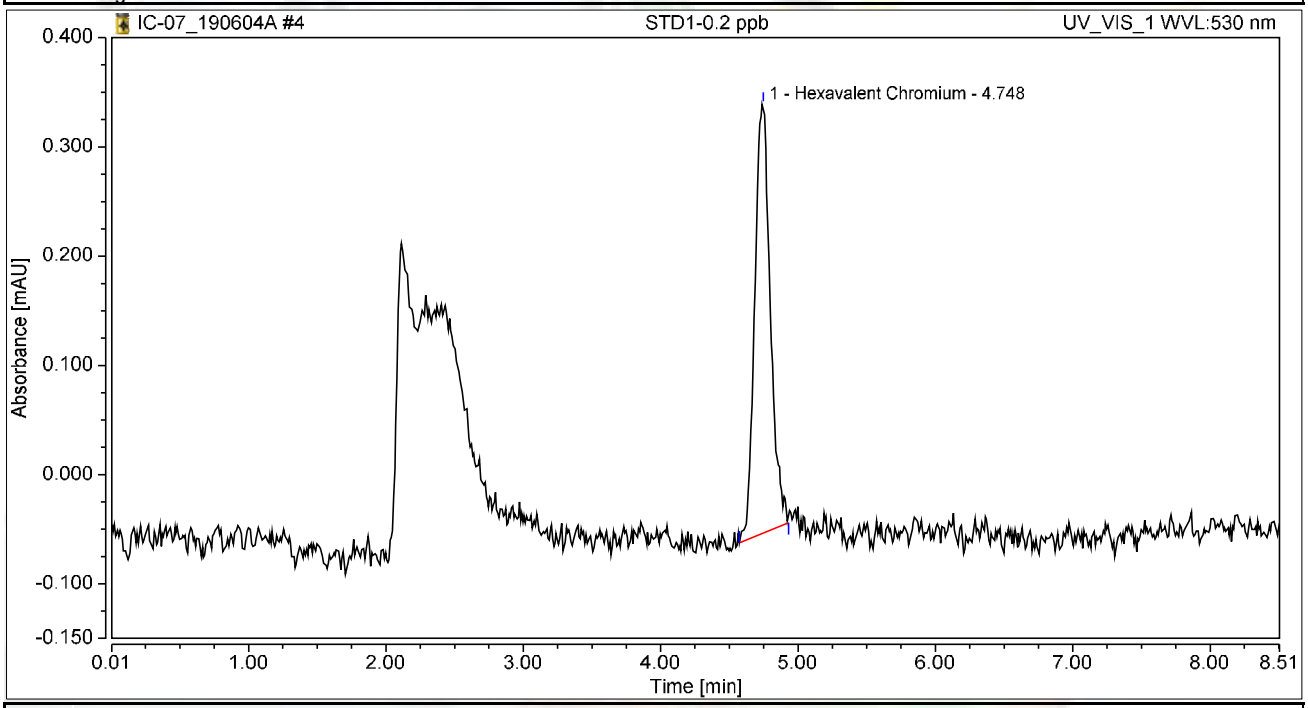
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

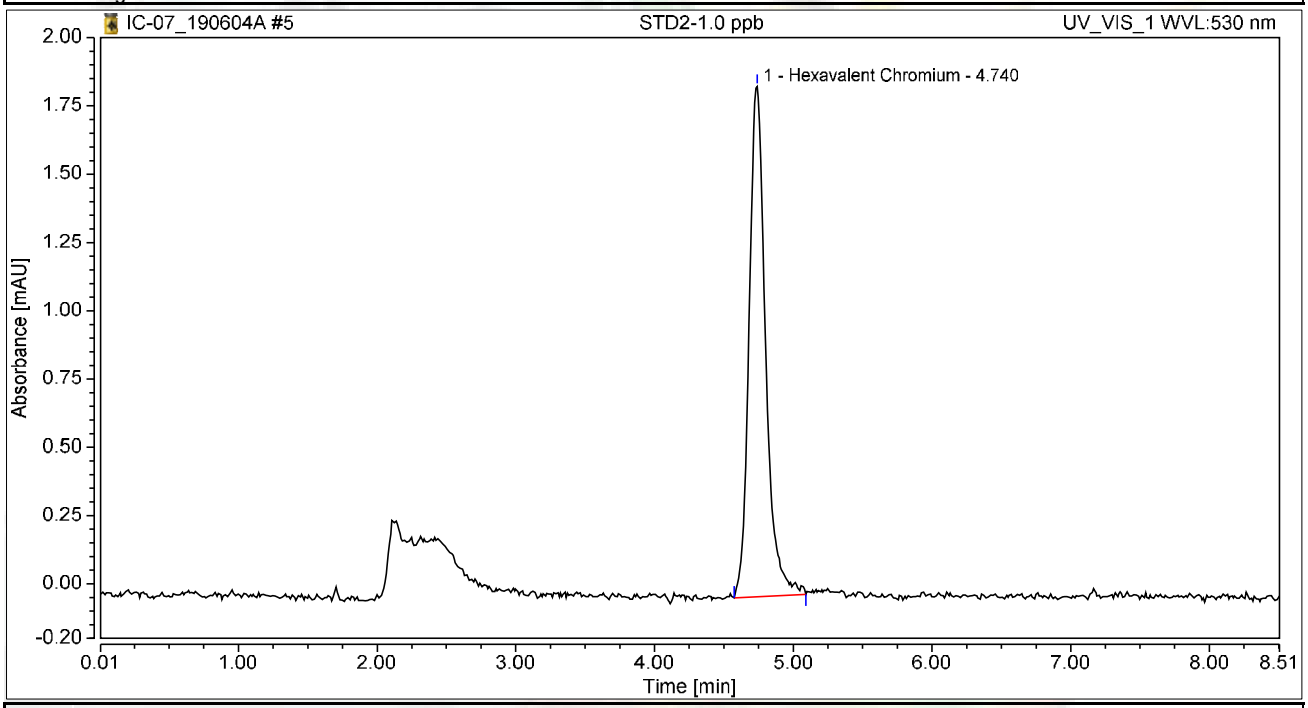
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.052	0.392	100.00	100.00	0.2013
Total:			**0.052**	**0.392**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

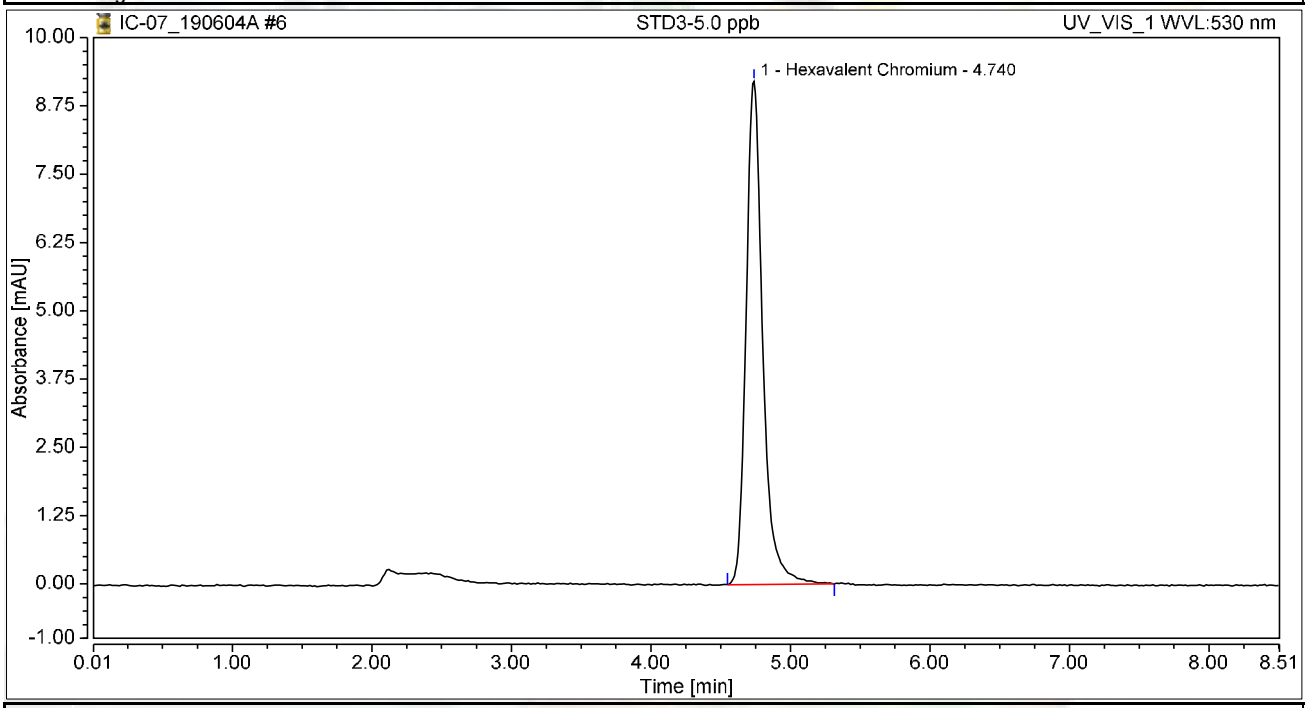
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.258	1.868	100.00	100.00	1.0056
Total:			**0.258**	**1.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

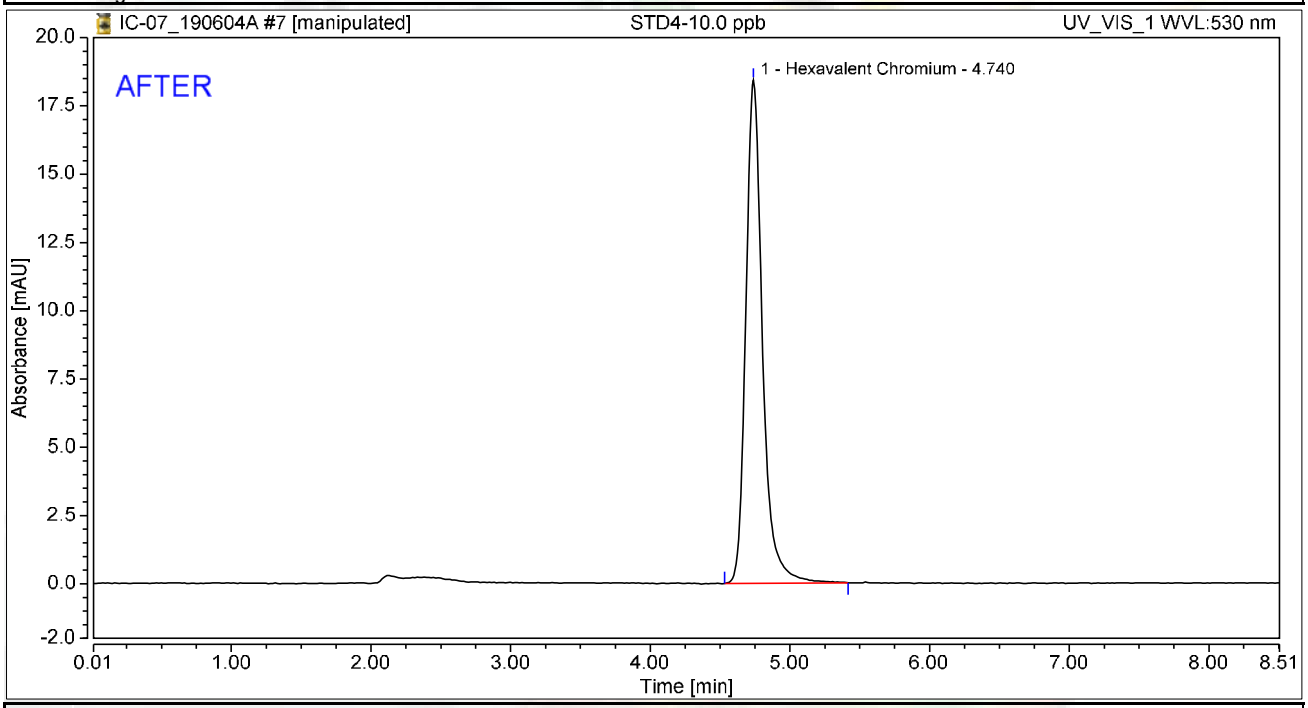
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.277	9.214	100.00	100.00	4.9723
Total:			**1.277**	**9.214**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.550	18.422	100.00	100.00	9.9303
Total:			**2.550**	**18.422**	**100.00**	**100.00**	

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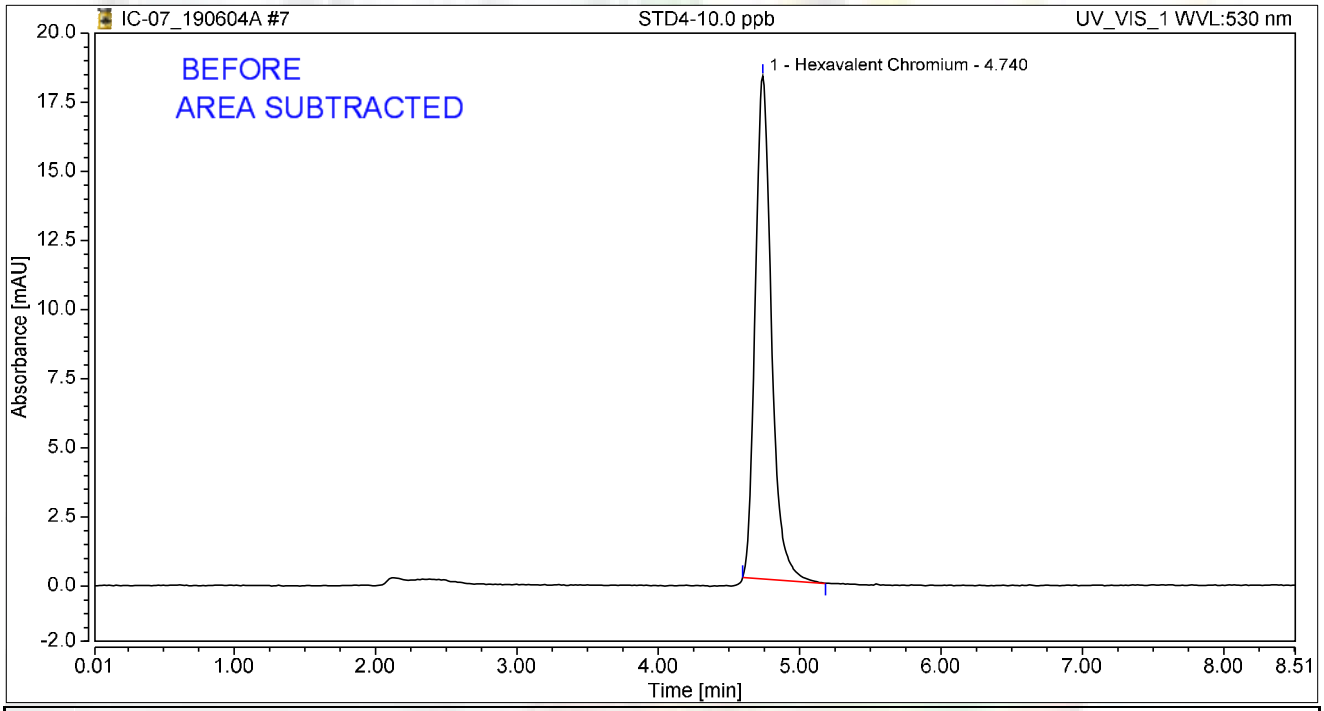
Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.429	18.178	100.00	100.00	9.5179
Total:			**2.429**	**18.178**	**100.00**	**100.00**	

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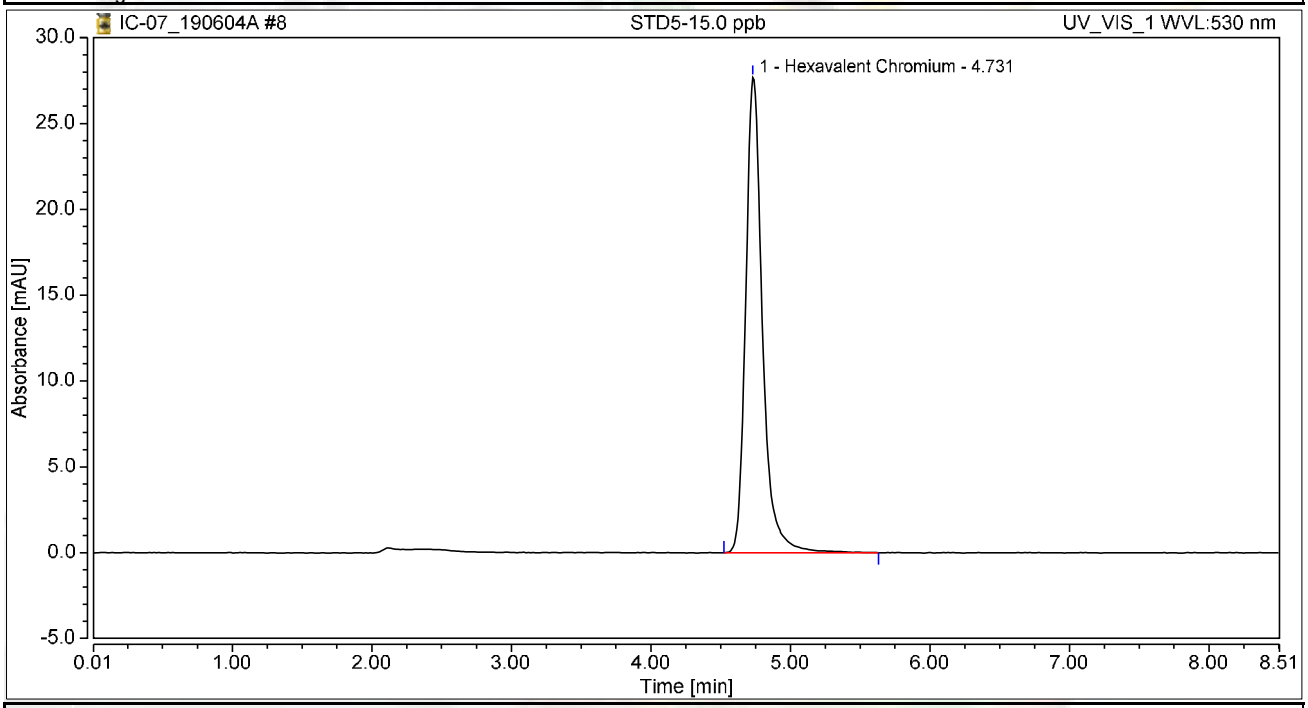
Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

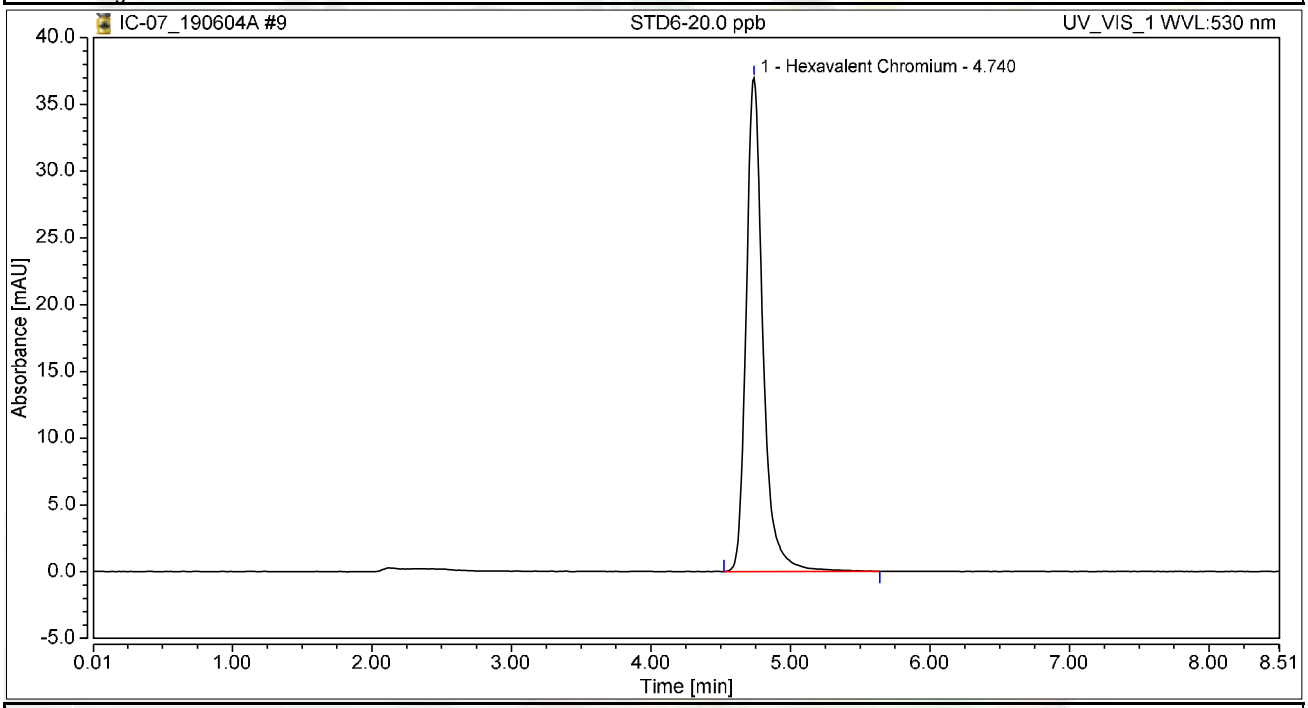
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.853	27.685	100.00	100.00	15.0030
Total:			**3.853**	**27.685**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:28**	*Sample Weight:*	**1.0000**

Chromatogram



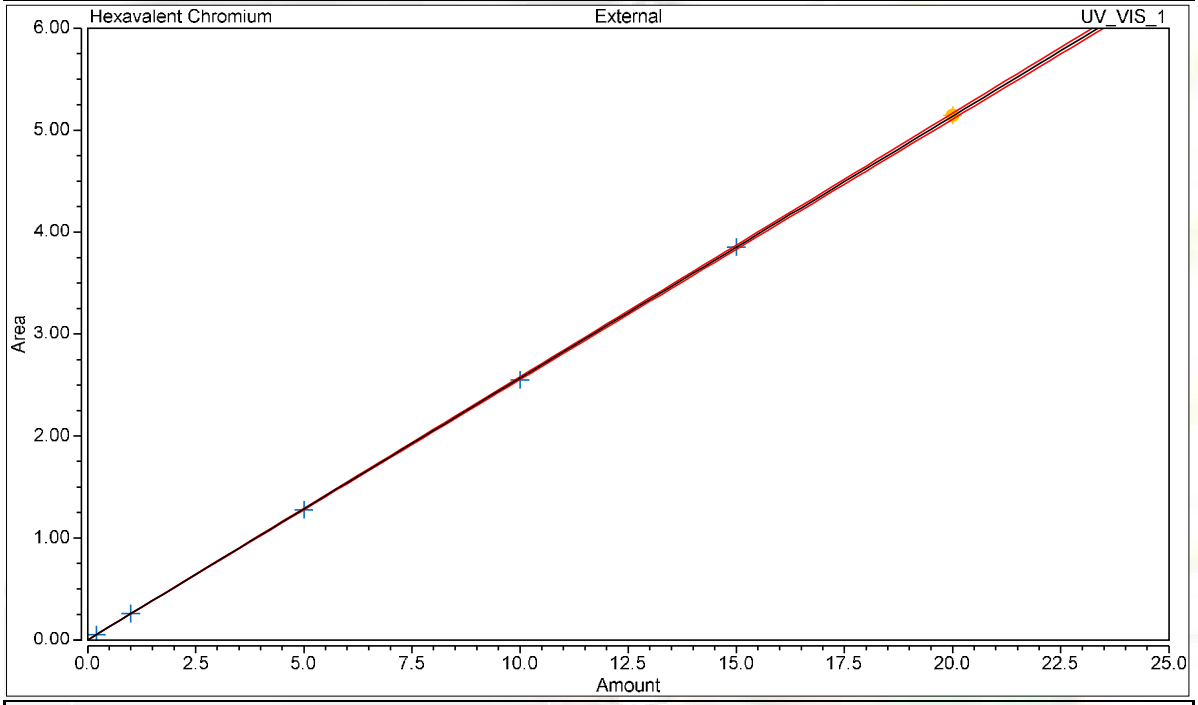
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	5.146	36.991	100.00	100.00	20.0393
Total:			**5.146**	**36.991**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2568
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

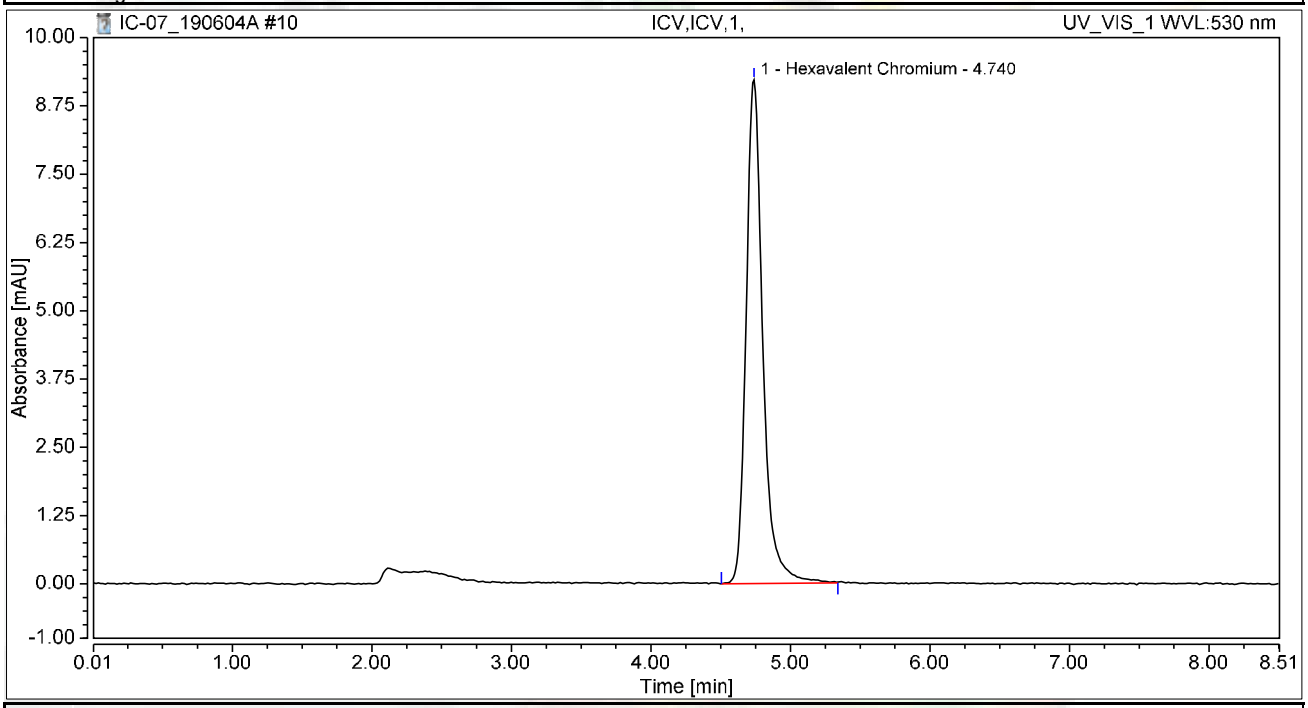
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0517	0.052	0.392
5	STD2-1.0 ppb	02	1.0000	0.2582	0.258	1.868
6	STD3-5.0 ppb	03	5.0000	1.2770	1.277	9.214
7	STD4-10.0 ppb	04	10.0000	2.5503	2.550	18.422
8	STD5-15.0 ppb	05	15.0000	3.8530	3.853	27.685
9	STD6-20.0 ppb	06	20.0000	5.1464	5.146	36.991

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

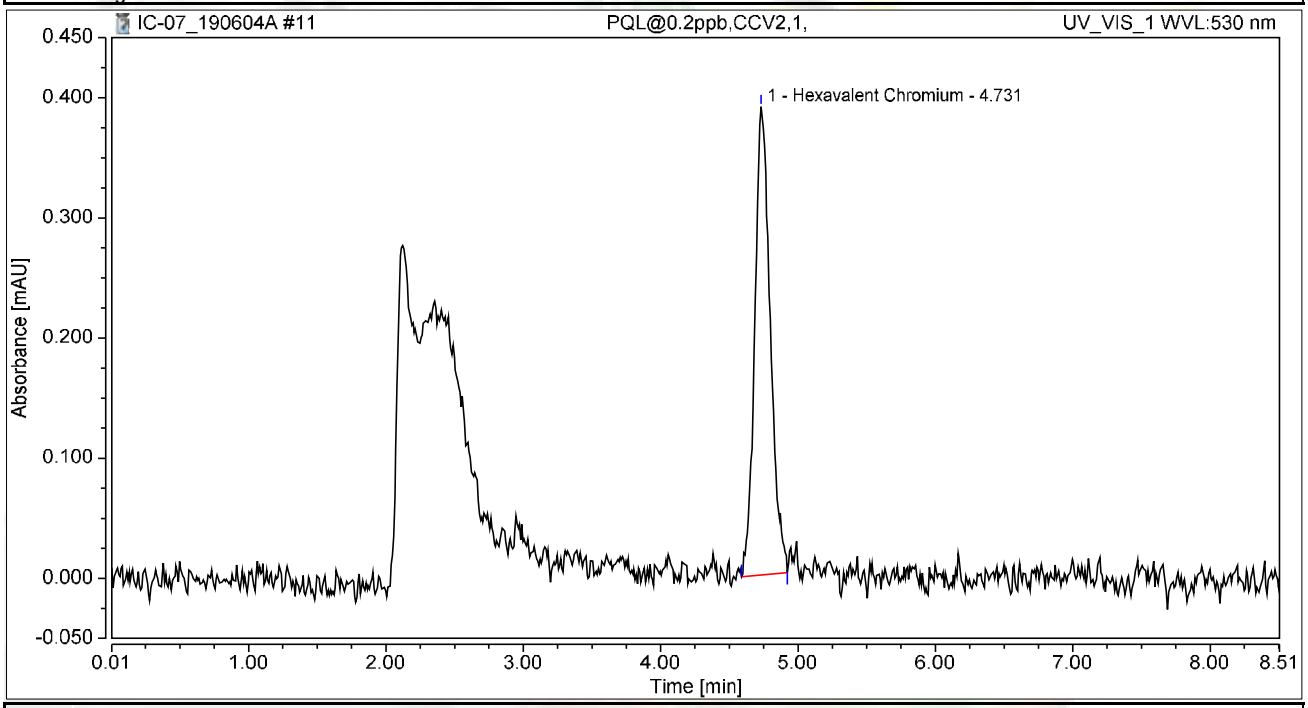
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.277	9.219	100.00	100.00	4.9710
Total:			**1.277**	**9.219**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

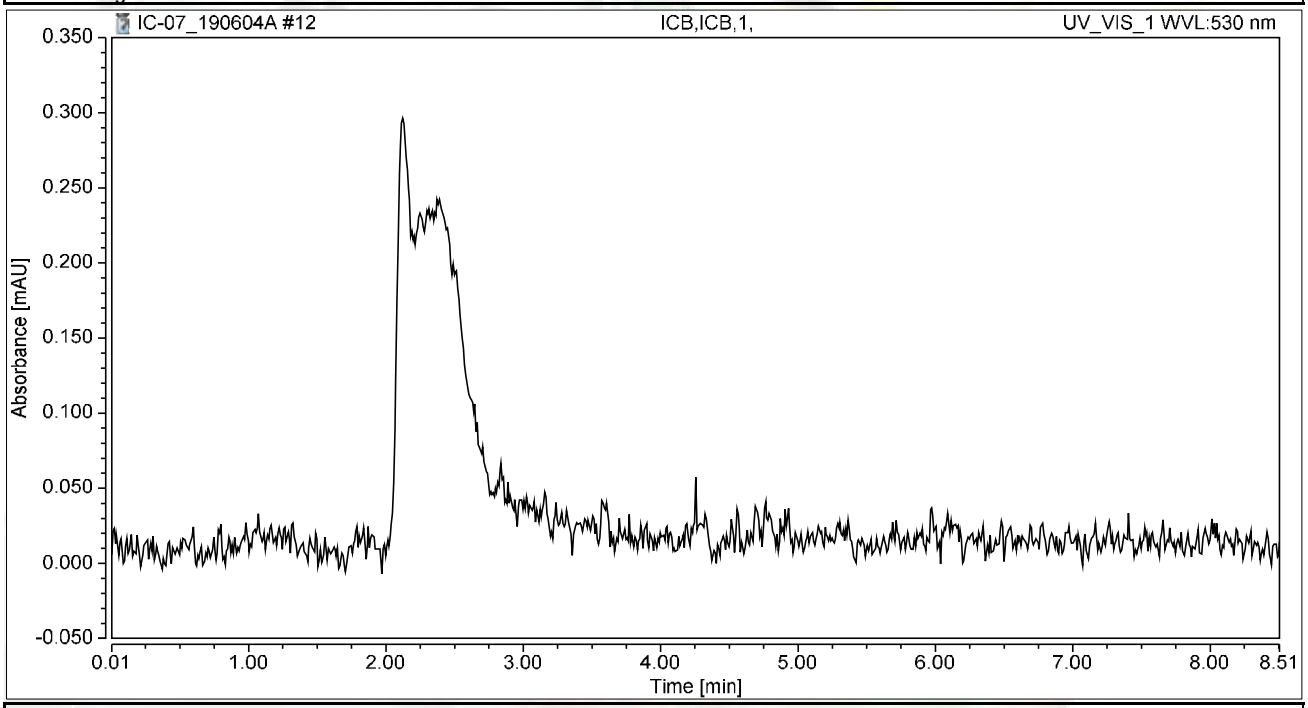
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.051	0.390	100.00	100.00	0.1988
Total:			**0.051**	**0.390**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

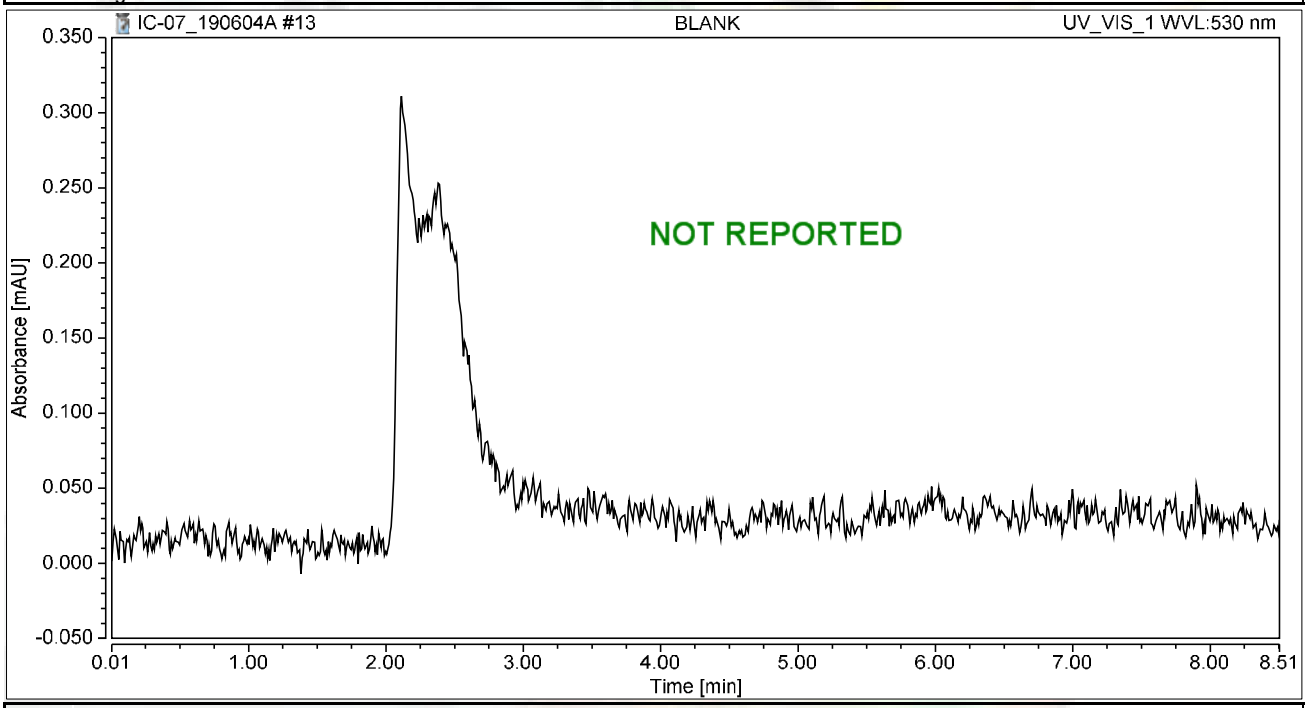
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 16:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190619A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	06/19/19 12:06 PM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	06/19/19 12:17 PM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/19/19 12:27 PM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	06/19/19 12:36 PM	Reported
14	MB-R134634	MBLK	1	Hexavalent Chromium	06/19/19 12:46 PM	Reported
15	LCS-R134634	LCS	1	Hexavalent Chromium	06/19/19 12:55 PM	Reported
16	N036115-001A	SAMP	1	Hexavalent Chromium	06/19/19 1:05 PM	Reported
17	N036115-001AMS	MS	1	Hexavalent Chromium	06/19/19 1:14 PM	Reported
18	N036115-002A	SAMP	1	Hexavalent Chromium	06/19/19 1:24 PM	Reported
19	N036115-002AMS	MS	1	Hexavalent Chromium	06/19/19 1:33 PM	Reported
20	N036115-003A	SAMP	1	Hexavalent Chromium	06/19/19 1:42 PM	Reported
21	N036115-003AMS	MS	1	Hexavalent Chromium	06/19/19 1:52 PM	Reported
22	N036115-004A	SAMP	1	Hexavalent Chromium	06/19/19 2:01 PM	Reported
23	N036115-004AMS	MS	1	Hexavalent Chromium	06/19/19 2:11 PM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	06/19/19 2:20 PM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	06/19/19 2:30 PM	Reported
26	N036115-005A	SAMP	1	Hexavalent Chromium	06/19/19 2:39 PM	Reported
27	N036115-005AMS	MS	1	Hexavalent Chromium	06/19/19 2:49 PM	Reported
28	N036115-006A	SAMP	1	Hexavalent Chromium	06/19/19 2:58 PM	Reported
29	N036115-006AMS	MS	1	Hexavalent Chromium	06/19/19 3:08 PM	Reported
30	N036115-007A	SAMP	1	Hexavalent Chromium	06/19/19 3:17 PM	Reported
31	N036115-007AMS	MS	1	Hexavalent Chromium	06/19/19 3:27 PM	Reported
32	N036115-008A	SAMP	1	Hexavalent Chromium	06/19/19 3:36 PM	Reported
33	N036115-008AMS	MS	1	Hexavalent Chromium	06/19/19 3:45 PM	Reported
34	N036115-009A	SAMP	1	Hexavalent Chromium	06/19/19 3:55 PM	Reported
35	N036115-009AMS	MS	1	Hexavalent Chromium	06/19/19 4:04 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	06/19/19 4:14 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	06/19/19 4:23 PM	Reported
38	N036115-003AMSD	MSD	1	Hexavalent Chromium	06/19/19 4:46 PM	Reported
39	N036115-010A	SAMP	1	Hexavalent Chromium	06/19/19 4:57 PM	Reported
40	N036115-010AMS	MS	1	Hexavalent Chromium	06/19/19 5:07 PM	Reported
41	N036115-007ADUP	DUP	1	Hexavalent Chromium	06/19/19 5:16 PM	Reported
42	N036115-013A	SAMP	1	Hexavalent Chromium	06/19/19 5:26 PM	Reported

INJECTION LOG: 190619A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N036115-013AMS	MS	1	Hexavalent Chromium	06/19/19 5:35 PM	Reported
44	N036115-014A	SAMP	1	Hexavalent Chromium	06/19/19 5:44 PM	Reported
45	N036115-014AMS	MS	1	Hexavalent Chromium	06/19/19 5:54 PM	Reported
46	N036115-015A	SAMP	1	Hexavalent Chromium	06/19/19 6:03 PM	Reported
47	N036115-015AMS	MS	1	Hexavalent Chromium	06/19/19 6:13 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	06/19/19 6:22 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	06/19/19 6:32 PM	Reported
50	N036115-016A	SAMP	1	Hexavalent Chromium	06/19/19 6:41 PM	Reported
51	N036115-016AMS	MS	1	Hexavalent Chromium	06/19/19 6:51 PM	Reported
52	N035913-003A	SAMP	1	Hexavalent Chromium	06/19/19 7:00 PM	Not Reported
53	N035913-003AMS	MS	1	Hexavalent Chromium	06/19/19 7:10 PM	Not Reported
54	CCV-5	CCV	1	Hexavalent Chromium	06/19/19 7:19 PM	Reported
55	CCB-5	CCB	1	Hexavalent Chromium	06/19/19 7:29 PM	Reported
56	BLANK	BLANK	1	Hexavalent Chromium	06/19/19 7:38 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190619A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**19/Jun/19 20:08:49**
No. of Injections:	**59**	*Updated By:*	**ics 5000**

Injection Details

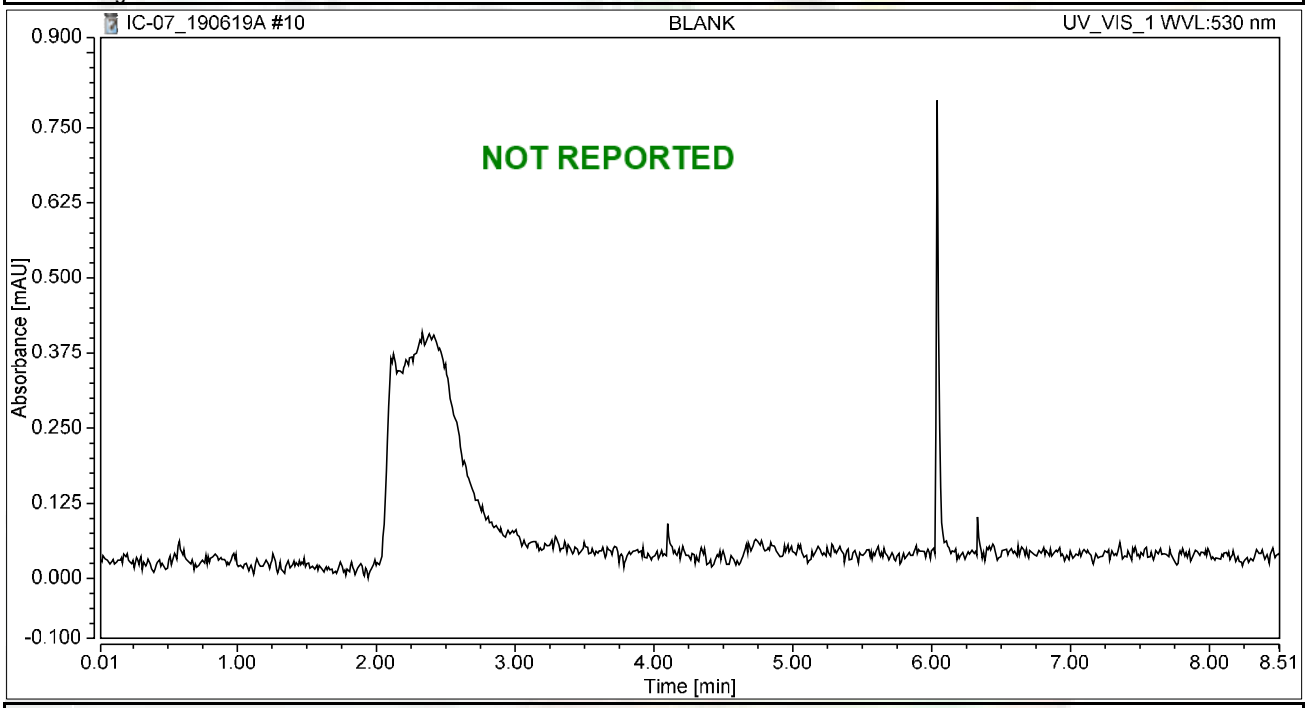
No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		06/19/2019 12:06	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		06/19/2019 12:17	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		06/19/2019 12:27	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		06/19/2019 12:36	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		06/19/2019 12:46	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		06/19/2019 12:55	Finished	LCS @5ppb, IWST-190423B
16	N036115-001A,SAMF	7	1000	Unknown		06/19/2019 13:05	Finished	SAMP, 10mL
17	N036115-001AMS,MS	8	1000	Unknown		06/19/2019 13:14	Finished	MS (1ppb), IWST-190423B,10
18	N036115-002A,SAMF	9	1000	Unknown		06/19/2019 13:24	Finished	SAMP, 10mL
19	N036115-002AMS,MS	10	1000	Unknown		06/19/2019 13:33	Finished	MS (1ppb), IWST-190423B,10
20	N036115-003A,SAMF	11	1000	Unknown		06/19/2019 13:42	Finished	SAMP, 10mL
21	N036115-003AMS,MS	12	1000	Unknown		06/19/2019 13:52	Finished	MS (1ppb), IWST-190423B,10
22	N036115-004A,SAMF	13	1000	Unknown		06/19/2019 14:01	Finished	SAMP, 10mL
23	N036115-004AMS,MS	14	1000	Unknown		06/19/2019 14:11	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	15	1000	Unknown		06/19/2019 14:20	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	16	1000	Unknown		06/19/2019 14:30	Finished	CCB R190508A
26	N036115-005A,SAMF	17	1000	Unknown		06/19/2019 14:39	Finished	SAMP, 10mL
27	N036115-005AMS,MS	18	1000	Unknown		06/19/2019 14:49	Finished	MS (1ppb), IWST-190423B,10
28	N036115-006A,SAMF	19	1000	Unknown		06/19/2019 14:58	Finished	SAMP, 10mL
29	N036115-006AMS,MS	20	1000	Unknown		06/19/2019 15:08	Finished	MS (1ppb), IWST-190423B,10
30	N036115-007A,SAMF	21	1000	Unknown		06/19/2019 15:17	Finished	SAMP, 10mL
31	N036115-007AMS,MS	22	1000	Unknown		06/19/2019 15:27	Finished	MS (1ppb), IWST-190423B,10
32	N036115-008A,SAMF	23	1000	Unknown		06/19/2019 15:36	Finished	SAMP, 10mL
33	N036115-008AMS,MS	24	1000	Unknown		06/19/2019 15:45	Finished	MS (1ppb), IWST-190423B,10
34	N036115-009A,SAMF	25	1000	Unknown		06/19/2019 15:55	Finished	SAMP, 10mL
35	N036115-009AMS,MS	26	1000	Unknown		06/19/2019 16:04	Finished	MS (1ppb), IWST-190423B,10
36	CCV-3,CCV,1,	27	1000	Unknown		06/19/2019 16:14	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	28	1000	Unknown		06/19/2019 16:23	Finished	CCB R190508A
38	N036115-003AMSD,M	1	1000	Unknown		06/19/2019 16:46	Finished	MSD (1ppb), IWST-190423B,10
39	N036115-010A,SAMF	2	1000	Unknown		06/19/2019 16:57	Finished	SAMP, 10mL
40	N036115-010AMS,MS	3	1000	Unknown		06/19/2019 17:07	Finished	MS (1ppb), IWST-190423B,10
41	N036115-007ADUP,D	4	1000	Unknown		06/19/2019 17:16	Finished	DUP, 10mL
42	N036115-013A,SAMF	5	1000	Unknown		06/19/2019 17:26	Finished	SAMP, 10mL
43	N036115-013AMS,MS	6	1000	Unknown		06/19/2019 17:35	Finished	MS (1ppb), IWST-190423B,10
44	N036115-014A,SAMF	7	1000	Unknown		06/19/2019 17:44	Finished	SAMP, 10mL
45	N036115-014AMS,MS	8	1000	Unknown		06/19/2019 17:54	Finished	MS (1ppb), IWST-190423B,10
46	N036115-015A,SAMF	9	1000	Unknown		06/19/2019 18:03	Finished	SAMP, 10mL
47	N036115-015AMS,MS	10	1000	Unknown		06/19/2019 18:13	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	11	1000	Unknown		06/19/2019 18:22	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	12	1000	Unknown		06/19/2019 18:32	Finished	CCB R190508A
50	N036115-016A,SAMF	13	1000	Unknown		06/19/2019 18:41	Finished	SAMP, 10mL
51	N036115-016AMS,MS	14	1000	Unknown		06/19/2019 18:51	Finished	MS (1ppb), IWST-190423B,10
52	N035913-003A,SAMF	15	1000	Unknown		06/19/2019 19:00	Finished	SAMP, 10mL
53	N035913-003AMS,MS	16	1000	Unknown		06/19/2019 19:10	Finished	MS (1ppb), IWST-190423B,10
54	CCV-5,CCV,1,	17	1000	Unknown		06/19/2019 19:19	Finished	CCV @5ppb, IWST-190423A
55	CCB-5,CCB,1,	18	1000	Unknown		06/19/2019 19:29	Finished	CCB R190508A
56	BLANK	19	1000	Unknown		06/19/2019 19:38	Finished	BLANK
57	SHUTDOWN	20	1000	Unknown		06/19/2019 19:47	Finished	
58	Eluent: R190617A	21	1000	Unknown		n.a.	Finished	Eluent
59	PCR: R190618A	22	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 12:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

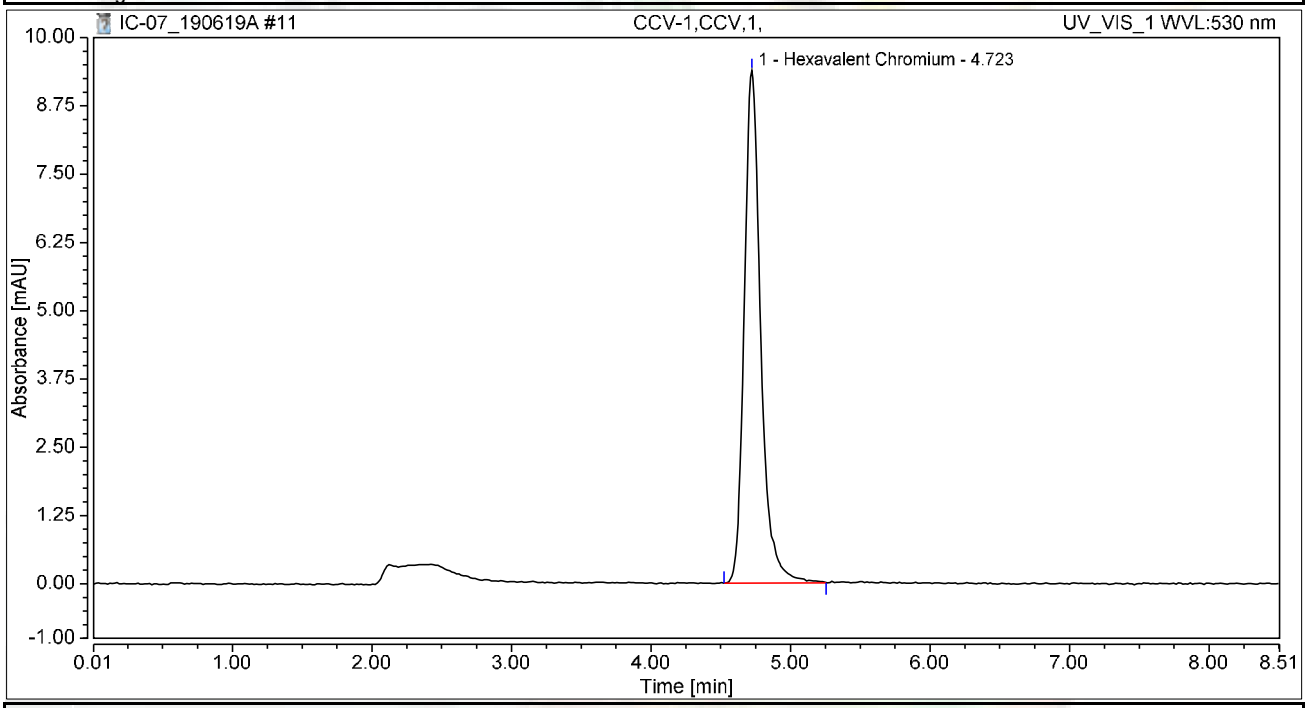
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 12:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

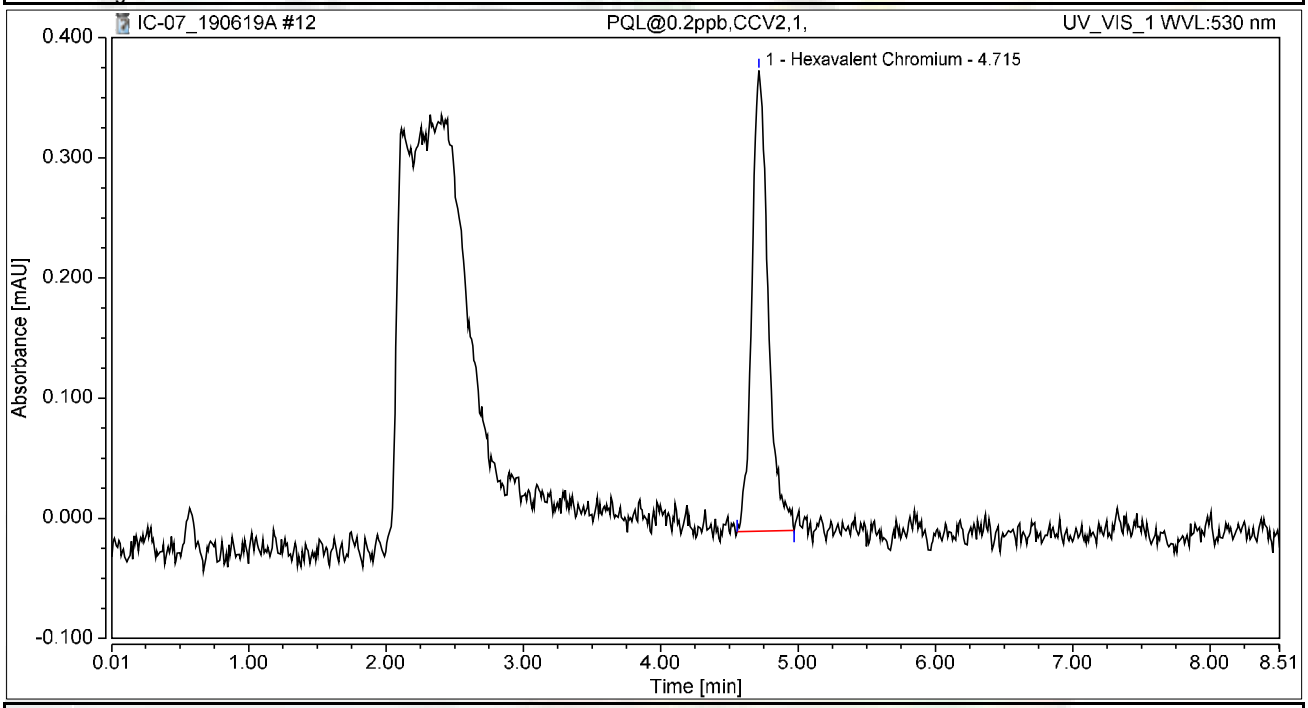
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.285	9.385	100.00	100.00	5.0039
Total:			**1.285**	**9.385**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 12:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

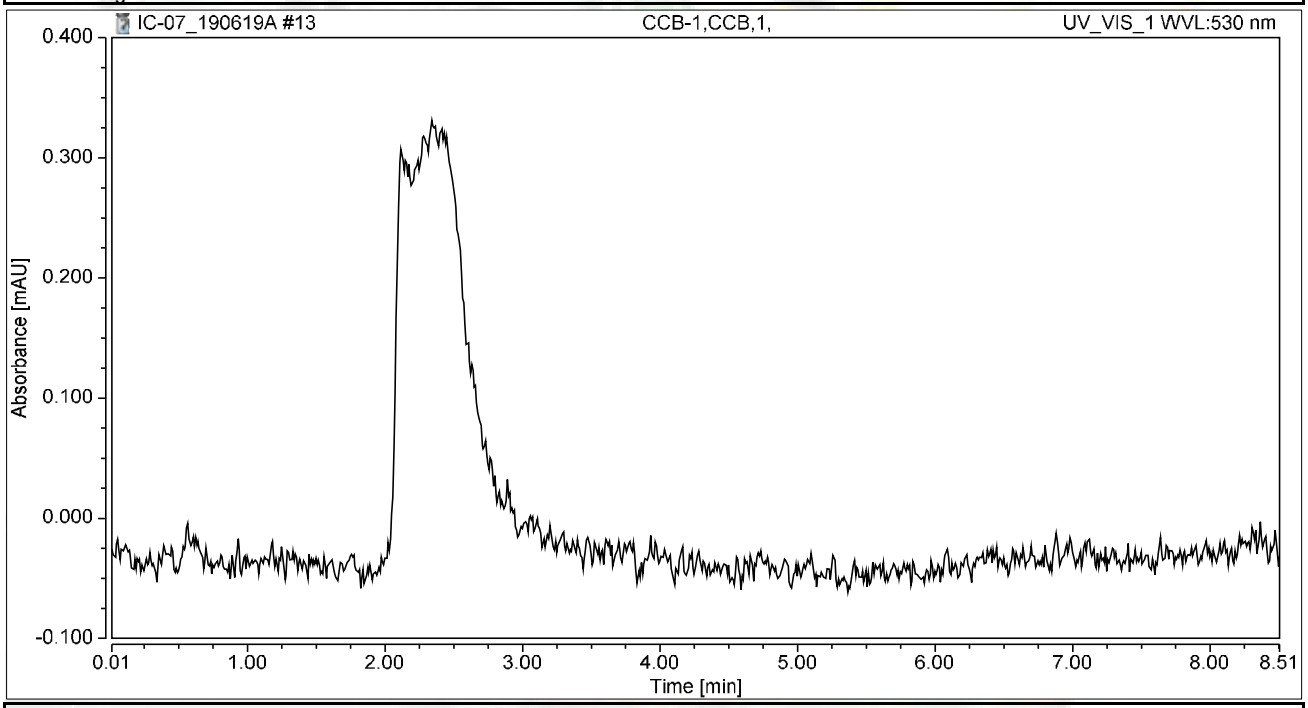
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.053	0.383	100.00	100.00	0.2046
Total:			**0.053**	**0.383**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 12:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

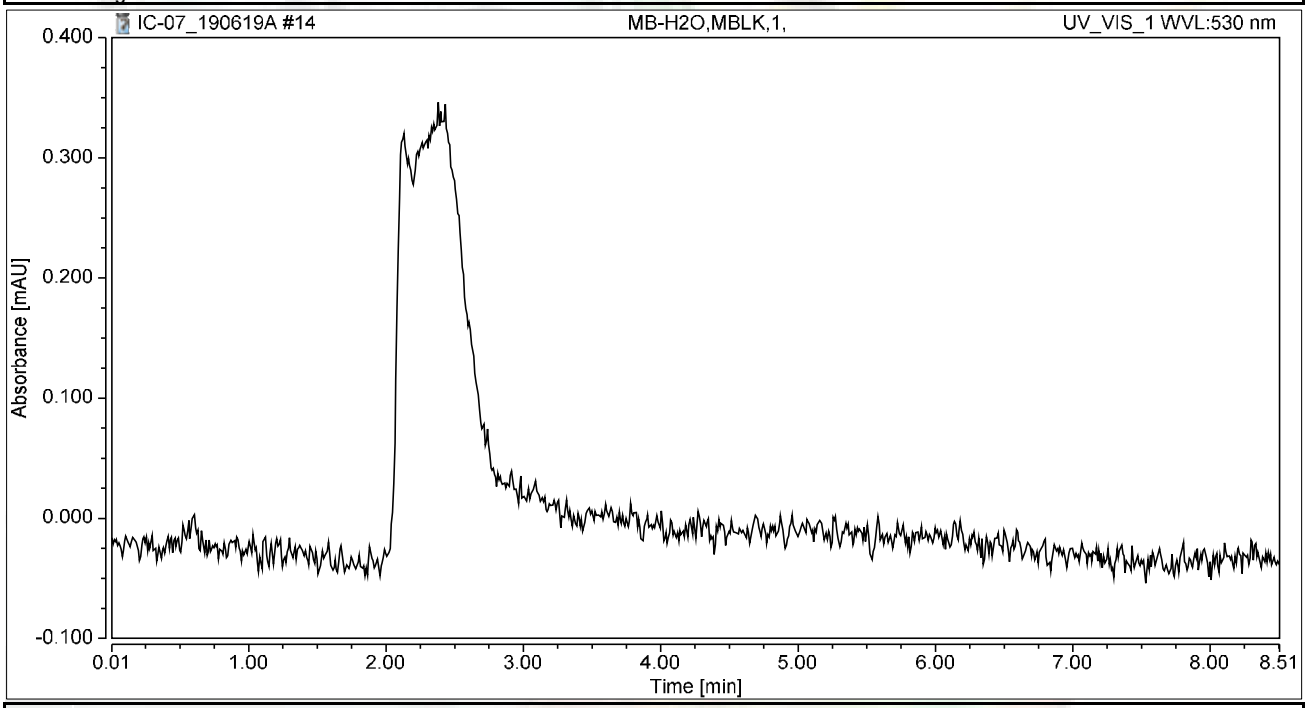
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 12:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

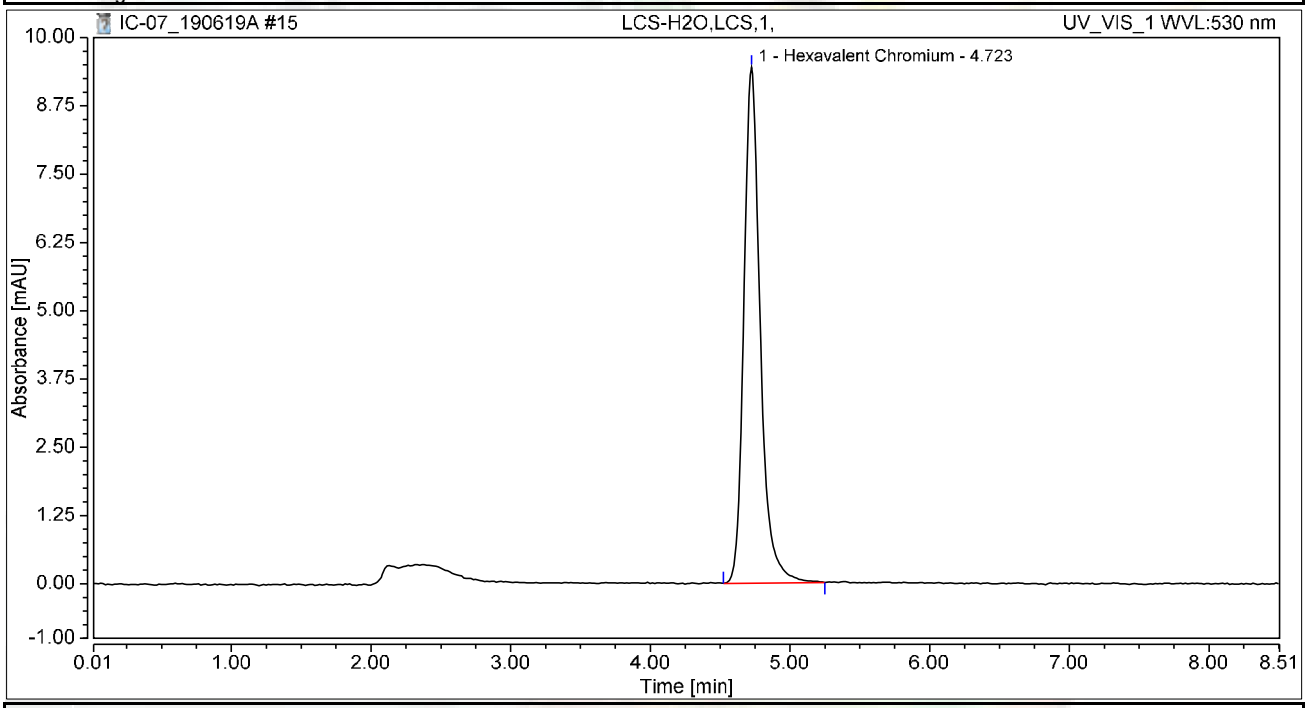
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 12:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

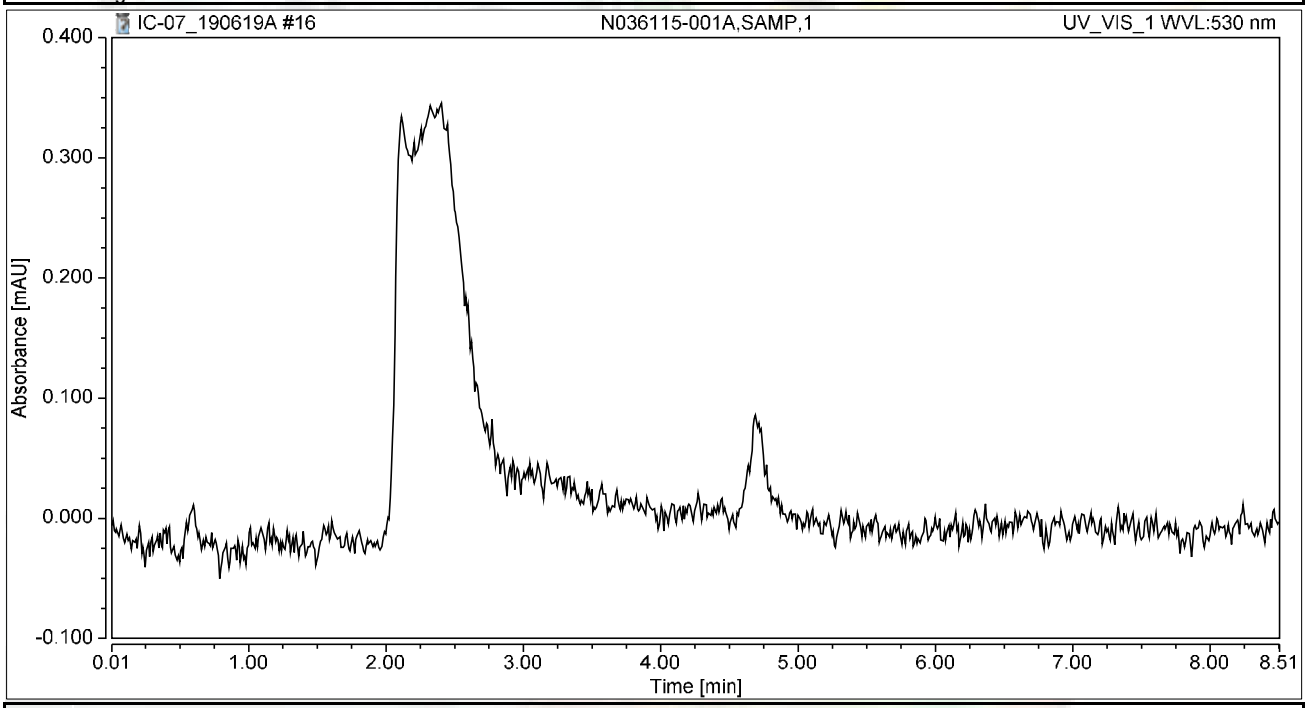
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.290	9.448	100.00	100.00	5.0212
Total:			**1.290**	**9.448**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 13:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

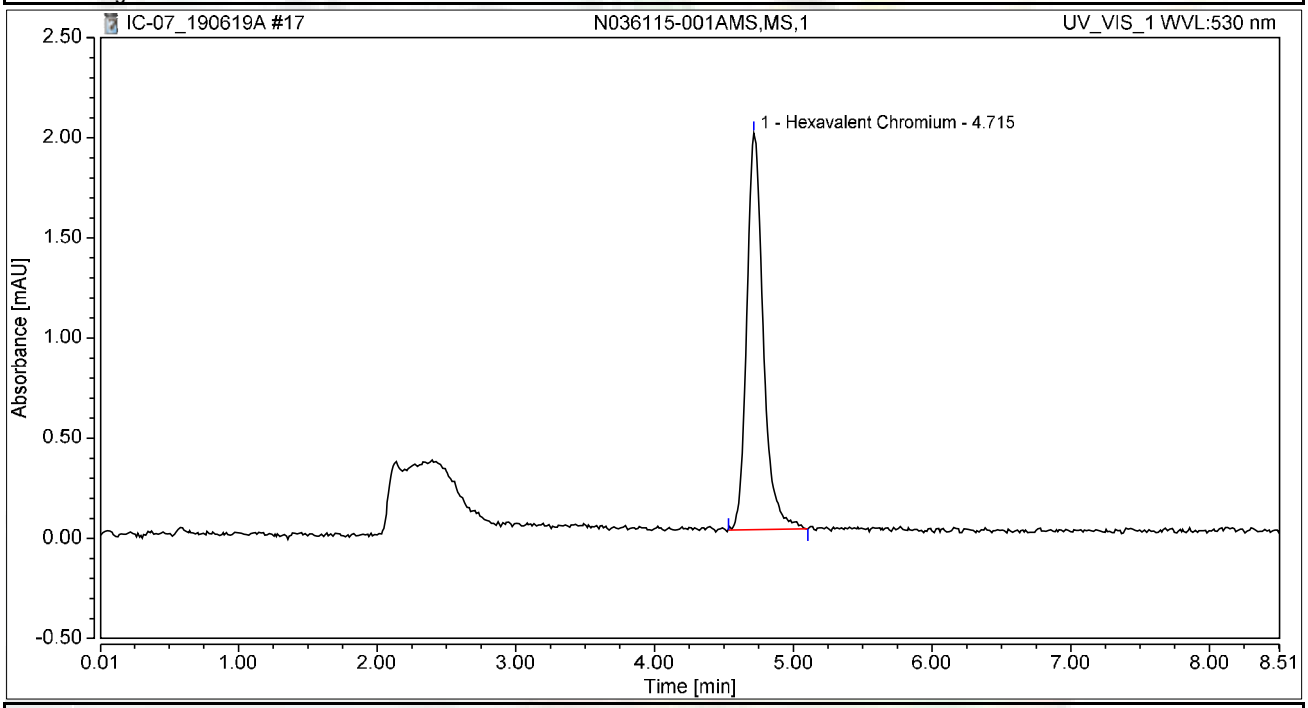
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 13:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

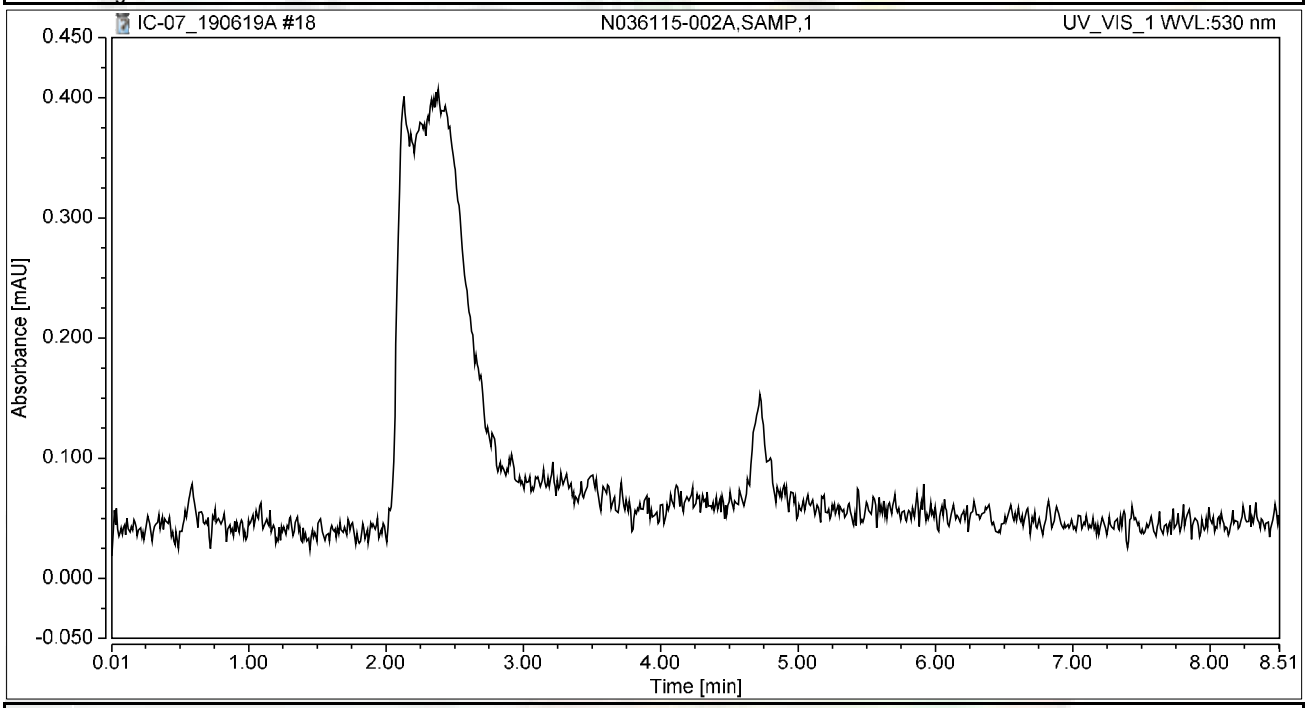
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.274	1.979	100.00	100.00	1.0654
Total:			**0.274**	**1.979**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 13:24**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

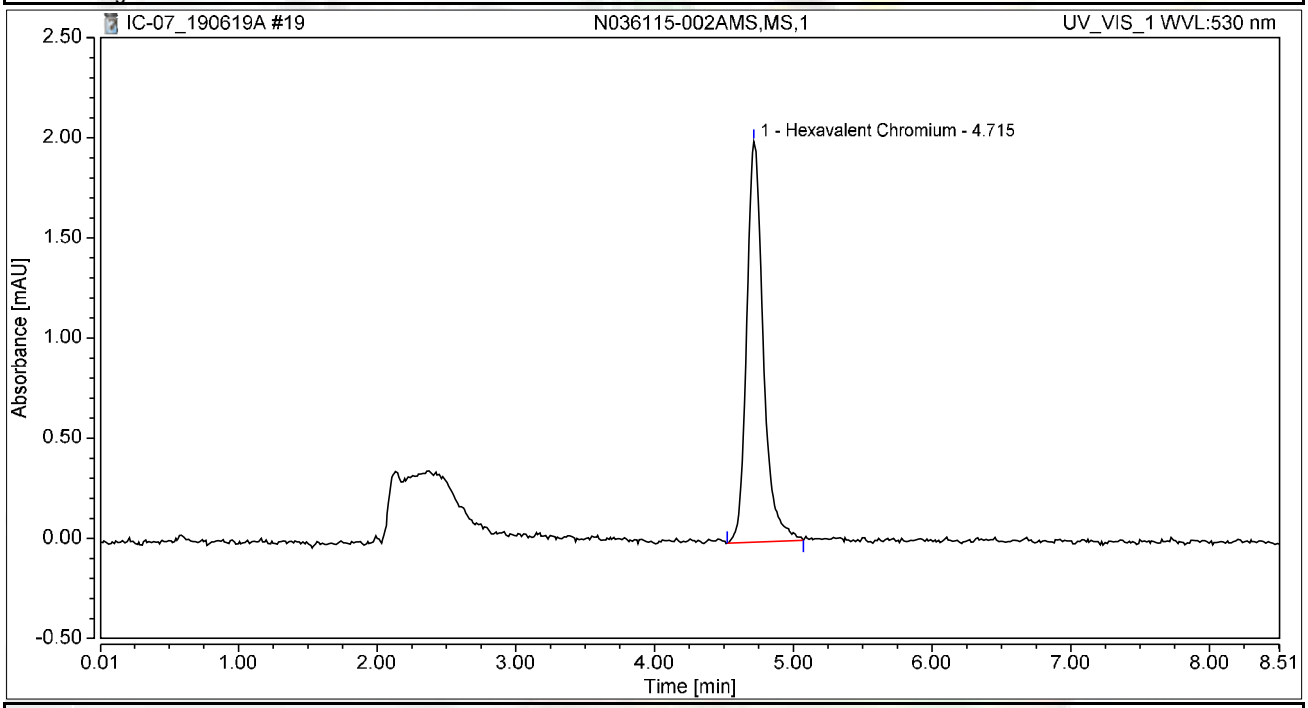
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 13:33**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

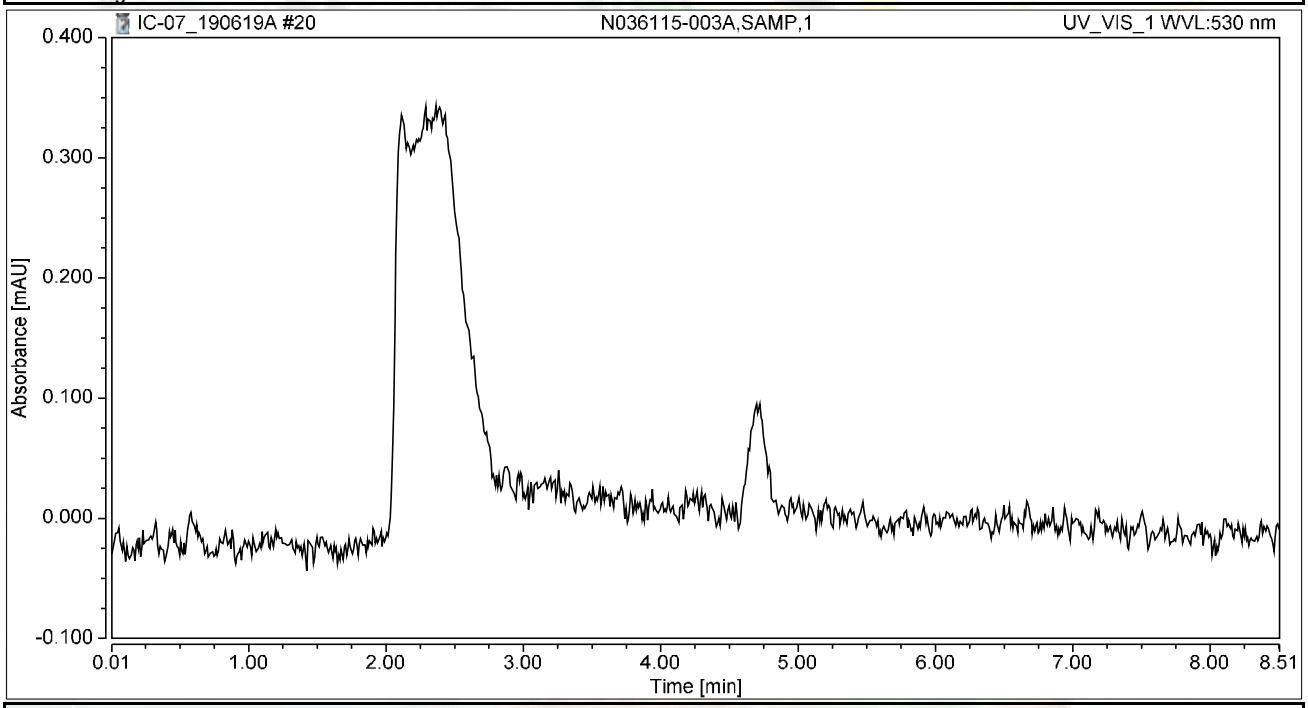
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.278	2.001	100.00	100.00	1.0838
Total:			**0.278**	**2.001**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-003A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 13:42**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

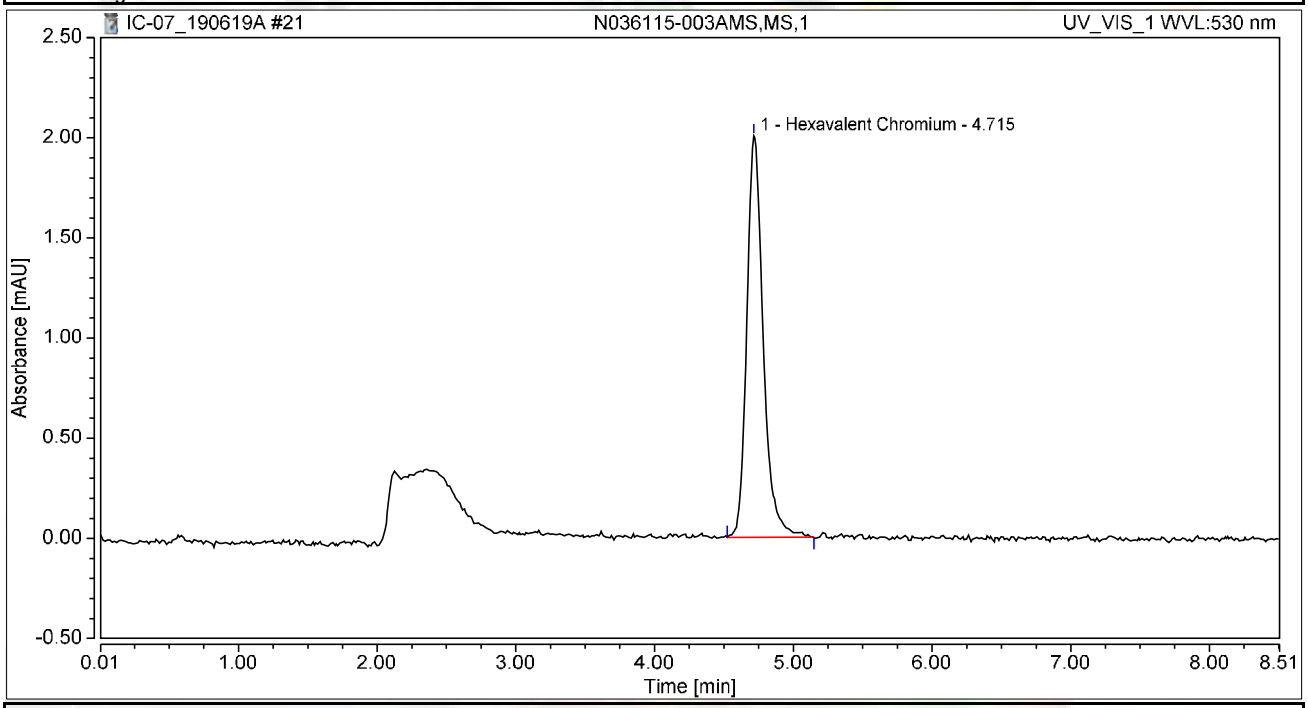
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 13:52**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

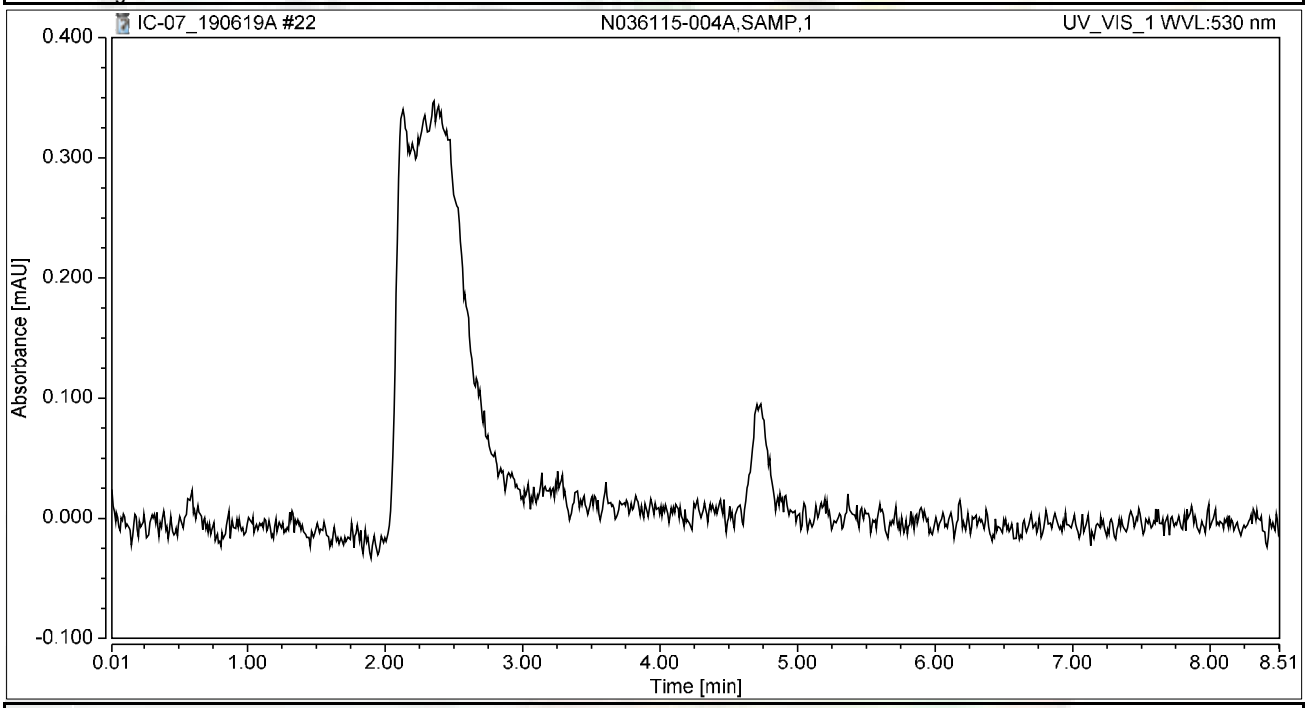
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.276	2.006	100.00	100.00	1.0746
Total:			**0.276**	**2.006**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 14:01**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

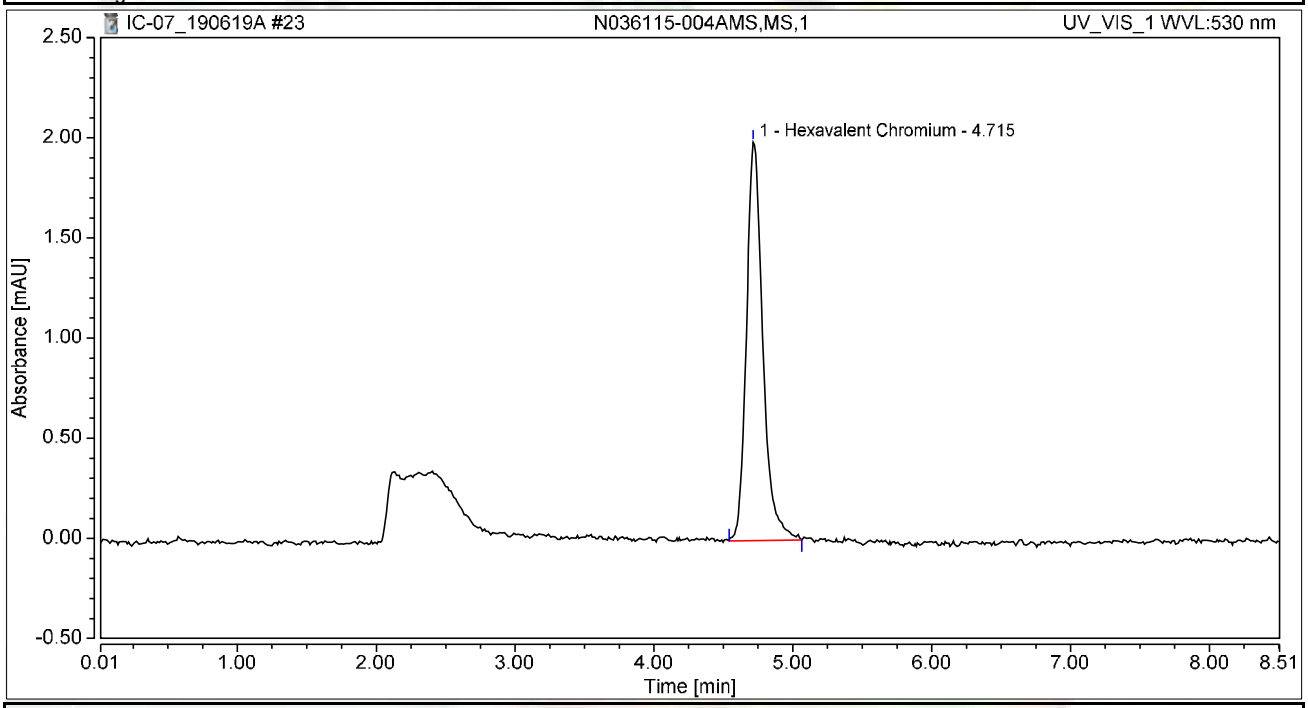
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-004AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 14:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

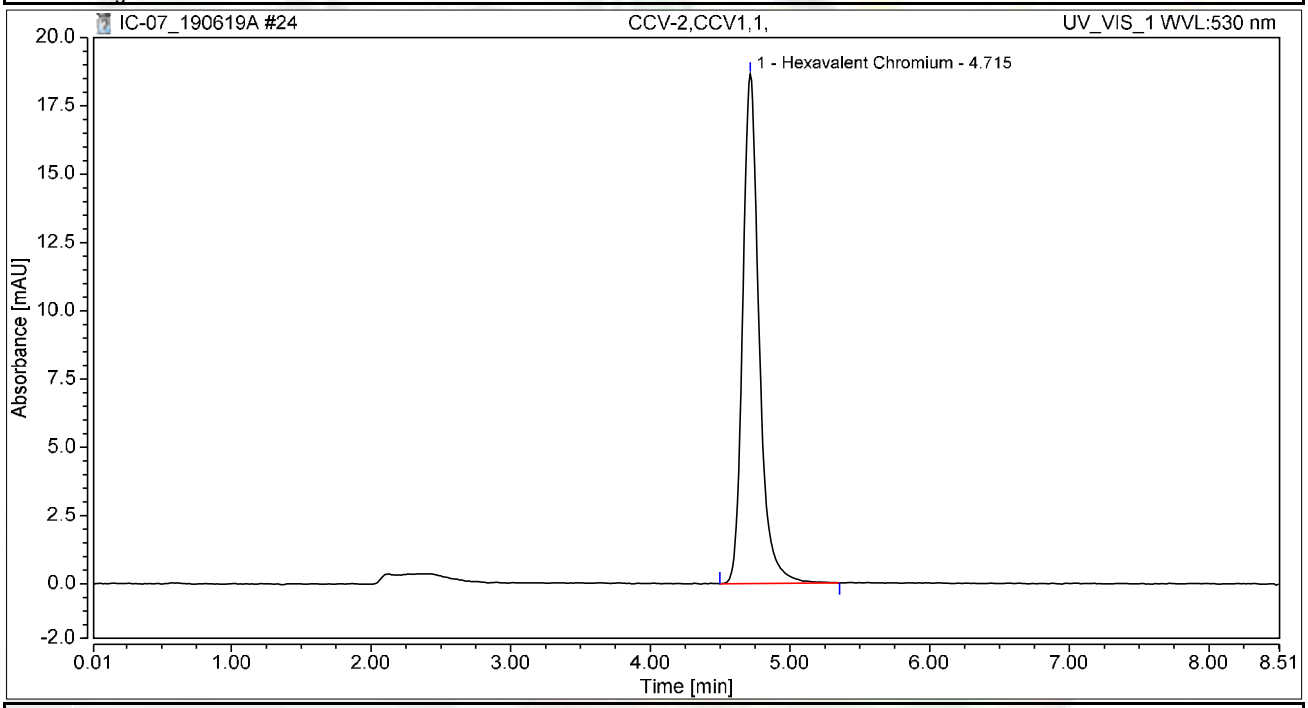
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.272	1.990	100.00	100.00	1.0584
Total:			**0.272**	**1.990**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 14:20**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

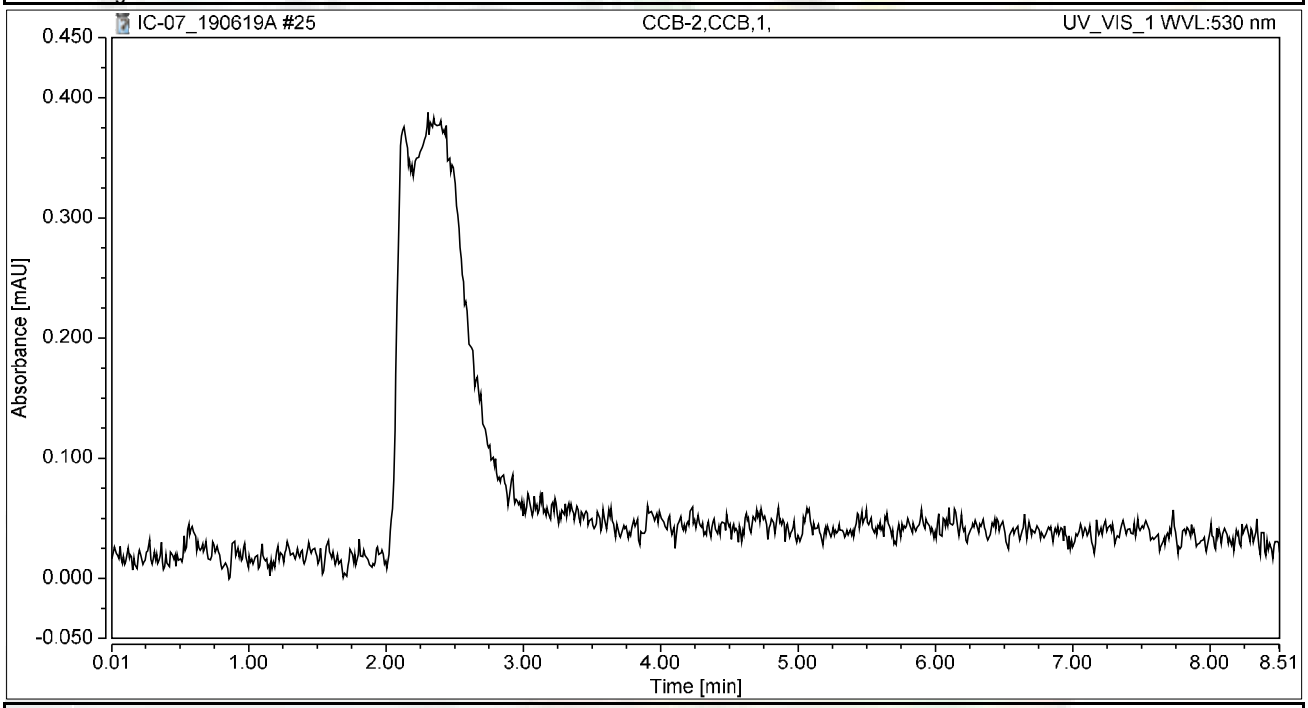
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.552	18.654	100.00	100.00	9.9352
Total:			**2.552**	**18.654**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 14:30**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

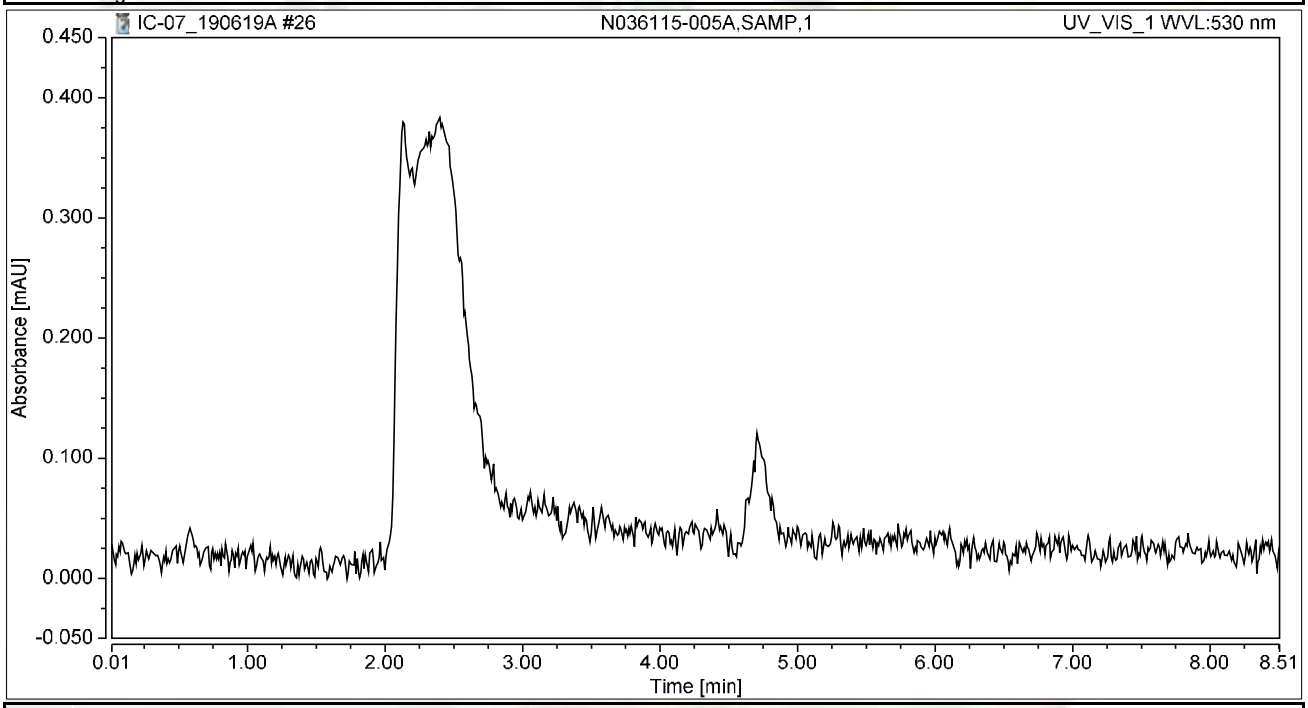
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-005A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 14:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

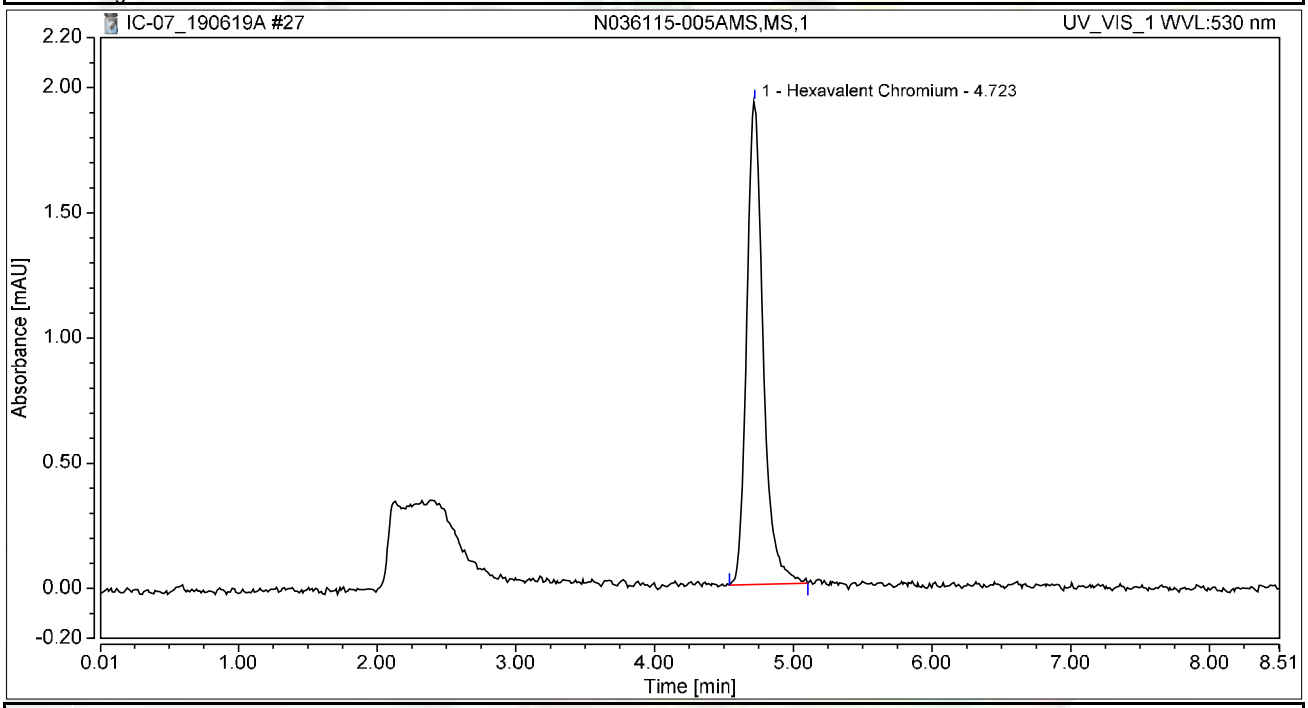
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-005AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 14:49**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

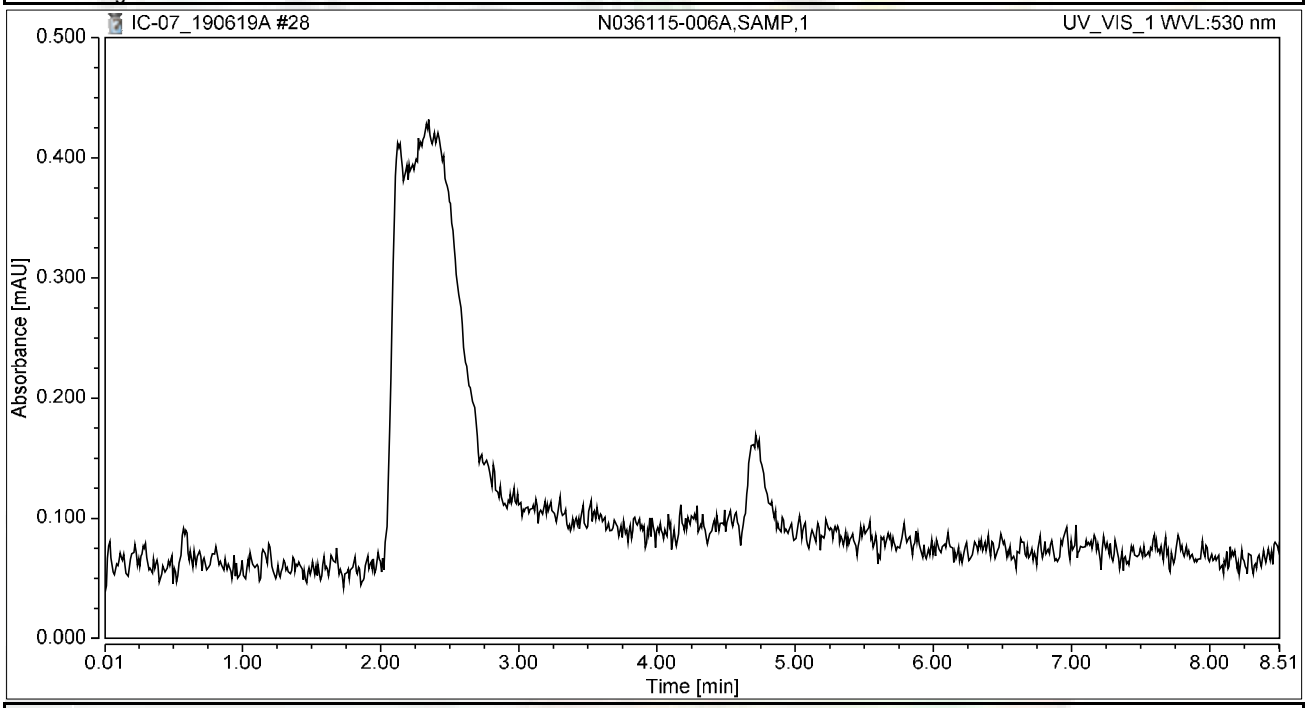
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.267	1.928	100.00	100.00	1.0377
Total:			**0.267**	**1.928**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 14:58**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

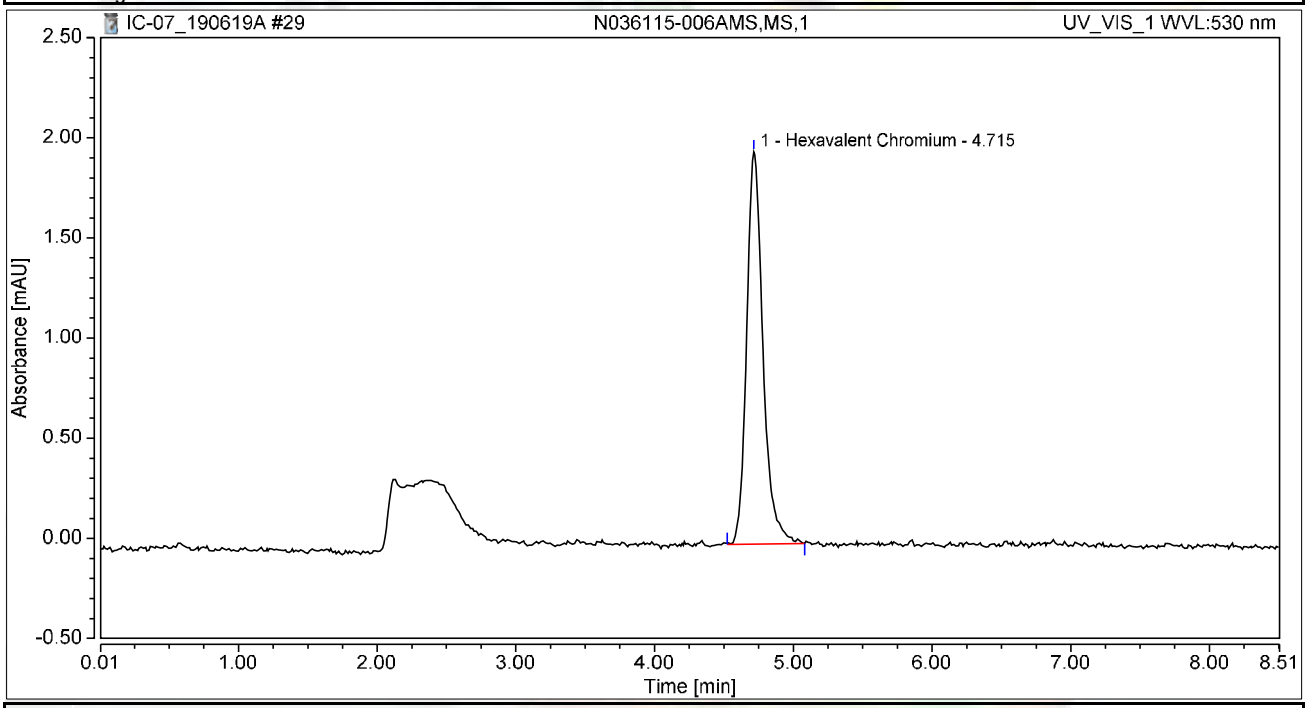
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 15:08**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

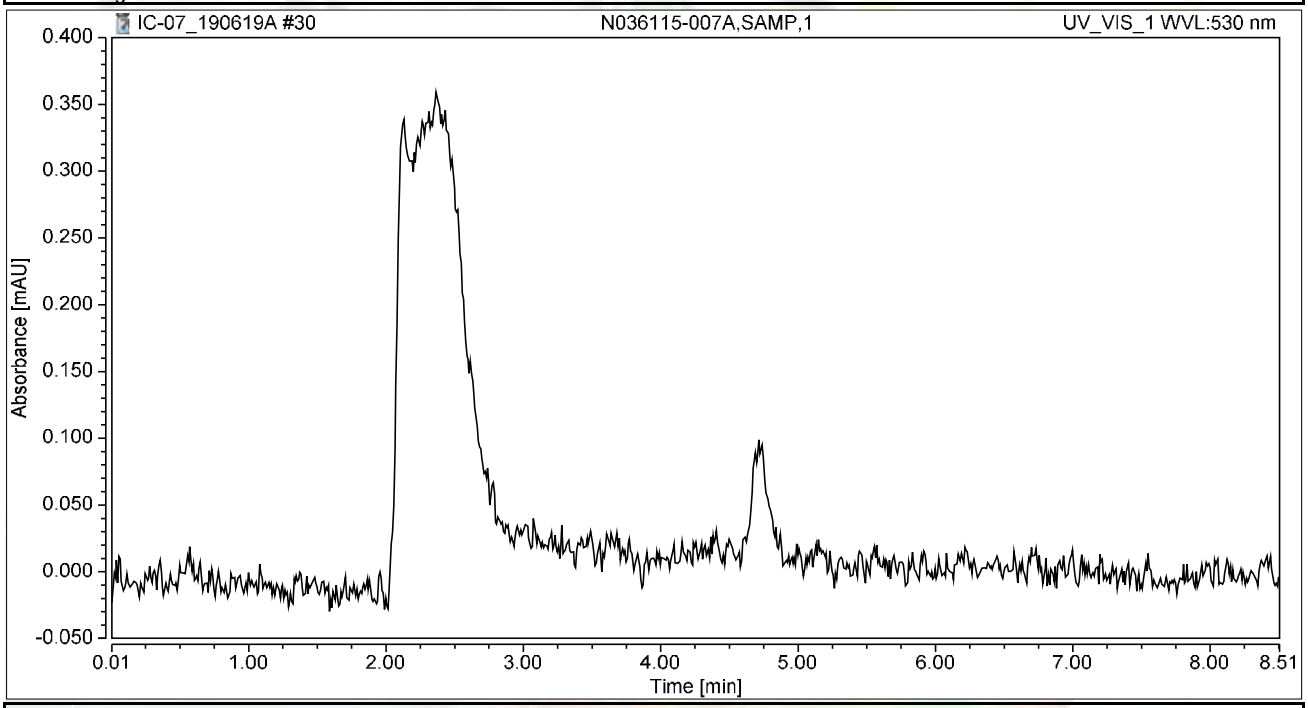
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.268	1.958	100.00	100.00	1.0417
Total:			**0.268**	**1.958**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 15:17**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

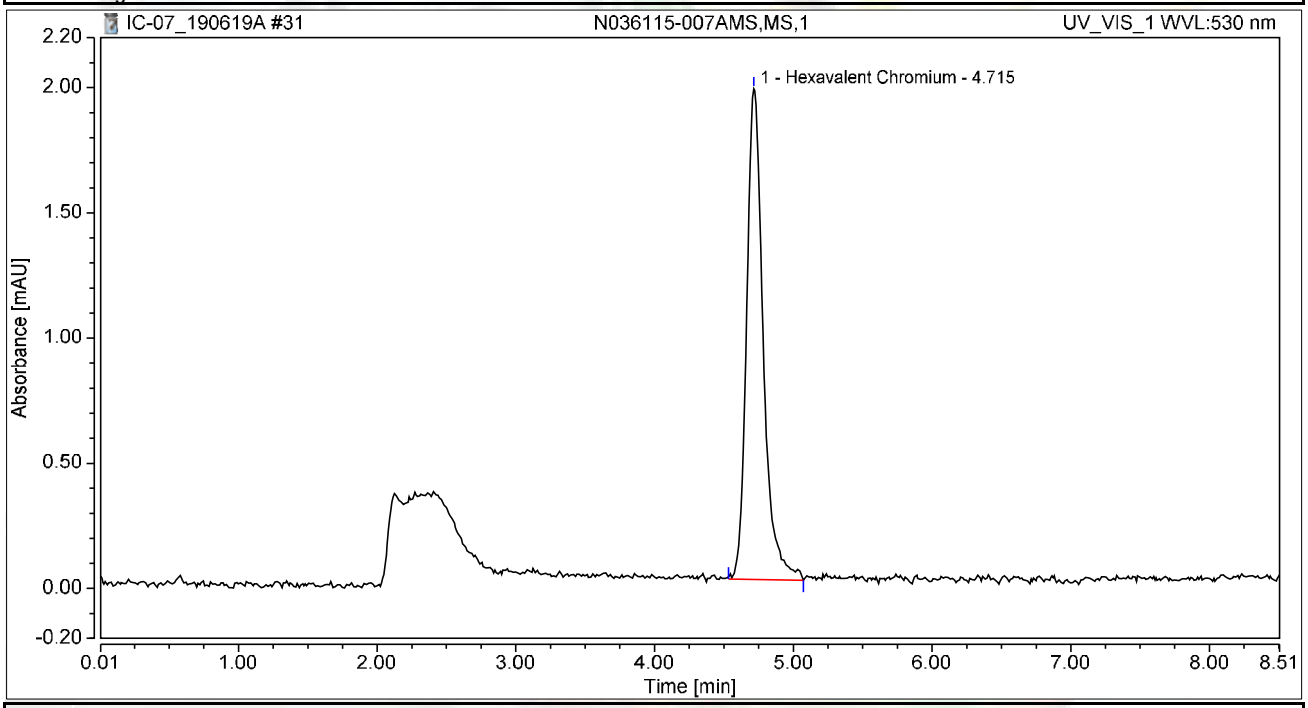
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 15:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

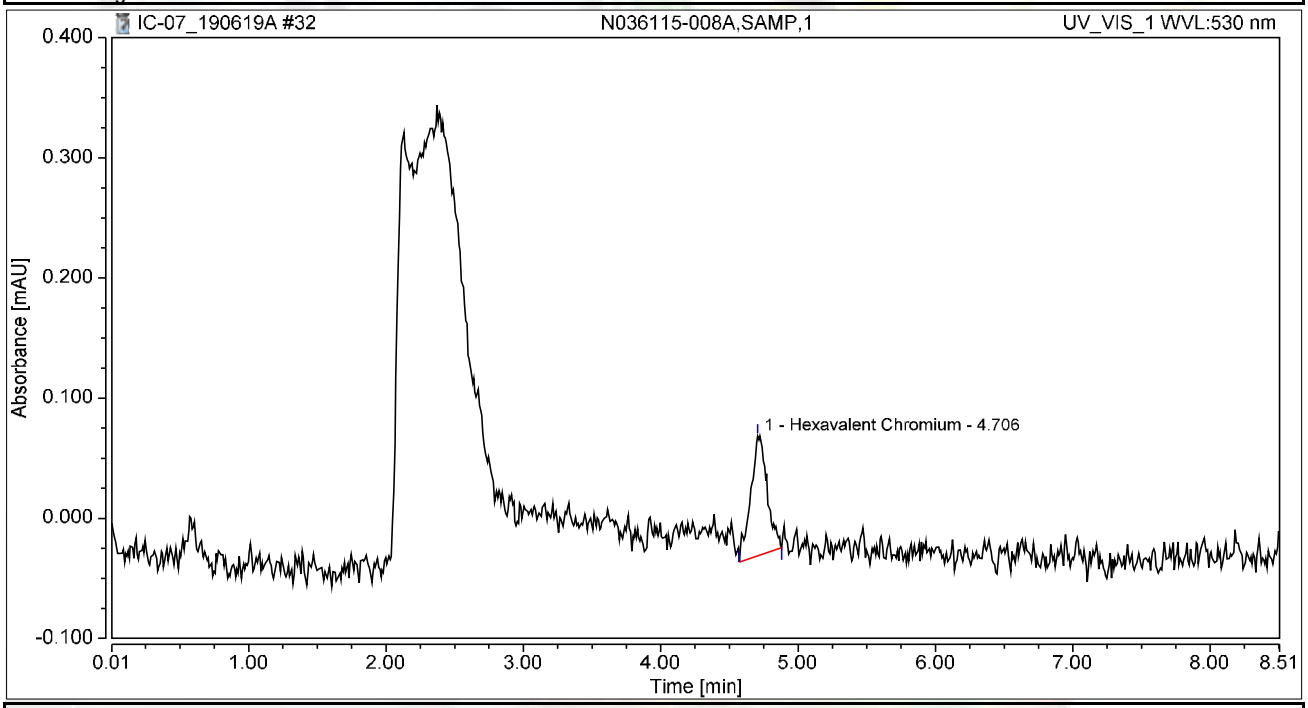
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.273	1.960	100.00	100.00	1.0628
Total:			**0.273**	**1.960**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-008A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 15:36**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

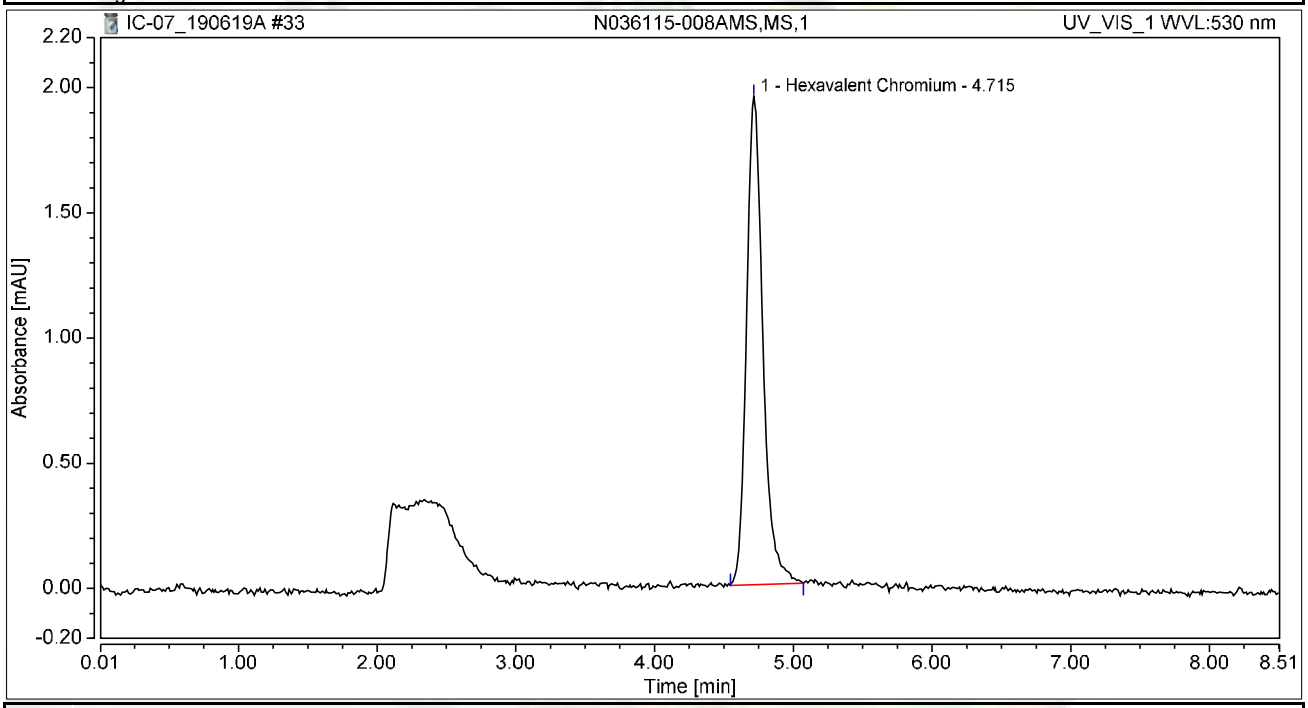
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.706	0.014	0.100	100.00	100.00	0.0541
Total:			**0.014**	**0.100**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-008AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 15:45**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

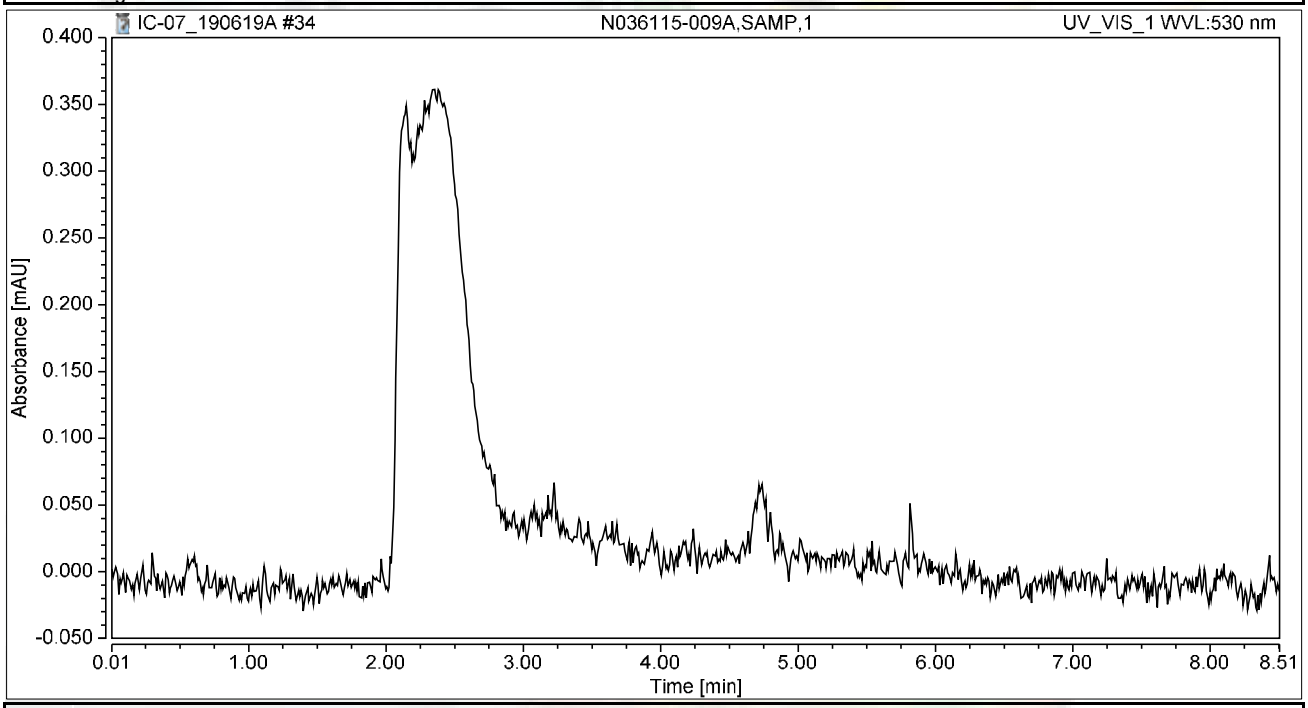
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.268	1.950	100.00	100.00	1.0448
Total:			**0.268**	**1.950**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-009A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 15:55**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

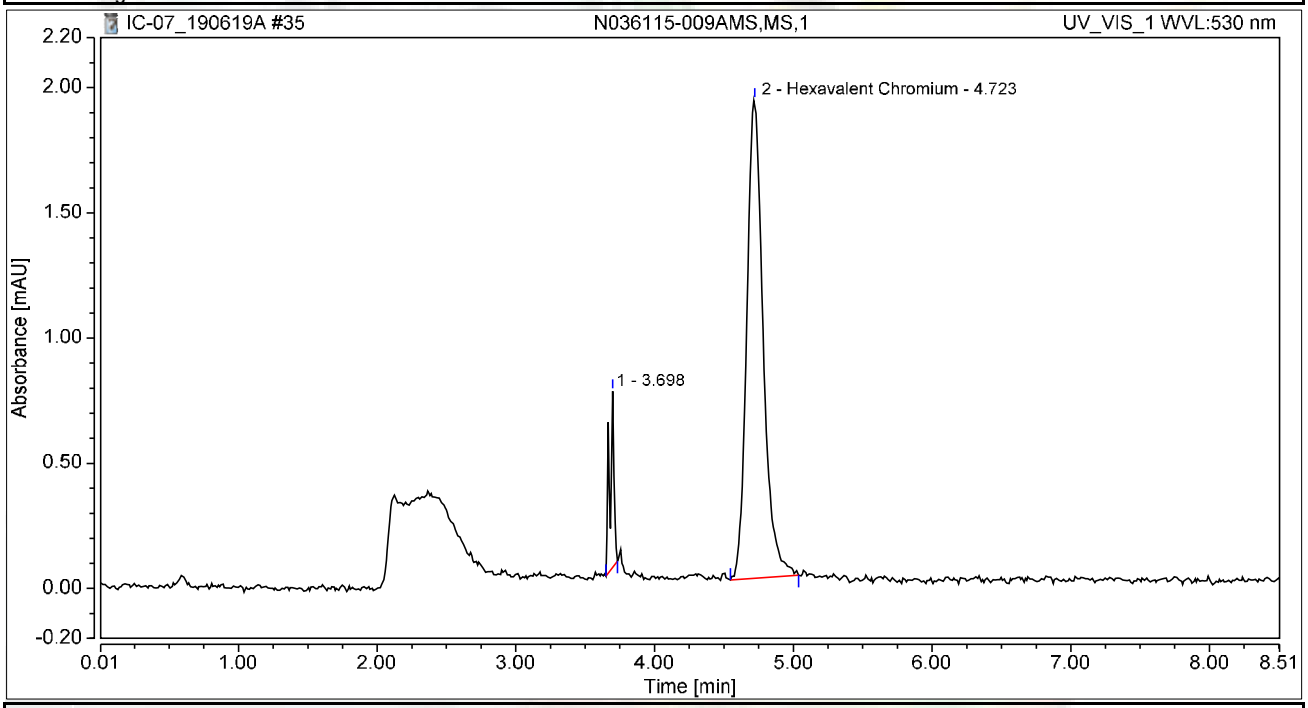
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-009AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 16:04**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

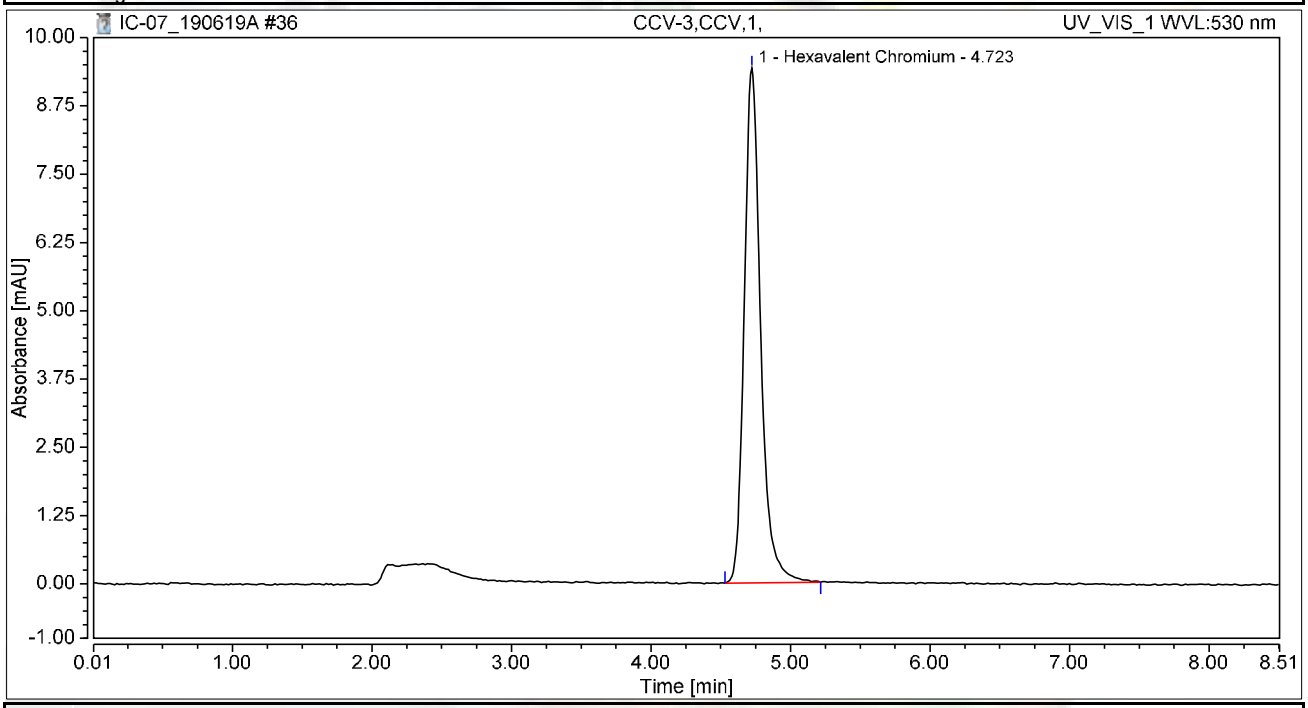
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1		3.698	0.024	0.703	8.51	26.89	n.a.
2	Hexavalent Chromium	4.723	0.263	1.910	91.49	73.11	1.0235
Total:			**0.287**	**2.613**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 16:14**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

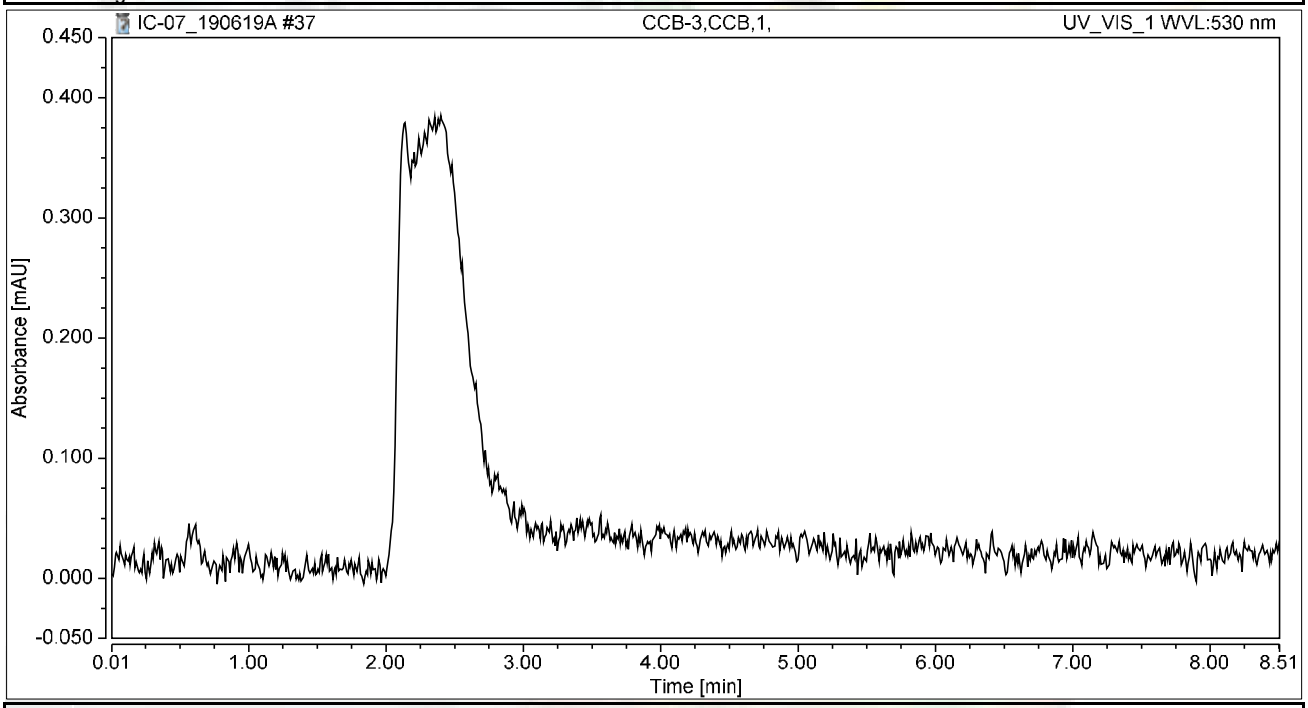
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.283	9.430	100.00	100.00	4.9967
Total:			**1.283**	**9.430**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 16:23**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

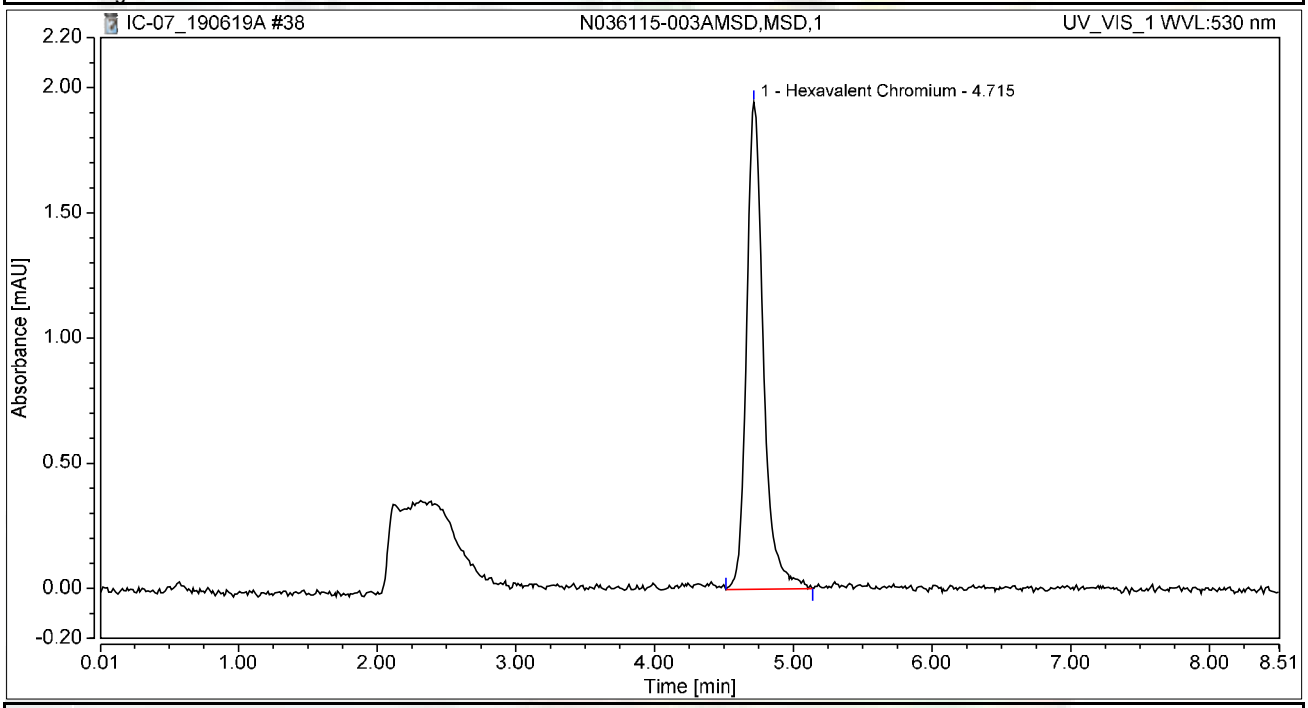
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-003AMSD,MSD,1**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 16:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

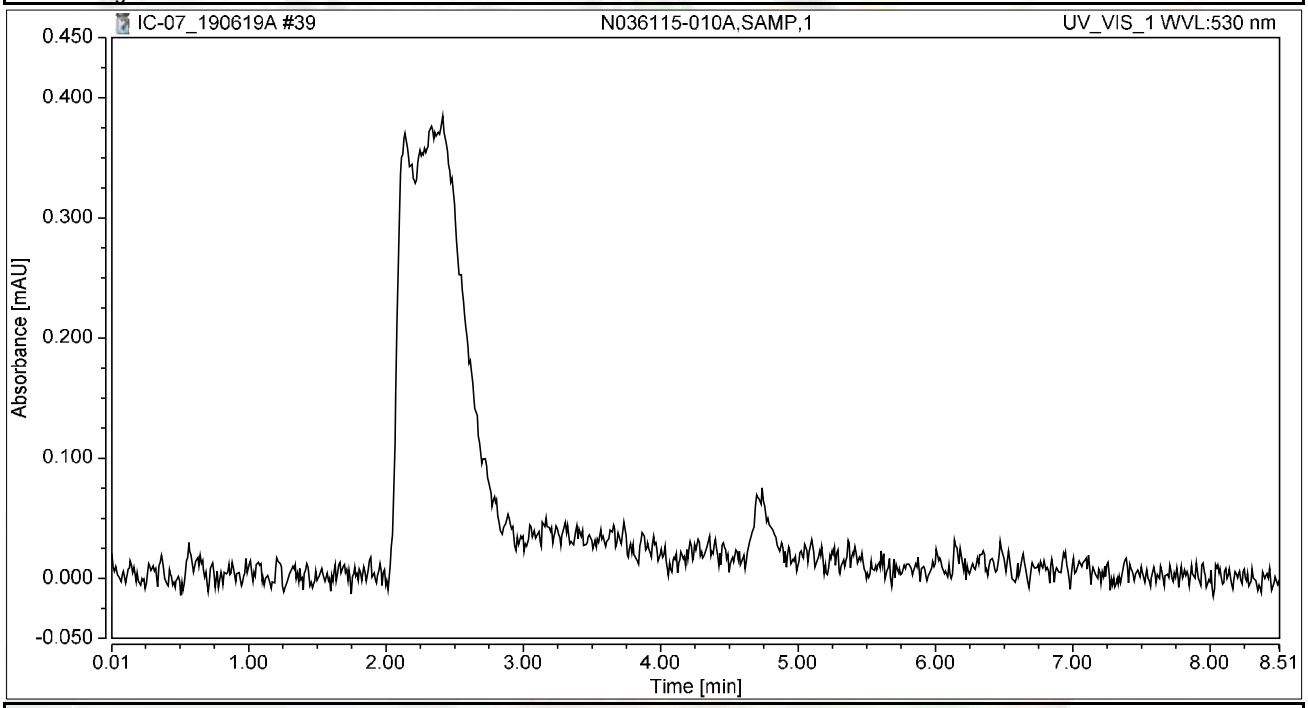
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.275	1.945	100.00	100.00	1.0701
Total:			**0.275**	**1.945**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 16:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

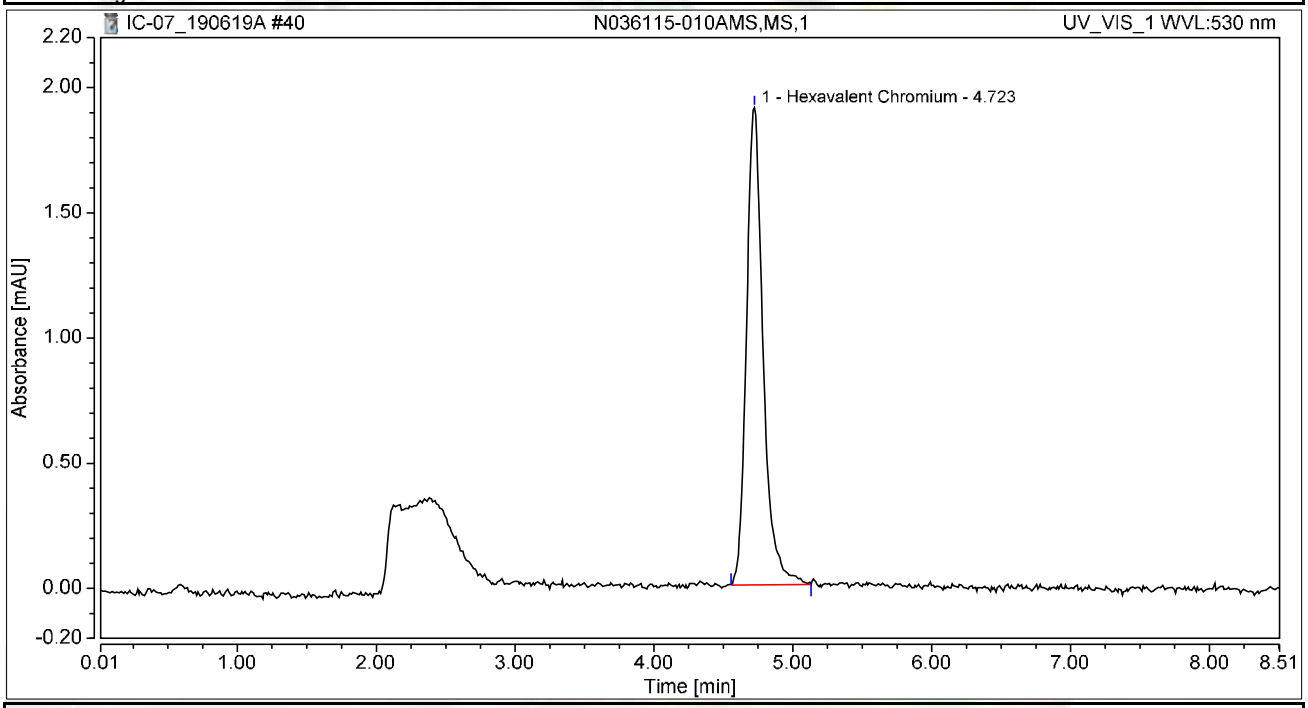
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-010AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 17:07**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

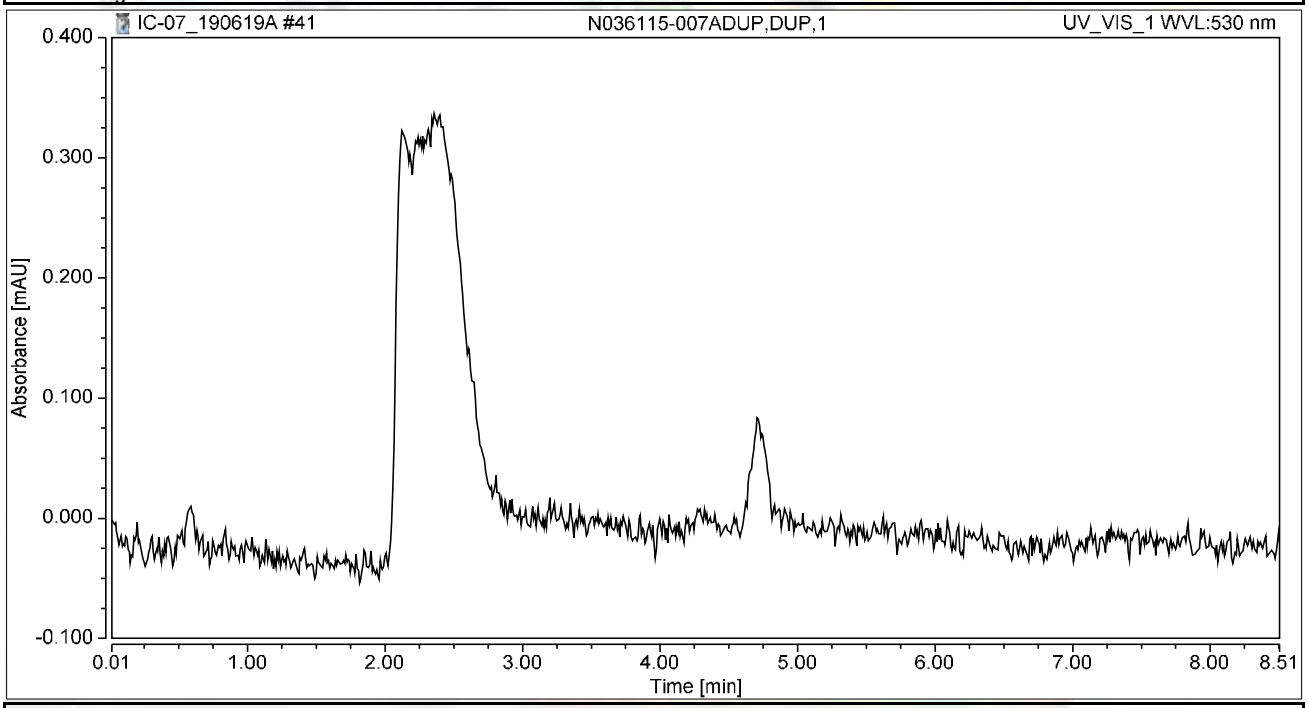
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.266	1.906	100.00	100.00	1.0340
Total:			**0.266**	**1.906**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-007ADUP,DUP,1**	*Run Time (min):*	**8.49**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 17:16**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

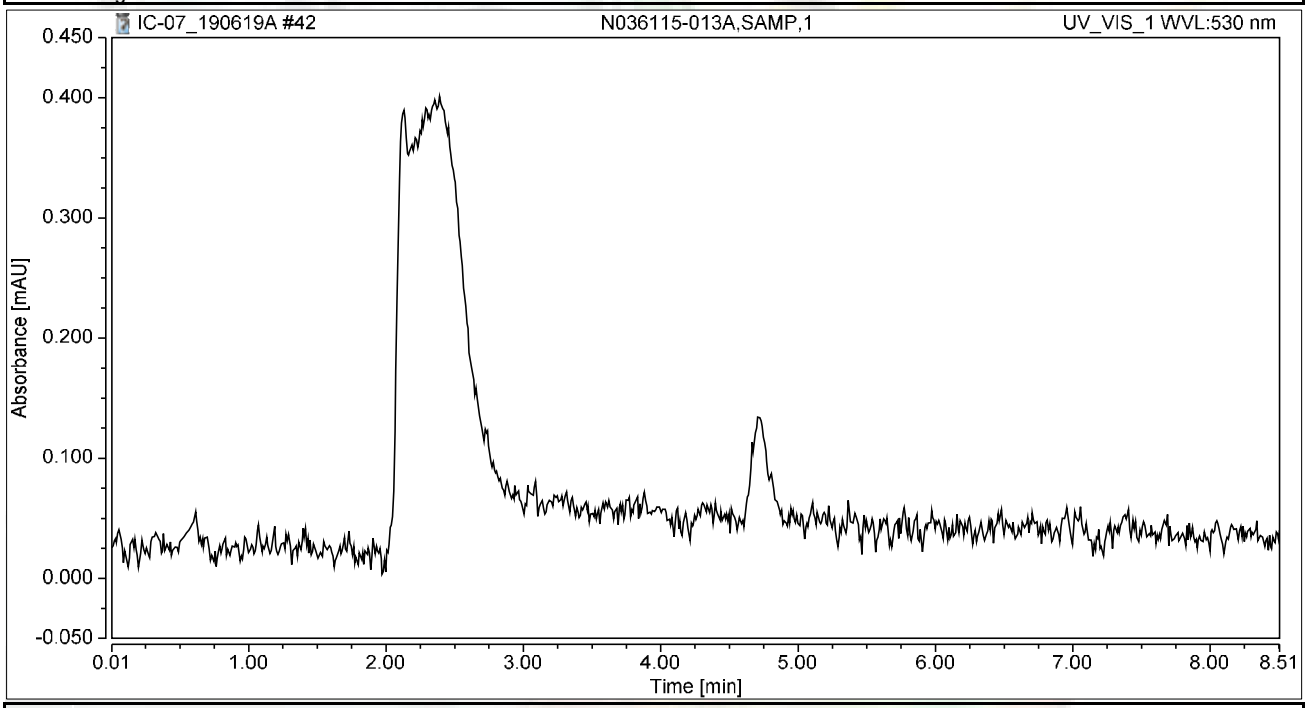
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-013A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 17:26**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

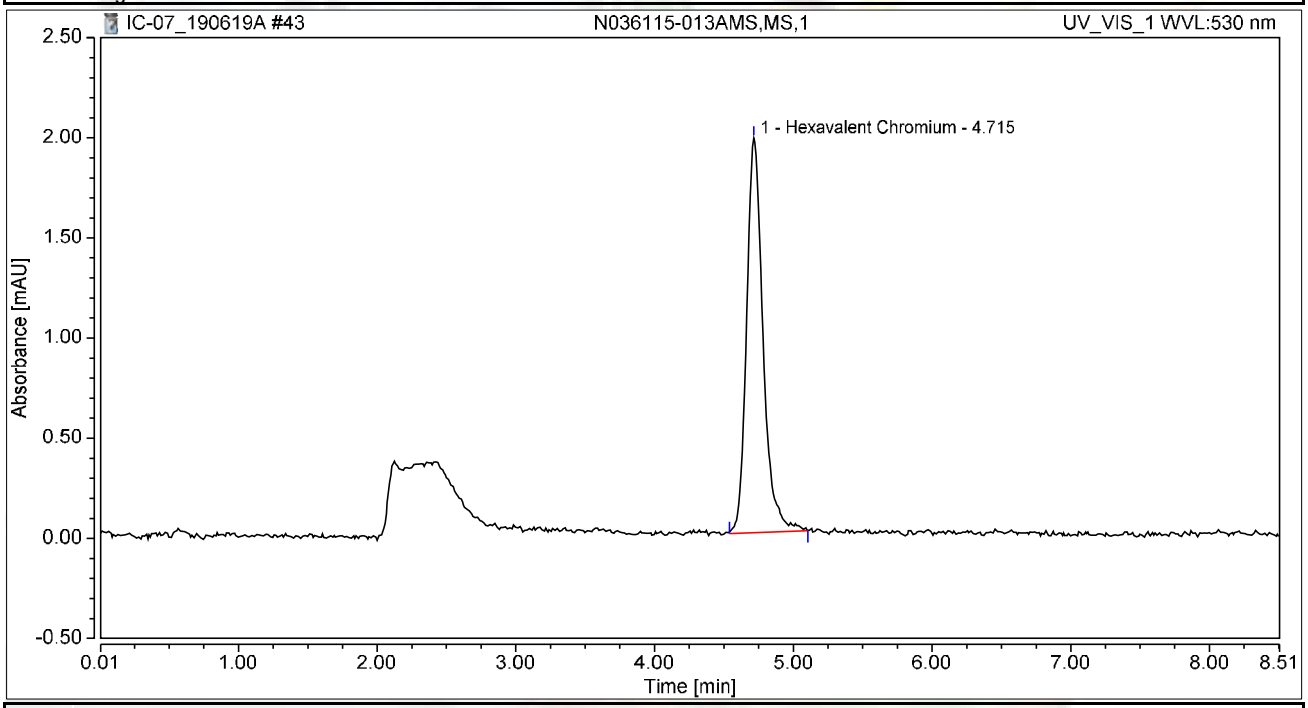
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-013AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 17:35**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

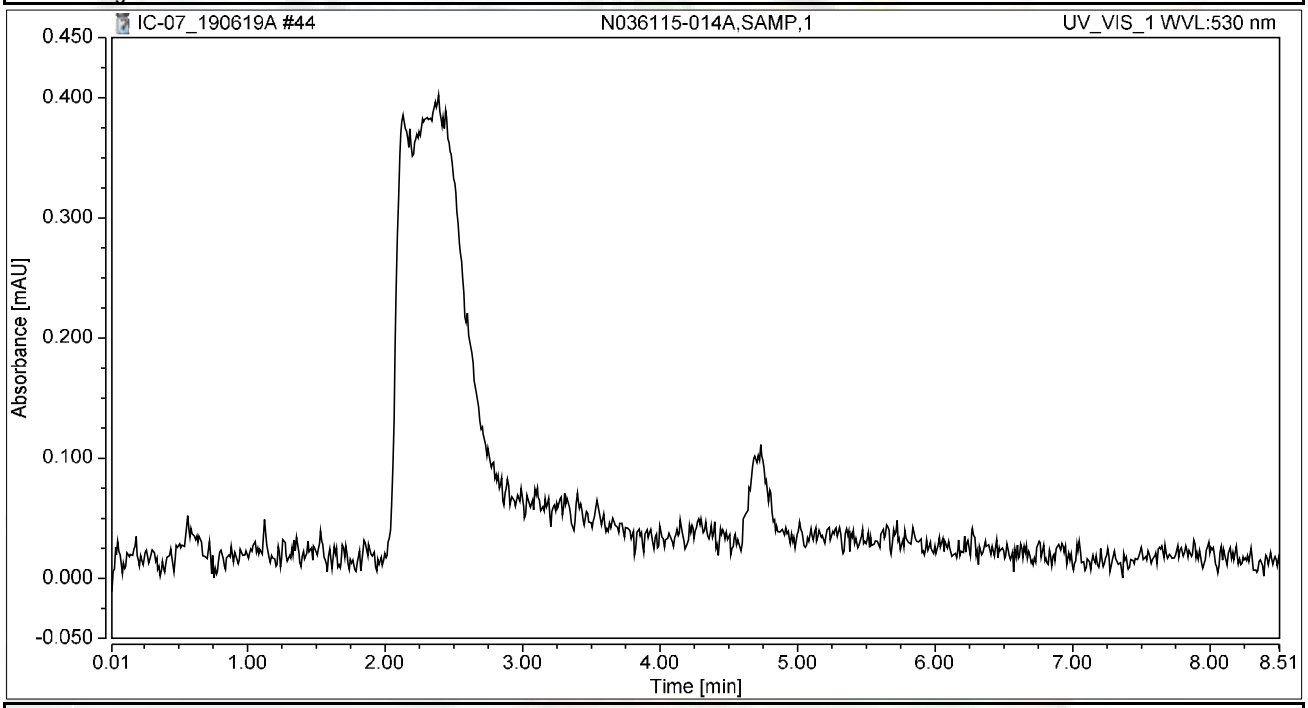
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.271	1.970	100.00	100.00	1.0559
Total:			**0.271**	**1.970**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-014A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 17:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

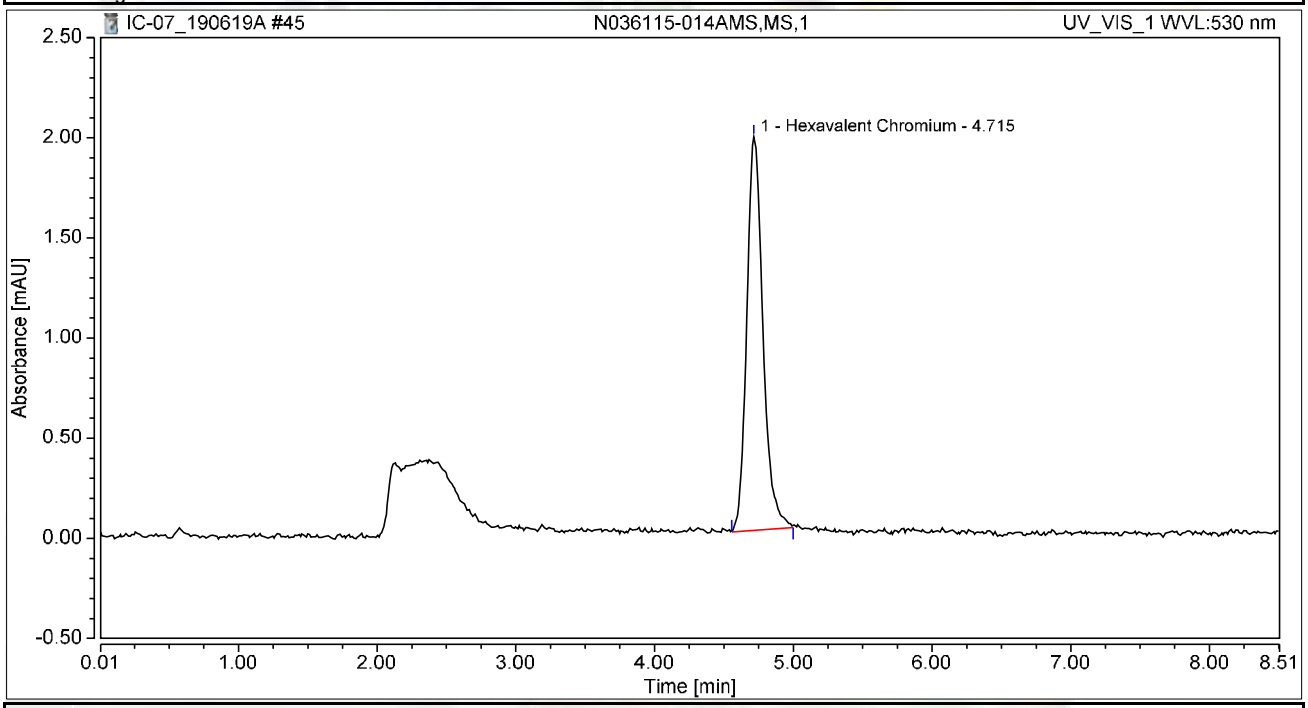
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-014AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 17:54**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

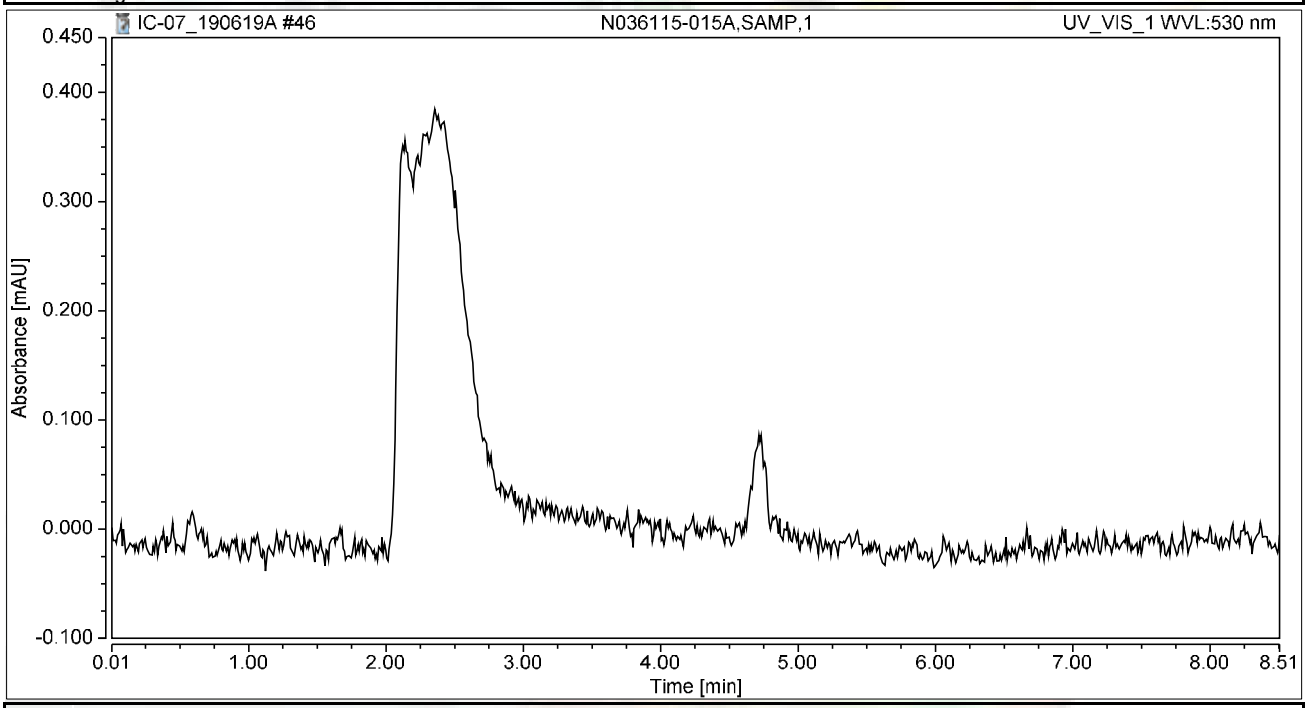
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.266	1.965	100.00	100.00	1.0350
Total:			**0.266**	**1.965**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-015A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 18:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

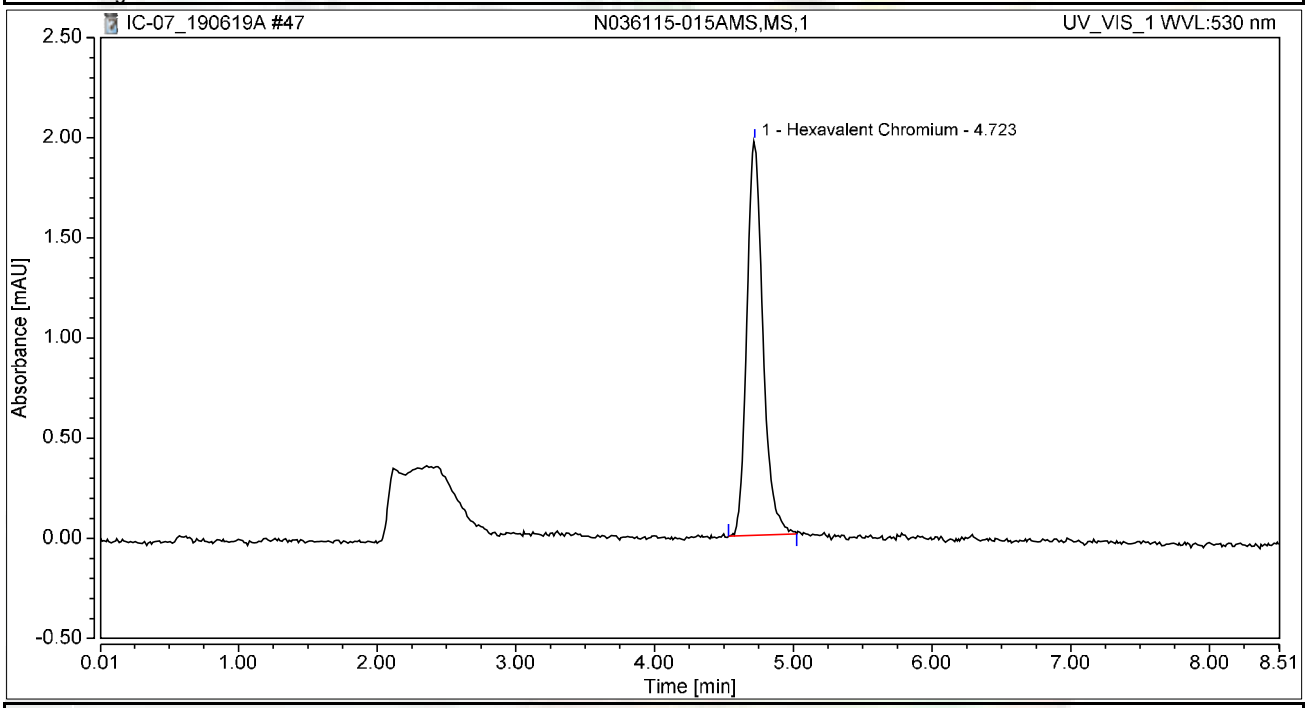
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-015AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 18:13**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

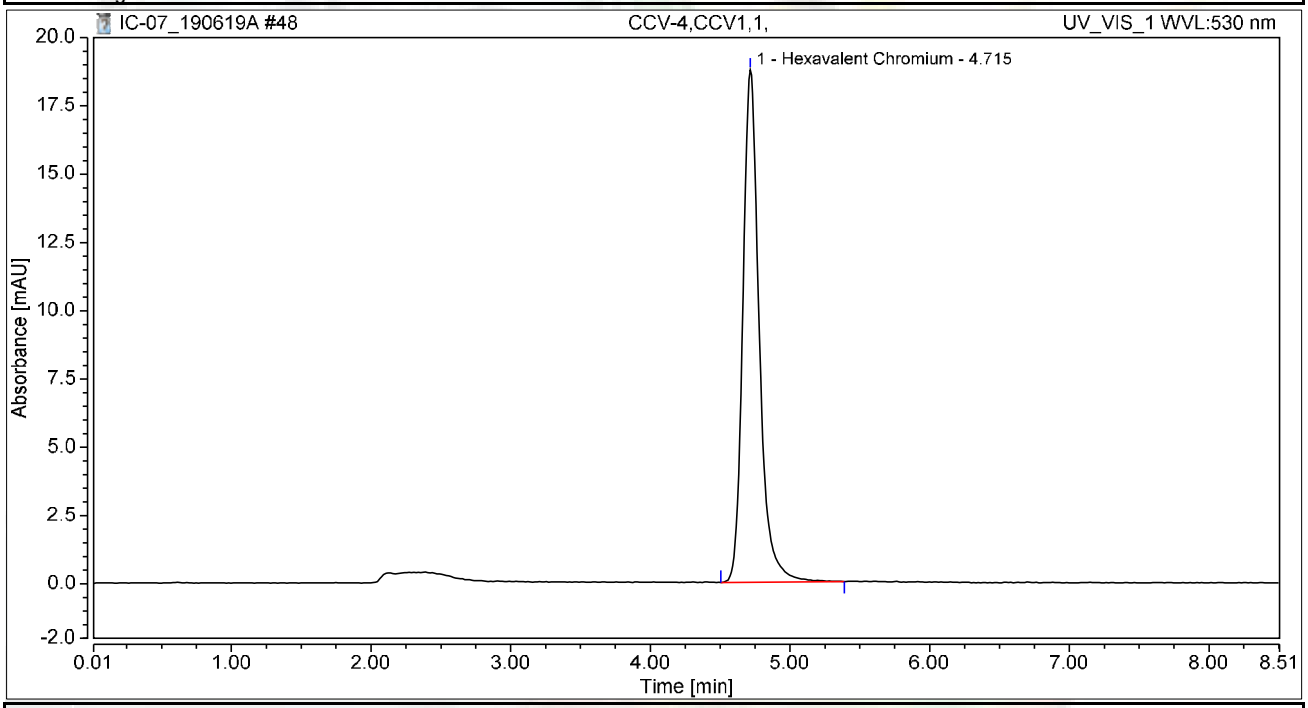
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.265	1.969	100.00	100.00	1.0336
Total:			**0.265**	**1.969**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.49**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 18:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

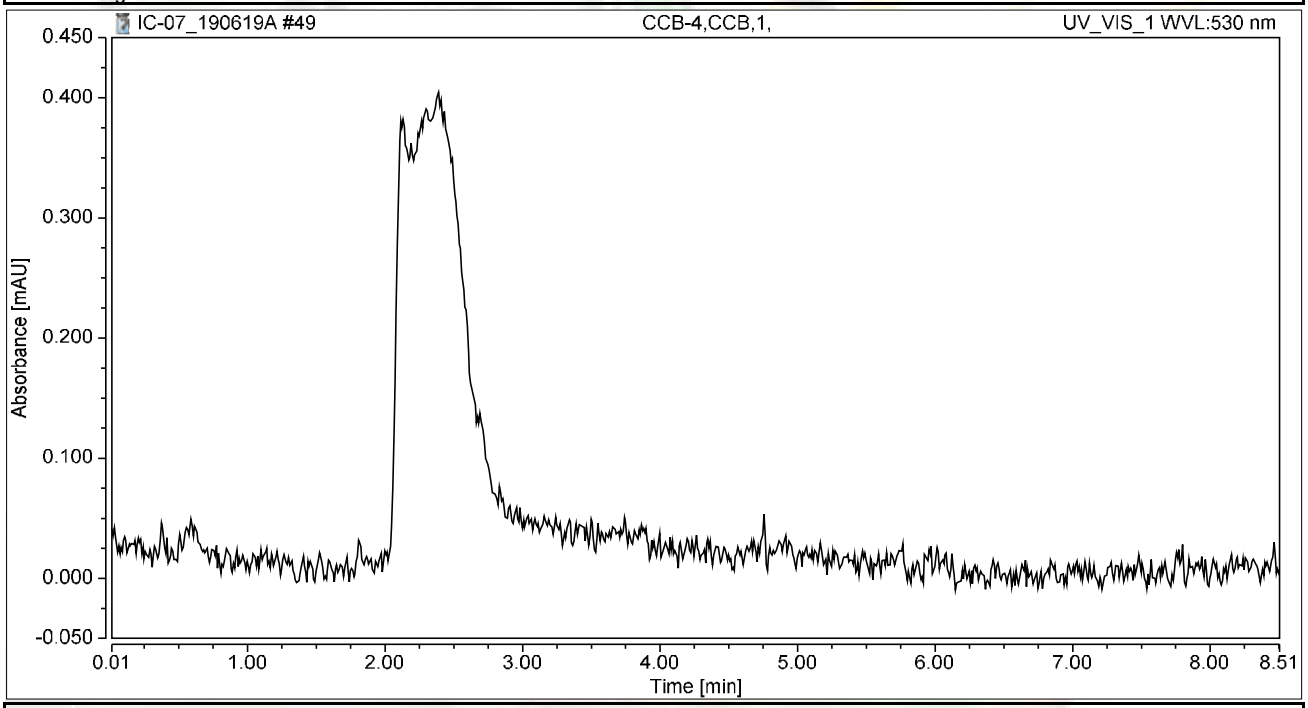
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	2.557	18.758	100.00	100.00	9.9562
Total:			**2.557**	**18.758**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 18:32**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

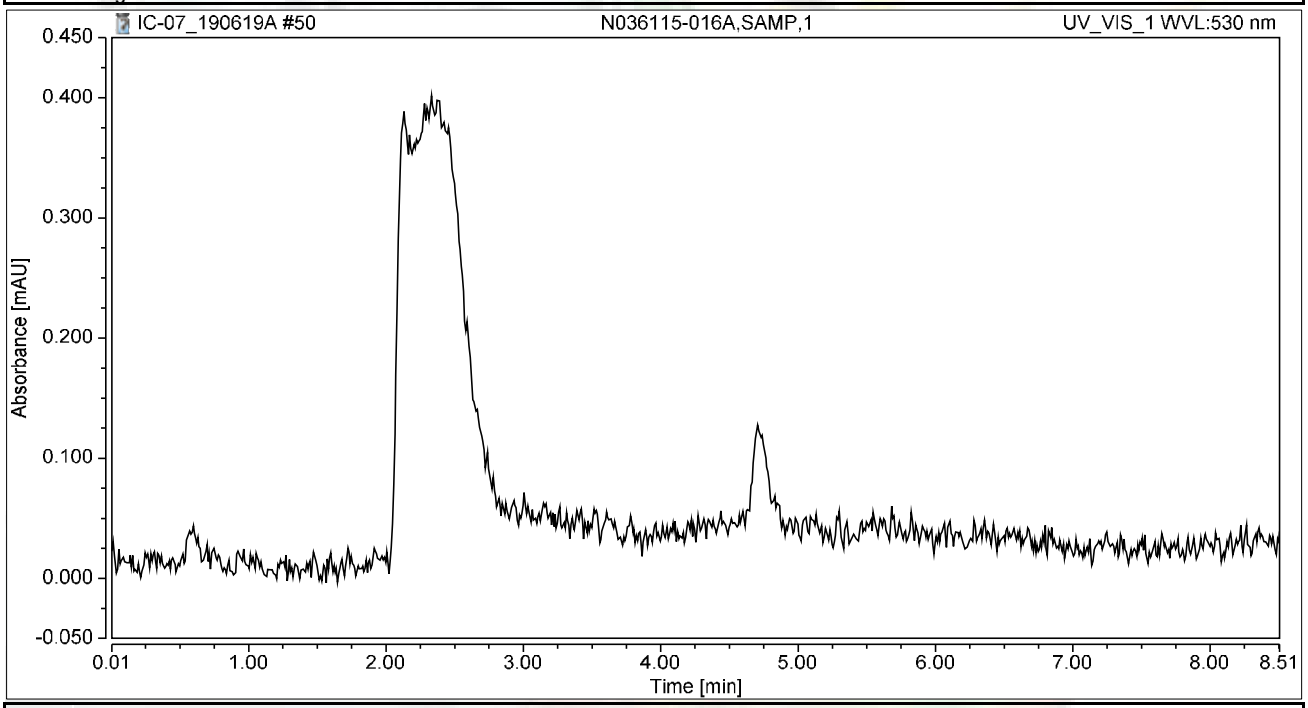
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-016A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 18:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

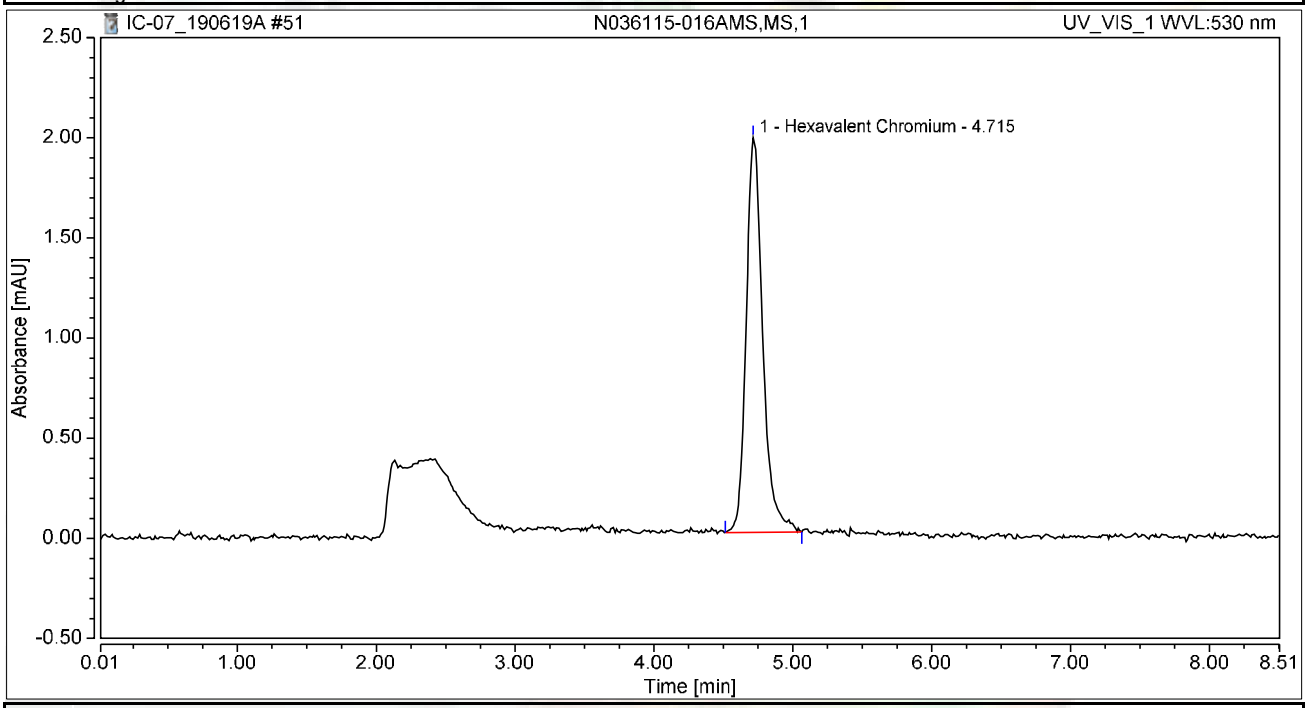
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036115-016AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 18:51**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

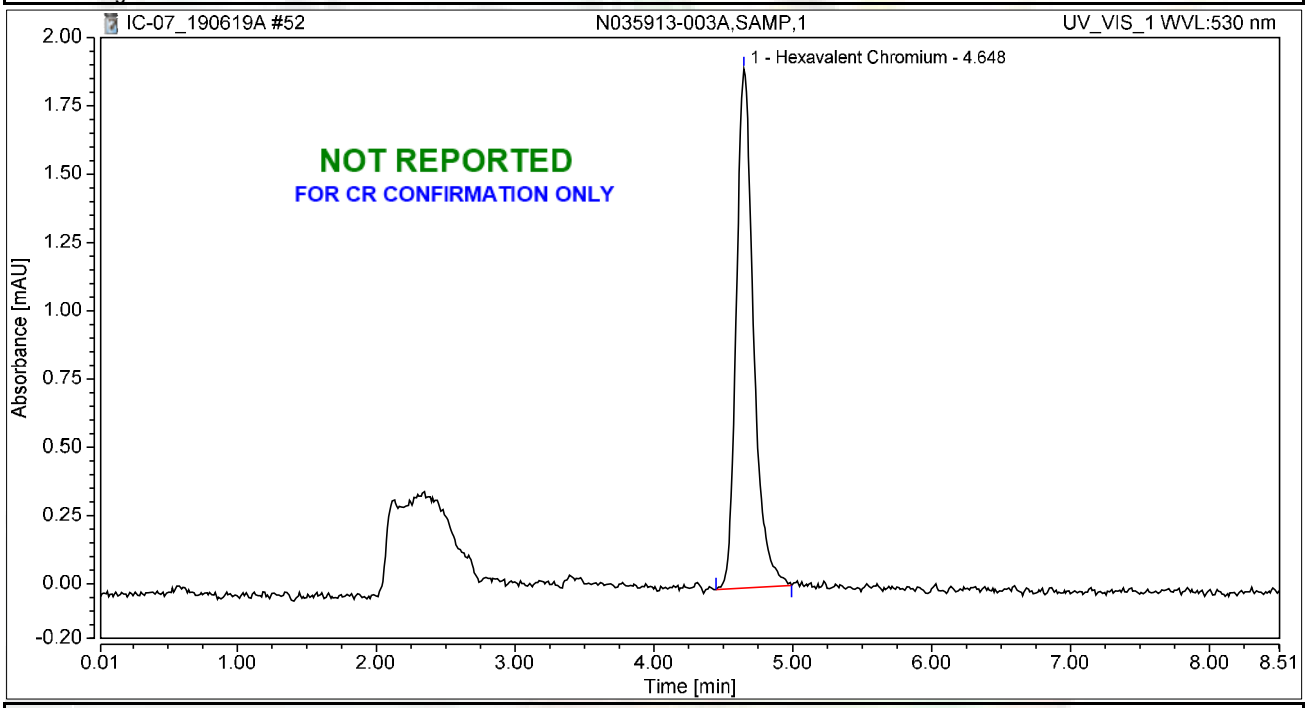
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.715	0.273	1.971	100.00	100.00	1.0619
Total:			**0.273**	**1.971**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035913-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 19:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

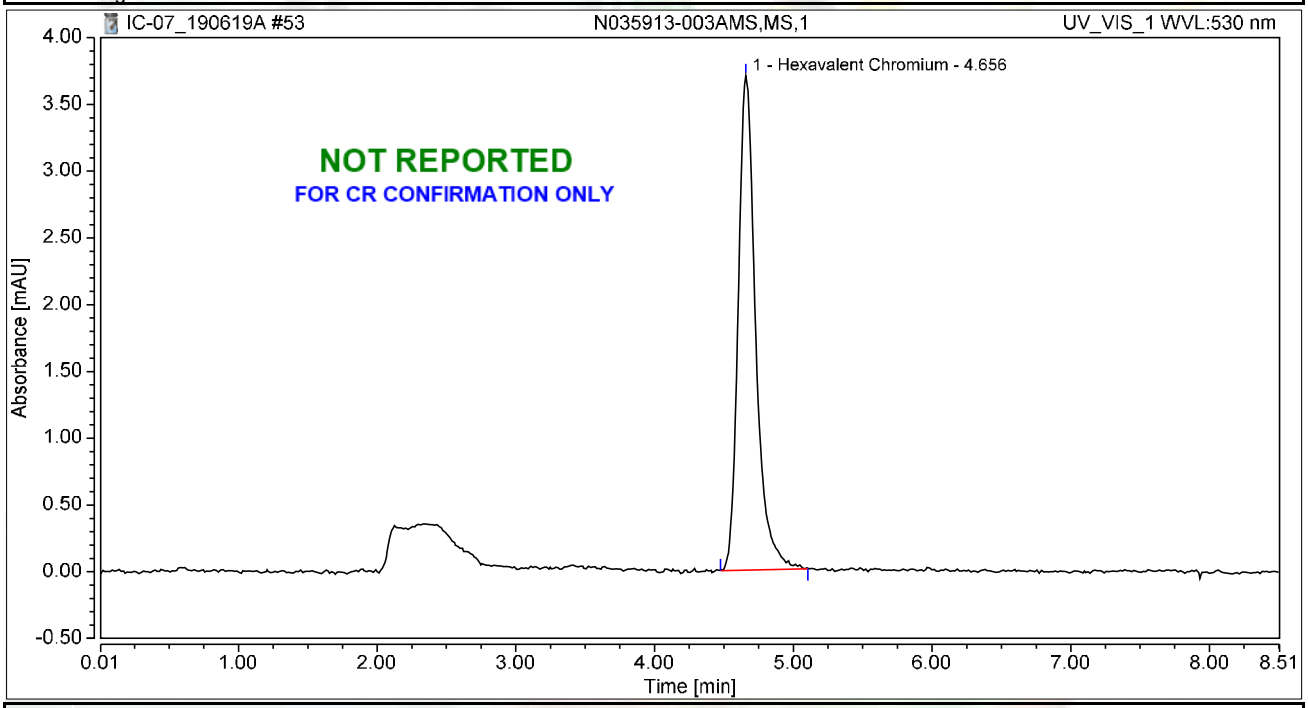
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.648	0.274	1.901	100.00	100.00	1.0665
Total:			**0.274**	**1.901**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N035913-003AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 19:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

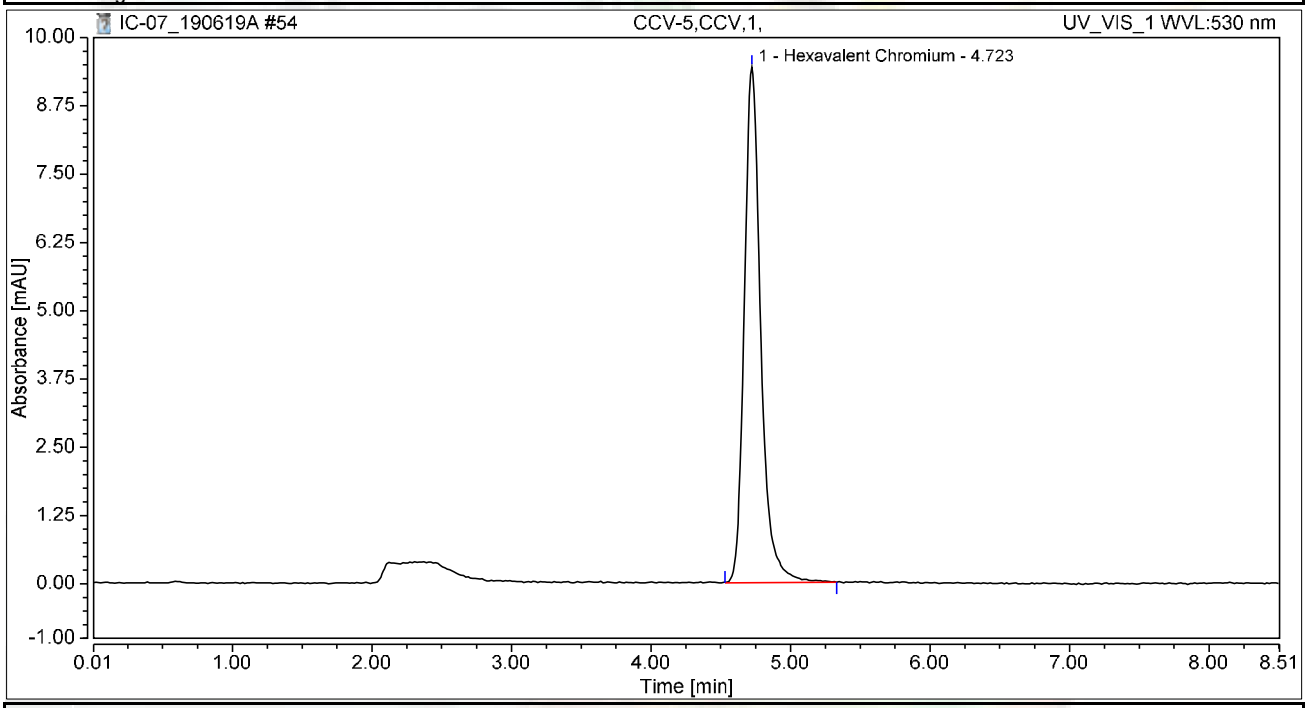
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.656	0.541	3.703	100.00	100.00	2.1083
Total:			**0.541**	**3.703**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 19:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

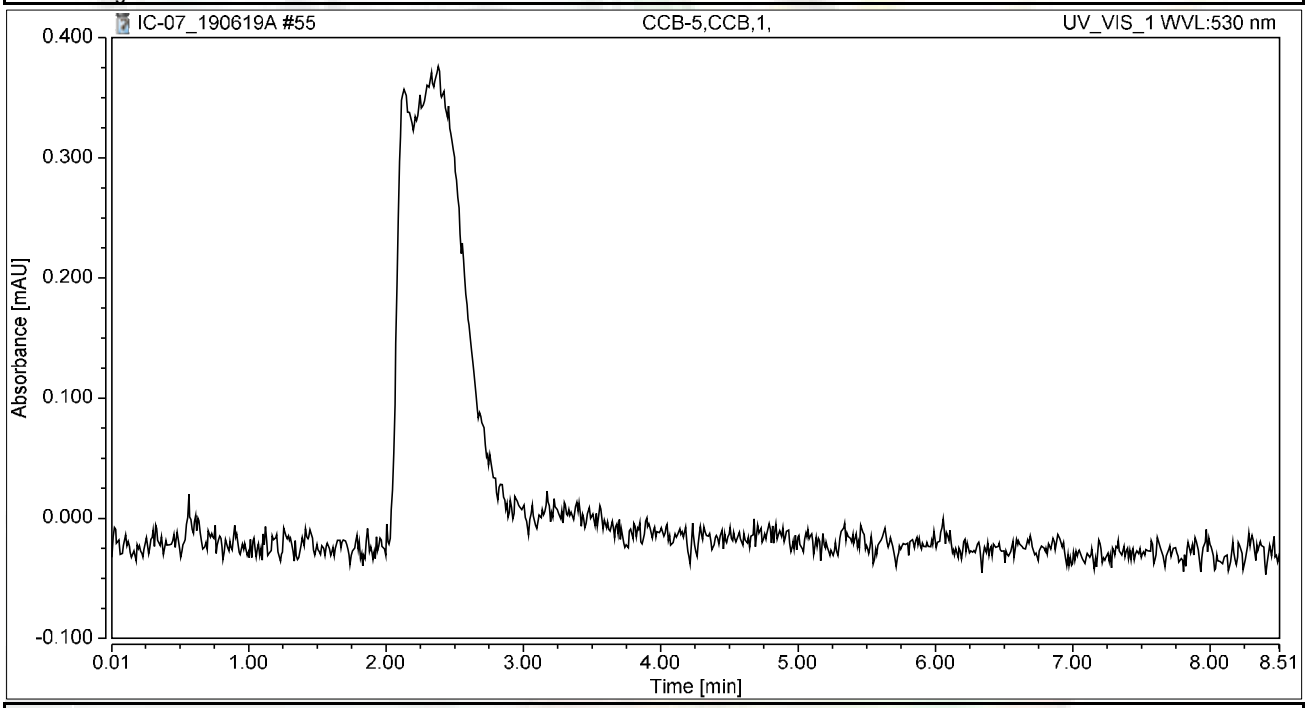
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	1.289	9.442	100.00	100.00	5.0202
Total:			**1.289**	**9.442**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 19:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

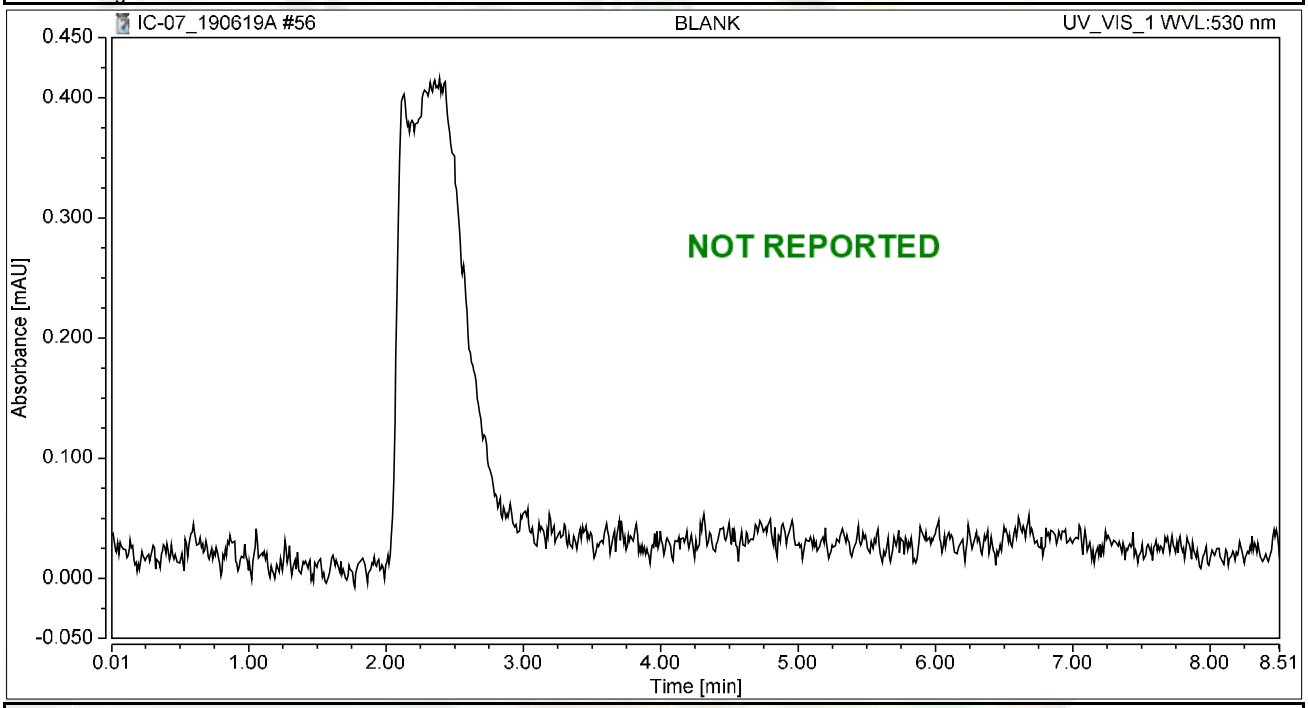
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**19/Jun/19 19:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134642 **Analyst:** QBM

ASSET #: N036115 **Date Analyzed:** 6/20/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer QBM Date: 7/11/2019

2nd Level Reviewer NS 7/11/2019 Date: —

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134671 **Analyst:** QBM

ASSET #: N036115, N036155 **Date Analyzed:** 6/21/2019

Method: 4500_N03

Initial Calibration	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer QBM Date: 7/11/2019

2nd Level Reviewer NS 7/11/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N036115-001E**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.3807	*	1
	=	0.3807	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 0.38 mg/L

NS 7/11/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

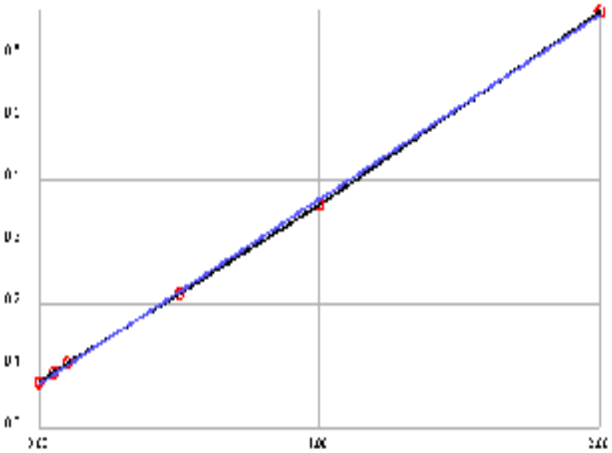
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.2964x + 0.0713
Correlation	.999707

Calibrant	Energy	Set	Conc
1	0.0738	0.0000	0.0083
2	0.0891	0.0500	0.0599
3	0.1036	0.1000	0.1088
4	0.2154	0.5000	0.4860
5	0.3584	1.0000	0.9684
6	0.6697	2.0000	2.0186

Notes:

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
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Blank min	0
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Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

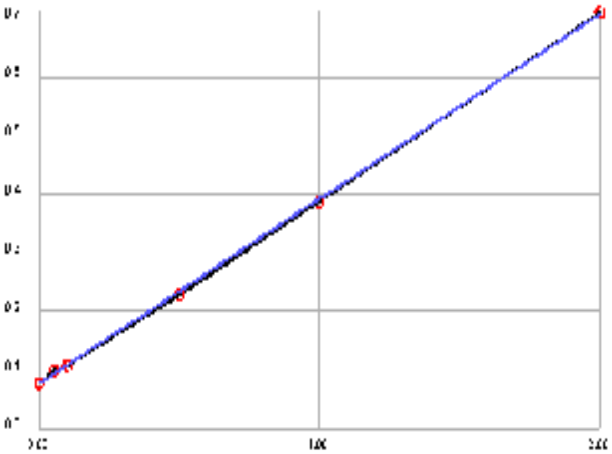
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3143x + 0.0777
Correlation	.999835

Calibrant	Energy	Set	Conc
1	0.0773	0.0000	-0.0011
2	0.1004	0.0500	0.0724
3	0.1082	0.1000	0.0972
4	0.2298	0.5000	0.4841
5	0.3881	1.0000	0.9879
6	0.7092	2.0000	2.0096

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **ICV**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.515	0.050	0.5000	0	103	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **CCV**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417303**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.508	0.050	0.5000	0	102	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **CCV**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417313**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.515	0.050	0.5000	0	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **ICV**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418283**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.479	0.050	0.5000	0	95.9	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCV**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.490	0.050	0.5000	0	98.0	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCV**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.489	0.050	0.5000	0	97.7	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCV**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418309**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.492	0.050	0.5000	0	98.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **ICB**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **CCB**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134642**
Client ID: **CCB**	Batch ID: **R134642**	TestNo: **SM4500-NO3**		Analysis Date: **6/20/2019**	SeqNo: **3417314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **ICB**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418284**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCB**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCB**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCB**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

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Time start: 06-20-2019 18:10
Time end: 06-20-2019 20:23

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	19:54:06	0.0127		0.0751
2	<BLANK>	19:55:07	0.0086		0.0739
3	<CAL1>	19:56:01	0.0083	[0]	0.0738
4	<CAL2>	19:56:56	0.0599	[0.05]	0.0891
5	<CAL3>	19:57:57	0.1088	[0.1]	0.1036
6	<CAL4>	19:58:52	0.4860	[0.5]	0.2154
7	<CAL5>	19:59:47	0.9684	[1]	0.3584
8	<CAL6>	20:00:43	2.0186	[2]	0.6697
9	,BLANK,BLANK,1, NOT REPORTED	20:01:44	0.0349		0.0817
10	,ICV,ICV,1,	20:02:38	0.5147		0.2239
11	,ICB,ICB,1,	20:03:33	0.0225		0.0780
12	,MB-H2O,MBLK,1,	20:04:35	0.0150		0.0758
13	,LCS-H2O,LCS,1,	20:05:29	0.5059		0.2213
14	,N036115-001E,SAMP,1,	20:06:24	0.3807		0.1842
15	,N036115-002E,SAMP,1,	20:07:26	0.3861		0.1858
16	,N036115-003E,SAMP,1,	20:08:08	0.3892		0.1867
17	,N036115-003EDUP,DUP,1,	20:08:58	0.4016		0.1904
18	,N036115-004E,SAMP,1,	20:09:41	0.4060		0.1917
19	,N036115-004EMS,MS,1,	20:10:23	0.8922		0.3358
20	,N036115-004EMSD,MSD,1,	20:11:13	0.8928		0.3360
21	,BLANK, NOT REPORTED	20:11:55	0.0201		0.0773
22	,CCV-1,CCV,1,	20:12:38	0.5082		0.2220
23	,CCB-1,CCB,1,	20:13:26	0.0127		0.0751
24	,N036115-005E,SAMP,1,	20:14:09	0.3709		0.1813
25	,N036115-006E,SAMP,1,	20:14:53	0.3946		0.1883
26	,N036115-007E,SAMP,1,	20:15:35	0.3784		0.1835

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N036115-008E,SAMP,1,	20:16:24	0.3524		0.1758
28	,N036115-013E,SAMP,1,	20:17:06	0.3996		0.1898
29	,N036115-014E,SAMP,1, NOT REPORTED	20:17:50	0.5292		0.2282
30	,N036115-015E,SAMP,1,	20:18:38	0.3743		0.1823
31	,N036115-016E,SAMP,1,	20:19:21	0.3730		0.1819
32	,BLANK, NOT REPORTED	20:20:03	0.0076		0.0736
33	,CCV-2,CCV,1,	20:20:52	0.5147		0.2239
34	,CCB-2,CCB,1,	20:21:36	0.0093		0.0741

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Time start: 06-21-2019 16:49
Time end: 06-21-2019 19:23

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	18:48:41	0.0055		0.0794
2	<BLANK>	18:49:42	0.0014		0.0781
3	<CAL1>	18:50:36	-0.0011	[0]	0.0773
4	<CAL2>	18:51:31	0.0724	[0.05]	0.1004
5	<CAL3>	18:52:27	0.0972	[0.1]	0.1082
6	<CAL4>	18:53:27	0.4841	[0.5]	0.2298
7	<CAL5>	18:54:23	0.9879	[1]	0.3881
8	<CAL6>	18:55:18	2.0096	[2]	0.7092
9	,BLANK,BLANK,1, NOT REPORTED	18:56:20	0.0240		0.0852
10	,ICV,ICV,1,	18:57:14	0.4794		0.2283
11	,ICB,ICB,1,	18:58:09	0.0173		0.0831
12	,MB-H2O,MBLK,1,	18:59:05	-0.0005		0.0775
13	,LCS-H2O,LCS,1,	19:00:05	0.4953		0.2333
14	,N036115-014E,SAMP,1,	19:01:01	0.3607		0.1910
15	,N036155-001E,SAMP,1,	19:01:56	0.3763		0.1959
16	,N036155-002E,SAMP,1,	19:02:58	0.3731		0.1949
17	,N036155-002EDUP,DUP,1,	19:03:52	0.3947		0.2017
18	,N036155-003E,SAMP,1,	19:04:48	0.3629		0.1917
19	,N036155-003EMS,MS,1,	19:05:43	0.8828		0.3551
20	,N036155-003EMSD,MSD,1,	19:06:43	0.8988		0.3601
21	,BLANK, NOT REPORTED	19:07:39	0.0097		0.0807
22	,CCV-1,CCV,1,	19:08:22	0.4902		0.2317
23	,CCB-1,CCB,1,	19:09:11	0.0039		0.0789
24	,N036155-004E,SAMP,1,	19:09:54	0.3826		0.1979
25	,N036155-005E,SAMP,1,	19:10:42	0.3658		0.1926
26	,N036155-006E,SAMP,1,	19:11:26	0.4195		0.2095

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N036155-007E,SAMP,1,	19:12:08	0.3769		0.1961
28	,N036155-008E,SAMP,1,	19:12:51	0.3495		0.1875
29	,N036155-009E,SAMP,1,	19:13:41	0.3600		0.1908
30	,N036155-010E,SAMP,1,	19:14:23	0.3673		0.1931
31	,N036155-011E,SAMP,1,	19:15:06	0.3422		0.1852
32	,N036155-012E,SAMP,1,	19:15:54	0.3463		0.1865
33	,BLANK, NOT REPORTED	19:16:37	0.0017		0.0782
34	,CCV-2,CCV,1,	19:17:19	0.4886		0.2312
35	,CCB-2,CCB,1,	19:18:03	-0.0031		0.0767
36	,N036155-013E,SAMP,1,	19:18:52	0.3562		0.1896
37	,N036155-014E,SAMP,1,	19:19:34	0.3603		0.1909
38	,BLANK, NOT REPORTED	19:20:18	-0.0050		0.0761
39	,CCV-3,CCV,1,	19:21:06	0.4924		0.2324
40	,CCB-3,CCB,1,	19:21:49	-0.0040		0.0764

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 6/20/2019
Time Analyzed: 6:10 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N036115-001E		6.51							
N036115-002E		8.12							
N036115-003E		7.79							
N035116-004E		8.91							
N035116-005E		6.08							
N035116-006E		8.68							
N035116-007E		7.87							
N035116-008E		7.31							
N035116-013E		8.11							
N035116-014E		8.30							
N035116-015E		8.39							
N035116-016E		8.04							

Advanced Technology Laboratories, Inc.
Book # 1

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 6/21/2019
Time Analyzed: 4:49 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N036115-014E		7.70							
N036155-001E		8.03							
N036155-002E		7.16							
N036155-003E		8.13							
N036155-004E		8.34							
N036155-005E		8.36							
N036155-006E		8.27							
N036155-007E		8.10							
N036155-008E		8.13							
N036155-009E		7.82							
N036155-010E		7.38							
N036155-011E		8.05							
N036155-012E		7.83							
N036155-013E		8.57							
N036155-014E		8.10							

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MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6010B
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74407
ASSET #: N036115
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 7/13/2019

Method:

[X] EPA 6010B / 200.7 Dissolved
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?		X			X	
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/15/2019

2nd Level Reviewer NS 7/15/2019 Date: –

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N036115-006B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.0291 * 1 * (25/25) * 1000

Iron , ug/L = 29.1

Reporting results in two significant figures,

Iron , ug/L = 29

NS 7/16/2019

% RSD SUMMARY

RSD SUMMARY: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	106.64	15	<PQL
Standard1	ICAL	1	Fe	0.02	4.34	15	PASS
Standard2	ICAL	1	Fe	0.05	0.29	15	PASS
Standard3	ICAL	1	Fe	2	0.11	15	PASS
Standard4	ICAL	1	Fe	5	0.096	15	PASS
Standard5	ICAL	1	Fe	7.5	0.029	15	PASS
Standard6	ICAL	1	Fe	10	0.082	15	PASS
Standard7	ICAL	1	Fe	20	0.13	15	PASS
ICV	ICV	1	Fe	10.078	0.093	15	PASS
ICB	ICB	1	Fe	0.0038	29.49	15	<PQL
~~LLCCV1~~ LLICV	CCV1	1	Fe	0.021	1.051	20	PASS
ICSA1	ICSA	1	Fe	179.89	0.38	15	PASS
ICSAB1	ICSAB	1	Fe	184.99	0.46	15	PASS
MB-74407	MBLK	1	Fe	0.0046	155.91	15	<PQL
LCS-74407	LCS	1	Fe	0.11	4.19	15	PASS
N036115-001B	SAMP	1	Fe	0.0062	11.31	15	PASS
N036115-001B	SAMP	5	Fe	-0.00053	184.18	15	<PQL
N036115-001B-PS	PS	1	Fe	0.1	0.56	15	PASS
N036115-001B-MS	MS	1	Fe	0.11	0.74	15	PASS
N036115-001B-MSD	MSD	1	Fe	0.11	0.44	15	PASS
N036115-002B	SAMP	1	Fe	0.0033	14.51	15	PASS
N036115-003B	SAMP	1	Fe	0.0039	6.63	15	PASS
N036115-004B	SAMP	1	Fe	0.017	1.26	15	PASS
CCV1	CCV	1	Fe	10.15	0.094	15	PASS
CCB1	CCB	1	Fe	-0.0027	24.9	15	<PQL
N036115-005B	SAMP	1	Fe	0.0095	1.22	15	PASS
N036115-006B	SAMP	1	Fe	0.029	1.7	15	PASS
N036115-007B	SAMP	1	Fe	0.015	2.41	15	PASS
N036115-008B	SAMP	1	Fe	0.0071	9.62	15	PASS
N036115-013B	SAMP	1	Fe	0.0034	15.5	15	<PQL
N036115-014B	SAMP	1	Fe	0.0034	4.36	15	PASS
N036115-015B	SAMP	1	Fe	0.0027	15.2	15	<PQL
N036115-016B	SAMP	1	Fe	0.00096	73.61	15	<PQL
CCV2	CCV	1	Fe	9.95	0.091	15	PASS
CCB2	CCB	1	Fe	0.0024	29.43	15	<PQL
CCV3	CCV	1	Fe	10.08	0.011	15	PASS
CCB3	CCB	1	Fe	0.00044	220.16	15	<PQL
ICSA2	ICSA	1	Fe	179.48	0.59	15	PASS
ICSAB2	ICSAB	1	Fe	182.83	0.17	15	PASS
CCV4	CCV	1	Fe	10.019	0.097	15	PASS
CCB4	CCB	1	Fe	0.00089	61.36	15	<PQL
CCV5	CCV	1	Fe	10.029	0.11	15	PASS

NS 7/16/2019

RSD SUMMARY: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB5	CCB	1	Fe	0.00019	533.4	15	<PQL
CCV6	CCV	1	Fe	10.05	0.079	15	PASS
CCB6	CCB	1	Fe	0.00072	152.23	15	<PQL
ICSA3	ICSA	1	Fe	179.41	0.092	15	PASS
ICSAB3	ICSAB	1	Fe	183.53	0.29	15	PASS
CCV7	CCV	1	Fe	10.027	0.074	15	PASS
CCB7	CCB	1	Fe	0.0016	49	15	<PQL
CCV8	CCV	1	Fe	10.015	0.046	15	PASS
CCB8	CCB	1	Fe	0.00054	110.99	15	<PQL
ICSA4	ICSA	1	Fe	178.64	0.27	15	PASS
ICSAB4	ICSAB	1	Fe	182.46	0.23	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190713A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	07/13/2019	11:05:20 AM
2	Standard1	ICAL	1	07/13/2019	11:10:03 AM
3	Standard2	ICAL	1	07/13/2019	11:14:45 AM
4	Standard3	ICAL	1	07/13/2019	11:19:00 AM
5	Standard4	ICAL	1	07/13/2019	11:23:15 AM
6	Standard5	ICAL	1	07/13/2019	11:27:30 AM
7	Standard6	ICAL	1	07/13/2019	11:31:46 AM
8	Standard7	ICAL	1	07/13/2019	11:36:01 AM
250	ICV	ICV	1	07/13/2019	11:39:10 AM
1	ICB	ICB	1	07/13/2019	11:43:28 AM
2	~~LLCCV1~~ LLICV	CCV1	1	07/13/2019	11:48:10 AM
9	ICSA1	ICSA	1	07/13/2019	11:52:54 AM
10	ICSAB1	ICSAB	1	07/13/2019	11:58:50 AM
71	MB-74407	MBLK	1	07/13/2019	12:16:53 PM
72	LCS-74407	LCS	1	07/13/2019	12:21:35 PM
73	N036115-001B	SAMP	1	07/13/2019	12:25:48 PM
74	N036115-001B	SAMP	5	07/13/2019	12:30:00 PM
75	N036115-001B-PS	PS	1	07/13/2019	12:34:12 PM
76	N036115-001B-MS	MS	1	07/13/2019	12:38:25 PM
77	N036115-001B-MSD	MSD	1	07/13/2019	12:42:37 PM
78	N036115-002B	SAMP	1	07/13/2019	12:46:51 PM
79	N036115-003B	SAMP	1	07/13/2019	12:51:04 PM
80	N036115-004B	SAMP	1	07/13/2019	12:55:18 PM
7	CCV1	CCV	1	07/13/2019	12:59:33 PM
1	CCB1	CCB	1	07/13/2019	01:03:49 PM
81	N036115-005B	SAMP	1	07/13/2019	01:08:30 PM
82	N036115-006B	SAMP	1	07/13/2019	01:12:45 PM
83	N036115-007B	SAMP	1	07/13/2019	01:16:59 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
84	N036115-008B	SAMP	1	07/13/2019	01:21:11 PM
85	N036115-013B	SAMP	1	07/13/2019	01:25:24 PM
86	N036115-014B	SAMP	1	07/13/2019	01:29:37 PM
87	N036115-015B	SAMP	1	07/13/2019	01:33:50 PM
88	N036115-016B	SAMP	1	07/13/2019	01:38:03 PM
89	MB-74405	MBLK	1	07/13/2019	01:42:15 PM
90	LCS-74405	LCS	1	07/13/2019	01:46:57 PM
7	CCV2	CCV	1	07/13/2019	01:51:10 PM
1	CCB2	CCB	1	07/13/2019	01:55:26 PM
91	N036115-001C	SAMP	1	07/13/2019	02:00:07 PM
92	N036115-001C	SAMP	5	07/13/2019	02:04:21 PM
93	N036115-001C-PS	PS	1	07/13/2019	02:08:36 PM
94	N036115-001C-MS	MS	1	07/13/2019	02:12:51 PM
95	N036115-001C-MSD	MSD	1	07/13/2019	02:17:06 PM
96	N036115-002C	SAMP	1	07/13/2019	02:21:19 PM
97	N036115-003C	SAMP	1	07/13/2019	02:25:32 PM
98	N036115-004C	SAMP	1	07/13/2019	02:29:47 PM
99	N036115-005C	SAMP	1	07/13/2019	02:33:59 PM
100	N036115-006C	SAMP	1	07/13/2019	02:38:11 PM
7	CCV3	CCV	1	07/13/2019	02:42:25 PM
1	CCB3	CCB	1	07/13/2019	02:46:40 PM
9	ICSA2	ICSA	1	07/13/2019	02:51:21 PM
10	ICSAB2	ICSAB	1	07/13/2019	02:57:46 PM
101	N036115-007C	SAMP	1	07/13/2019	03:03:44 PM
102	N036115-008C	SAMP	1	07/13/2019	03:07:56 PM
103	N036115-013C	SAMP	1	07/13/2019	03:12:09 PM
104	N036115-014C	SAMP	1	07/13/2019	03:16:22 PM
105	N036115-015C	SAMP	1	07/13/2019	03:20:38 PM
106	N036115-016C	SAMP	1	07/13/2019	03:24:53 PM
107	MB-74525	MBLK	1	07/13/2019	03:29:08 PM
108	LCS-74525	LCS	1	07/13/2019	03:33:50 PM
109	N036155-001B	SAMP	1	07/13/2019	03:38:05 PM
110	N036155-001B	SAMP	5	07/13/2019	03:42:17 PM
7	CCV4	CCV	1	07/13/2019	03:46:30 PM
1	CCB4	CCB	1	07/13/2019	03:50:46 PM
111	N036155-001B-PS	PS	1	07/13/2019	03:55:27 PM
112	N036155-001B-MS	MS	1	07/13/2019	03:59:41 PM
113	N036155-001B-MSD	MSD	1	07/13/2019	04:03:55 PM
114	N036155-002B	SAMP	1	07/13/2019	04:08:10 PM
115	N036155-003B	SAMP	1	07/13/2019	04:12:23 PM
116	N036155-004B	SAMP	1	07/13/2019	04:16:36 PM
117	N036155-005B	SAMP	1	07/13/2019	04:20:50 PM
118	N036155-006B	SAMP	1	07/13/2019	04:25:04 PM
119	N036155-007B	SAMP	1	07/13/2019	04:29:18 PM
120	N036155-008B	SAMP	1	07/13/2019	04:33:33 PM
7	CCV5	CCV	1	07/13/2019	04:37:46 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CCB5	CCB	1	07/13/2019	04:42:02 PM
121	N036155-009B	SAMP	1	07/13/2019	04:46:44 PM
122	N036155-010B	SAMP	1	07/13/2019	04:50:59 PM
123	N036155-011B	SAMP	1	07/13/2019	04:55:12 PM
124	N036155-012B	SAMP	1	07/13/2019	04:59:25 PM
125	N036155-013B	SAMP	1	07/13/2019	05:03:39 PM
126	N036155-014B	SAMP	1	07/13/2019	05:07:54 PM
127	MB-74460	MBLK	1	07/13/2019	05:12:08 PM
128	LCS-74460	LCS	1	07/13/2019	05:16:51 PM
129	N036155-001C	SAMP	1	07/13/2019	05:21:06 PM
130	N036155-001C	SAMP	5	07/13/2019	05:25:21 PM
7	CCV6	CCV	1	07/13/2019	05:29:36 PM
1	CCB6	CCB	1	07/13/2019	05:33:52 PM
9	ICSA3	ICSA	1	07/13/2019	05:38:32 PM
10	ICSAB3	ICSAB	1	07/13/2019	05:44:58 PM
131	N036155-001C-PS	PS	1	07/13/2019	05:50:55 PM
132	N036155-001C-MS	MS	1	07/13/2019	05:55:09 PM
133	N036155-001C-MSD	MSD	1	07/13/2019	05:59:24 PM
134	N036155-002C	SAMP	1	07/13/2019	06:03:37 PM
135	N036155-003C	SAMP	1	07/13/2019	06:07:52 PM
136	N036155-004C	SAMP	1	07/13/2019	06:12:06 PM
137	N036155-005C	SAMP	1	07/13/2019	06:16:21 PM
138	N036155-006C	SAMP	1	07/13/2019	06:20:36 PM
139	N036155-007C	SAMP	1	07/13/2019	06:24:50 PM
140	N036155-008C	SAMP	1	07/13/2019	06:29:05 PM
7	CCV7	CCV	1	07/13/2019	06:33:19 PM
1	CCB7	CCB	1	07/13/2019	06:37:35 PM
141	N036155-009C	SAMP	1	07/13/2019	06:42:16 PM
142	N036155-010C	SAMP	1	07/13/2019	06:46:32 PM
143	N036155-011C	SAMP	1	07/13/2019	06:50:46 PM
144	N036155-012C	SAMP	1	07/13/2019	06:55:00 PM
145	N036155-013C	SAMP	1	07/13/2019	06:59:15 PM
146	N036155-014C	SAMP	1	07/13/2019	07:03:29 PM
7	CCV8	CCV	1	07/13/2019	07:07:43 PM
1	CCB8	CCB	1	07/13/2019	07:11:58 PM
9	ICSA4	ICSA	1	07/13/2019	07:16:38 PM
10	ICSAB4	ICSAB	1	07/13/2019	07:23:04 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/1/2019 8:28:39 A**
Prep End Date: **7/1/2019 1:00:00 P**
Reviewed/ Date: NS 7/16/2019
Initials/ Date: for
Prep Batch **74407** Prep Code: **3010_W_DISS** Technician: **Mark Gesmundo**
Prep Factor Units **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74407	Aqueous		25	☐	0	0	25	1.000		
MB-74407	Aqueous		25	☐	0	0	25	1.000		
N036115-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-014B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11131	HYDROCHLORIC ACID
11139	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/1/2019 8:28:39 A**
Prep End Date: **7/1/2019 1:00:00 P**
Reviewed/ Date: NS 7/16/2019
Initials/ Date: for
Prep Batch **74407** Prep Code: **3010_W_DISS** Technician: **Mark Gesmundo**
Prep Factor Units **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N036115-015B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-016B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11131	HYDROCHLORIC ACID
11139	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190713A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	07/13/2019	11:05:20 AM	Fe	273.954	-63	0.00	mg/L	
Standard1	07/13/2019	11:10:03 AM	Fe	273.954	679	0.0200	mg/L	
Standard2	07/13/2019	11:14:45 AM	Fe	273.954	16404	0.050	mg/L	
Standard3	07/13/2019	11:19:00 AM	Fe	273.954	65773	2.000	mg/L	
Standard4	07/13/2019	11:23:15 AM	Fe	273.954	163763	5.000	mg/L	
Standard5	07/13/2019	11:27:30 AM	Fe	273.954	244585	7.500	mg/L	
Standard6	07/13/2019	11:31:46 AM	Fe	273.954	325242	10.000	mg/L	
Standard7	07/13/2019	11:36:01 AM	Fe	273.954	641432	20.000	mg/L	0.9998

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID	ICV	SampType:	ICV	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	135068
Client ID:	ICV	Batch ID:	R135068	TestNo:	EPA 6010B			Analysis Date:	7/13/2019	SeqNo:	3437172

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10078.113	20	10000	0	101	90	110				

Sample ID	~~LLCCV1~~ LLICV	SampType:	CCV1	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	135068
Client ID:	ZZZZZZ	Batch ID:	R135068	TestNo:	EPA 6010B			Analysis Date:	7/13/2019	SeqNo:	3437174

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	20.655	20	20.00	0	103	80	120				

Sample ID	CCV1	SampType:	CCV	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	135068
Client ID:	CCV	Batch ID:	R135068	TestNo:	EPA 6010B			Analysis Date:	7/13/2019	SeqNo:	3437187

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10145.926	20	10000	0	101	90	110				

Sample ID	CCV2	SampType:	CCV	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	135068
Client ID:	CCV	Batch ID:	R135068	TestNo:	EPA 6010B			Analysis Date:	7/13/2019	SeqNo:	3437199

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9954.287	20	10000	0	99.5	90	110				

Sample ID	CCV3	SampType:	CCV	TestCode:	6010_WDPG	Units:	ug/L	Prep Date:		RunNo:	135068
Client ID:	CCV	Batch ID:	R135068	TestNo:	EPA 6010B			Analysis Date:	7/13/2019	SeqNo:	3437211

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10080.407	20	10000	0	101	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

NS 7/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10018.932	20	10000	0	100	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10029.477	20	10000	0	100	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10050.296	20	10000	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10027.278	20	10000	0	100	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10014.700	20	10000	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ICB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437173**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.769	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.702697	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2.369	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437212**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.437	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.894	20									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.187	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.723	20									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437264**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.592	20									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437272**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.541	20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSA** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	537431.875	50	500000	0	107	80	120				
Calcium	519713.472	500	500000	0	104	80	120				
Iron	179887.453	20	200000	0	89.9	80	120				
Magnesium	505112.791	100	500000	0	101	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSAB** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437176**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	552296.995	50	500000	0	110	80	120				
Calcium	536798.525	500	500000	0	107	80	120				
Iron	184993.067	20	200000	0	92.5	80	120				
Magnesium	526957.502	100	500000	0	105	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSA** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532102.581	50	500000	0	106	80	120				
Calcium	521633.790	500	500000	0	104	80	120				
Iron	179480.576	20	200000	0	89.7	80	120				
Magnesium	499659.564	100	500000	0	99.9	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSAB** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	546080.858	50	500000	0	109	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSAB** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	537926.182	500	500000	0	108	80	120				
Iron	182829.874	20	200000	0	91.4	80	120				
Magnesium	515578.012	100	500000	0	103	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSA** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533384.682	50	500000	0	107	80	120				
Calcium	523395.311	500	500000	0	105	80	120				
Iron	179411.829	20	200000	0	89.7	80	120				
Magnesium	495493.828	100	500000	0	99.1	80	120				

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSAB** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	547973.436	50	500000	0	110	80	120				
Calcium	540707.433	500	500000	0	108	80	120				
Iron	183529.086	20	200000	0	91.8	80	120				
Magnesium	513403.763	100	500000	0	103	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSA** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	534020.144	50	500000	0	107	80	120				
Calcium	525171.249	500	500000	0	105	80	120				
Iron	178639.847	20	200000	0	89.3	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ICSA**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	492692.864	100	500000	0	98.5	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ICSAB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	548742.026	50	500000	0	110	80	120				
Calcium	541955.719	500	500000	0	108	80	120				
Iron	182458.095	20	200000	0	91.2	80	120				
Magnesium	509690.444	100	500000	0	102	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0071	100.71	65-125	PASS
Standard2	ICAL	1	1.035	103.51	65-125	PASS
Standard3	ICAL	1	1.05	104.97	65-125	PASS
Standard4	ICAL	1	1.033	103.32	65-125	PASS
Standard5	ICAL	1	1.087	108.69	65-125	PASS
Standard6	ICAL	1	1.025	102.53	65-125	PASS
Standard7	ICAL	1	1.026	102.62	65-125	PASS
ICV	ICV	1	1.035	103.49	65-125	PASS
ICB	ICB	1	1	99.96	65-125	PASS
~~LLCCV1~~ LLICV	CCV1	1	1.0006	100.06	65-125	PASS
ICSA1	ICSA	1	0.93	93.31	65-125	PASS
ICSAB1	ICSAB	1	0.91	90.6	65-125	PASS
MB-74407	MBLK	1	1.0008	100.08	65-125	PASS
LCS-74407	LCS	1	0.93	93.19	65-125	PASS
N036115-001B	SAMP	1	1.066	106.63	65-125	PASS
N036115-001B	SAMP	5	1.013	101.27	65-125	PASS
N036115-001B-PS	PS	1	1.049	104.86	65-125	PASS
N036115-001B-MS	MS	1	1.015	101.51	65-125	PASS
N036115-001B-MSD	MSD	1	1.017	101.68	65-125	PASS
N036115-002B	SAMP	1	1.024	102.4	65-125	PASS
N036115-003B	SAMP	1	1.014	101.44	65-125	PASS
N036115-004B	SAMP	1	1.048	104.81	65-125	PASS
CCV1	CCV	1	1.022	102.25	65-125	PASS
CCB1	CCB	1	1.023	102.32	65-125	PASS
N036115-005B	SAMP	1	1.058	105.85	65-125	PASS
N036115-006B	SAMP	1	1.048	104.84	65-125	PASS
N036115-007B	SAMP	1	1.074	107.43	65-125	PASS
N036115-008B	SAMP	1	1.045	104.5	65-125	PASS
N036115-013B	SAMP	1	1.074	107.44	65-125	PASS
N036115-014B	SAMP	1	1.075	107.52	65-125	PASS
N036115-015B	SAMP	1	1.09	109	65-125	PASS
N036115-016B	SAMP	1	1.066	106.59	65-125	PASS
CCV2	CCV	1	1.043	104.31	65-125	PASS
CCB2	CCB	1	1.039	103.88	65-125	PASS
CCV3	CCV	1	1.012	101.16	65-125	PASS
CCB3	CCB	1	1.0077	100.77	65-125	PASS
ICSA2	ICSA	1	0.91	91.42	65-125	PASS
ICSAB2	ICSAB	1	0.89	88.91	65-125	PASS
CCV4	CCV	1	1.014	101.39	65-125	PASS
CCB4	CCB	1	1.005	100.5	65-125	PASS

INTERNAL STANDARD: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CCV5	CCV	1	1.01	101.01	65-125	PASS
CCB5	CCB	1	1.004	100.4	65-125	PASS
CCV6	CCV	1	1.0095	100.95	65-125	PASS
CCB6	CCB	1	1.0083	100.83	65-125	PASS
ICSA3	ICSA	1	0.92	92.24	65-125	PASS
ICSAB3	ICSAB	1	0.89	89.45	65-125	PASS
CCV7	CCV	1	1.016	101.58	65-125	PASS
CCB7	CCB	1	1.013	101.26	65-125	PASS
CCV8	CCV	1	1.024	102.35	65-125	PASS
CCB8	CCB	1	1.019	101.91	65-125	PASS
ICSA4	ICSA	1	0.93	93.24	65-125	PASS
ICSAB4	ICSAB	1	0.91	90.6	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N036115
Test Method: EPA 6010B
Analysis Date: 7/13/2019

Matrix: Groundwater
Batch No.: 74407

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036115-001B DT 5x	Iron	Fe	ug/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **N036115-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:			RunNo: **135068**					
Client ID: **ZZZZZZ**	Batch ID: **74407**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**			SeqNo: **3437181**					
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual	
Iron	104.174	20	100.0	0	104	80	120					

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

EPA 6010B

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74405
ASSET #: N036115
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 7/13/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?		X			X	
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Fe in N036115-001C PS/MS/MSD failed, low bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/15/2019

2nd Level Reviewer NS 7/15/2019 Date: –

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N036115-001C** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.08456 * 1 *(25/25) * 1000

Iron , ug/L = 84.56

Reporting results in two significant figures,

Iron , ug/L = 85

NS 7/16/2019

% RSD SUMMARY

RSD SUMMARY: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	106.64	15	<PQL
Standard1	ICAL	1	Fe	0.02	4.34	15	PASS
Standard2	ICAL	1	Fe	0.05	0.29	15	PASS
Standard3	ICAL	1	Fe	2	0.11	15	PASS
Standard4	ICAL	1	Fe	5	0.096	15	PASS
Standard5	ICAL	1	Fe	7.5	0.029	15	PASS
Standard6	ICAL	1	Fe	10	0.082	15	PASS
Standard7	ICAL	1	Fe	20	0.13	15	PASS
ICV	ICV	1	Fe	10.078	0.093	15	PASS
ICB	ICB	1	Fe	0.0038	29.49	15	<PQL
~~LLCCV1~~ LLICV	CCV1	1	Fe	0.021	1.051	20	PASS
ICSA1	ICSA	1	Fe	179.89	0.38	15	PASS
ICSAB1	ICSAB	1	Fe	184.99	0.46	15	PASS
CCV1	CCV	1	Fe	10.15	0.094	15	PASS
CCB1	CCB	1	Fe	-0.0027	24.9	15	<PQL
MB-74405	MBLK	1	Fe	-0.0043	15.0061	15	<PQL
LCS-74405	LCS	1	Fe	0.099	1.66	15	PASS
CCV2	CCV	1	Fe	9.95	0.091	15	PASS
CCB2	CCB	1	Fe	0.0024	29.43	15	<PQL
N036115-001C	SAMP	1	Fe	0.085	0.36	15	PASS
N036115-001C	SAMP	5	Fe	0.018	6.5	15	PASS
N036115-001C-PS	PS	1	Fe	0.15	0.14	15	PASS
N036115-001C-MS	MS	1	Fe	0.13	1.48	15	PASS
N036115-001C-MSD	MSD	1	Fe	0.13	0.99	15	PASS
N036115-002C	SAMP	1	Fe	0.033	2.47	15	PASS
N036115-003C	SAMP	1	Fe	0.038	1.0034	15	PASS
N036115-004C	SAMP	1	Fe	0.024	1.73	15	PASS
N036115-005C	SAMP	1	Fe	0.032	1.36	15	PASS
N036115-006C	SAMP	1	Fe	0.02	0.11	15	PASS
CCV3	CCV	1	Fe	10.08	0.011	15	PASS
CCB3	CCB	1	Fe	0.00044	220.16	15	<PQL
ICSA2	ICSA	1	Fe	179.48	0.59	15	PASS
ICSAB2	ICSAB	1	Fe	182.83	0.17	15	PASS
N036115-007C	SAMP	1	Fe	0.051	1.55	15	PASS
N036115-008C	SAMP	1	Fe	0.021	0.41	15	PASS
N036115-013C	SAMP	1	Fe	0.022	6.3	15	PASS
N036115-014C	SAMP	1	Fe	0.15	0.91	15	PASS
N036115-015C	SAMP	1	Fe	0.025	1.99	15	PASS
N036115-016C	SAMP	1	Fe	0.041	0.34	15	PASS
CCV4	CCV	1	Fe	10.019	0.097	15	PASS
CCB4	CCB	1	Fe	0.00089	61.36	15	<PQL
CCV5	CCV	1	Fe	10.029	0.11	15	PASS

NS 7/16/2019

RSD SUMMARY: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CCB5	CCB	1	Fe	0.00019	533.4	15	<PQL
CCV6	CCV	1	Fe	10.05	0.079	15	PASS
CCB6	CCB	1	Fe	0.00072	152.23	15	<PQL
ICSA3	ICSA	1	Fe	179.41	0.092	15	PASS
ICSAB3	ICSAB	1	Fe	183.53	0.29	15	PASS
CCV7	CCV	1	Fe	10.027	0.074	15	PASS
CCB7	CCB	1	Fe	0.0016	49	15	<PQL
CCV8	CCV	1	Fe	10.015	0.046	15	PASS
CCB8	CCB	1	Fe	0.00054	110.99	15	<PQL
ICSA4	ICSA	1	Fe	178.64	0.27	15	PASS
ICSAB4	ICSAB	1	Fe	182.46	0.23	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190713A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	07/13/2019	11:05:20 AM
2	Standard1	ICAL	1	07/13/2019	11:10:03 AM
3	Standard2	ICAL	1	07/13/2019	11:14:45 AM
4	Standard3	ICAL	1	07/13/2019	11:19:00 AM
5	Standard4	ICAL	1	07/13/2019	11:23:15 AM
6	Standard5	ICAL	1	07/13/2019	11:27:30 AM
7	Standard6	ICAL	1	07/13/2019	11:31:46 AM
8	Standard7	ICAL	1	07/13/2019	11:36:01 AM
250	ICV	ICV	1	07/13/2019	11:39:10 AM
1	ICB	ICB	1	07/13/2019	11:43:28 AM
2	~~LLCCV1~~ LLICV	CCV1	1	07/13/2019	11:48:10 AM
9	ICSA1	ICSA	1	07/13/2019	11:52:54 AM
10	ICSAB1	ICSAB	1	07/13/2019	11:58:50 AM
71	MB-74407	MBLK	1	07/13/2019	12:16:53 PM
72	LCS-74407	LCS	1	07/13/2019	12:21:35 PM
73	N036115-001B	SAMP	1	07/13/2019	12:25:48 PM
74	N036115-001B	SAMP	5	07/13/2019	12:30:00 PM
75	N036115-001B-PS	PS	1	07/13/2019	12:34:12 PM
76	N036115-001B-MS	MS	1	07/13/2019	12:38:25 PM
77	N036115-001B-MSD	MSD	1	07/13/2019	12:42:37 PM
78	N036115-002B	SAMP	1	07/13/2019	12:46:51 PM
79	N036115-003B	SAMP	1	07/13/2019	12:51:04 PM
80	N036115-004B	SAMP	1	07/13/2019	12:55:18 PM
7	CCV1	CCV	1	07/13/2019	12:59:33 PM
1	CCB1	CCB	1	07/13/2019	01:03:49 PM
81	N036115-005B	SAMP	1	07/13/2019	01:08:30 PM
82	N036115-006B	SAMP	1	07/13/2019	01:12:45 PM
83	N036115-007B	SAMP	1	07/13/2019	01:16:59 PM

NS 7/16/2019

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
84	N036115-008B	SAMP	1	07/13/2019	01:21:11 PM
85	N036115-013B	SAMP	1	07/13/2019	01:25:24 PM
86	N036115-014B	SAMP	1	07/13/2019	01:29:37 PM
87	N036115-015B	SAMP	1	07/13/2019	01:33:50 PM
88	N036115-016B	SAMP	1	07/13/2019	01:38:03 PM
89	MB-74405	MBLK	1	07/13/2019	01:42:15 PM
90	LCS-74405	LCS	1	07/13/2019	01:46:57 PM
7	CCV2	CCV	1	07/13/2019	01:51:10 PM
1	CCB2	CCB	1	07/13/2019	01:55:26 PM
91	N036115-001C	SAMP	1	07/13/2019	02:00:07 PM
92	N036115-001C	SAMP	5	07/13/2019	02:04:21 PM
93	N036115-001C-PS	PS	1	07/13/2019	02:08:36 PM
94	N036115-001C-MS	MS	1	07/13/2019	02:12:51 PM
95	N036115-001C-MSD	MSD	1	07/13/2019	02:17:06 PM
96	N036115-002C	SAMP	1	07/13/2019	02:21:19 PM
97	N036115-003C	SAMP	1	07/13/2019	02:25:32 PM
98	N036115-004C	SAMP	1	07/13/2019	02:29:47 PM
99	N036115-005C	SAMP	1	07/13/2019	02:33:59 PM
100	N036115-006C	SAMP	1	07/13/2019	02:38:11 PM
7	CCV3	CCV	1	07/13/2019	02:42:25 PM
1	CCB3	CCB	1	07/13/2019	02:46:40 PM
9	ICSA2	ICSA	1	07/13/2019	02:51:21 PM
10	ICSAB2	ICSAB	1	07/13/2019	02:57:46 PM
101	N036115-007C	SAMP	1	07/13/2019	03:03:44 PM
102	N036115-008C	SAMP	1	07/13/2019	03:07:56 PM
103	N036115-013C	SAMP	1	07/13/2019	03:12:09 PM
104	N036115-014C	SAMP	1	07/13/2019	03:16:22 PM
105	N036115-015C	SAMP	1	07/13/2019	03:20:38 PM
106	N036115-016C	SAMP	1	07/13/2019	03:24:53 PM
107	MB-74525	MBLK	1	07/13/2019	03:29:08 PM
108	LCS-74525	LCS	1	07/13/2019	03:33:50 PM
109	N036155-001B	SAMP	1	07/13/2019	03:38:05 PM
110	N036155-001B	SAMP	5	07/13/2019	03:42:17 PM
7	CCV4	CCV	1	07/13/2019	03:46:30 PM
1	CCB4	CCB	1	07/13/2019	03:50:46 PM
111	N036155-001B-PS	PS	1	07/13/2019	03:55:27 PM
112	N036155-001B-MS	MS	1	07/13/2019	03:59:41 PM
113	N036155-001B-MSD	MSD	1	07/13/2019	04:03:55 PM
114	N036155-002B	SAMP	1	07/13/2019	04:08:10 PM
115	N036155-003B	SAMP	1	07/13/2019	04:12:23 PM
116	N036155-004B	SAMP	1	07/13/2019	04:16:36 PM
117	N036155-005B	SAMP	1	07/13/2019	04:20:50 PM
118	N036155-006B	SAMP	1	07/13/2019	04:25:04 PM
119	N036155-007B	SAMP	1	07/13/2019	04:29:18 PM
120	N036155-008B	SAMP	1	07/13/2019	04:33:33 PM
7	CCV5	CCV	1	07/13/2019	04:37:46 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CCB5	CCB	1	07/13/2019	04:42:02 PM
121	N036155-009B	SAMP	1	07/13/2019	04:46:44 PM
122	N036155-010B	SAMP	1	07/13/2019	04:50:59 PM
123	N036155-011B	SAMP	1	07/13/2019	04:55:12 PM
124	N036155-012B	SAMP	1	07/13/2019	04:59:25 PM
125	N036155-013B	SAMP	1	07/13/2019	05:03:39 PM
126	N036155-014B	SAMP	1	07/13/2019	05:07:54 PM
127	MB-74460	MBLK	1	07/13/2019	05:12:08 PM
128	LCS-74460	LCS	1	07/13/2019	05:16:51 PM
129	N036155-001C	SAMP	1	07/13/2019	05:21:06 PM
130	N036155-001C	SAMP	5	07/13/2019	05:25:21 PM
7	CCV6	CCV	1	07/13/2019	05:29:36 PM
1	CCB6	CCB	1	07/13/2019	05:33:52 PM
9	ICSA3	ICSA	1	07/13/2019	05:38:32 PM
10	ICSAB3	ICSAB	1	07/13/2019	05:44:58 PM
131	N036155-001C-PS	PS	1	07/13/2019	05:50:55 PM
132	N036155-001C-MS	MS	1	07/13/2019	05:55:09 PM
133	N036155-001C-MSD	MSD	1	07/13/2019	05:59:24 PM
134	N036155-002C	SAMP	1	07/13/2019	06:03:37 PM
135	N036155-003C	SAMP	1	07/13/2019	06:07:52 PM
136	N036155-004C	SAMP	1	07/13/2019	06:12:06 PM
137	N036155-005C	SAMP	1	07/13/2019	06:16:21 PM
138	N036155-006C	SAMP	1	07/13/2019	06:20:36 PM
139	N036155-007C	SAMP	1	07/13/2019	06:24:50 PM
140	N036155-008C	SAMP	1	07/13/2019	06:29:05 PM
7	CCV7	CCV	1	07/13/2019	06:33:19 PM
1	CCB7	CCB	1	07/13/2019	06:37:35 PM
141	N036155-009C	SAMP	1	07/13/2019	06:42:16 PM
142	N036155-010C	SAMP	1	07/13/2019	06:46:32 PM
143	N036155-011C	SAMP	1	07/13/2019	06:50:46 PM
144	N036155-012C	SAMP	1	07/13/2019	06:55:00 PM
145	N036155-013C	SAMP	1	07/13/2019	06:59:15 PM
146	N036155-014C	SAMP	1	07/13/2019	07:03:29 PM
7	CCV8	CCV	1	07/13/2019	07:07:43 PM
1	CCB8	CCB	1	07/13/2019	07:11:58 PM
9	ICSA4	ICSA	1	07/13/2019	07:16:38 PM
10	ICSAB4	ICSAB	1	07/13/2019	07:23:04 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/1/2019 8:25:56 A**
Prep End Date: **7/1/2019 1:00:00 P**
Prep Batch **74405** Prep Code: **3010_W**

Reviewed/ Date: NS 7/16/2019
Initials/ Date: for
Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-74405	Aqueous		25	☐	0	0	25	1.000		
LCS2-74405	Aqueous		25	☐	0	0	25	1.000		
MB-74405	Aqueous		25	☐	0	0	25	1.000		
N036070-002A	Water	<2	25	☐	0	0	25	1.000		
N036070-002A-MS	Water	<2	25	☐	0	0	25	1.000		
N036070-002A-MS	Water	<2	25	☐	0	0	25	1.000		
N036080-003A	Water	<2	25	☐	0	0	25	1.000		
N036115-001C	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-001C-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-001C-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-002C	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-003C	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-004C	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-005C	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11131	HYDROCHLORIC ACID
11139	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/1/2019 8:25:56 A**
Prep End Date: **7/1/2019 1:00:00 P**
Prep Batch **74405** Prep Code: **3010_W**

Reviewed/ Date: NS 7/16/2019
Initials/ Date: for
Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N036115-006C	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-007C	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-008C	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-013C	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-014C	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-015C	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-016C	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11131	HYDROCHLORIC ACID
11139	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190713A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	07/13/2019	11:05:20 AM	Fe	273.954	-63	0.00	mg/L	
Standard1	07/13/2019	11:10:03 AM	Fe	273.954	679	0.0200	mg/L	
Standard2	07/13/2019	11:14:45 AM	Fe	273.954	16404	0.050	mg/L	
Standard3	07/13/2019	11:19:00 AM	Fe	273.954	65773	2.000	mg/L	
Standard4	07/13/2019	11:23:15 AM	Fe	273.954	163763	5.000	mg/L	
Standard5	07/13/2019	11:27:30 AM	Fe	273.954	244585	7.500	mg/L	
Standard6	07/13/2019	11:31:46 AM	Fe	273.954	325242	10.000	mg/L	
Standard7	07/13/2019	11:36:01 AM	Fe	273.954	641432	20.000	mg/L	0.9998

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
ICV	**ICV**	**6010_WPGE**	**ug/L**		**135069**
Client ID: **ICV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437275**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10078.113	20	10000	0	101	90	110				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
~~**LLCCV1**~~ **LLICV**	**CCV1**	**6010_WPGE**	**ug/L**		**135069**
Client ID: **ZZZZZZ**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	20.655	20	20.00	0	103	80	120				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCV1	**CCV**	**6010_WPGE**	**ug/L**		**135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10145.926	20	10000	0	101	90	110				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCV2	**CCV**	**6010_WPGE**	**ug/L**		**135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9954.287	20	10000	0	99.5	90	110				

Sample ID	SampType	TestCode	Units	Prep Date	RunNo
CCV3	**CCV**	**6010_WPGE**	**ug/L**		**135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10080.407	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

NS 7/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10018.932	20	10000	0	100	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437340**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10029.477	20	10000	0	100	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10050.296	20	10000	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437366**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10027.278	20	10000	0	100	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10014.700	20	10000	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **ICB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.769	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437291**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.702697	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437303**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2.369	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437315**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.437	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.894	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437341**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.187	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.723	20									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.592	20									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.541	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSA** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	537431.875	50	500000	0	107	80	120				
Calcium	519713.472	500	500000	0	104	80	120				
Iron	179887.453	20	200000	0	89.9	80	120				
Magnesium	505112.791	100	500000	0	101	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSAB** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	552296.995	50	500000	0	110	80	120				
Calcium	536798.525	500	500000	0	107	80	120				
Iron	184993.067	20	200000	0	92.5	80	120				
Magnesium	526957.502	100	500000	0	105	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSA** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532102.581	50	500000	0	106	80	120				
Calcium	521633.790	500	500000	0	104	80	120				
Iron	179480.576	20	200000	0	89.7	80	120				
Magnesium	499659.564	100	500000	0	99.9	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSAB** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437317**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	546080.858	50	500000	0	109	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSAB** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437317**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	537926.182	500	500000	0	108	80	120				
Iron	182829.874	20	200000	0	91.4	80	120				
Magnesium	515578.012	100	500000	0	103	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSA** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533384.682	50	500000	0	107	80	120				
Calcium	523395.311	500	500000	0	105	80	120				
Iron	179411.829	20	200000	0	89.7	80	120				
Magnesium	495493.828	100	500000	0	99.1	80	120				

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSAB** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	547973.436	50	500000	0	110	80	120				
Calcium	540707.433	500	500000	0	108	80	120				
Iron	183529.086	20	200000	0	91.8	80	120				
Magnesium	513403.763	100	500000	0	103	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSA** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	534020.144	50	500000	0	107	80	120				
Calcium	525171.249	500	500000	0	105	80	120				
Iron	178639.847	20	200000	0	89.3	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **ICSA**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	492692.864	100	500000	0	98.5	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **ICSAB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	548742.026	50	500000	0	110	80	120				
Calcium	541955.719	500	500000	0	108	80	120				
Iron	182458.095	20	200000	0	91.2	80	120				
Magnesium	509690.444	100	500000	0	102	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0071	100.71	65-125	PASS
Standard2	ICAL	1	1.035	103.51	65-125	PASS
Standard3	ICAL	1	1.05	104.97	65-125	PASS
Standard4	ICAL	1	1.033	103.32	65-125	PASS
Standard5	ICAL	1	1.087	108.69	65-125	PASS
Standard6	ICAL	1	1.025	102.53	65-125	PASS
Standard7	ICAL	1	1.026	102.62	65-125	PASS
ICV	ICV	1	1.035	103.49	65-125	PASS
ICB	ICB	1	1	99.96	65-125	PASS
~~LLCCV1~~ LLICV	CCV1	1	1.0006	100.06	65-125	PASS
ICSA1	ICSA	1	0.93	93.31	65-125	PASS
ICSAB1	ICSAB	1	0.91	90.6	65-125	PASS
CCV1	CCV	1	1.022	102.25	65-125	PASS
CCB1	CCB	1	1.023	102.32	65-125	PASS
MB-74405	MBLK	1	1.035	103.53	65-125	PASS
LCS-74405	LCS	1	0.96	96.21	65-125	PASS
CCV2	CCV	1	1.043	104.31	65-125	PASS
CCB2	CCB	1	1.039	103.88	65-125	PASS
N036115-001C	SAMP	1	1.052	105.25	65-125	PASS
N036115-001C	SAMP	5	1.046	104.65	65-125	PASS
N036115-001C-PS	PS	1	1.07	106.96	65-125	PASS
N036115-001C-MS	MS	1	1.059	105.94	65-125	PASS
N036115-001C-MSD	MSD	1	1.075	107.55	65-125	PASS
N036115-002C	SAMP	1	0.75	75.21	65-125	PASS
N036115-003C	SAMP	1	1.063	106.27	65-125	PASS
N036115-004C	SAMP	1	1.031	103.08	65-125	PASS
N036115-005C	SAMP	1	1.014	101.42	65-125	PASS
N036115-006C	SAMP	1	1.015	101.52	65-125	PASS
CCV3	CCV	1	1.012	101.16	65-125	PASS
CCB3	CCB	1	1.0077	100.77	65-125	PASS
ICSA2	ICSA	1	0.91	91.42	65-125	PASS
ICSAB2	ICSAB	1	0.89	88.91	65-125	PASS
N036115-007C	SAMP	1	1.04	104	65-125	PASS
N036115-008C	SAMP	1	1.034	103.39	65-125	PASS
N036115-013C	SAMP	1	1.042	104.18	65-125	PASS
N036115-014C	SAMP	1	1.041	104.07	65-125	PASS
N036115-015C	SAMP	1	1.044	104.37	65-125	PASS
N036115-016C	SAMP	1	1.018	101.83	65-125	PASS
CCV4	CCV	1	1.014	101.39	65-125	PASS
CCB4	CCB	1	1.005	100.5	65-125	PASS

INTERNAL STANDARD: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CCV5	CCV	1	1.01	101.01	65-125	PASS
CCB5	CCB	1	1.004	100.4	65-125	PASS
CCV6	CCV	1	1.0095	100.95	65-125	PASS
CCB6	CCB	1	1.0083	100.83	65-125	PASS
ICSA3	ICSA	1	0.92	92.24	65-125	PASS
ICSAB3	ICSAB	1	0.89	89.45	65-125	PASS
CCV7	CCV	1	1.016	101.58	65-125	PASS
CCB7	CCB	1	1.013	101.26	65-125	PASS
CCV8	CCV	1	1.024	102.35	65-125	PASS
CCB8	CCB	1	1.019	101.91	65-125	PASS
ICSA4	ICSA	1	0.93	93.24	65-125	PASS
ICSAB4	ICSAB	1	0.91	90.6	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N036115
Test Method: EPA 6010B
Analysis Date: 7/13/2019

Matrix: Groundwater
Batch No.: 74405

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036115-001C DT 5x	Iron	Fe	ug/L	92.17636	NA	84.56055	9.01%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	**N036115-001C-PS**	SampType: **PS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID:	**ZZZZZZ**	Batch ID: **74405**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	153.288	20	100.0	84.56	68.7	80	120				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74411
ASSET #: N036115
Instrument ID: ICPMS-02
Analyst: HG
Date Analyzed: 7/3/2019

Method:

- [ ] EPA 6010B / 200.7
- [ ] EPA 7470A / 7471A/245.1
- [X] EPA 6020 / 200.8
- [ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?		X			X	
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.		X			X	
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Blank hit for Mn. Samples are for rerun.
IS of Cr and Mn in ICSAB3 failed. However, reported samples are enclosed by ICSAB2, thus samples are unaffected.
% Rec of Ba in N036115-001B MS/MSD failed, high bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/10/2019

2nd Level Reviewer NS 7/10/2019 Date: —

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74511
ASSET #: N036115
Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 7/10/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

Mn run

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/10/2019

2nd Level Reviewer NS 7/10/2019 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Barium concentration, in ug/L , in the original sample as follows:

Barium , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N036115-001B** , the concentration in ug/L is calculated as follows:

Barium , ug/L = 107.95 * 1 *(25 / 25)

Barium , ug/L = 107.95

Reporting results in two significant figures,

Barium , ug/L = 110

NS 7/14/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.08	17.077	15	<PQL	0.056	17.82	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.46	2.77	15	PASS	0.47	3.36	15	PASS
Std3-5/50 ppb	ICAL	1	4.91	2.58	15	PASS	5.097	1.37	15	PASS
Std4-10/100 ppb	ICAL	1	9.78	0.7	15	PASS	10.074	1.09	15	PASS
Std5-20/200 ppb	ICAL	1	19.81	2.096	15	PASS	20.056	1.17	15	PASS
Std6-40/400 ppb	ICAL	1	39.46	0.63	15	PASS	39.78	1.07	15	PASS
Std7-100/1000 ppb	ICAL	1	98.87	1.11	15	PASS	99.75	1.14	15	PASS
Std8-200/2000 ppb	ICAL	1	200.71	0.42	15	PASS	200.16	1.052	15	PASS
ICV	ICV	1	9.88	0.88	15	PASS	9.83	0.76	15	PASS
ICB	ICB	1	0.00026	1912.92	15	<PQL	0.0078	55.22	15	<PQL
LLICV	CCV1	1	1.048	0.89	20	PASS	1.0085	1.21	20	PASS
ICSA1	ICSA	1	0.15	3.74	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	20.049	1.94	15	PASS	19.27	0.93	15	PASS
MB-74411	MBLK	1	0.073	13.76	15	PASS	<0.000	N/A	15	<PQL
LCS-74411	LCS	1	10.21	0.87	15	PASS	9.57	0.22	15	PASS
N036115-001B	SAMP	1	109.39	0.97	15	PASS	0.035	16.35	15	<PQL
N036115-001B	SAMP	5	21.85	0.23	15	PASS	<0.000	N/A	15	<PQL
N036115-001B-PS	PS	1	119.72	0.77	15	PASS	9.94	1.59	15	PASS
N036115-001B-MS	MS	1	120.57	0.99	15	PASS	9.7	2.64	15	PASS
N036115-001B-MSD	MSD	1	125.89	0.51	15	PASS	9.47	0.96	15	PASS
N036115-002B	SAMP	1	109.66	1.088	15	PASS	0.018	76.89	15	<PQL
N036115-003B	SAMP	1	109.57	0.44	15	PASS	0.006	301.74	15	<PQL
N036115-004B	SAMP	1	113.0089	1.29	15	PASS	0.022	59.35	15	<PQL
CCV1	CCV	1	20.26	0.87	15	PASS	19.84	1.78	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N036115-005B	SAMP	1	112.026	0.24	15	PASS	0.05	15.7	15	<PQL
N036115-006B	SAMP	1	110.97	0.92	15	PASS	0.0047	140.61	15	<PQL
N036115-007B	SAMP	1	109.2	0.51	15	PASS	0.032	52.045	15	<PQL
N036115-008B	SAMP	1	113.19	0.65	15	PASS	0.005	88.69	15	<PQL
N036115-009B	SAMP	1	104.75	0.89	15	PASS	<0.000	N/A	15	<PQL
N036115-010B	SAMP	1	103.4	0.66	15	PASS	0.004	323.55	15	<PQL
N036115-013B	SAMP	1	110.12	0.6	15	PASS	0.054	48.81	15	<PQL
N036115-014B	SAMP	1	112.47	0.4	15	PASS	0.0078	77	15	<PQL
N036115-015B	SAMP	1	109.32	0.71	15	PASS	0.022	86.76	15	<PQL
N036115-016B	SAMP	1	105.79	0.26	15	PASS	0.037	5.7	15	PASS
CCV2	CCV	1	20.16	1.2	15	PASS	19.91	0.69	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
MB-74411	MBLK	1	0.084	7.49	15	PASS	<0.000	N/A	15	<PQL
N036115-001B	SAMP	1	107.95	0.7	15	PASS	0.056	41.8	15	<PQL
N036115-003B	SAMP	1	107.33	0.66	15	PASS	0.011	112.48	15	<PQL

PERCENT RSD SUMMARY: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N036115-006B	SAMP	1	110.93	0.28	15	PASS	0.017	62.54	15	<PQL
N036115-007B	SAMP	1	109.17	0.36	15	PASS	0.012	112.66	15	<PQL
N036115-009B	SAMP	1	104.071	0.76	15	PASS	<0.000	N/A	15	<PQL
N036115-013B	SAMP	1	110.19	0.99	15	PASS	0.056	21.69	15	<PQL
N036115-003B	SAMP	1	108.091	0.69	15	PASS	0.01	85.41	15	<PQL
N036115-007B	SAMP	1	108.73	0.34	15	PASS	0.024	70.98	15	<PQL
N036115-009B	SAMP	1	104.55	1.51	15	PASS	<0.000	N/A	15	<PQL
CCV3	CCV	1	20.31	0.88	15	PASS	19.19	0.79	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA2	ICSA	1	0.17	6.054	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	20.41	1.079	15	PASS	18.86	1.86	15	PASS
N036115-009B	SAMP	1	106.17	0.55	15	PASS	<0.000	N/A	15	<PQL
CCV4	CCV	1	20.71	1.52	15	PASS	19.65	1.93	15	PASS
CCB4	CCB	1	0.0015	94.34	15	<PQL	<0.000	N/A	15	<PQL
CCV5	CCV	1	20.54	1.33	15	PASS	19.55	0.49	15	PASS
CCB5	CCB	1	0.0041	57.16	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	0.16	7.97	15	PASS	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	20.8	0.64	15	PASS	18.76	1.13	15	PASS

PERCENT RSD SUMMARY: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.087	16.92	15	<PQL	0.1	29.057	15	NR!
Std2-0.5/5 ppb	ICAL	1	0.48	11.99	15	PASS	0.53	5.32	15	PASS
Std3-5/50 ppb	ICAL	1	5.07	1.18	15	PASS	5.11	4.51	15	PASS
Std4-10/100 ppb	ICAL	1	10.046	1.38	15	PASS	10.02	0.87	15	PASS
Std5-20/200 ppb	ICAL	1	20.076	0.81	15	PASS	19.71	1.33	15	PASS
Std6-40/400 ppb	ICAL	1	39.7	0.66	15	PASS	39.9	0.39	15	PASS
Std7-100/1000 ppb	ICAL	1	100.24	0.82	15	PASS	100.94	0.53	15	PASS
Std8-200/2000 ppb	ICAL	1	199.93	1.077	15	PASS	199.57	0.58	15	PASS
ICV	ICV	1	102.49	0.65	15	PASS	10.27	0.58	15	PASS
ICB	ICB	1	<0.000	N/A	15	<PQL	0.019	111.62	15	<PQL
LLICV	CCV1	1	0.53	5.72	20	PASS	0.11	13.6	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.044	53.0065	15	<PQL
ICSAB1	ICSAB	1	19.43	0.63	15	PASS	19.83	0.52	15	PASS
MB-74411	MBLK	1	16.83	0.22	15	PASS	<0.000	N/A	15	<PQL
LCS-74411	LCS	1	101.41	0.28	15	PASS	10.1	1.056	15	PASS
N036115-001B	SAMP	1	<0.000	N/A	15	<PQL	2.15	3.25	15	PASS
N036115-001B	SAMP	5	<0.000	N/A	15	<PQL	0.44	2.052	15	PASS
N036115-001B-PS	PS	1	100.46	0.91	15	PASS	12.7	1.6	15	PASS
N036115-001B-MS	MS	1	99.078	1.97	15	PASS	12.45	0.87	15	PASS
N036115-001B-MSD	MSD	1	97.66	0.71	15	PASS	12.16	1.95	15	PASS
N036115-002B	SAMP	1	<0.000	N/A	15	<PQL	2.17	4.032	15	PASS
N036115-003B	SAMP	1	<0.000	N/A	15	<PQL	2.074	0.45	15	PASS
N036115-004B	SAMP	1	<0.000	N/A	15	<PQL	2.23	3.61	15	PASS
CCV1	CCV	1	19.93	1.88	15	PASS	19.79	1.61	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.042	50.15	15	<PQL
N036115-005B	SAMP	1	1.091	5.76	15	PASS	2.29	0.93	15	PASS
N036115-006B	SAMP	1	<0.000	N/A	15	<PQL	2.23	1.95	15	PASS
N036115-007B	SAMP	1	<0.000	N/A	15	<PQL	2.17	4.54	15	PASS
N036115-008B	SAMP	1	<0.000	N/A	15	<PQL	2.37	4	15	PASS
N036115-009B	SAMP	1	44.91	0.42	15	PASS	2.33	2.28	15	PASS
N036115-010B	SAMP	1	43.31	0.84	15	PASS	2.18	0.47	15	PASS
N036115-013B	SAMP	1	<0.000	N/A	15	<PQL	2.22	0.37	15	PASS
N036115-014B	SAMP	1	0.35	30.84	15	<PQL	2.25	1	15	PASS
N036115-015B	SAMP	1	8.31	0.65	15	PASS	2.2	7.91	15	PASS
N036115-016B	SAMP	1	<0.000	N/A	15	<PQL	2.19	3.69	15	PASS
CCV2	CCV	1	20.043	2.71	15	PASS	19.93	1.74	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.038	26.43	15	<PQL
MB-74411	MBLK	1	16.86	0.95	15	PASS	<0.000	N/A	15	<PQL
N036115-001B	SAMP	1	<0.000	N/A	15	<PQL	2.16	0.8	15	PASS
N036115-003B	SAMP	1	<0.000	N/A	15	<PQL	2.22	5.74	15	PASS

PERCENT RSD SUMMARY: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N036115-006B	SAMP	1	<0.000	N/A	15	<PQL	2.2	2.71	15	PASS
N036115-007B	SAMP	1	<0.000	N/A	15	<PQL	2.21	3.84	15	PASS
N036115-009B	SAMP	1	45.42	0.82	15	PASS	2.3	0.75	15	PASS
N036115-013B	SAMP	1	<0.000	N/A	15	<PQL	2.21	1.59	15	PASS
N036115-003B	SAMP	1	<0.000	N/A	15	<PQL	2.13	3.84	15	PASS
N036115-007B	SAMP	1	<0.000	N/A	15	<PQL	2.22	2.99	15	PASS
N036115-009B	SAMP	1	45.57	1.59	15	PASS	2.26	6.91	15	PASS
CCV3	CCV	1	19.92	1.58	15	PASS	19.95	1.21	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.033	85.64	15	<PQL
ICSA2	ICSA	1	0.036	109.52	15	<PQL	0.064	52.42	15	<PQL
ICSAB2	ICSAB	1	19.12	2.31	15	PASS	20.13	1.54	15	PASS
N036115-009B	SAMP	1	45.15	0.21	15	PASS	2.28	2.62	15	PASS
CCV4	CCV	1	20.22	1.59	15	PASS	19.2	0.75	15	PASS
CCB4	CCB	1	0.0046	94.98	15	<PQL	0.02	12.39	15	PASS
CCV5	CCV	1	20.086	1.43	15	PASS	19.44	0.55	15	PASS
CCB5	CCB	1	0.0023	365.45	15	<PQL	0.032	5.72	15	PASS
ICSA3	ICSA	1	0.019	535.096	15	<PQL	0.064	41.28	15	<PQL
ICSAB3	ICSAB	1	19.38	1.15	15	PASS	19.73	0.29	15	PASS

PERCENT RSD SUMMARY: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.12	10.23	15	PASS	0.1	5.82	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.49	13.4	15	PASS	0.5	5.27	15	PASS
Std3-5/50 ppb	ICAL	1	5.42	4.69	15	PASS	4.95	3.16	15	PASS
Std4-10/100 ppb	ICAL	1	9.74	4.95	15	PASS	9.82	0.87	15	PASS
Std5-20/200 ppb	ICAL	1	19.28	3.19	15	PASS	19.63	0.54	15	PASS
Std6-40/400 ppb	ICAL	1	40.63	1.6	15	PASS	38.86	1.75	15	PASS
Std7-100/1000 ppb	ICAL	1	101.9	2.15	15	PASS	99.14	0.6	15	PASS
Std8-200/2000 ppb	ICAL	1	199	0.45	15	PASS	200.7	1.11	15	PASS
ICV	ICV	1	10.3	6.5	15	PASS	9.76	0.41	15	PASS
ICB	ICB	1	0.0081	173.21	15	<PQL	0.019	12.91	15	PASS
LLICV	CCV1	1	0.52	9.87	20	PASS	0.5	2.34	20	PASS
ICSA1	ICSA	1	0.023	99.48	15	<PQL	0.046	25.86	15	<PQL
ICSAB1	ICSAB	1	19.14	5.82	15	PASS	20.74	0.95	15	PASS
MB-74411	MBLK	1	0	N/A	15	<PQL	0.004	136.6	15	<PQL
LCS-74411	LCS	1	9.67	5.56	15	PASS	9.68	0.99	15	PASS
N036115-001B	SAMP	1	1.66	24.65	15	NR!	4.22	1.23	15	PASS
N036115-001B	SAMP	5	0.32	29.95	15	<PQL	0.81	5.99	15	PASS
N036115-001B-PS	PS	1	11.018	7.53	15	PASS	15.32	0.38	15	PASS
N036115-001B-MS	MS	1	10.76	5.63	15	PASS	14.73	0.95	15	PASS
N036115-001B-MSD	MSD	1	11.095	1.86	15	PASS	14.8	0.98	15	PASS
N036115-002B	SAMP	1	1.54	13.6	15	PASS	4.28	2.23	15	PASS
N036115-003B	SAMP	1	1.45	16.47	15	NR!	4.21	2.5	15	PASS
N036115-004B	SAMP	1	1.64	6.42	15	PASS	4.41	1.62	15	PASS
CCV1	CCV	1	19.67	5.064	15	PASS	19.64	0.16	15	PASS
CCB1	CCB	1	0.022	173.21	15	<PQL	0.0097	73.73	15	<PQL
N036115-005B	SAMP	1	1.31	4.42	15	PASS	4.38	1.97	15	PASS
N036115-006B	SAMP	1	1.39	26.99	15	NR!	4.31	0.87	15	PASS
N036115-007B	SAMP	1	1.45	20.51	15	NR!	4.34	2.19	15	PASS
N036115-008B	SAMP	1	1.56	8.85	15	PASS	4.43	1.74	15	PASS
N036115-009B	SAMP	1	0.91	15.39	15	NR!	4.12	0.84	15	PASS
N036115-010B	SAMP	1	1.023	7.66	15	PASS	3.75	1.95	15	PASS
N036115-013B	SAMP	1	1.65	21.18	15	NR!	4.23	0.22	15	PASS
N036115-014B	SAMP	1	1.57	4.92	15	PASS	4.35	3.22	15	PASS
N036115-015B	SAMP	1	1.36	2.86	15	PASS	4.26	2.3	15	PASS
N036115-016B	SAMP	1	1.48	12.17	15	PASS	4.25	2.031	15	PASS
CCV2	CCV	1	19.63	7.39	15	PASS	19.33	1.017	15	PASS
CCB2	CCB	1	0.0071	173.21	15	<PQL	0.012	39.37	15	<PQL
MB-74411	MBLK	1	0	N/A	15	<PQL	0.0046	68.39	15	<PQL
N036115-001B	SAMP	1	1.59	9.26	15	PASS	4.085	2.27	15	PASS
N036115-003B	SAMP	1	1.52	15.64	15	NR!	4.22	1.16	15	PASS

PERCENT RSD SUMMARY: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N036115-006B	SAMP	1	1.39	8.29	15	PASS	4.26	3.029	15	PASS
N036115-007B	SAMP	1	1.41	31.82	15	NR!	4.29	0.55	15	PASS
N036115-009B	SAMP	1	0.87	25.66	15	NR!	4.046	2.16	15	PASS
N036115-013B	SAMP	1	1.49	12.46	15	PASS	4.25	3.22	15	PASS
N036115-003B	SAMP	1	1.72	14.34	15	PASS	4.093	2.47	15	PASS
N036115-007B	SAMP	1	1.36	12.069	15	PASS	4.26	1.29	15	PASS
N036115-009B	SAMP	1	0.83	16.016	15	NR!	3.98	1.65	15	PASS
CCV3	CCV	1	19.43	5.15	15	PASS	19.25	1.1	15	PASS
CCB3	CCB	1	0.014	173.21	15	<PQL	0.013	53.5	15	<PQL
ICSA2	ICSA	1	0.014	173.21	15	<PQL	0.038	14.51	15	PASS
ICSAB2	ICSAB	1	19.45	4.6	15	PASS	20.79	0.71	15	PASS
N036115-009B	SAMP	1	0.77	25.5	15	NR!	4.095	2.6	15	PASS
CCV4	CCV	1	19.87	1.29	15	PASS	19.45	0.99	15	PASS
CCB4	CCB	1	0	N/A	15	<PQL	0.011	32.027	15	<PQL
CCV5	CCV	1	19.14	2.79	15	PASS	19.38	0.59	15	PASS
CCB5	CCB	1	0.033	69.45	15	<PQL	0.012	18.028	15	<PQL
ICSA3	ICSA	1	0.0062	173.21	15	<PQL	0.045	3.34	15	PASS
ICSAB3	ICSAB	1	19.059	1.099	15	PASS	20.96	0.62	15	PASS

PERCENT RSD SUMMARY: 190710A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	8.67	15	PASS	0.092	13.8	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.53	2.65	15	PASS	0.49	5.7	15	PASS
Std3-5/50 ppb	ICAL	1	5.16	0.98	15	PASS	5.16	1.041	15	PASS
Std4-10/100 ppb	ICAL	1	10.26	1.54	15	PASS	9.97	1.86	15	PASS
Std5-20/200 ppb	ICAL	1	20.55	0.73	15	PASS	20.21	2.021	15	PASS
Std6-40/400 ppb	ICAL	1	40.59	1.17	15	PASS	40.19	0.89	15	PASS
Std7-100/1000 ppb	ICAL	1	100.72	0.48	15	PASS	101.12	1.12	15	PASS
Std8-200/2000 ppb	ICAL	1	199.45	1.0039	15	PASS	199.38	0.047	15	PASS
ICV	ICV	1	104.024	0.34	15	PASS	10.19	0.53	15	PASS
ICB	ICB	1	0.031	16.83	15	<PQL	0.024	23.3	15	<PQL
LLICV	CCV1	1	0.56	2.26	20	PASS	0.1	19.81	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.017	107.48	15	<PQL
ICSAB1	ICSAB	1	19.87	2.19	15	PASS	21.2	1.043	15	PASS
MB-74511	MBLK	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
LCS-74511	LCS	1	104.42	0.6	15	PASS	10.24	1.62	15	PASS
N036115-001B	SAMP	1	<0.000	N/A	15	<PQL	2.21	3.55	15	PASS
N036115-001B	SAMP	5	<0.000	N/A	15	<PQL	0.47	0.86	15	PASS
N036115-001B-PS	PS	1	98.5	2.18	15	PASS	12.26	2.54	15	PASS
N036115-001B-MS	MS	1	100.024	0.55	15	PASS	12.47	0.83	15	PASS
N036115-001B-MSD	MSD	1	100.44	0.34	15	PASS	12.42	1.52	15	PASS
N036115-002B	SAMP	1	<0.000	N/A	15	<PQL	2.22	3.44	15	PASS
N036115-003B	SAMP	1	<0.000	N/A	15	<PQL	2.17	2.84	15	PASS
N036115-004B	SAMP	1	<0.000	N/A	15	<PQL	2.14	1.77	15	PASS
CCV1	CCV	1	20.28	1.35	15	PASS	20.32	1.26	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.0034	804.72	15	<PQL
N036115-005B	SAMP	1	<0.000	N/A	15	<PQL	2.3	4.91	15	PASS
N036115-006B	SAMP	1	0.21	29.28	15	<PQL	2.21	4.89	15	PASS
N036115-007B	SAMP	1	<0.000	N/A	15	<PQL	2.33	1	15	PASS
N036115-008B	SAMP	1	<0.000	N/A	15	<PQL	2.19	4.54	15	PASS
N036115-009B	SAMP	1	28.028	0.65	15	PASS	2.26	1.91	15	PASS
N036115-010B	SAMP	1	20.6	0.84	15	PASS	2.2	1.67	15	PASS
N036115-013B	SAMP	1	<0.000	N/A	15	<PQL	2.21	0.92	15	PASS
N036115-014B	SAMP	1	<0.000	N/A	15	<PQL	2.17	4.84	15	PASS
N036115-015B	SAMP	1	<0.000	N/A	15	<PQL	2.31	4.26	15	PASS
N036115-016B	SAMP	1	<0.000	N/A	15	<PQL	2.14	3.35	15	PASS
CCV2	CCV	1	20.65	0.39	15	PASS	20.2	0.45	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.0087	264.3	15	<PQL
N035662-001D	SAMP	1	512.54	0.87	15	PASS	1.21	4.038	15	PASS
CCV3	CCV	1	20.56	1.65	15	PASS	20.014	1.62	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL

PERCENT RSD SUMMARY: 190710A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
CCV4	CCV	1	20.53	1.35	15	PASS	20.42	1.085	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.011	81.53	15	<PQL
CCV5	CCV	1	20.56	1.88	15	PASS	20.081	0.56	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.00072	1082.72	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.033	110.8	15	<PQL
ICSAB2	ICSAB	1	20.27	1.24	15	PASS	21.68	0.79	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190703A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0703001.D	RINSE	RINSE	1	07/03/19 12:58 PM
A0703002.D	RINSE	RINSE	1	07/03/19 1:03 PM
A0703003.D	RINSE	RINSE	1	07/03/19 1:08 PM
A0703004.D	Cal Blank	IBLK	1	07/03/19 1:13 PM
A0703005.D	Std1-0.1/1 ppb	ICAL	1	07/03/19 1:18 PM
A0703006.D	Std2-0.5/5 ppb	ICAL	1	07/03/19 1:23 PM
A0703007.D	Std3-5/50 ppb	ICAL	1	07/03/19 1:28 PM
A0703008.D	Std4-10/100 ppb	ICAL	1	07/03/19 1:33 PM
A0703009.D	Std5-20/200 ppb	ICAL	1	07/03/19 1:38 PM
A0703010.D	Std6-40/400 ppb	ICAL	1	07/03/19 1:43 PM
A0703011.D	Std7-100/1000 ppb	ICAL	1	07/03/19 1:48 PM
A0703012.D	Std8-200/2000 ppb	ICAL	1	07/03/19 1:53 PM
A0703013.D	ICV	ICV	1	07/03/19 2:03 PM
A0703014.D	ICB	ICB	1	07/03/19 2:08 PM
A0703015.D	LLICV	CCV1	1	07/03/19 2:13 PM
A0703016.D	ICSA1	ICSA	1	07/03/19 2:18 PM
A0703017.D	ICSAB1	ICSAB	1	07/03/19 2:23 PM
A0703018.D	MB-74411	MBLK	1	07/03/19 2:41 PM
A0703019.D	LCS-74411	LCS	1	07/03/19 2:46 PM
A0703020.D	N036115-001B	SAMP	1	07/03/19 3:03 PM
A0703021.D	N036115-001B	SAMP	5	07/03/19 3:08 PM
A0703022.D	N036115-001B-PS	PS	1	07/03/19 3:13 PM
A0703023.D	N036115-001B-MS	MS	1	07/03/19 3:18 PM
A0703024.D	N036115-001B-MSD	MSD	1	07/03/19 3:23 PM
A0703025.D	N036115-002B	SAMP	1	07/03/19 3:28 PM
A0703026.D	N036115-003B	SAMP	1	07/03/19 3:33 PM
A0703027.D	N036115-004B	SAMP	1	07/03/19 3:38 PM
A0703028.D	CCV1	CCV	1	07/03/19 3:43 PM
A0703029.D	CCB1	CCB	1	07/03/19 3:48 PM
A0703030.D	N036115-005B	SAMP	1	07/03/19 3:53 PM
A0703031.D	N036115-006B	SAMP	1	07/03/19 3:58 PM
A0703032.D	N036115-007B	SAMP	1	07/03/19 4:03 PM
A0703033.D	N036115-008B	SAMP	1	07/03/19 4:08 PM
A0703034.D	N036115-009B	SAMP	1	07/03/19 4:13 PM
A0703035.D	N036115-010B	SAMP	1	07/03/19 4:18 PM
A0703036.D	N036115-013B	SAMP	1	07/03/19 4:23 PM
A0703037.D	N036115-014B	SAMP	1	07/03/19 4:28 PM
A0703038.D	N036115-015B	SAMP	1	07/03/19 4:33 PM
A0703039.D	N036115-016B	SAMP	1	07/03/19 4:38 PM
A0703040.D	CCV2	CCV	1	07/03/19 4:43 PM
A0703041.D	CCB2	CCB	1	07/03/19 4:48 PM
A0703042.D	MB-74411	MBLK	1	07/03/19 4:56 PM

INJECTION LOG: 190703A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0703043.D	N036115-001B	SAMP	1	07/03/19 5:01 PM
A0703044.D	N036115-003B	SAMP	1	07/03/19 5:11 PM
A0703045.D	N036115-006B	SAMP	1	07/03/19 5:16 PM
A0703046.D	N036115-007B	SAMP	1	07/03/19 5:21 PM
A0703047.D	N036115-009B	SAMP	1	07/03/19 5:26 PM
A0703048.D	N036115-013B	SAMP	1	07/03/19 5:31 PM
A0703049.D	N036115-003B	SAMP	1	07/03/19 5:40 PM
A0703050.D	N036115-007B	SAMP	1	07/03/19 5:45 PM
A0703051.D	N036115-009B	SAMP	1	07/03/19 5:50 PM
A0703052.D	CCV3	CCV	1	07/03/19 6:04 PM
A0703053.D	CCB3	CCB	1	07/03/19 6:09 PM
A0703054.D	ICSA2	ICSA	1	07/03/19 6:14 PM
A0703055.D	ICSAB2	ICSAB	1	07/03/19 6:19 PM
A0703056.D	N036115-009B	SAMP	1	07/03/19 6:25 PM
A0703057.D	MB-74450	MBLK	1	07/03/19 6:30 PM
A0703058.D	LCS-74450	LCS	1	07/03/19 6:35 PM
A0703059.D	N036362-001D	SAMP	1	07/03/19 6:40 PM
A0703060.D	N036362-001D	SAMP	5	07/03/19 6:44 PM
A0703061.D	N036362-001D-PS	PS	1	07/03/19 6:49 PM
A0703062.D	N036362-001D-MS	MS	1	07/03/19 6:54 PM
A0703063.D	N036362-001D-MSD	MSD	1	07/03/19 6:59 PM
A0703064.D	N036304-001D	SAMP	1	07/03/19 7:04 PM
A0703065.D	N036262-003C	SAMP	1	07/03/19 7:09 PM
A0703066.D	CCV4	CCV	1	07/03/19 7:14 PM
A0703067.D	CCB4	CCB	1	07/03/19 7:19 PM
A0703068.D	N036278-001K	SAMP	1	07/03/19 7:24 PM
A0703069.D	N036278-002K	SAMP	1	07/03/19 7:29 PM
A0703070.D	CCV5	CCV	1	07/03/19 7:34 PM
A0703071.D	CCB5	CCB	1	07/03/19 7:39 PM
A0703072.D	ICSA3	ICSA	1	07/03/19 7:44 PM
A0703073.D	ICSAB3	ICSAB	1	07/03/19 7:49 PM

INJECTION LOG: 190710A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0710001.D	RINSE	RINSE	1	07/10/19 3:27 AM
A0710002.D	RINSE	RINSE	1	07/10/19 3:32 AM
A0710003.D	RINSE	RINSE	1	07/10/19 3:37 AM
A0710004.D	Cal Blank	IBLK	1	07/10/19 3:42 AM
A0710005.D	Std1-0.1/1 ppb	ICAL	1	07/10/19 3:47 AM
A0710006.D	Std2-0.5/5 ppb	ICAL	1	07/10/19 3:52 AM
A0710007.D	Std3-5/50 ppb	ICAL	1	07/10/19 3:57 AM
A0710008.D	Std4-10/100 ppb	ICAL	1	07/10/19 4:03 AM
A0710009.D	Std5-20/200 ppb	ICAL	1	07/10/19 4:08 AM
A0710010.D	Std6-40/400 ppb	ICAL	1	07/10/19 4:13 AM
A0710011.D	Std7-100/1000 ppb	ICAL	1	07/10/19 4:18 AM
A0710012.D	Std8-200/2000 ppb	ICAL	1	07/10/19 4:22 AM
A0710013.D	ICV	ICV	1	07/10/19 4:27 AM
A0710014.D	ICB	ICB	1	07/10/19 4:32 AM
A0710015.D	LLICV	CCV1	1	07/10/19 4:37 AM
A0710016.D	ICSA1	ICSA	1	07/10/19 4:42 AM
A0710017.D	ICSAB1	ICSAB	1	07/10/19 4:48 AM
A0710018.D	MB-74511	MBLK	1	07/10/19 5:11 AM
A0710019.D	LCS-74511	LCS	1	07/10/19 5:16 AM
A0710020.D	N036115-001B	SAMP	1	07/10/19 5:21 AM
A0710021.D	N036115-001B	SAMP	5	07/10/19 5:26 AM
A0710022.D	N036115-001B-PS	PS	1	07/10/19 5:31 AM
A0710023.D	N036115-001B-MS	MS	1	07/10/19 5:36 AM
A0710024.D	N036115-001B-MSD	MSD	1	07/10/19 5:41 AM
A0710025.D	N036115-002B	SAMP	1	07/10/19 5:46 AM
A0710026.D	N036115-003B	SAMP	1	07/10/19 5:51 AM
A0710027.D	N036115-004B	SAMP	1	07/10/19 5:56 AM
A0710028.D	CCV1	CCV	1	07/10/19 6:01 AM
A0710029.D	CCB1	CCB	1	07/10/19 6:06 AM
A0710030.D	N036115-005B	SAMP	1	07/10/19 6:11 AM
A0710031.D	N036115-006B	SAMP	1	07/10/19 6:16 AM
A0710032.D	N036115-007B	SAMP	1	07/10/19 6:21 AM
A0710033.D	N036115-008B	SAMP	1	07/10/19 6:26 AM
A0710034.D	N036115-009B	SAMP	1	07/10/19 6:31 AM
A0710035.D	N036115-010B	SAMP	1	07/10/19 6:36 AM
A0710036.D	N036115-013B	SAMP	1	07/10/19 6:41 AM
A0710037.D	N036115-014B	SAMP	1	07/10/19 6:46 AM
A0710038.D	N036115-015B	SAMP	1	07/10/19 6:51 AM
A0710039.D	N036115-016B	SAMP	1	07/10/19 6:56 AM
A0710040.D	CCV2	CCV	1	07/10/19 7:01 AM
A0710041.D	CCB2	CCB	1	07/10/19 7:06 AM
A0710042.D	N035662-001D	SAMP	1	07/10/19 7:11 AM

INJECTION LOG: 190710A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0710043.D	MB-74512	MBLK	1	07/10/19 7:16 AM
A0710044.D	LCS-74512	LCS	1	07/10/19 7:21 AM
A0710045.D	N036155-001B	SAMP	1	07/10/19 7:26 AM
A0710046.D	N036155-001B	SAMP	5	07/10/19 7:31 AM
A0710047.D	N036155-001B-PS	PS	1	07/10/19 7:36 AM
A0710048.D	N036155-001B-MS	MS	1	07/10/19 7:41 AM
A0710049.D	N036155-001B-MSD	MSD	1	07/10/19 7:46 AM
A0710050.D	N036155-002B	SAMP	1	07/10/19 7:51 AM
A0710051.D	N036155-003B	SAMP	1	07/10/19 7:56 AM
A0710052.D	CCV3	CCV	1	07/10/19 8:01 AM
A0710053.D	CCB3	CCB	1	07/10/19 8:06 AM
A0710054.D	N036155-004B	SAMP	1	07/10/19 8:11 AM
A0710055.D	N036155-005B	SAMP	1	07/10/19 8:16 AM
A0710056.D	N036155-006B	SAMP	1	07/10/19 8:21 AM
A0710057.D	N036155-007B	SAMP	1	07/10/19 8:26 AM
A0710058.D	N036155-008B	SAMP	1	07/10/19 8:31 AM
A0710059.D	N036155-009B	SAMP	1	07/10/19 8:36 AM
A0710060.D	N036155-010B	SAMP	1	07/10/19 8:41 AM
A0710061.D	N036155-011B	SAMP	1	07/10/19 8:46 AM
A0710062.D	N036155-012B	SAMP	1	07/10/19 8:51 AM
A0710063.D	N036155-013B	SAMP	1	07/10/19 8:56 AM
A0710064.D	CCV4	CCV	1	07/10/19 9:02 AM
A0710065.D	CCB4	CCB	1	07/10/19 9:07 AM
A0710066.D	N036155-014B	SAMP	1	07/10/19 9:12 AM
A0710067.D	CCV5	CCV	1	07/10/19 9:17 AM
A0710068.D	CCB5	CCB	1	07/10/19 9:22 AM
A0710069.D	ICSA2	ICSA	1	07/10/19 9:27 AM
A0710070.D	ICSAB2	ICSAB	1	07/10/19 9:32 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/1/2019 9:02:49 A**
Prep End Date: **7/1/2019 1:00:00 P**
Reviewed/ Date: NS 7/15/2019
Initials/ Date: for
Prep Batch **74411** Prep Code: **3010_W_MSDI** Technician: **Mark Gesmundo**
Prep Factor Units **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74411	Aqueous		25	☐	0	0	25	1.000		
MB-74411	Aqueous		25	☐	0	0	25	1.000		
N036115-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-010B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/1/2019 9:02:49 A**
Prep End Date: **7/1/2019 1:00:00 P**
Reviewed/ Date: NS 7/15/2019
Initials/ Date: for
Prep Batch **74411** Prep Code: **3010_W_MSDI** Technician: **Mark Gesmundo**
Prep Factor Units **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N036115-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-015B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-016B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/9/2019 3:04:23 P**
Prep End Date: **7/9/2019 7:00:00 P**
Reviewed/ Date: NS 7/15/2019
Initials/ Date: for
Prep Batch **74511** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-2**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74511	Aqueous		25	☐	0	0	25	1.000		
MB-74511	Aqueous		25	☐	0	0	25	1.000		
N035662-001D	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-009B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/9/2019 3:04:23 P**
Prep End Date: **7/9/2019 7:00:00 P**
Reviewed/ Date: NS 7/15/2019
Initials/ Date: for
Prep Batch **74511** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**

Prep Factor Units	Temp. (°C):	Location:
mL / mL	**94.5**	**02-2**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N036115-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-015B	Groundwater	<2	25	☐	0	0	25	1.000		
N036115-016B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 3 Jul 2019 10:37:30 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	83445.60	0.00	
24 Mg	244428.00	0.00	
25 Mg	32531.40	0.00	
26 Mg	37635.00	0.00	
59 Co	577726.00	0.00	
115 In	491613.00	0.00	
206 Pb	148099.00	0.00	
207 Pb	129882.00	0.00	
208 Pb	316664.00	0.00	

RSD (%)

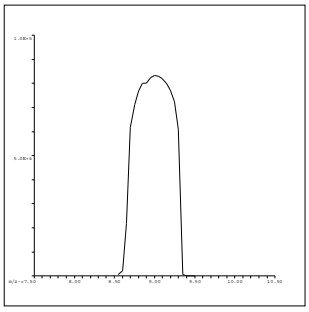
Element	Actual	Required	Flag
9 Be	1.15	5.00	
24 Mg	1.00	5.00	
25 Mg	1.40	5.00	
26 Mg	0.82	5.00	
59 Co	0.80	5.00	
115 In	0.77	5.00	
206 Pb	1.61	5.00	
207 Pb	1.20	5.00	
208 Pb	0.96	5.00	

Ion Ratio

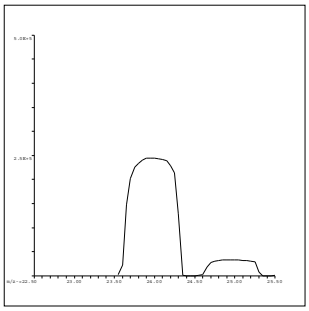
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

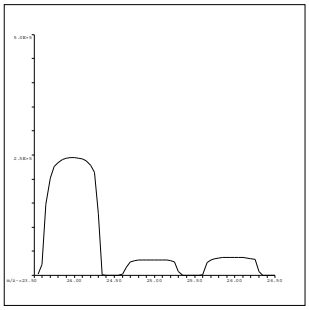
Element	Actual	Required	Flag



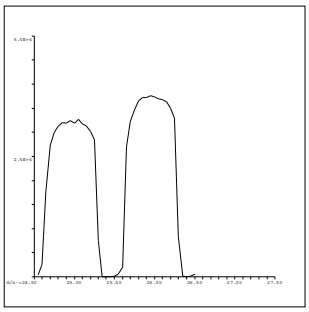
9 Be
Mass Calib.
Actual: 9.00
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



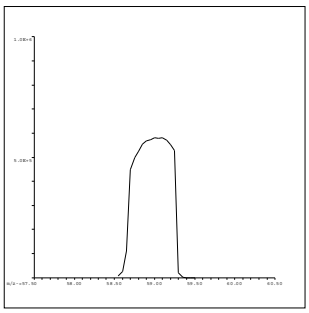
24 Mg
Mass Calib.
Actual: 24.00
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



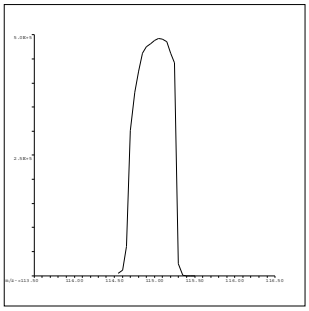
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.70
Required: 0.75
Flag:



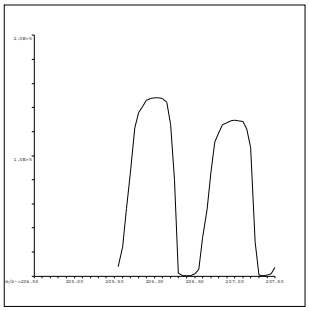
26 Mg
Mass Calib.
Actual: 25.95
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



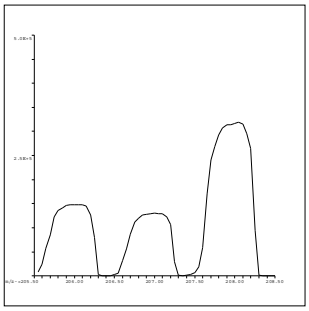
59 Co
Mass Calib.
Actual: 59.05
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



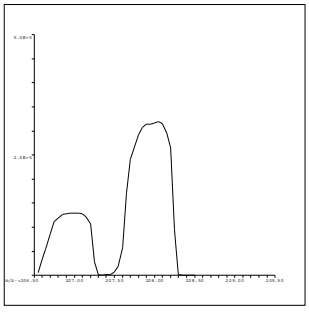
115 In
Mass Calib.
Actual: 115.05
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 208.00
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 10 Jul 2019 03:08:42 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	139595.00	0.00	
24 Mg	406578.00	0.00	
25 Mg	52995.90	0.00	
26 Mg	60415.40	0.00	
59 Co	729044.00	0.00	
115 In	585427.00	0.00	
206 Pb	157490.00	0.00	
207 Pb	137371.00	0.00	
208 Pb	338358.00	0.00	

RSD (%)

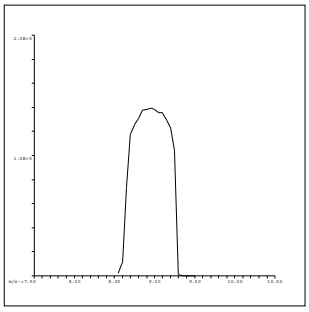
Element	Actual	Required	Flag
9 Be	0.78	5.00	
24 Mg	3.24	5.00	
25 Mg	3.71	5.00	
26 Mg	2.78	5.00	
59 Co	0.74	5.00	
115 In	0.99	5.00	
206 Pb	1.25	5.00	
207 Pb	0.66	5.00	
208 Pb	1.45	5.00	

Ion Ratio

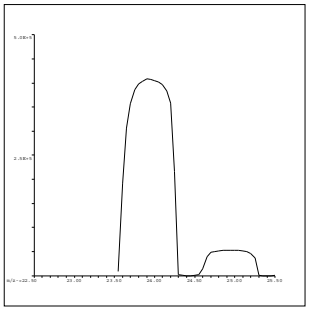
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

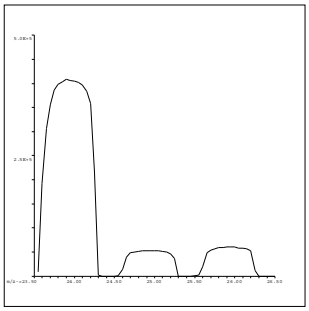
Element	Actual	Required	Flag



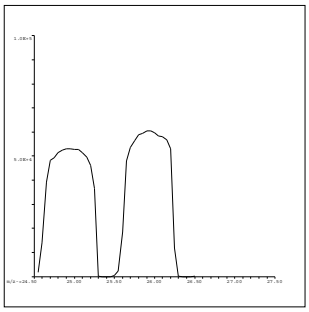
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



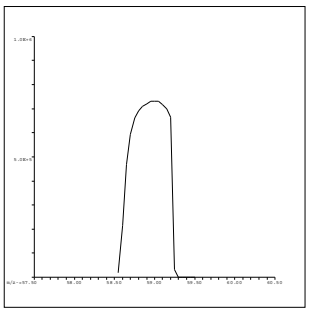
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



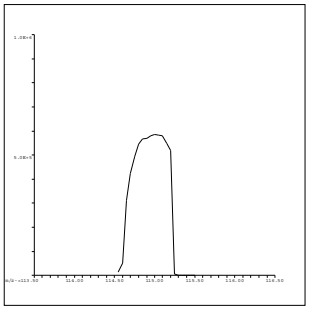
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



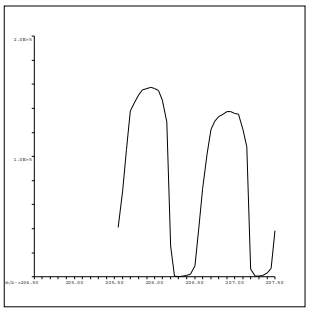
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



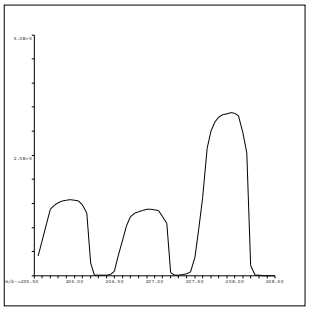
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



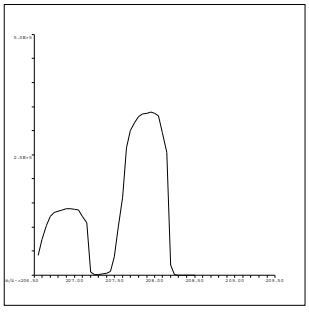
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190703A

Instrument ID: ICPMS-02

Analyte	Data File	A0703004.D	A0703005.D	A0703006.D	A0703007.D	A0703008.D	A0703009.D	A0703010.D	A0703011.D	A0703012.D	
	Acq. Date-Time	07/03/2019 01:13 PM	07/03/2019 01:18 PM	07/03/2019 01:23 PM	07/03/2019 01:28 PM	07/03/2019 01:33 PM	07/03/2019 01:38 PM	07/03/2019 01:43 PM	07/03/2019 01:48 PM	07/03/2019 01:53 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	76479.3		76057.3	75769.4	75424.6	75807.3	75898.6	76281.5	75656.6	
55 Mn [2]	CPS	70.4		1455.5	14692	28912.3	57998.2	114767	291119.7	575723	1.0000
52 Cr [2]	CPS	487.7		3218.2	29825	58210	116003.3	229875.3	578630.3	1150910	1.0000
72 Ge (ISTD) [1]	CPS	35875.9		35456.2	34977.3	35355.9	35713.5	35015.2	35557.4	34018.8	
78 Se [1]	CPS	0		67.8	746.7	1355.7	2709.2	5599	14262.4	26648.4	0.9999
72 Ge (ISTD) [2]	CPS	52674.9	53186.5	52788.5	52476.5	53220	53604.4	52923.3	52572.1	52571	
75 As [2]	CPS	62.7	152.9	517.4	4428.2	8752.2	17277.3	34471.9	86532.4	171007.3	1.0000
103 Rh (ISTD) [2]	CPS	1538107.3		1526298.4	1521072.5	1526676	1525729	1530242.3	1511700.3	1474141.7	
95 Mo [2]	CPS	21.1		1792.4	17608.1	35053.6	69983.6	138947.2	350169.1	691215.2	1.0000
159 Tb (ISTD) [3]	CPS	3329298.9		3324799	3318973.6	3362282.7	3306877	3299569.3	3307658.4	3222106.9	
137 Ba [3]	CPS	136.7		2335.8	23510.9	47301.7	94034.6	186839.7	469018.7	927372.3	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190710A

Instrument ID: ICPMS-02

Analyte	Data File	A0710004.D	A0710005.D	A0710006.D	A0710007.D	A0710008.D	A0710009.D	A0710010.D	A0710011.D	A0710012.D	
	Acq. Date-Time	07/10/2019 03:42 AM	07/10/2019 03:47 AM	07/10/2019 03:52 AM	07/10/2019 03:57 AM	07/10/2019 04:03 AM	07/10/2019 04:08 AM	07/10/2019 04:13 AM	07/10/2019 04:18 AM	07/10/2019 04:22 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	96278.5		96552.3	95773.5	96036.2	96570	96888.8	97145.9	96824.2	
55 Mn [2]	CPS	127.7		1941.7	17551.1	34894.2	70142.4	138895.4	345330.4	681535.8	1.0000
72 Ge (ISTD) [2]	CPS	61882.5	62144.5	62569.8	61866.8	62422.4	62594.2	62648.7	61914.1	61642.6	
75 As [2]	CPS	95.6	186.7	576.5	5134.6	9923.6	20076.9	39864.6	98965.8	194208.7	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **ICV** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.271	0.10	10.00	0	103	90	110				
Barium	9.881	1.0	10.00	0	98.8	90	110				
Molybdenum	9.761	0.50	10.00	0	97.6	90	110				
Selenium	10.301	0.50	10.00	0	103	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **ZZZZZZ** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.107	0.10	0.1000	0	107	80	120				
Barium	1.048	1.0	1.000	0	105	80	120				
Molybdenum	0.496	0.50	0.5000	0	99.2	80	120				
Selenium	0.515	0.50	0.5000	0	103	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **CCV** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430203**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.791	0.10	20.00	0	99.0	90	110				
Barium	20.257	1.0	20.00	0	101	90	110				
Molybdenum	19.639	0.50	20.00	0	98.2	90	110				
Selenium	19.667	0.50	20.00	0	98.3	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **CCV** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.931	0.10	20.00	0	99.7	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **CCV** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430215**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	20.160	1.0	20.00	0	101	90	110				
Molybdenum	19.334	0.50	20.00	0	96.7	90	110				
Selenium	19.629	0.50	20.00	0	98.1	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **CCV** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.951	0.10	20.00	0	99.8	90	110				
Barium	20.311	1.0	20.00	0	102	90	110				
Molybdenum	19.253	0.50	20.00	0	96.3	90	110				
Selenium	19.432	0.50	20.00	0	97.2	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **CCV** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430241**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.199	0.10	20.00	0	96.0	90	110				
Barium	20.711	1.0	20.00	0	104	90	110				
Molybdenum	19.445	0.50	20.00	0	97.2	90	110				
Selenium	19.867	0.50	20.00	0	99.3	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **CCV** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.440	0.10	20.00	0	97.2	90	110				
Barium	20.537	1.0	20.00	0	103	90	110				
Molybdenum	19.377	0.50	20.00	0	96.9	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCV**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430245**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	19.143	0.50	20.00	0	95.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.193	0.10	10.00	0	102	90	110				
Manganese	104.024	0.50	100.0	0	104	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.102	0.10	0.1000	0	102	80	120				
Manganese	0.564	0.50	0.5000	0	113	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.316	0.10	20.00	0	102	90	110				
Manganese	20.282	0.50	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.199	0.10	20.00	0	101	90	110				
Manganese	20.651	0.50	20.00	0	103	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.014	0.10	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.564	0.50	20.00	0	103	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.422	0.10	20.00	0	102	90	110				
Manganese	20.527	0.50	20.00	0	103	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433718**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.081	0.10	20.00	0	100	90	110				
Manganese	20.564	0.50	20.00	0	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **ICV**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.831	1.0	10.00	0	98.3	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **ZZZZZZ**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.008	1.0	1.000	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCV**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430292**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.837	1.0	20.00	0	99.2	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCV**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430304**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.911	1.0	20.00	0	99.6	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCV**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.190	1.0	20.00	0	96.0	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCV**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430330**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.651	1.0	20.00	0	98.3	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCV**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430334**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.546	1.0	20.00	0	97.7	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **ICB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430189**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430204**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430216**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430242**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430246**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433692**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **ICB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430293**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430317**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430331**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **CCB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430335**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **ICSA** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430191**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.150	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **ICSAB** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430192**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.832	0.10	20.00	0	99.2	80	120				
Barium	20.049	1.0	20.00	0	100	80	120				
Molybdenum	20.741	0.50	20.00	0	104	80	120				
Selenium	19.137	0.50	20.00	0	95.7	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **ICSA** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430229**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.165	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **ICSAB** Batch ID: **R134899** TestNo: **EPA 6020** Analysis Date: **7/3/2019** SeqNo: **3430230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.131	0.10	20.00	0	101	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **ICSAB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430230**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	20.406	1.0	20.00	0	102	80	120				
Molybdenum	20.789	0.50	20.00	0	104	80	120				
Selenium	19.453	0.50	20.00	0	97.3	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **ICSA**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430247**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.155	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **ICSAB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.725	0.10	20.00	0	98.6	80	120				
Barium	20.800	1.0	20.00	0	104	80	120				
Molybdenum	20.962	0.50	20.00	0	105	80	120				
Selenium	19.059	0.50	20.00	0	95.3	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICSA**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433667**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICSAB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.198	0.10	20.00	0	106	80	120				
Manganese	19.874	0.50	20.00	0	99.4	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICSA**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICSAB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.678	0.10	20.00	0	108	80	120				
Manganese	20.273	0.50	20.00	0	101	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	ICSA1	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	134899
Client ID:	ICSA	Batch ID:	R134899	TestNo:	EPA 6020			Analysis Date:	7/3/2019	SeqNo:	3430280

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	ICSAB1	SampType:	ICSAB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	134899
Client ID:	ICSAB	Batch ID:	R134899	TestNo:	EPA 6020			Analysis Date:	7/3/2019	SeqNo:	3430281

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.271	1.0	20.00	0	96.4	80	120				

Sample ID	ICSA2	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	134899
Client ID:	ICSA	Batch ID:	R134899	TestNo:	EPA 6020			Analysis Date:	7/3/2019	SeqNo:	3430318

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID	ICSAB2	SampType:	ICSAB	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	134899
Client ID:	ICSAB	Batch ID:	R134899	TestNo:	EPA 6020			Analysis Date:	7/3/2019	SeqNo:	3430319

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.859	1.0	20.00	0	94.3	80	120				

Sample ID	ICSA3	SampType:	ICSA	TestCode:	6020DIS_CrP	Units:	µg/L	Prep Date:		RunNo:	134899
Client ID:	ICSA	Batch ID:	R134899	TestNo:	EPA 6020			Analysis Date:	7/3/2019	SeqNo:	3430336

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID: **ICSAB**	Batch ID: **R134899**	TestNo: **EPA 6020**		Analysis Date: **7/3/2019**	SeqNo: **3430337**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.756	1.0	20.00	0	93.8	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	3329298.9	3329298.9	100	PASS	70-125	76479.3	76479.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	3290774.1	3329298.9	98.84	PASS	70-125	75500.2	76479.3	98.72	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	3324799	3329298.9	99.86	PASS	70-125	76057.3	76479.3	99.45	PASS	70-125
Std3-5/50 ppb	ICAL	1	3318973.6	3329298.9	99.69	PASS	70-125	75769.4	76479.3	99.072	PASS	70-125
Std4-10/100 ppb	ICAL	1	3362282.7	3329298.9	100.99	PASS	70-125	75424.6	76479.3	98.62	PASS	70-125
Std5-20/200 ppb	ICAL	1	3306877	3329298.9	99.33	PASS	70-125	75807.3	76479.3	99.12	PASS	70-125
Std6-40/400 ppb	ICAL	1	3299569.3	3329298.9	99.11	PASS	70-125	75898.6	76479.3	99.24	PASS	70-125
Std7-100/1000 ppb	ICAL	1	3307658.4	3329298.9	99.35	PASS	70-125	76281.5	76479.3	99.74	PASS	70-125
Std8-200/2000 ppb	ICAL	1	3222106.9	3329298.9	96.78	PASS	70-125	75656.6	76479.3	98.92	PASS	70-125
ICV	ICV	1	3319754.5	3329298.9	99.71	PASS	70-125	77074.2	76479.3	100.78	PASS	70-125
ICB	ICB	1	3353969	3329298.9	100.74	PASS	70-125	77173.8	76479.3	100.91	PASS	70-125
LLICV	CCV1	1	3837442.8	3329298.9	115.26	PASS	70-125	87916.4	76479.3	114.95	PASS	70-125
ICSA1	ICSA	1	3467068.6	3329298.9	104.14	PASS	70-125	83242.6	76479.3	108.84	PASS	70-125
ICSAB1	ICSAB	1	3596065.6	3329298.9	108.01	PASS	70-125	87687	76479.3	114.65	PASS	70-125
MB-74411	MBLK	1	3669603.2	3329298.9	110.22	PASS	70-125	93623.3	76479.3	122.42	PASS	70-125
LCS-74411	LCS	1	3550689.1	3329298.9	106.65	PASS	70-125	89294.9	76479.3	116.76	PASS	70-125
N036115-001B	SAMP	1	3640483	3329298.9	109.35	PASS	70-125	89421.8	76479.3	116.92	PASS	70-125
N036115-001B	SAMP	5	3629195.9	3329298.9	109.01	PASS	70-125	86066.7	76479.3	112.54	PASS	70-125
N036115-001B-PS	PS	1	3540548.1	3329298.9	106.35	PASS	70-125	81115.5	76479.3	106.06	PASS	70-125
N036115-001B-MS	MS	1	3612443.1	3329298.9	108.5	PASS	70-125	82429.7	76479.3	107.78	PASS	70-125
N036115-001B-MSD	MSD	1	3535094.7	3329298.9	106.18	PASS	70-125	81508.6	76479.3	106.58	PASS	70-125
N036115-002B	SAMP	1	3517088.7	3329298.9	105.64	PASS	70-125	80720.1	76479.3	105.55	PASS	70-125
N036115-003B	SAMP	1	3583364.8	3329298.9	107.63	PASS	70-125	81479.3	76479.3	106.54	PASS	70-125
N036115-004B	SAMP	1	3573983.6	3329298.9	107.35	PASS	70-125	80746.4	76479.3	105.58	PASS	70-125
CCV1	CCV	1	3572789.7	3329298.9	107.31	PASS	70-125	83034	76479.3	108.57	PASS	70-125
CCB1	CCB	1	3522554.5	3329298.9	105.8	PASS	70-125	81930.2	76479.3	107.13	PASS	70-125
N036115-005B	SAMP	1	3519659.4	3329298.9	105.72	PASS	70-125	79187.4	76479.3	103.54	PASS	70-125
N036115-006B	SAMP	1	3504234.9	3329298.9	105.25	PASS	70-125	79192.5	76479.3	103.55	PASS	70-125
N036115-007B	SAMP	1	3556715.5	3329298.9	106.83	PASS	70-125	78543.2	76479.3	102.7	PASS	70-125
N036115-008B	SAMP	1	3624296	3329298.9	108.86	PASS	70-125	79891.7	76479.3	104.46	PASS	70-125
N036115-009B	SAMP	1	3419688	3329298.9	102.71	PASS	70-125	76015.8	76479.3	99.39	PASS	70-125
N036115-010B	SAMP	1	3538852.1	3329298.9	106.29	PASS	70-125	77616.8	76479.3	101.49	PASS	70-125
N036115-013B	SAMP	1	3500027.1	3329298.9	105.13	PASS	70-125	77473	76479.3	101.3	PASS	70-125
N036115-014B	SAMP	1	3481928.8	3329298.9	104.58	PASS	70-125	77348.1	76479.3	101.14	PASS	70-125
N036115-015B	SAMP	1	3501205.6	3329298.9	105.16	PASS	70-125	77442.2	76479.3	101.26	PASS	70-125
N036115-016B	SAMP	1	3482397.7	3329298.9	104.6	PASS	70-125	76217.3	76479.3	99.66	PASS	70-125
CCV2	CCV	1	3572045.9	3329298.9	107.29	PASS	70-125	80523.8	76479.3	105.29	PASS	70-125
CCB2	CCB	1	3554157.7	3329298.9	106.75	PASS	70-125	81076.4	76479.3	106.01	PASS	70-125
MB-74411	MBLK	1	3537294	3329298.9	106.25	PASS	70-125	82947.6	76479.3	108.46	PASS	70-125
N036115-001B	SAMP	1	3471108.6	3329298.9	104.26	PASS	70-125	77882.4	76479.3	101.83	PASS	70-125
N036115-003B	SAMP	1	3589660.2	3329298.9	107.82	PASS	70-125	81988.8	76479.3	107.2	PASS	70-125

INTERNAL STANDARD: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N036115-006B	SAMP	1	3477234.3	3329298.9	104.44	PASS	70-125	78210.8	76479.3	102.26	PASS	70-125
N036115-007B	SAMP	1	3518887	3329298.9	105.69	PASS	70-125	77821.1	76479.3	101.75	PASS	70-125
N036115-009B	SAMP	1	3417127.1	3329298.9	102.64	PASS	70-125	75348.7	76479.3	98.52	PASS	70-125
N036115-013B	SAMP	1	3511604.5	3329298.9	105.48	PASS	70-125	76766.2	76479.3	100.38	PASS	70-125
N036115-003B	SAMP	1	3595598.9	3329298.9	108	PASS	70-125	80695.7	76479.3	105.51	PASS	70-125
N036115-007B	SAMP	1	3514173.8	3329298.9	105.55	PASS	70-125	77623.6	76479.3	101.5	PASS	70-125
N036115-009B	SAMP	1	3388908.6	3329298.9	101.79	PASS	70-125	74020.3	76479.3	96.78	PASS	70-125
CCV3	CCV	1	3697554.1	3329298.9	111.06	PASS	70-125	86370.3	76479.3	112.93	PASS	70-125
CCB3	CCB	1	3623013.3	3329298.9	108.82	PASS	70-125	82920.9	76479.3	108.42	PASS	70-125
ICSA2	ICSA	1	3774200.9	3329298.9	113.36	PASS	70-125	89060.8	76479.3	116.45	PASS	70-125
ICSAB2	ICSAB	1	3810838.1	3329298.9	114.46	PASS	70-125	92070.8	76479.3	120.39	PASS	70-125
N036115-009B	SAMP	1	3446362.6	3329298.9	103.52	PASS	70-125	78570	76479.3	102.73	PASS	70-125
CCV4	CCV	1	3697650.3	3329298.9	111.06	PASS	70-125	81952.9	76479.3	107.16	PASS	70-125
CCB4	CCB	1	3758479.1	3329298.9	112.89	PASS	70-125	85195.6	76479.3	111.4	PASS	70-125
CCV5	CCV	1	3779803.9	3329298.9	113.53	PASS	70-125	84201.6	76479.3	110.1	PASS	70-125
CCB5	CCB	1	3788055.4	3329298.9	113.78	PASS	70-125	85117.4	76479.3	111.29	PASS	70-125
ICSA3	ICSA	1	3965896.5	3329298.9	119.12	PASS	70-125	92239.5	76479.3	120.61	PASS	70-125
ICSAB3	ICSAB	1	3955130.9	3329298.9	118.8	PASS	70-125	96571.4	76479.3	126.27	NR!	70-125

INTERNAL STANDARD: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	52674.9	52674.9	100	PASS	70-125	35875.9	35875.9	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	53186.5	52674.9	100.97	PASS	70-125	36335.8	35875.9	101.28	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	52788.5	52674.9	100.22	PASS	70-125	35456.2	35875.9	98.83	PASS	70-125
Std3-5/50 ppb	ICAL	1	52476.5	52674.9	99.62	PASS	70-125	34977.3	35875.9	97.5	PASS	70-125
Std4-10/100 ppb	ICAL	1	53220	52674.9	101.04	PASS	70-125	35355.9	35875.9	98.55	PASS	70-125
Std5-20/200 ppb	ICAL	1	53604.4	52674.9	101.76	PASS	70-125	35713.5	35875.9	99.55	PASS	70-125
Std6-40/400 ppb	ICAL	1	52923.3	52674.9	100.47	PASS	70-125	35015.2	35875.9	97.6	PASS	70-125
Std7-100/1000 ppb	ICAL	1	52572.1	52674.9	99.8	PASS	70-125	35557.4	35875.9	99.11	PASS	70-125
Std8-200/2000 ppb	ICAL	1	52571	52674.9	99.8	PASS	70-125	34018.8	35875.9	94.82	PASS	70-125
ICV	ICV	1	53129.7	52674.9	100.86	PASS	70-125	36491.9	35875.9	101.72	PASS	70-125
ICB	ICB	1	53050.6	52674.9	100.71	PASS	70-125	35642.2	35875.9	99.35	PASS	70-125
LLICV	CCV1	1	62077.9	52674.9	117.85	PASS	70-125	41595.2	35875.9	115.94	PASS	70-125
ICSA1	ICSA	1	57138.7	52674.9	108.47	PASS	70-125	37743.5	35875.9	105.21	PASS	70-125
ICSAB1	ICSAB	1	60618	52674.9	115.08	PASS	70-125	40686.3	35875.9	113.41	PASS	70-125
MB-74411	MBLK	1	64371.9	52674.9	122.21	PASS	70-125	46661	35875.9	130.06	NR!	70-125
LCS-74411	LCS	1	61123.1	52674.9	116.04	PASS	70-125	44011.5	35875.9	122.68	PASS	70-125
N036115-001B	SAMP	1	61873.8	52674.9	117.46	PASS	70-125	47156.9	35875.9	131.44	NR!	70-125
N036115-001B	SAMP	5	60272.3	52674.9	114.42	PASS	70-125	42753.7	35875.9	119.17	PASS	70-125
N036115-001B-PS	PS	1	57193.2	52674.9	108.58	PASS	70-125	41191.9	35875.9	114.82	PASS	70-125
N036115-001B-MS	MS	1	57745.2	52674.9	109.63	PASS	70-125	42194.5	35875.9	117.61	PASS	70-125
N036115-001B-MSD	MSD	1	57382.7	52674.9	108.94	PASS	70-125	40816.4	35875.9	113.77	PASS	70-125
N036115-002B	SAMP	1	57360.5	52674.9	108.9	PASS	70-125	40949	35875.9	114.14	PASS	70-125
N036115-003B	SAMP	1	57776.5	52674.9	109.69	PASS	70-125	41349.1	35875.9	115.26	PASS	70-125
N036115-004B	SAMP	1	56664.8	52674.9	107.57	PASS	70-125	40748.6	35875.9	113.58	PASS	70-125
CCV1	CCV	1	57391.8	52674.9	108.95	PASS	70-125	39933.1	35875.9	111.31	PASS	70-125
CCB1	CCB	1	55363.9	52674.9	105.1	PASS	70-125	38974.1	35875.9	108.64	PASS	70-125
N036115-005B	SAMP	1	55938.9	52674.9	106.2	PASS	70-125	38615.6	35875.9	107.64	PASS	70-125
N036115-006B	SAMP	1	55324.7	52674.9	105.03	PASS	70-125	38914	35875.9	108.47	PASS	70-125
N036115-007B	SAMP	1	55811.7	52674.9	105.96	PASS	70-125	39220.3	35875.9	109.32	PASS	70-125
N036115-008B	SAMP	1	56995.9	52674.9	108.2	PASS	70-125	39113.3	35875.9	109.02	PASS	70-125
N036115-009B	SAMP	1	53397.1	52674.9	101.37	PASS	70-125	37444.9	35875.9	104.37	PASS	70-125
N036115-010B	SAMP	1	54943.3	52674.9	104.31	PASS	70-125	39204.7	35875.9	109.28	PASS	70-125
N036115-013B	SAMP	1	54753.8	52674.9	103.95	PASS	70-125	38596.7	35875.9	107.58	PASS	70-125
N036115-014B	SAMP	1	54666.8	52674.9	103.78	PASS	70-125	38968.5	35875.9	108.62	PASS	70-125
N036115-015B	SAMP	1	54914.3	52674.9	104.25	PASS	70-125	38760.4	35875.9	108.04	PASS	70-125
N036115-016B	SAMP	1	53913.2	52674.9	102.35	PASS	70-125	37800.3	35875.9	105.36	PASS	70-125
CCV2	CCV	1	56066.3	52674.9	106.44	PASS	70-125	39186.9	35875.9	109.23	PASS	70-125
CCB2	CCB	1	56499.9	52674.9	107.26	PASS	70-125	38818.2	35875.9	108.2	PASS	70-125
MB-74411	MBLK	1	57212.3	52674.9	108.61	PASS	70-125	40893.3	35875.9	113.99	PASS	70-125
N036115-001B	SAMP	1	55175.5	52674.9	104.75	PASS	70-125	37758	35875.9	105.25	PASS	70-125
N036115-003B	SAMP	1	56620	52674.9	107.49	PASS	70-125	40894.4	35875.9	113.99	PASS	70-125

INTERNAL STANDARD: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N036115-006B	SAMP	1	55163	52674.9	104.72	PASS	70-125	38594.5	35875.9	107.58	PASS	70-125
N036115-007B	SAMP	1	54335.8	52674.9	103.15	PASS	70-125	38798.2	35875.9	108.15	PASS	70-125
N036115-009B	SAMP	1	53095	52674.9	100.8	PASS	70-125	37088.7	35875.9	103.38	PASS	70-125
N036115-013B	SAMP	1	54525.4	52674.9	103.51	PASS	70-125	38601.2	35875.9	107.6	PASS	70-125
N036115-003B	SAMP	1	57878	52674.9	109.88	PASS	70-125	41684.4	35875.9	116.19	PASS	70-125
N036115-007B	SAMP	1	54701.5	52674.9	103.85	PASS	70-125	38907.3	35875.9	108.45	PASS	70-125
N036115-009B	SAMP	1	52703.8	52674.9	100.06	PASS	70-125	37286.9	35875.9	103.93	PASS	70-125
CCV3	CCV	1	59382.4	52674.9	112.73	PASS	70-125	44216.3	35875.9	123.25	PASS	70-125
CCB3	CCB	1	56668.3	52674.9	107.58	PASS	70-125	40511.2	35875.9	112.92	PASS	70-125
ICSA2	ICSA	1	60456	52674.9	114.77	PASS	70-125	39983.3	35875.9	111.45	PASS	70-125
ICSAB2	ICSAB	1	63130.9	52674.9	119.85	PASS	70-125	43307.4	35875.9	120.71	PASS	70-125
N036115-009B	SAMP	1	55726.2	52674.9	105.79	PASS	70-125	41665.2	35875.9	116.14	PASS	70-125
CCV4	CCV	1	58072.1	52674.9	110.25	PASS	70-125	42096.5	35875.9	117.34	PASS	70-125
CCB4	CCB	1	58669.6	52674.9	111.38	PASS	70-125	43213.8	35875.9	120.45	PASS	70-125
CCV5	CCV	1	59046.4	52674.9	112.1	PASS	70-125	42349.4	35875.9	118.04	PASS	70-125
CCB5	CCB	1	59219.3	52674.9	112.42	PASS	70-125	43102.3	35875.9	120.14	PASS	70-125
ICSA3	ICSA	1	64106.8	52674.9	121.7	PASS	70-125	44480.7	35875.9	123.98	PASS	70-125
ICSAB3	ICSAB	1	66970.2	52674.9	127.14	NR!	70-125	47597	35875.9	132.67	NR!	70-125

INTERNAL STANDARD: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	1538107.3	1538107.3	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	1526420	1538107.3	99.24	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	1526298.4	1538107.3	99.23	PASS	70-125
Std3-5/50 ppb	ICAL	1	1521072.5	1538107.3	98.89	PASS	70-125
Std4-10/100 ppb	ICAL	1	1526676	1538107.3	99.26	PASS	70-125
Std5-20/200 ppb	ICAL	1	1525729	1538107.3	99.2	PASS	70-125
Std6-40/400 ppb	ICAL	1	1530242.3	1538107.3	99.49	PASS	70-125
Std7-100/1000 ppb	ICAL	1	1511700.3	1538107.3	98.28	PASS	70-125
Std8-200/2000 ppb	ICAL	1	1474141.7	1538107.3	95.84	PASS	70-125
ICV	ICV	1	1529665	1538107.3	99.45	PASS	70-125
ICB	ICB	1	1539815.5	1538107.3	100.11	PASS	70-125
LLICV	CCV1	1	1779267.3	1538107.3	115.68	PASS	70-125
ICSA1	ICSA	1	1545004	1538107.3	100.45	PASS	70-125
ICSAB1	ICSAB	1	1609787.4	1538107.3	104.66	PASS	70-125
MB-74411	MBLK	1	1785861.1	1538107.3	116.11	PASS	70-125
LCS-74411	LCS	1	1680644.9	1538107.3	109.27	PASS	70-125
N036115-001B	SAMP	1	1592744	1538107.3	103.55	PASS	70-125
N036115-001B	SAMP	5	1628638	1538107.3	105.89	PASS	70-125
N036115-001B-PS	PS	1	1505480.3	1538107.3	97.88	PASS	70-125
N036115-001B-MS	MS	1	1527295.7	1538107.3	99.3	PASS	70-125
N036115-001B-MSD	MSD	1	1499015.6	1538107.3	97.46	PASS	70-125
N036115-002B	SAMP	1	1487214.3	1538107.3	96.69	PASS	70-125
N036115-003B	SAMP	1	1494752.4	1538107.3	97.18	PASS	70-125
N036115-004B	SAMP	1	1491233.5	1538107.3	96.95	PASS	70-125
CCV1	CCV	1	1633191.6	1538107.3	106.18	PASS	70-125
CCB1	CCB	1	1624082.6	1538107.3	105.59	PASS	70-125
N036115-005B	SAMP	1	1479469.1	1538107.3	96.19	PASS	70-125
N036115-006B	SAMP	1	1483598.9	1538107.3	96.46	PASS	70-125
N036115-007B	SAMP	1	1478423.9	1538107.3	96.12	PASS	70-125
N036115-008B	SAMP	1	1519601.8	1538107.3	98.8	PASS	70-125
N036115-009B	SAMP	1	1429807.3	1538107.3	92.96	PASS	70-125
N036115-010B	SAMP	1	1483209.7	1538107.3	96.43	PASS	70-125
N036115-013B	SAMP	1	1470540.7	1538107.3	95.61	PASS	70-125
N036115-014B	SAMP	1	1453822.7	1538107.3	94.52	PASS	70-125
N036115-015B	SAMP	1	1467776.8	1538107.3	95.43	PASS	70-125
N036115-016B	SAMP	1	1447892.1	1538107.3	94.13	PASS	70-125
CCV2	CCV	1	1607720	1538107.3	104.53	PASS	70-125
CCB2	CCB	1	1613701.3	1538107.3	104.91	PASS	70-125
MB-74411	MBLK	1	1635503.8	1538107.3	106.33	PASS	70-125
N036115-001B	SAMP	1	1471719.3	1538107.3	95.68	PASS	70-125
N036115-003B	SAMP	1	1529483.3	1538107.3	99.44	PASS	70-125

INTERNAL STANDARD: 190703A

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N036115-006B	SAMP	1	1469812.2	1538107.3	95.56	PASS	70-125
N036115-007B	SAMP	1	1463838.2	1538107.3	95.17	PASS	70-125
N036115-009B	SAMP	1	1421227.3	1538107.3	92.4	PASS	70-125
N036115-013B	SAMP	1	1452083.5	1538107.3	94.41	PASS	70-125
N036115-003B	SAMP	1	1520916	1538107.3	98.88	PASS	70-125
N036115-007B	SAMP	1	1464402.7	1538107.3	95.21	PASS	70-125
N036115-009B	SAMP	1	1412151.6	1538107.3	91.81	PASS	70-125
CCV3	CCV	1	1677235.2	1538107.3	109.05	PASS	70-125
CCB3	CCB	1	1647446.3	1538107.3	107.11	PASS	70-125
ICSA2	ICSA	1	1616358.8	1538107.3	105.09	PASS	70-125
ICSAB2	ICSAB	1	1651952.6	1538107.3	107.4	PASS	70-125
N036115-009B	SAMP	1	1450580.4	1538107.3	94.31	PASS	70-125
CCV4	CCV	1	1615858.6	1538107.3	105.06	PASS	70-125
CCB4	CCB	1	1661238.5	1538107.3	108.01	PASS	70-125
CCV5	CCV	1	1661923.2	1538107.3	108.05	PASS	70-125
CCB5	CCB	1	1679308.4	1538107.3	109.18	PASS	70-125
ICSA3	ICSA	1	1688437.8	1538107.3	109.77	PASS	70-125
ICSAB3	ICSAB	1	1712245.7	1538107.3	111.32	PASS	70-125

INTERNAL STANDARD: 190710A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	96278.5	96278.5	100	PASS	70-125	61882.5	61882.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	96739.1	96278.5	100.48	PASS	70-125	62144.5	61882.5	100.42	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	96552.3	96278.5	100.28	PASS	70-125	62569.8	61882.5	101.11	PASS	70-125
Std3-5/50 ppb	ICAL	1	95773.5	96278.5	99.48	PASS	70-125	61866.8	61882.5	99.97	PASS	70-125
Std4-10/100 ppb	ICAL	1	96036.2	96278.5	99.75	PASS	70-125	62422.4	61882.5	100.87	PASS	70-125
Std5-20/200 ppb	ICAL	1	96570	96278.5	100.3	PASS	70-125	62594.2	61882.5	101.15	PASS	70-125
Std6-40/400 ppb	ICAL	1	96888.8	96278.5	100.63	PASS	70-125	62648.7	61882.5	101.24	PASS	70-125
Std7-100/1000 ppb	ICAL	1	97145.9	96278.5	100.9	PASS	70-125	61914.1	61882.5	100.05	PASS	70-125
Std8-200/2000 ppb	ICAL	1	96824.2	96278.5	100.57	PASS	70-125	61642.6	61882.5	99.61	PASS	70-125
ICV	ICV	1	93681.8	96278.5	97.3	PASS	70-125	60985.7	61882.5	98.55	PASS	70-125
ICB	ICB	1	92875	96278.5	96.46	PASS	70-125	60275.6	61882.5	97.4	PASS	70-125
LLICV	CCV1	1	93170.1	96278.5	96.77	PASS	70-125	60711.6	61882.5	98.11	PASS	70-125
ICSA1	ICSA	1	86020.8	96278.5	89.35	PASS	70-125	54176.3	61882.5	87.55	PASS	70-125
ICSAB1	ICSAB	1	96890.8	96278.5	100.64	PASS	70-125	61230.3	61882.5	98.95	PASS	70-125
MB-74511	MBLK	1	92693	96278.5	96.28	PASS	70-125	58298.1	61882.5	94.21	PASS	70-125
LCS-74511	LCS	1	100044	96278.5	103.91	PASS	70-125	63496.4	61882.5	102.61	PASS	70-125
N036115-001B	SAMP	1	89423.4	96278.5	92.88	PASS	70-125	58301.8	61882.5	94.21	PASS	70-125
N036115-001B	SAMP	5	93380.7	96278.5	96.99	PASS	70-125	59789.3	61882.5	96.62	PASS	70-125
N036115-001B-PS	PS	1	96112.6	96278.5	99.83	PASS	70-125	61795.8	61882.5	99.86	PASS	70-125
N036115-001B-MS	MS	1	93304.3	96278.5	96.91	PASS	70-125	60131.6	61882.5	97.17	PASS	70-125
N036115-001B-MSD	MSD	1	90321.4	96278.5	93.81	PASS	70-125	58506.8	61882.5	94.54	PASS	70-125
N036115-002B	SAMP	1	88565.4	96278.5	91.99	PASS	70-125	57739.9	61882.5	93.31	PASS	70-125
N036115-003B	SAMP	1	90977.2	96278.5	94.49	PASS	70-125	58691.7	61882.5	94.84	PASS	70-125
N036115-004B	SAMP	1	88519.8	96278.5	91.94	PASS	70-125	57530	61882.5	92.97	PASS	70-125
CCV1	CCV	1	92809.3	96278.5	96.4	PASS	70-125	59335.3	61882.5	95.88	PASS	70-125
CCB1	CCB	1	91663	96278.5	95.21	PASS	70-125	59370.1	61882.5	95.94	PASS	70-125
N036115-005B	SAMP	1	89731	96278.5	93.2	PASS	70-125	58420.2	61882.5	94.41	PASS	70-125
N036115-006B	SAMP	1	90001.7	96278.5	93.48	PASS	70-125	58025	61882.5	93.77	PASS	70-125
N036115-007B	SAMP	1	88684.9	96278.5	92.11	PASS	70-125	57977.2	61882.5	93.69	PASS	70-125
N036115-008B	SAMP	1	89909.3	96278.5	93.38	PASS	70-125	58118.7	61882.5	93.92	PASS	70-125
N036115-009B	SAMP	1	88687	96278.5	92.12	PASS	70-125	57645.9	61882.5	93.15	PASS	70-125
N036115-010B	SAMP	1	86514.4	96278.5	89.86	PASS	70-125	57048.3	61882.5	92.19	PASS	70-125
N036115-013B	SAMP	1	89154.8	96278.5	92.6	PASS	70-125	57750.8	61882.5	93.32	PASS	70-125
N036115-014B	SAMP	1	89546.1	96278.5	93.007	PASS	70-125	58044.1	61882.5	93.8	PASS	70-125
N036115-015B	SAMP	1	91513.6	96278.5	95.051	PASS	70-125	59430.9	61882.5	96.038	PASS	70-125
N036115-016B	SAMP	1	86737.8	96278.5	90.091	PASS	70-125	56730.5	61882.5	91.67	PASS	70-125
CCV2	CCV	1	92233.4	96278.5	95.8	PASS	70-125	59043.2	61882.5	95.41	PASS	70-125
CCB2	CCB	1	92104.1	96278.5	95.66	PASS	70-125	58959.5	61882.5	95.28	PASS	70-125
N035662-001D	SAMP	1	79294.6	96278.5	82.36	PASS	70-125	50410.8	61882.5	81.46	PASS	70-125
CCV3	CCV	1	90281.1	96278.5	93.77	PASS	70-125	57591.5	61882.5	93.066	PASS	70-125
CCB3	CCB	1	89250.3	96278.5	92.7	PASS	70-125	57141.9	61882.5	92.34	PASS	70-125

INTERNAL STANDARD: 190710A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
CCV4	CCV	1	91372.5	96278.5	94.9	PASS	70-125	58709.7	61882.5	94.87	PASS	70-125
CCB4	CCB	1	91867.2	96278.5	95.42	PASS	70-125	58856.8	61882.5	95.11	PASS	70-125
CCV5	CCV	1	91020.7	96278.5	94.54	PASS	70-125	58873.7	61882.5	95.14	PASS	70-125
CCB5	CCB	1	89691.5	96278.5	93.16	PASS	70-125	57718.5	61882.5	93.27	PASS	70-125
ICSA2	ICSA	1	87194.1	96278.5	90.56	PASS	70-125	55587.7	61882.5	89.83	PASS	70-125
ICSAB2	ICSAB	1	91497.7	96278.5	95.034	PASS	70-125	57853.1	61882.5	93.49	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N036115
Test Method: EPA 6020
Analysis Date: 7/3/2019

Matrix: Groundwater
Batch No.: 74411

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Hanah Glodoviza

Dilution test is not applicable to several analytes. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036115-001B DT 5x	Arsenic	As	µg/L	2.221497	NA	2.162841	2.71%	10
N036115-001B DT 5x	Barium	Ba	µg/L	109.2662	PASS	107.9502	1.22%	10
N036115-001B DT 5x	Molybdenum	Mo	µg/L	4.04612	NA	4.085254	0.96%	10
N036115-001B DT 5x	Selenium	Se	µg/L	0	NA	1.587507	100.00%	10
N036115-001B DT 5x	Chromium	Cr	µg/L	0	NA	0		10

Note: NA - Not Applicable

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N036115
Test Method: EPA 6020
Analysis Date: 7/10/2019

Matrix: Groundwater
Batch No.: 74511

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Mn. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036115-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N036115-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134899**
Client ID: **ZZZZZZ** Batch ID: **74411** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/3/2019** SeqNo: **3430197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.703	0.10	10.00	2.163	105	80	120				
Barium	119.722	1.0	10.00	108.0	118	80	120				
Molybdenum	15.325	0.50	10.00	4.085	112	80	120				
Selenium	11.018	0.50	10.00	1.588	94.3	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID	N036115-001B-PS	SampType:	PS	TestCode:	6020_DIS	Units:	µg/L	Prep Date:		RunNo:	134984
Client ID:	ZZZZZZ	Batch ID:	74511	TestNo:	EPA 6020	EPA 3010A		Analysis Date:	7/10/2019	SeqNo:	3433673

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	98.497	0.50	100.0	0	98.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036115
Project: PG&E Topock - RMP, RC000753.0801

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N036115-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134899**
Client ID:	**ZZZZZZ**	Batch ID: **74411**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/3/2019**	SeqNo: **3430286**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.941	1.0	10.00	0	99.4	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00

July 15, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N036155

RE: PG&E Topock - RMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on June 19, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucan for

Quennie Manimtim
Laboratory Director

The cover letter is an integral part of this analytical report. This Laboratory Report cannot be reproduced in part or in its entirety without written permission from the client and ASSET Laboratories - Las Vegas.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.801D
Lab Order: N036155

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Sample N036155-015 (AB3-Q219) was not analyzed as per COC.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria in QC sample N036155-001B-MSD1 possibly due to matrix interference. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.801D
Lab Order: N036155
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036155-001A	C-CON-D-Q219	Groundwater	6/19/2019 9:55:00 AM	6/19/2019	7/15/2019
N036155-001B	C-CON-D-Q219	Groundwater	6/19/2019 9:55:00 AM	6/19/2019	7/15/2019
N036155-001C	C-CON-D-Q219	Groundwater	6/19/2019 9:55:00 AM	6/19/2019	7/15/2019
N036155-001D	C-CON-D-Q219	Groundwater	6/19/2019 9:55:00 AM	6/19/2019	7/15/2019
N036155-001E	C-CON-D-Q219	Groundwater	6/19/2019 9:55:00 AM	6/19/2019	7/15/2019
N036155-002A	C-CON-S-Q219	Groundwater	6/19/2019 10:15:00 AM	6/19/2019	7/15/2019
N036155-002B	C-CON-S-Q219	Groundwater	6/19/2019 10:15:00 AM	6/19/2019	7/15/2019
N036155-002C	C-CON-S-Q219	Groundwater	6/19/2019 10:15:00 AM	6/19/2019	7/15/2019
N036155-002D	C-CON-S-Q219	Groundwater	6/19/2019 10:15:00 AM	6/19/2019	7/15/2019
N036155-002E	C-CON-S-Q219	Groundwater	6/19/2019 10:15:00 AM	6/19/2019	7/15/2019
N036155-003A	C-MAR-D-Q219	Groundwater	6/19/2019 8:35:00 AM	6/19/2019	7/15/2019
N036155-003B	C-MAR-D-Q219	Groundwater	6/19/2019 8:35:00 AM	6/19/2019	7/15/2019
N036155-003C	C-MAR-D-Q219	Groundwater	6/19/2019 8:35:00 AM	6/19/2019	7/15/2019
N036155-003D	C-MAR-D-Q219	Groundwater	6/19/2019 8:35:00 AM	6/19/2019	7/15/2019
N036155-003E	C-MAR-D-Q219	Groundwater	6/19/2019 8:35:00 AM	6/19/2019	7/15/2019
N036155-004A	C-MAR-S-Q219	Groundwater	6/19/2019 8:55:00 AM	6/19/2019	7/15/2019
N036155-004B	C-MAR-S-Q219	Groundwater	6/19/2019 8:55:00 AM	6/19/2019	7/15/2019
N036155-004C	C-MAR-S-Q219	Groundwater	6/19/2019 8:55:00 AM	6/19/2019	7/15/2019
N036155-004D	C-MAR-S-Q219	Groundwater	6/19/2019 8:55:00 AM	6/19/2019	7/15/2019
N036155-004E	C-MAR-S-Q219	Groundwater	6/19/2019 8:55:00 AM	6/19/2019	7/15/2019
N036155-005A	C-NR1-D-Q219	Groundwater	6/19/2019 11:00:00 AM	6/19/2019	7/15/2019
N036155-005B	C-NR1-D-Q219	Groundwater	6/19/2019 11:00:00 AM	6/19/2019	7/15/2019
N036155-005C	C-NR1-D-Q219	Groundwater	6/19/2019 11:00:00 AM	6/19/2019	7/15/2019
N036155-005D	C-NR1-D-Q219	Groundwater	6/19/2019 11:00:00 AM	6/19/2019	7/15/2019
N036155-005E	C-NR1-D-Q219	Groundwater	6/19/2019 11:00:00 AM	6/19/2019	7/15/2019
N036155-006A	C-NR1-S-Q219	Groundwater	6/19/2019 11:15:00 AM	6/19/2019	7/15/2019
N036155-006B	C-NR1-S-Q219	Groundwater	6/19/2019 11:15:00 AM	6/19/2019	7/15/2019
N036155-006C	C-NR1-S-Q219	Groundwater	6/19/2019 11:15:00 AM	6/19/2019	7/15/2019
N036155-006D	C-NR1-S-Q219	Groundwater	6/19/2019 11:15:00 AM	6/19/2019	7/15/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.801D
Lab Order: N036155
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036155-006E	C-NR1-S-Q219	Groundwater	6/19/2019 11:15:00 AM	6/19/2019	7/15/2019
N036155-007A	C-NR3-D-Q219	Groundwater	6/19/2019 12:05:00 PM	6/19/2019	7/15/2019
N036155-007B	C-NR3-D-Q219	Groundwater	6/19/2019 12:05:00 PM	6/19/2019	7/15/2019
N036155-007C	C-NR3-D-Q219	Groundwater	6/19/2019 12:05:00 PM	6/19/2019	7/15/2019
N036155-007D	C-NR3-D-Q219	Groundwater	6/19/2019 12:05:00 PM	6/19/2019	7/15/2019
N036155-007E	C-NR3-D-Q219	Groundwater	6/19/2019 12:05:00 PM	6/19/2019	7/15/2019
N036155-008A	C-NR3-S-Q219	Groundwater	6/19/2019 12:25:00 PM	6/19/2019	7/15/2019
N036155-008B	C-NR3-S-Q219	Groundwater	6/19/2019 12:25:00 PM	6/19/2019	7/15/2019
N036155-008C	C-NR3-S-Q219	Groundwater	6/19/2019 12:25:00 PM	6/19/2019	7/15/2019
N036155-008D	C-NR3-S-Q219	Groundwater	6/19/2019 12:25:00 PM	6/19/2019	7/15/2019
N036155-008E	C-NR3-S-Q219	Groundwater	6/19/2019 12:25:00 PM	6/19/2019	7/15/2019
N036155-009A	MW-917-Q219	Groundwater	6/19/2019 12:35:00 PM	6/19/2019	7/15/2019
N036155-009B	MW-917-Q219	Groundwater	6/19/2019 12:35:00 PM	6/19/2019	7/15/2019
N036155-009C	MW-917-Q219	Groundwater	6/19/2019 12:35:00 PM	6/19/2019	7/15/2019
N036155-009D	MW-917-Q219	Groundwater	6/19/2019 12:35:00 PM	6/19/2019	7/15/2019
N036155-009E	MW-917-Q219	Groundwater	6/19/2019 12:35:00 PM	6/19/2019	7/15/2019
N036155-010A	MW-918-Q219	Groundwater	6/19/2019 8:10:00 AM	6/19/2019	7/15/2019
N036155-010B	MW-918-Q219	Groundwater	6/19/2019 8:10:00 AM	6/19/2019	7/15/2019
N036155-010C	MW-918-Q219	Groundwater	6/19/2019 8:10:00 AM	6/19/2019	7/15/2019
N036155-010D	MW-918-Q219	Groundwater	6/19/2019 8:10:00 AM	6/19/2019	7/15/2019
N036155-010E	MW-918-Q219	Groundwater	6/19/2019 8:10:00 AM	6/19/2019	7/15/2019
N036155-011A	R-19-Q219	Groundwater	6/19/2019 8:00:00 AM	6/19/2019	7/15/2019
N036155-011B	R-19-Q219	Groundwater	6/19/2019 8:00:00 AM	6/19/2019	7/15/2019
N036155-011C	R-19-Q219	Groundwater	6/19/2019 8:00:00 AM	6/19/2019	7/15/2019
N036155-011D	R-19-Q219	Groundwater	6/19/2019 8:00:00 AM	6/19/2019	7/15/2019
N036155-011E	R-19-Q219	Groundwater	6/19/2019 8:00:00 AM	6/19/2019	7/15/2019
N036155-012A	RRB-Q219	Groundwater	6/19/2019 9:25:00 AM	6/19/2019	7/15/2019
N036155-012B	RRB-Q219	Groundwater	6/19/2019 9:25:00 AM	6/19/2019	7/15/2019
N036155-012C	RRB-Q219	Groundwater	6/19/2019 9:25:00 AM	6/19/2019	7/15/2019
N036155-012D	RRB-Q219	Groundwater	6/19/2019 9:25:00 AM	6/19/2019	7/15/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.801D
Lab Order: N036155
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036155-012E	RRB-Q219	Groundwater	6/19/2019 9:25:00 AM	6/19/2019	7/15/2019
N036155-013A	C-NR4-D-Q219	Groundwater	6/19/2019 1:00:00 PM	6/19/2019	7/15/2019
N036155-013B	C-NR4-D-Q219	Groundwater	6/19/2019 1:00:00 PM	6/19/2019	7/15/2019
N036155-013C	C-NR4-D-Q219	Groundwater	6/19/2019 1:00:00 PM	6/19/2019	7/15/2019
N036155-013D	C-NR4-D-Q219	Groundwater	6/19/2019 1:00:00 PM	6/19/2019	7/15/2019
N036155-013E	C-NR4-D-Q219	Groundwater	6/19/2019 1:00:00 PM	6/19/2019	7/15/2019
N036155-014A	C-NR4-S-Q219	Groundwater	6/19/2019 1:20:00 PM	6/19/2019	7/15/2019
N036155-014B	C-NR4-S-Q219	Groundwater	6/19/2019 1:20:00 PM	6/19/2019	7/15/2019
N036155-014C	C-NR4-S-Q219	Groundwater	6/19/2019 1:20:00 PM	6/19/2019	7/15/2019
N036155-014D	C-NR4-S-Q219	Groundwater	6/19/2019 1:20:00 PM	6/19/2019	7/15/2019
N036155-014E	C-NR4-S-Q219	Groundwater	6/19/2019 1:20:00 PM	6/19/2019	7/15/2019
N036155-015A	AB3-Q219	Groundwater	6/19/2019 1:30:00 PM	6/19/2019	7/15/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	900	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-009

Client Sample ID: MW-917-Q219
Collection Date: 6/19/2019 12:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-918-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:25:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	930	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:20:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	930	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N036155-001DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **134631**
Client ID: **ZZZZZZ** Batch ID: **R134631** TestNo: **EPA 120.1** Analysis Date: **6/20/2019** SeqNo: **3416697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	923.000	0.10						918.0	0.543	2	

Sample ID: **N036155-014DDUP** SampType: **DUP** TestCode: **120.1_WPGE** Units: **umhos/cm** Prep Date: RunNo: **134631**
Client ID: **ZZZZZZ** Batch ID: **R134631** TestNo: **EPA 120.1** Analysis Date: **6/20/2019** SeqNo: **3416712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	928.000	0.10						927.0	0.108	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-918-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-012

Client Sample ID: RRB-Q219
Collection Date: 6/19/2019 9:25:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:20:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: **N036154-001EDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **134630**
Client ID: **ZZZZZZ** Batch ID: **R134630** TestNo: **SM4500-H+B** Analysis Date: **6/20/2019** SeqNo: **3416678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.810	0.10						7.790	0.256	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID: **N036155-011DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **134630**
Client ID: **ZZZZZZ** Batch ID: **R134630** TestNo: **SM4500-H+B** Analysis Date: **6/20/2019** SeqNo: **3416691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.240	0.10						8.220	0.243	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	7.0	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	9.5	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-918-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E**	QC Batch: **74301**			PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:25:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E** QC Batch: **74301**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E** QC Batch: **74301**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:20:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E**	QC Batch: **74301**			PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-74300**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134665**
Client ID: **LCSW**	Batch ID: **74300**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	905.000	10	1000	0	90.5	80	120				

Sample ID: **MB-74300**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134665**
Client ID: **PBW**	Batch ID: **74300**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N036155-001DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134665**
Client ID: **ZZZZZZ**	Batch ID: **74300**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418177**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-74301**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **LCSW**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	914.000	10	1000	0	91.4	80	120				

Sample ID: **MB-74301**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **PBW**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N036115-015DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **ZZZZZZ**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 12:39 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 05:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 01:00 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 05:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 01:19 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 05:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A** QC Batch: **R134632**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 01:38 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190706B** QC Batch: **74467**				PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 01:57 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
		EPA 218.6					
RunID: **NV00922-IC7_190620A** QC Batch: **R134632**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 02:34 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190706B** QC Batch: **74467**				PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 02:53 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 03:12 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 03:31 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-918-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 03:50 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 04:28 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:25:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 04:47 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 05:06 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:20:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 05:25 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 07:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R134632**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **PBW**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R134632**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **LCSW**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.127	0.20	5.000	0	103	90	110				

Sample ID: **N036156-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ZZZZZZ**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	386.430	10						383.0	0.881	20	

Sample ID: **N036156-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ZZZZZZ**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416723**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	634.240	10	250.0	383.0	100	90	110				

Sample ID: **N036156-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ZZZZZZ**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	632.630	10	250.0	383.0	99.8	90	110	634.2	0.254	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036157-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.258	0.20	1.000	0.2366	102	90	110				

Sample ID: **N036155-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.033	0.20	1.000	0	103	90	110				

Sample ID: **N036155-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.070	0.20	1.000	0	107	90	110				

Sample ID: **N036155-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.070	0.20	1.000	0	107	90	110				

Sample ID: **N036155-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0	106	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036155-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.081	0.20	1.000	0	108	90	110				

Sample ID: **N036155-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.041	0.20	1.000	0	104	90	110				

Sample ID: **N036155-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.081	0.20	1.000	0	108	90	110				

Sample ID: **N036155-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.069	0.20	1.000	0	107	90	110				

Sample ID: **N036155-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.080	0.20	1.000	0	108	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036155-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.056	0.20	1.000	0	106	90	110				

Sample ID: **N036155-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0	104	90	110				

Sample ID: **N036155-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.060	0.20	1.000	0	106	90	110				

Sample ID: **N036155-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.044	0.20	1.000	0	104	90	110				

Sample ID: **N036155-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.023	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-74467**	SampType: **MBLK**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **PBW**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-74467**	SampType: **LCS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **LCSW**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.751	1.0	10.00	0	97.5	85	115				

Sample ID: **N036155-001B-MS**	SampType: **MS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **ZZZZZZ**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.480	1.0	10.00	0	94.8	75	125				

Sample ID: **N036155-001B-MSD**	SampType: **MSD**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **ZZZZZZ**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431219**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.504	1.0	10.00	0	95.0	75	125	9.480	0.253	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.42	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-918-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:25:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:20:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134671**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134671**			
Client ID: **PBW**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**			SeqNo: **3418285**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134671**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134671**			
Client ID: **LCSW**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**			SeqNo: **3418286**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.495	0.050	0.5000	0	99.1	85	115				

Sample ID: **N036155-002EDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134671**			
Client ID: **ZZZZZZ**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**			SeqNo: **3418290**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.395	0.050						0.3731	5.63	20	

Sample ID: **N036155-003EMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134671**			
Client ID: **ZZZZZZ**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**			SeqNo: **3418292**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.883	0.050	0.5000	0.3629	104	75	125				

Sample ID: **N036155-003EMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134671**			
Client ID: **ZZZZZZ**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**			SeqNo: **3418293**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.899	0.050	0.5000	0.3629	107	75	125	0.8828	1.80	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-001

Client Sample ID: C-CON-D-Q219
Collection Date: 6/19/2019 9:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 03:38 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	45	18	20		ug/L	1	7/13/2019 05:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-002

Client Sample ID: C-CON-S-Q219
Collection Date: 6/19/2019 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:08 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	36	18	20		ug/L	1	7/13/2019 06:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-003

Client Sample ID: C-MAR-D-Q219
Collection Date: 6/19/2019 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**				PrepDate:	**7/10/2019**	Analyst: **CEI**
Iron	44	18	20		ug/L	1	7/13/2019 04:12 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**				PrepDate:	**7/5/2019**	Analyst: **CEI**
Iron	200	18	20		ug/L	1	7/13/2019 06:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-004

Client Sample ID: C-MAR-S-Q219
Collection Date: 6/19/2019 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:16 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	190	18	20		ug/L	1	7/13/2019 06:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:20 PM
TOTAL METALS BY ICP							
EPA 3010A			**EPA 6010B**				
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	49	18	20		ug/L	1	7/13/2019 06:16 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-006

Client Sample ID: C-NR1-S-Q219
Collection Date: 6/19/2019 11:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:25 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	46	18	20		ug/L	1	7/13/2019 06:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:29 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	39	18	20		ug/L	1	7/13/2019 06:24 PM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-008

Client Sample ID: C-NR3-S-Q219
Collection Date: 6/19/2019 12:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:33 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	32	18	20		ug/L	1	7/13/2019 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-009

Client Sample ID: MW-917-Q219
Collection Date: 6/19/2019 12:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:46 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	26	18	20		ug/L	1	7/13/2019 06:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-010

Client Sample ID: MW-918-Q219
Collection Date: 6/19/2019 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:50 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	31	18	20		ug/L	1	7/13/2019 06:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-011

Client Sample ID: R-19-Q219
Collection Date: 6/19/2019 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**				PrepDate:	**7/10/2019**	Analyst: **CEI**
Iron	24	18	20		ug/L	1	7/13/2019 04:55 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**				PrepDate:	**7/5/2019**	Analyst: **CEI**
Iron	27	18	20		ug/L	1	7/13/2019 06:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-012

Client Sample ID: RRB-Q219
Collection Date: 6/19/2019 9:25:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**				PrepDate:	**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:59 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**				PrepDate:	**7/5/2019**	Analyst: **CEI**
Iron	50	18	20		ug/L	1	7/13/2019 06:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-013

Client Sample ID: C-NR4-D-Q219
Collection Date: 6/19/2019 1:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 05:03 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 06:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-014

Client Sample ID: C-NR4-S-Q219
Collection Date: 6/19/2019 1:20:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 05:07 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	31	18	20		ug/L	1	7/13/2019 07:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-74525**	SampType: **MBLK**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/10/2019**	RunNo: **135068**
Client ID: **PBW**	Batch ID: **74525**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437221**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID: **LCS1-74525**	SampType: **LCS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/10/2019**	RunNo: **135068**
Client ID: **LCSW**	Batch ID: **74525**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	100.699	20	100.0	0	101	85	115				

Sample ID: **N036155-001B-MS1**	SampType: **MS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/10/2019**	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74525**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	124.159	20	100.0	0	124	75	125				

Sample ID: **N036155-001B-MSD**	SampType: **MSD**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/10/2019**	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74525**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437229**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	125.716	20	100.0	0	126	75	125	124.2	1.25	20	S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID: **MB-74460**	SampType: **MBLK**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/5/2019**	RunNo: **135069**
Client ID: **PBW**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437348**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID: **LCS-74460**	SampType: **LCS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/5/2019**	RunNo: **135069**
Client ID: **LCSW**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437349**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	100.080	20	100.0	0	100	85	115				

Sample ID: **N036155-001C-MS**	SampType: **MS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/5/2019**	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437357**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	155.088	20	100.0	45.13	110	75	125				

Sample ID: **N036155-001C-MSD**	SampType: **MSD**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/5/2019**	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437358**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	157.558	20	100.0	45.13	112	75	125	155.1	1.58	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out
- Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N036155-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74525**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	108.313	20	100.0	0	108	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID: **N036155-001C-PS**	SampType: **PS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437356**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	146.046	20	100.0	45.13	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 07:26 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 05:18 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 07:26 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 05:18 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/6/2019 05:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**			PrepDate:		**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 07:51 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 05:43 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 07:51 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 05:43 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/6/2019 07:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**			PrepDate:		**7/9/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 07:56 AM
Barium	110	0.15	1.0		µg/L	1	7/6/2019 05:48 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 07:56 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 05:48 PM
Selenium	1.8	0.36	0.50		µg/L	1	7/6/2019 05:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 08:11 AM
Barium	110	0.15	1.0		µg/L	1	7/6/2019 06:03 PM
Manganese	0.66	0.26	0.50		µg/L	1	7/10/2019 08:11 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/6/2019 06:03 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/6/2019 06:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 08:16 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:08 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:16 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/6/2019 06:08 PM
Selenium	1.7	0.36	0.50		µg/L	1	7/6/2019 06:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 08:21 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:13 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:21 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/6/2019 06:13 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/6/2019 07:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
EPA 3010A			**EPA 6020**				
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**			PrepDate:	**7/9/2019**		Analyst: **CEI**
Arsenic	2.1	0.081	0.10		µg/L	1	7/10/2019 08:26 AM
Barium	110	0.15	1.0		µg/L	1	7/6/2019 06:18 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:26 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 06:18 PM
Selenium	1.5	0.36	0.50		µg/L	1	7/6/2019 06:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 08:31 AM
Barium	110	0.15	1.0		µg/L	1	7/6/2019 06:24 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:31 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 06:24 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/6/2019 07:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 08:36 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:29 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:36 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/6/2019 06:29 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/6/2019 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-918-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 08:41 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:34 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:41 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/6/2019 06:34 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/6/2019 07:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.1	0.081	0.10		µg/L	1	7/10/2019 08:46 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:39 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:46 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 06:39 PM
Selenium	1.5	0.36	0.50		µg/L	1	7/6/2019 06:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:25:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-012		

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190710A** QC Batch: **74512** PrepDate: **7/9/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 08:51 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:44 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:51 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/6/2019 06:44 PM
Selenium	1.7	0.36	0.50		µg/L	1	7/6/2019 06:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 08:56 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:49 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:56 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/6/2019 06:49 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/6/2019 06:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:20:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 09:12 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 07:14 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 09:12 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/6/2019 07:14 PM
Selenium	1.7	0.36	0.50		µg/L	1	7/6/2019 07:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-74467**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **PBW**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-74467**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **LCSW**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	9.637	1.0	10.00	0	96.4	85	115				
Molybdenum	9.429	0.50	10.00	0	94.3	85	115				
Selenium	9.639	0.50	10.00	0	96.4	85	115				

Sample ID: **N036155-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **ZZZZZZ**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	114.468	1.0	10.00	102.9	115	75	125				
Molybdenum	14.471	0.50	10.00	4.166	103	75	125				
Selenium	10.973	0.50	10.00	1.567	94.1	75	125				

Sample ID: **N036155-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **ZZZZZZ**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	112.366	1.0	10.00	102.9	94.2	75	125	114.5	1.85	20	
Molybdenum	14.330	0.50	10.00	4.166	102	75	125	14.47	0.976	20	
Selenium	10.836	0.50	10.00	1.567	92.7	75	125	10.97	1.26	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-74512**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **PBW**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433694**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID: **LCS-74512**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **LCSW**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433695**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.062	0.10	10.00	0	101	85	115				
Manganese	102.437	0.50	100.0	0	102	85	115				

Sample ID: **N036155-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.521	0.10	10.00	2.303	102	75	125				
Manganese	100.970	0.50	100.0	0	101	75	125				

Sample ID: **N036155-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.448	0.10	10.00	2.303	101	75	125	12.52	0.584	20	
Manganese	100.770	0.50	100.0	0	101	75	125	101.0	0.198	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N036155-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **ZZZZZZ** Batch ID: **74467** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/6/2019** SeqNo: **3431143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	113.446	1.0	10.00	102.9	105	80	120				
Molybdenum	14.859	0.50	10.00	4.166	107	80	120				
Selenium	11.915	0.50	10.00	1.567	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N036155-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433698**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.203	0.10	10.00	2.303	99.0	80	120				
Manganese	101.296	0.50	100.0	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

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ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.bush@arcadis.com	Address:	Sample Receipt Condition: 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number 2; 6. Method of Cooling: ICE; Sample Temp: 3.5/3.5/4.0/3.2
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	
Submitted By: Nava Teg	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	
Title: sample tech			
Signature: Date: 6/19/19	Sampled By: Nava Teg		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - RMP	Signature: Date: 6/19/19		
Project Number: RC000753.801D			

Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		~~C-BNS-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS
2	N036155-01	C-CON-D-Q219	6/19/19	0955		X		X		X	X		X	X			X	X	E	7,6	P	BNS
3	-02	C-CON-S-Q219	6/19/19	1015		X		X		X	X		X	X			X	X	E	7,6	P	BNS
4		~~C-I-3-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS
5		~~MW-916-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS
6		~~C-I-3-S-Q219~~				X		X		X	X		X	X			X	X	E	7,6	P	BNS
7	-03	C-MAR-D-Q219	6/19/19	0835		X		X		X	X		X	X			X	X	E	7,6	P	BNS
8	-04	C-MAR-S-Q219	6/19/19	0855		X		X		X	X		X	X			X	X	E	7,6	P	BNS
9	-05	C-NR1-D-Q219	6/19/19	1100		X		X		X	X		X	X			X	X	E	7,6	P	BNS
10	-06	C-NR1-S-Q219	6/19/19	1115		X		X		X	X		X	X			X	X	E	7,6	P	BNS
11	-07	C-NR3-D-Q219	6/19/19	1205		X		X		X	X		X	X			X	X	E	7,6	P	BNS
12	-08	C-NR3-S-Q219	6/19/19	1225		X		X		X	X		X	X			X	X	E	7,6	P	BNS
13	-09	MW-917-Q219	6/19/19	1235		X		X		X	X		X	X			X	X	E	7,6	P	BNS
14		~~C-NR4-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS

Courier:
Tracking No.:

Relinquished by (Signature and Printed Name): Nava Teg Date/Time: 6/19/19 1600
Received by (Signature and Printed Name): JORDAN MC Date/Time: 6/19/19 1600
Relinquished by (Signature and Printed Name): JORDAN MC Date/Time: 6/19/19 1800
Received by (Signature and Printed Name): JORDAN MC Date/Time: 6/19/19 1802
Relinquished by (Signature and Printed Name): Date/Time:
Received by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
x	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III ✓; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@arcadis.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	
Submitted By: Nara Tep		Phone: 949-727-1400, ext 200 Fax:	
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 6/19/19	Sampled By: Nara Tep		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - RMP	Signature: Date: 6/19/19		
Project Number: RC000753.0801			

Matrix: Ground x; Sediment; Potable; Soil; NPDES; Other Solid; Surface

Sample Receipt Condition: 1. Chilled Y; 2. Headspace; 3. Container Intact Y; 4. Seal Present Y; 5. IR number R; 6. Method of Cooling: ICE; Sample Temp: 3.5/3.5/3.2

Courier:

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly)	Oxygen and deuterium stable isotopes (CFIRM) (1 250 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		~~C-NR4-S-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	
2		~~C-R22A-D-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	
3		~~C-R22A-S-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	
4		~~C-R27-D-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	
5		~~C-R27-S-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	
		~~C-TAZ-D-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	
7	N036155-10	MW-918-Q219	6/19/19	0810		X		X		X	X		X	X			X	X		E	5	P	BNS	
8		~~C-TAZ-S-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	
9	-11	R-19-Q219	6/19/19	0800		X		X		X	X		X	X			X	X		E	5	P	BNS	
10		~~R-28-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	
11		~~R63-Q219~~				X		X		X	X		X	X			X	X		E	5	P	BNS	
12	-12	RRB-Q219	6/19/19	0925		X		X		X	X		X	X			X	X		E	5	P	BNS	
13	-13	~~C-NR4-D-SW1~~-Q219	6/19/19	1300		X		X		X	X		X	X			X	X		E	5	P	BNS	
14	-14	~~C-NR4-S-SW2~~-Q219	6/19/19	1320		X		X		X	X		X	X			X	X		E	5	P	BNS	

Relinquished by (Signature and Printed Name)	Date/Time	Received by (Signature and Printed Name)	Date/Time
Nara Tep	6/19/19 1600	J RODAN 166	6/19/19 1660
J RODAN 166	6/19/19 1660	J RODAN 166	6/19/19 1660

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Preservatives: H=HCL; N=HNO_3; S=H_2SO_4; C=4°C; Z=$Zn(AC)_2$; O=NaOH; T=$Na_2S_2O_3$; Others/Specify: B (NH4)2SO4/NH4OH

Container Type: T=Tube; V=VOA; P=Pint; J=Jar; B=Tedlar; G=Glass; M=Metal; M=Metal; C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy

Yellow=Customer's Copy

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CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nam Tel	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Sampled By: Nam Tel		
Signature: Date: 6/19/19	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
I hereby authorize ASSET Labs to perform the tests indicated below.	Signature: Date: 6/19/19		
Project Name: PG&E Topock - RMP			
Project Number: RC000753.0801			

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC	
Excel EDD		RTNE	
Geotracker		RWQCB	✓
Labspec		CalTrans	
Others	✓	LEVEL III	
Specify: RWQCB		LEVEL IV	
Global ID:		Regulatory	
		Specify State:	

Sample Receipt Condition	Y	N
1. Chilled	✓	
2. Headspace		
3. Container Intact	✓	
4. Seal Present	✓	
5. IR number	2	
6. Method of Cooling: ICE		
Sample Temp: 3.5/3.5/4.9/3.2		

Courier:

Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 3x250 mL poly	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 ml Poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr 3x500mL poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B 3x500mL poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 3x500mL poly	Total metals (SW6010B); HNO3 Fe 500 mL poly	Anions (E300.0); Br, Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
		~~AB1-Q219~~					X												E	1	P	BN	Hold
		~~AB2-Q219~~					X												E	1	P	BN	Hold
	N036155-15	AB3-Q219	6/19/19	1330			X												E	1	P	BN	Hold

Relinquished by (Signature and Printed Name): Nam Tel Date/Time: 6/19/19 1600

Relinquished by (Signature and Printed Name): JORDAN Ned Date/Time: 6/19/19 1600

Relinquished by (Signature and Printed Name): JORDAN Ned Date/Time: 6/19/19 0800

Relinquished by (Signature and Printed Name): JORDAN Ned Date/Time: 6/19/19 0800

Relinquished by (Signature and Printed Name): Date/Time:

Relinquished by (Signature and Printed Name): Date/Time:

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	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
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4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

White=Laboratory Copy

Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	6/19/2019	Workorder:	N036155
Rep sample Temp (Deg C):	3.5/3.5/4.8/3.2	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YR 6/24/2019

Reviewed By: LG 063019

ASSET Laboratories

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-001A	C-CON-D-Q219	6/19/2019 9:55:00 AM	7/3/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-001B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-001C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-001D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-001E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-002A	C-CON-S-Q219	6/19/2019 10:15:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-002B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-002C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-002D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-002D	C-CON-S-Q219	6/19/2019 10:15:00 AM	7/3/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-002E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-003A	C-MAR-D-Q219	6/19/2019 8:35:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-003B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-003C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-003D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-003E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-004A	C-MAR-S-Q219	6/19/2019 8:55:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-004B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-004B	C-MAR-S-Q219	6/19/2019 8:55:00 AM	7/3/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-004C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-004D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-004E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-005A	C-NR1-D-Q219	6/19/2019 11:00:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-005B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-005C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-005D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-005E	C-NR1-D-Q219	6/19/2019 11:00:00 AM	7/3/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-006A	C-NR1-S-Q219	6/19/2019 11:15:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-006B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-006C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-006D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-006E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-007A	C-NR3-D-Q219	6/19/2019 12:05:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-007B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-007C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-007C	C-NR3-D-Q219	6/19/2019 12:05:00 PM	7/3/2019	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-007D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-007E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-008A	C-NR3-S-Q219	6/19/2019 12:25:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-008B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-008C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-008D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-008E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-009A	MW-917-Q219	6/19/2019 12:35:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-009B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-009B	MW-917-Q219	6/19/2019 12:35:00 PM	7/3/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-009C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-009D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-009E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-010A	MW-918-Q219	6/19/2019 8:10:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-010B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-010C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-010D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-010D	MW-918-Q219	6/19/2019 8:10:00 AM	7/3/2019	Groundwater		Total Suspended Solids Prep	☐	☐	☐	WW
N036155-010E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-011A	R-19-Q219	6/19/2019 8:00:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-011B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-011C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-011D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-011E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-012A	RRB-Q219	6/19/2019 9:25:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-012B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-012C	RRB-Q219	6/19/2019 9:25:00 AM	7/3/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-012D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-012E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-013A	C-NR4-D-Q219	6/19/2019 1:00:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-013B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-013C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-013D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-013E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-014A	C-NR4-S-Q219	6/19/2019 1:20:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW

ASSET Laboratories

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-014B	C-NR4-S-Q219	6/19/2019 1:20:00 PM	7/3/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-014C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-014D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-014E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-015A	AB3-Q219	6/19/2019 1:30:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☑	☐	☐	WW
N036155-016A	FOLDER	7/3/2019	7/3/2019		EDD	RWQCB	☐	☐	☐	LAB
			7/3/2019		Folder	Folder	☐	☐	☐	LAB
			7/3/2019		Folder	Folder	☐	☐	☐	LAB

ARCADIS

Project: PG&E Topock - RMP

Project No.: RC000753.801D

ASSET Laboratories Work Order:

N036155

ANALYTICAL and QC RESULTS
SAMPLE RECEIVING ITEMS

PRIVILEGED AND CONFIDENTIAL

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July 15, 2019

Dan Bush
ARCADIS U.S., Inc. - California
1410 Rocky Ridge Dr #330
Roseville, CA 95661

TEL: (916) 786-3302
FAX:

Workorder No.: N036155

RE: PG&E Topock - RMP, RC000753.801D

Attention: Dan Bush

Enclosed are the results for sample(s) received on June 19, 2019 by ASSET Laboratories. The sample(s) are tested for the parameters as indicated in the enclosed chain of custody in accordance with the applicable laboratory certifications.

Thank you for the opportunity to service the needs of your company.

Please feel free to call me at (702) 307-2659 if I can be of further assistance to your company.

Sincerely,

Nancy Litucan for

Quennie Manimtim
Laboratory Director

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CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.801D
Lab Order: N036155

CASE NARRATIVE

SAMPLE RECEIVING/GENERAL COMMENTS:

All sample containers were received intact with proper chain of custody documentation.

Information on sample receipt conditions including discrepancies can be found in attached Sample Receipt Checklist Form.

Cooler temperature and sample preservation were verified upon receipt of samples if applicable.

Samples were analyzed within method holding time except for pH. pH testing is specified to be performed in the field within 15 minutes of sampling; sample was received and analyzed past the regulatory holding time.

Sample N036155-015 (AB3-Q219) was not analyzed as per COC.

Analytical Comments for EPA 6010B_Dissolved:

Matrix Spike Duplicate (MSD) is outside recovery criteria in QC sample N036155-001B-MSD1 possibly due to matrix interference. Post Spike (PS) passed acceptance criteria. The associated Laboratory Control Sample (LCS) recovery was acceptable.

ASSET Laboratories

Date: *15-Jul-19*

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.801D
Lab Order: N036155
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036155-001A	C-CON-D-Q219	Groundwater	6/19/2019 9:55:00 AM	6/19/2019	7/15/2019
N036155-001B	C-CON-D-Q219	Groundwater	6/19/2019 9:55:00 AM	6/19/2019	7/15/2019
N036155-001C	C-CON-D-Q219	Groundwater	6/19/2019 9:55:00 AM	6/19/2019	7/15/2019
N036155-001D	C-CON-D-Q219	Groundwater	6/19/2019 9:55:00 AM	6/19/2019	7/15/2019
N036155-001E	C-CON-D-Q219	Groundwater	6/19/2019 9:55:00 AM	6/19/2019	7/15/2019
N036155-002A	C-CON-S-Q219	Groundwater	6/19/2019 10:15:00 AM	6/19/2019	7/15/2019
N036155-002B	C-CON-S-Q219	Groundwater	6/19/2019 10:15:00 AM	6/19/2019	7/15/2019
N036155-002C	C-CON-S-Q219	Groundwater	6/19/2019 10:15:00 AM	6/19/2019	7/15/2019
N036155-002D	C-CON-S-Q219	Groundwater	6/19/2019 10:15:00 AM	6/19/2019	7/15/2019
N036155-002E	C-CON-S-Q219	Groundwater	6/19/2019 10:15:00 AM	6/19/2019	7/15/2019
N036155-003A	C-MAR-D-Q219	Groundwater	6/19/2019 8:35:00 AM	6/19/2019	7/15/2019
N036155-003B	C-MAR-D-Q219	Groundwater	6/19/2019 8:35:00 AM	6/19/2019	7/15/2019
N036155-003C	C-MAR-D-Q219	Groundwater	6/19/2019 8:35:00 AM	6/19/2019	7/15/2019
N036155-003D	C-MAR-D-Q219	Groundwater	6/19/2019 8:35:00 AM	6/19/2019	7/15/2019
N036155-003E	C-MAR-D-Q219	Groundwater	6/19/2019 8:35:00 AM	6/19/2019	7/15/2019
N036155-004A	C-MAR-S-Q219	Groundwater	6/19/2019 8:55:00 AM	6/19/2019	7/15/2019
N036155-004B	C-MAR-S-Q219	Groundwater	6/19/2019 8:55:00 AM	6/19/2019	7/15/2019
N036155-004C	C-MAR-S-Q219	Groundwater	6/19/2019 8:55:00 AM	6/19/2019	7/15/2019
N036155-004D	C-MAR-S-Q219	Groundwater	6/19/2019 8:55:00 AM	6/19/2019	7/15/2019
N036155-004E	C-MAR-S-Q219	Groundwater	6/19/2019 8:55:00 AM	6/19/2019	7/15/2019
N036155-005A	C-NR1-D-Q219	Groundwater	6/19/2019 11:00:00 AM	6/19/2019	7/15/2019
N036155-005B	C-NR1-D-Q219	Groundwater	6/19/2019 11:00:00 AM	6/19/2019	7/15/2019
N036155-005C	C-NR1-D-Q219	Groundwater	6/19/2019 11:00:00 AM	6/19/2019	7/15/2019
N036155-005D	C-NR1-D-Q219	Groundwater	6/19/2019 11:00:00 AM	6/19/2019	7/15/2019
N036155-005E	C-NR1-D-Q219	Groundwater	6/19/2019 11:00:00 AM	6/19/2019	7/15/2019
N036155-006A	C-NR1-S-Q219	Groundwater	6/19/2019 11:15:00 AM	6/19/2019	7/15/2019
N036155-006B	C-NR1-S-Q219	Groundwater	6/19/2019 11:15:00 AM	6/19/2019	7/15/2019
N036155-006C	C-NR1-S-Q219	Groundwater	6/19/2019 11:15:00 AM	6/19/2019	7/15/2019
N036155-006D	C-NR1-S-Q219	Groundwater	6/19/2019 11:15:00 AM	6/19/2019	7/15/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.801D
Lab Order: N036155
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036155-006E	C-NR1-S-Q219	Groundwater	6/19/2019 11:15:00 AM	6/19/2019	7/15/2019
N036155-007A	C-NR3-D-Q219	Groundwater	6/19/2019 12:05:00 PM	6/19/2019	7/15/2019
N036155-007B	C-NR3-D-Q219	Groundwater	6/19/2019 12:05:00 PM	6/19/2019	7/15/2019
N036155-007C	C-NR3-D-Q219	Groundwater	6/19/2019 12:05:00 PM	6/19/2019	7/15/2019
N036155-007D	C-NR3-D-Q219	Groundwater	6/19/2019 12:05:00 PM	6/19/2019	7/15/2019
N036155-007E	C-NR3-D-Q219	Groundwater	6/19/2019 12:05:00 PM	6/19/2019	7/15/2019
N036155-008A	C-NR3-S-Q219	Groundwater	6/19/2019 12:25:00 PM	6/19/2019	7/15/2019
N036155-008B	C-NR3-S-Q219	Groundwater	6/19/2019 12:25:00 PM	6/19/2019	7/15/2019
N036155-008C	C-NR3-S-Q219	Groundwater	6/19/2019 12:25:00 PM	6/19/2019	7/15/2019
N036155-008D	C-NR3-S-Q219	Groundwater	6/19/2019 12:25:00 PM	6/19/2019	7/15/2019
N036155-008E	C-NR3-S-Q219	Groundwater	6/19/2019 12:25:00 PM	6/19/2019	7/15/2019
N036155-009A	MW-917-Q219	Groundwater	6/19/2019 12:35:00 PM	6/19/2019	7/15/2019
N036155-009B	MW-917-Q219	Groundwater	6/19/2019 12:35:00 PM	6/19/2019	7/15/2019
N036155-009C	MW-917-Q219	Groundwater	6/19/2019 12:35:00 PM	6/19/2019	7/15/2019
N036155-009D	MW-917-Q219	Groundwater	6/19/2019 12:35:00 PM	6/19/2019	7/15/2019
N036155-009E	MW-917-Q219	Groundwater	6/19/2019 12:35:00 PM	6/19/2019	7/15/2019
N036155-010A	MW-918-Q219	Groundwater	6/19/2019 8:10:00 AM	6/19/2019	7/15/2019
N036155-010B	MW-918-Q219	Groundwater	6/19/2019 8:10:00 AM	6/19/2019	7/15/2019
N036155-010C	MW-918-Q219	Groundwater	6/19/2019 8:10:00 AM	6/19/2019	7/15/2019
N036155-010D	MW-918-Q219	Groundwater	6/19/2019 8:10:00 AM	6/19/2019	7/15/2019
N036155-010E	MW-918-Q219	Groundwater	6/19/2019 8:10:00 AM	6/19/2019	7/15/2019
N036155-011A	R-19-Q219	Groundwater	6/19/2019 8:00:00 AM	6/19/2019	7/15/2019
N036155-011B	R-19-Q219	Groundwater	6/19/2019 8:00:00 AM	6/19/2019	7/15/2019
N036155-011C	R-19-Q219	Groundwater	6/19/2019 8:00:00 AM	6/19/2019	7/15/2019
N036155-011D	R-19-Q219	Groundwater	6/19/2019 8:00:00 AM	6/19/2019	7/15/2019
N036155-011E	R-19-Q219	Groundwater	6/19/2019 8:00:00 AM	6/19/2019	7/15/2019
N036155-012A	RRB-Q219	Groundwater	6/19/2019 9:25:00 AM	6/19/2019	7/15/2019
N036155-012B	RRB-Q219	Groundwater	6/19/2019 9:25:00 AM	6/19/2019	7/15/2019
N036155-012C	RRB-Q219	Groundwater	6/19/2019 9:25:00 AM	6/19/2019	7/15/2019
N036155-012D	RRB-Q219	Groundwater	6/19/2019 9:25:00 AM	6/19/2019	7/15/2019

CLIENT: ARCADIS U.S., Inc. - California
Project: PG&E Topock - RMP, RC000753.801D
Lab Order: N036155
Contract No:

Work Order Sample Summary

Lab Sample ID	Client Sample ID	Matrix	Collection Date	Date Received	Date Reported
N036155-012E	RRB-Q219	Groundwater	6/19/2019 9:25:00 AM	6/19/2019	7/15/2019
N036155-013A	C-NR4-D-Q219	Groundwater	6/19/2019 1:00:00 PM	6/19/2019	7/15/2019
N036155-013B	C-NR4-D-Q219	Groundwater	6/19/2019 1:00:00 PM	6/19/2019	7/15/2019
N036155-013C	C-NR4-D-Q219	Groundwater	6/19/2019 1:00:00 PM	6/19/2019	7/15/2019
N036155-013D	C-NR4-D-Q219	Groundwater	6/19/2019 1:00:00 PM	6/19/2019	7/15/2019
N036155-013E	C-NR4-D-Q219	Groundwater	6/19/2019 1:00:00 PM	6/19/2019	7/15/2019
N036155-014A	C-NR4-S-Q219	Groundwater	6/19/2019 1:20:00 PM	6/19/2019	7/15/2019
N036155-014B	C-NR4-S-Q219	Groundwater	6/19/2019 1:20:00 PM	6/19/2019	7/15/2019
N036155-014C	C-NR4-S-Q219	Groundwater	6/19/2019 1:20:00 PM	6/19/2019	7/15/2019
N036155-014D	C-NR4-S-Q219	Groundwater	6/19/2019 1:20:00 PM	6/19/2019	7/15/2019
N036155-014E	C-NR4-S-Q219	Groundwater	6/19/2019 1:20:00 PM	6/19/2019	7/15/2019
N036155-015A	AB3-Q219	Groundwater	6/19/2019 1:30:00 PM	6/19/2019	7/15/2019

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	900	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	910	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-918-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:25:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	920	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	930	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:20:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
SPECIFIC CONDUCTANCE							
			EPA 120.1				
RunID: **NV00922-WC_190620D**	QC Batch: **R134631**			PrepDate:			Analyst: **LR**
Specific Conductance	930	0.10	0.10		umhos/cm	1	6/20/2019 02:10 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 120.1_WPGE

Sample ID: **N036155-001DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **134631**
Client ID: **ZZZZZZ**	Batch ID: **R134631**	TestNo: **EPA 120.1**		Analysis Date: **6/20/2019**	SeqNo: **3416697**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	923.000	0.10						918.0	0.543	2	

Sample ID: **N036155-014DDUP**	SampType: **DUP**	TestCode: **120.1_WPGE**	Units: **umhos/cm**	Prep Date:	RunNo: **134631**
Client ID: **ZZZZZZ**	Batch ID: **R134631**	TestNo: **EPA 120.1**		Analysis Date: **6/20/2019**	SeqNo: **3416712**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Specific Conductance	928.000	0.10						927.0	0.108	2	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-001

Client Sample ID: C-CON-D-Q219
Collection Date: 6/19/2019 9:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-003

Client Sample ID: C-MAR-D-Q219
Collection Date: 6/19/2019 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-005

Client Sample ID: C-NR1-D-Q219
Collection Date: 6/19/2019 11:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:	B	Analyte detected in the associated Method Blank	E	Value above quantitation range
	H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
	S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
	DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.1	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-010

Client Sample ID: MW-918-Q219
Collection Date: 6/19/2019 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-011

Client Sample ID: R-19-Q219
Collection Date: 6/19/2019 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-012

Client Sample ID: RRB-Q219
Collection Date: 6/19/2019 9:25:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-014

Client Sample ID: C-NR4-S-Q219
Collection Date: 6/19/2019 1:20:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
PH							
			SM4500-H+B				
RunID: **NV00922-WC_190620C**	QC Batch: **R134630**			PrepDate:			Analyst: **LR**
pH	8.2	0.10	0.10	H	pH Units	1	6/20/2019 11:25 AM
Temp. at time of pH Analysis	25	0.10	0.10	H	°C	1	6/20/2019 11:25 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 150.1_4500H+B_W

Sample ID: **N036154-001EDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **134630**
Client ID: **ZZZZZZ** Batch ID: **R134630** TestNo: **SM4500-H+B** Analysis Date: **6/20/2019** SeqNo: **3416678**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	7.810	0.10						7.790	0.256	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Sample ID: **N036155-011DDUP** SampType: **DUP** TestCode: **150.1_4500H** Units: **pH Units** Prep Date: RunNo: **134630**
Client ID: **ZZZZZZ** Batch ID: **R134630** TestNo: **SM4500-H+B** Analysis Date: **6/20/2019** SeqNo: **3416691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
pH	8.240	0.10						8.220	0.243	10	H
Temp. at time of pH Analysis	25.000	0.10						25.00	0	10	H

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	7.0	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	9.5	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D**	QC Batch: **74300**			PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621D**	QC Batch: **74300**			PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-918-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE					**SM2540D**		
RunID: **NV00922-WC_190621D** QC Batch: **74300**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E**	QC Batch: **74301**			PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:25:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E** QC Batch: **74301**				PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E**	QC Batch: **74301**			PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:20:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
TOTAL NON-FILTERABLE RESIDUE							
			SM2540D				
RunID: **NV00922-WC_190621E**	QC Batch: **74301**			PrepDate:	**6/21/2019**		Analyst: **LR**
Suspended Solids (Residue, Non-Filterable)	ND	5.0	5.0		mg/L	1	6/21/2019 09:05 AM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-74300**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134665**
Client ID: **LCSW**	Batch ID: **74300**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	905.000	10	1000	0	90.5	80	120				

Sample ID: **MB-74300**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134665**
Client ID: **PBW**	Batch ID: **74300**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N036155-001DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134665**
Client ID: **ZZZZZZ**	Batch ID: **74300**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418177**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 160.2_2540D_W

Sample ID: **LCS-74301**	SampType: **LCS**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **LCSW**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	914.000	10	1000	0	91.4	80	120				

Sample ID: **MB-74301**	SampType: **MBLK**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **PBW**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	10									

Sample ID: **N036115-015DDUP**	SampType: **DUP**	TestCode: **160.2_2540D**	Units: **mg/L**	Prep Date: **6/21/2019**	RunNo: **134666**
Client ID: **ZZZZZZ**	Batch ID: **74301**	TestNo: **SM2540D**		Analysis Date: **6/21/2019**	SeqNo: **3418190**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Suspended Solids (Residue, Non-Filter	ND	5.0						0	0	5	

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A** QC Batch: **R134632**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 12:39 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190706B** QC Batch: **74467**				PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 05:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 01:00 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 05:43 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 01:19 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 05:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 01:38 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 01:57 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A	**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 02:34 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:13 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 02:53 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 03:12 PM
DISSOLVED METALS BY ICP-MS							
	EPA 3010A		**EPA 6020**				
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 03:31 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A		**EPA 6020**			
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-918-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 03:50 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	R-19-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-011		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A** QC Batch: **R134632**				PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 04:28 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190706B** QC Batch: **74467**				PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	RRB-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:25:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-012		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 04:47 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 05:06 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 06:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:20:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
HEXAVALENT CHROMIUM BY IC							
			EPA 218.6				
RunID: **NV00922-IC7_190620A**	QC Batch: **R134632**			PrepDate:			Analyst: **RAB**
Hexavalent Chromium	ND	0.033	0.20		µg/L	1	6/20/2019 05:25 PM
DISSOLVED METALS BY ICP-MS							
		EPA 3010A			**EPA 6020**		
RunID: **NV00922-ICP7_190706B**	QC Batch: **74467**			PrepDate:	**7/5/2019**		Analyst: **HG**
Chromium	ND	0.13	1.0		µg/L	1	7/6/2019 07:14 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **MB-R134632**	SampType: **MBLK**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **PBW**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID: **LCS-R134632**	SampType: **LCS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **LCSW**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.127	0.20	5.000	0	103	90	110				

Sample ID: **N036156-001ADUP**	SampType: **DUP**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ZZZZZZ**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416722**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	386.430	10						383.0	0.881	20	

Sample ID: **N036156-001AMS**	SampType: **MS**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ZZZZZZ**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416723**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	634.240	10	250.0	383.0	100	90	110				

Sample ID: **N036156-001AMSD**	SampType: **MSD**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ZZZZZZ**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416724**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	632.630	10	250.0	383.0	99.8	90	110	634.2	0.254	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036157-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416726**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.258	0.20	1.000	0.2366	102	90	110				

Sample ID: **N036155-001AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416730**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.033	0.20	1.000	0	103	90	110				

Sample ID: **N036155-002AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416732**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.070	0.20	1.000	0	107	90	110				

Sample ID: **N036155-003AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416734**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.070	0.20	1.000	0	107	90	110				

Sample ID: **N036155-004AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416736**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.059	0.20	1.000	0	106	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036155-005AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416738**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.081	0.20	1.000	0	108	90	110				

Sample ID: **N036155-006AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416742**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.041	0.20	1.000	0	104	90	110				

Sample ID: **N036155-007AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3416744**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.081	0.20	1.000	0	108	90	110				

Sample ID: **N036155-008AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418134**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.069	0.20	1.000	0	107	90	110				

Sample ID: **N036155-009AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.080	0.20	1.000	0	108	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID: **N036155-010AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418138**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.056	0.20	1.000	0	106	90	110				

Sample ID: **N036155-011AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418142**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.042	0.20	1.000	0	104	90	110				

Sample ID: **N036155-012AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.060	0.20	1.000	0	106	90	110				

Sample ID: **N036155-013AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418146**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.044	0.20	1.000	0	104	90	110				

Sample ID: **N036155-014AMS** SampType: **MS** TestCode: **218.6_WPGE** Units: **µg/L** Prep Date: RunNo: **134632**
Client ID: **ZZZZZZ** Batch ID: **R134632** TestNo: **EPA 218.6** Analysis Date: **6/20/2019** SeqNo: **3418148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	1.023	0.20	1.000	0	102	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID: **MB-74467** SampType: **MBLK** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: **7/5/2019** RunNo: **134931**
Client ID: **PBW** Batch ID: **74467** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/6/2019** SeqNo: **3431213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID: **LCS-74467** SampType: **LCS** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: **7/5/2019** RunNo: **134931**
Client ID: **LCSW** Batch ID: **74467** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/6/2019** SeqNo: **3431214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.751	1.0	10.00	0	97.5	85	115				

Sample ID: **N036155-001B-MS** SampType: **MS** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: **7/5/2019** RunNo: **134931**
Client ID: **ZZZZZZ** Batch ID: **74467** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/6/2019** SeqNo: **3431218**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.480	1.0	10.00	0	94.8	75	125				

Sample ID: **N036155-001B-MSD** SampType: **MSD** TestCode: **6020DIS_CrP** Units: **µg/L** Prep Date: **7/5/2019** RunNo: **134931**
Client ID: **ZZZZZZ** Batch ID: **74467** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/6/2019** SeqNo: **3431219**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.504	1.0	10.00	0	95.0	75	125	9.480	0.253	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-004		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION				**SM4500-NO3F**			
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:00:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-005		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.42	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.38	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-918-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:10:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-010		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.37	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-011

Client Sample ID: R-19-Q219
Collection Date: 6/19/2019 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.34	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-012

Client Sample ID: RRB-Q219
Collection Date: 6/19/2019 9:25:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.35	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:00:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-013		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR4-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 1:20:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-014		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
NITRATE/NITRITE-N BY CADMIUM REDUCTION							
			SM4500-NO3F				
RunID: **NV00922-WC_190621F**	QC Batch: **R134671**			PrepDate:			Analyst: **QBM**
Nitrate/Nitrite as N	0.36	0.032	0.050		mg/L	1	6/21/2019

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID: **MB-R134671**	SampType: **MBLK**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134671**			
Client ID: **PBW**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**			SeqNo: **3418285**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID: **LCS-R134671**	SampType: **LCS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134671**			
Client ID: **LCSW**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**			SeqNo: **3418286**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.495	0.050	0.5000	0	99.1	85	115				

Sample ID: **N036155-002EDUP**	SampType: **DUP**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134671**			
Client ID: **ZZZZZZ**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**			SeqNo: **3418290**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.395	0.050						0.3731	5.63	20	

Sample ID: **N036155-003EMS**	SampType: **MS**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134671**			
Client ID: **ZZZZZZ**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**			SeqNo: **3418292**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.883	0.050	0.5000	0.3629	104	75	125				

Sample ID: **N036155-003EMSD**	SampType: **MSD**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:			RunNo: **134671**			
Client ID: **ZZZZZZ**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**			SeqNo: **3418293**			
Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.899	0.050	0.5000	0.3629	107	75	125	0.8828	1.80	20	

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-001

Client Sample ID: C-CON-D-Q219
Collection Date: 6/19/2019 9:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 03:38 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	45	18	20		ug/L	1	7/13/2019 05:21 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-002

Client Sample ID: C-CON-S-Q219
Collection Date: 6/19/2019 10:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:08 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	36	18	20		ug/L	1	7/13/2019 06:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-003

Client Sample ID: C-MAR-D-Q219
Collection Date: 6/19/2019 8:35:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	44	18	20		ug/L	1	7/13/2019 04:12 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	200	18	20		ug/L	1	7/13/2019 06:07 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-004

Client Sample ID: C-MAR-S-Q219
Collection Date: 6/19/2019 8:55:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:16 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	190	18	20		ug/L	1	7/13/2019 06:12 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-005

Client Sample ID: C-NR1-D-Q219
Collection Date: 6/19/2019 11:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:20 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	49	18	20		ug/L	1	7/13/2019 06:16 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-006

Client Sample ID: C-NR1-S-Q219
Collection Date: 6/19/2019 11:15:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:25 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	46	18	20		ug/L	1	7/13/2019 06:20 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-007

Client Sample ID: C-NR3-D-Q219
Collection Date: 6/19/2019 12:05:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:29 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	39	18	20		ug/L	1	7/13/2019 06:24 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-008

Client Sample ID: C-NR3-S-Q219
Collection Date: 6/19/2019 12:25:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:33 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	32	18	20		ug/L	1	7/13/2019 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-009

Client Sample ID: MW-917-Q219
Collection Date: 6/19/2019 12:35:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:46 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	26	18	20		ug/L	1	7/13/2019 06:42 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-010

Client Sample ID: MW-918-Q219
Collection Date: 6/19/2019 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:50 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	31	18	20		ug/L	1	7/13/2019 06:46 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-011

Client Sample ID: R-19-Q219
Collection Date: 6/19/2019 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**				PrepDate:	**7/10/2019**	Analyst: **CEI**
Iron	24	18	20		ug/L	1	7/13/2019 04:55 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**				PrepDate:	**7/5/2019**	Analyst: **CEI**
Iron	27	18	20		ug/L	1	7/13/2019 06:50 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-012

Client Sample ID: RRB-Q219
Collection Date: 6/19/2019 9:25:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 04:59 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	50	18	20		ug/L	1	7/13/2019 06:55 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-013

Client Sample ID: C-NR4-D-Q219
Collection Date: 6/19/2019 1:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 05:03 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 06:59 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-014

Client Sample ID: C-NR4-S-Q219
Collection Date: 6/19/2019 1:20:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713A**	QC Batch: **74525**			PrepDate:		**7/10/2019**	Analyst: **CEI**
Iron	ND	18	20		ug/L	1	7/13/2019 05:07 PM
TOTAL METALS BY ICP							
	EPA 3010A			**EPA 6010B**			
RunID: **NV00922-ICP2_190713B**	QC Batch: **74460**			PrepDate:		**7/5/2019**	Analyst: **CEI**
Iron	31	18	20		ug/L	1	7/13/2019 07:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **MB-74525**	SampType: **MBLK**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/10/2019**	RunNo: **135068**
Client ID: **PBW**	Batch ID: **74525**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437221**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID: **LCS1-74525**	SampType: **LCS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/10/2019**	RunNo: **135068**
Client ID: **LCSW**	Batch ID: **74525**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	100.699	20	100.0	0	101	85	115				

Sample ID: **N036155-001B-MS1**	SampType: **MS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/10/2019**	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74525**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437228**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	124.159	20	100.0	0	124	75	125				

Sample ID: **N036155-001B-MSD**	SampType: **MSD**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date: **7/10/2019**	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74525**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437229**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	125.716	20	100.0	0	126	75	125	124.2	1.25	20	S

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID: **MB-74460**	SampType: **MBLK**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/5/2019**	RunNo: **135069**
Client ID: **PBW**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437348**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	ND	20									

Sample ID: **LCS-74460**	SampType: **LCS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/5/2019**	RunNo: **135069**
Client ID: **LCSW**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437349**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	100.080	20	100.0	0	100	85	115				

Sample ID: **N036155-001C-MS**	SampType: **MS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/5/2019**	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437357**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	155.088	20	100.0	45.13	110	75	125				

Sample ID: **N036155-001C-MSD**	SampType: **MSD**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date: **7/5/2019**	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437358**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	157.558	20	100.0	45.13	112	75	125	155.1	1.58	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID: **N036155-001B-PS** SampType: **PS** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ZZZZZZ** Batch ID: **74525** TestNo: **EPA 6010B** **EPA 3010A** Analysis Date: **7/13/2019** SeqNo: **3437227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	108.313	20	100.0	0	108	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID: **N036155-001C-PS**	SampType: **PS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **ZZZZZZ**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437356**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	146.046	20	100.0	45.13	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 9:55:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-001		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**			PrepDate:		**7/9/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 07:26 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 05:18 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 07:26 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 05:18 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/6/2019 05:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-CON-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 10:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-002		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 07:51 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 05:43 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 07:51 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 05:43 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/6/2019 07:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-MAR-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 8:35:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-003		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 07:56 AM
Barium	110	0.15	1.0		µg/L	1	7/6/2019 05:48 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 07:56 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 05:48 PM
Selenium	1.8	0.36	0.50		µg/L	1	7/6/2019 05:48 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-004

Client Sample ID: C-MAR-S-Q219
Collection Date: 6/19/2019 8:55:00 AM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190710A** QC Batch: **74512** PrepDate: **7/9/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 08:11 AM
Barium	110	0.15	1.0		µg/L	1	7/6/2019 06:03 PM
Manganese	0.66	0.26	0.50		µg/L	1	7/10/2019 08:11 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/6/2019 06:03 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/6/2019 06:03 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-005

Client Sample ID: C-NR1-D-Q219
Collection Date: 6/19/2019 11:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**			PrepDate:		**7/9/2019**	Analyst: **CEI**
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 08:16 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:08 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:16 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/6/2019 06:08 PM
Selenium	1.7	0.36	0.50		µg/L	1	7/6/2019 06:08 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR1-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 11:15:00 AM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-006		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 08:21 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:13 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:21 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/6/2019 06:13 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/6/2019 07:34 PM

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range
H	Holding times for preparation or analysis exceeded	ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference		Results are wet unless otherwise specified
DO	Surrogate Diluted Out		

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-D-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:05:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-007		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.1	0.081	0.10		µg/L	1	7/10/2019 08:26 AM
Barium	110	0.15	1.0		µg/L	1	7/6/2019 06:18 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:26 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 06:18 PM
Selenium	1.5	0.36	0.50		µg/L	1	7/6/2019 06:18 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	C-NR3-S-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:25:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-008		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**			PrepDate:		**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 08:31 AM
Barium	110	0.15	1.0		µg/L	1	7/6/2019 06:24 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:31 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 06:24 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/6/2019 07:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT:	ARCADIS U.S., Inc. - California	**Client Sample ID:**	MW-917-Q219
Lab Order:	N036155	**Collection Date:**	6/19/2019 12:35:00 PM
Project:	PG&E Topock - RMP, RC000753.801D	**Matrix:**	GROUNDWATER
Lab ID:	N036155-009		

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A				**EPA 6020**		
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**				PrepDate:	**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 08:36 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:29 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:36 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/6/2019 06:29 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/6/2019 06:29 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-010

Client Sample ID: MW-918-Q219
Collection Date: 6/19/2019 8:10:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**			PrepDate:		**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 08:41 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:34 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:41 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/6/2019 06:34 PM
Selenium	1.6	0.36	0.50		µg/L	1	7/6/2019 07:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-011

Client Sample ID: R-19-Q219
Collection Date: 6/19/2019 8:00:00 AM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**			PrepDate:		**7/9/2019**	Analyst: **CEI**
Arsenic	2.1	0.081	0.10		µg/L	1	7/10/2019 08:46 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:39 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:46 AM
Molybdenum	4.2	0.21	0.50		µg/L	1	7/6/2019 06:39 PM
Selenium	1.5	0.36	0.50		µg/L	1	7/6/2019 06:39 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-012

Client Sample ID: RRB-Q219
Collection Date: 6/19/2019 9:25:00 AM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190710A** QC Batch: **74512** PrepDate: **7/9/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 08:51 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:44 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:51 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/6/2019 06:44 PM
Selenium	1.7	0.36	0.50		µg/L	1	7/6/2019 06:44 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-013

Client Sample ID: C-NR4-D-Q219
Collection Date: 6/19/2019 1:00:00 PM
Matrix: GROUNDWATER

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
DISSOLVED METALS BY ICP-MS							
	EPA 3010A			**EPA 6020**			
RunID: **NV00922-ICP7_190710A**	QC Batch: **74512**			PrepDate:		**7/9/2019**	Analyst: **CEI**
Arsenic	2.2	0.081	0.10		µg/L	1	7/10/2019 08:56 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 06:49 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 08:56 AM
Molybdenum	4.1	0.21	0.50		µg/L	1	7/6/2019 06:49 PM
Selenium	1.4	0.36	0.50		µg/L	1	7/6/2019 06:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
H	Holding times for preparation or analysis exceeded
S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out
E	Value above quantitation range
ND	Not Detected at the Reporting Limit
	Results are wet unless otherwise specified

CLIENT: ARCADIS U.S., Inc. - California
Lab Order: N036155
Project: PG&E Topock - RMP, RC000753.801D
Lab ID: N036155-014

Client Sample ID: C-NR4-S-Q219
Collection Date: 6/19/2019 1:20:00 PM
Matrix: GROUNDWATER

DISSOLVED METALS BY ICP-MS

EPA 3010A **EPA 6020**

RunID: **NV00922-ICP7_190710A** QC Batch: **74512** PrepDate: **7/9/2019** Analyst: **CEI**

Analyses	Result	MDL	PQL	Qual	Units	DF	Date Analyzed
Arsenic	2.3	0.081	0.10		µg/L	1	7/10/2019 09:12 AM
Barium	100	0.15	1.0		µg/L	1	7/6/2019 07:14 PM
Manganese	ND	0.26	0.50		µg/L	1	7/10/2019 09:12 AM
Molybdenum	4.3	0.21	0.50		µg/L	1	7/6/2019 07:14 PM
Selenium	1.7	0.36	0.50		µg/L	1	7/6/2019 07:49 PM

Qualifiers:

B	Analyte detected in the associated Method Blank
E	Value above quantitation range
H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit
S	Spike/Surrogate outside of limits due to matrix interference
	Results are wet unless otherwise specified
DO	Surrogate Diluted Out

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-74467**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **PBW**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID: **LCS-74467**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **LCSW**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	9.637	1.0	10.00	0	96.4	85	115				
Molybdenum	9.429	0.50	10.00	0	94.3	85	115				
Selenium	9.639	0.50	10.00	0	96.4	85	115				

Sample ID: **N036155-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **ZZZZZZ**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431144**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	114.468	1.0	10.00	102.9	115	75	125				
Molybdenum	14.471	0.50	10.00	4.166	103	75	125				
Selenium	10.973	0.50	10.00	1.567	94.1	75	125				

Sample ID: **N036155-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/5/2019**	RunNo: **134931**
Client ID: **ZZZZZZ**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431145**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	112.366	1.0	10.00	102.9	94.2	75	125	114.5	1.85	20	
Molybdenum	14.330	0.50	10.00	4.166	102	75	125	14.47	0.976	20	
Selenium	10.836	0.50	10.00	1.567	92.7	75	125	10.97	1.26	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **MB-74512**	SampType: **MBLK**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **PBW**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433694**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID: **LCS-74512**	SampType: **LCS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **LCSW**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433695**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.062	0.10	10.00	0	101	85	115				
Manganese	102.437	0.50	100.0	0	102	85	115				

Sample ID: **N036155-001B-MS**	SampType: **MS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433699**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.521	0.10	10.00	2.303	102	75	125				
Manganese	100.970	0.50	100.0	0	101	75	125				

Sample ID: **N036155-001B-MSD**	SampType: **MSD**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date: **7/9/2019**	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433700**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.448	0.10	10.00	2.303	101	75	125	12.52	0.584	20	
Manganese	100.770	0.50	100.0	0	101	75	125	101.0	0.198	20	

Qualifiers:

- B Analyte detected in the associated Method Blank
- E Value above quantitation range
- H Holding times for preparation or analysis exceeded
- ND Not Detected at the Reporting Limit
- R RPD outside accepted recovery limits
- S Spike/Surrogate outside of limits due to matrix interference
- DO Surrogate Diluted Out

Calculations are based on raw values

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N036155-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **ZZZZZZ** Batch ID: **74467** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/6/2019** SeqNo: **3431143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	113.446	1.0	10.00	102.9	105	80	120				
Molybdenum	14.859	0.50	10.00	4.166	107	80	120				
Selenium	11.915	0.50	10.00	1.567	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID: **N036155-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433698**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.203	0.10	10.00	2.303	99.0	80	120				
Manganese	101.296	0.50	100.0	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SAMPLE RECEIVING ITEMS

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Page 1 of 1

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com daniel.bush@arcadis.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nava Tep		Phone: 949-727-1400, ext 200	Fax:
Title: sample tech	Phone: 916-786-3302 Fax:		
Signature: Date: 6/19/19	Sampled By: Nava Tep		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - RMP	Signature: Date: 6/19/19		
Project Number: RC000753.801D			

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC		Sample Receipt Condition	Y	N
Excel EDD		RTNE		1. Chilled	✓	
Geotracker		RWQCB	✓	2. Headspace		✓
Labspec		CalTrans		3. Container Intact	✓	
Others	✓	LEVEL III		4. Seal Present		✓
Specify: RWQCB		LEVEL IV		5. IR number	2	
Global ID:		Regulatory		6. Method of Cooling: ICE		
		Specify State:		Sample Temp: 3.5/3.5/4.8/3.2		

Courier:
Tracking No.:

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH (3x250 mL poly)	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B (3x500mL poly)	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba (3x500mL poly)	Total metals (SW6010B); HNO3 Fe (500 mL poly)	Anions (E300.0); Br, Cl, SO4 (1 liter poly)	Specific Conductance (E120.1) (1 liter poly)	pH (SM4500HB) (1 liter poly)	TDS (SM2540C) (1 liter poly)	Alkalinity (Total, reported as CaCO3) (SM2320B) (1 liter poly)	TSS (SM2540) (1 liter poly)	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 (125 mL poly)	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		~~C-BNS-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS
2	N036155-01	C-CON-D-Q219	6/19/19	0955		X		X		X	X		X	X			X	X	E	7,6	P	BNS
3	-02	C-CON-S-Q219	6/19/19	1015		X		X		X	X		X	X			X	X	E	7,6	P	BNS
4		~~C-I-3-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS
5		~~MW-916-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS
6		~~C-I-3-S-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS
7	-03	C-MAR-D-Q219	6/19/19	0835		X		X		X	X		X	X			X	X	E	7,8	P	BNS
8	-04	C-MAR-S-Q219	6/19/19	0855		X		X		X	X		X	X			X	X	E	7,6	P	BNS
9	-05	C-NR1-D-Q219	6/19/19	1100		X		X		X	X		X	X			X	X	E	7,8	P	BNS
10	-06	C-NR1-S-Q219	6/19/19	1115		X		X		X	X		X	X			X	X	E	7,8	P	BNS
11	-07	C-NR3-D-Q219	6/19/19	1205		X		X		X	X		X	X			X	X	E	7,6	P	BNS
12	-08	C-NR3-S-Q219	6/19/19	1225		X		X		X	X		X	X			X	X	E	7,8	P	BNS
13	-09	MW-917-Q219	6/19/19	1235		X		X		X	X		X	X			X	X	E	7,8	P	BNS
14		~~C-NR4-D-Q219~~				X		X		X	X		X	X			X	X	E	5	P	BNS

Reliquished by (Signature and Printed Name): Nava Tep Date/Time: 6/19/19 1600
Reliquished by (Signature and Printed Name): JORDAN MC Date/Time: 6/19/19 1600
Reliquished by (Signature and Printed Name): JORDAN MC 6/19/19 1600
Reliquished by (Signature and Printed Name): JORDAN MC 6/19/19 1600
Reliquished by (Signature and Printed Name): Date/Time:
Reliquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:

H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:

T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

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California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	EDD Requirement: Excel EDD; Geotracker; Labspec; Others ✓; Specify: RWQCB; Global ID:
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	QA/QC: RTNE; RWQCB ✓; CalTrans; LEVEL III ✓; LEVEL IV; Regulatory; Specify State:
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@arcadis.com	Address:	Sample Receipt Condition (Y N): 1. Chilled ✓; 2. Headspace; 3. Container Intact ✓; 4. Seal Present ✓; 5. IR number R; 6. Method of Cooling: ICE
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com P.O.#	Sample Temp: 3.5/3.5/3.2
Submitted By: Nara Tep	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200 Fax:	
Title: sample tech	Sampled By: Nara Tep	Matrix: Ground x Sediment; Potable; Soil; NPDES; Other Solid; Surface	Courier: Tracking No.:
Signature: Date: 6/19/19	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
I hereby authorize ASSET Labs to perform the tests indicated below.	Signature: Date: 6/19/19		
Project Name: PG&E Topock - RMP			
Project Number: RC000753.0801			

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 3x250 mL poly	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr 3x500mL poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B 3x500mL poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 3x500mL poly	Total metals (SW6010B); HNO3 Fe 500 mL poly	Anions (E300.0); Br, Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 125 mL poly	Oxygen and deuterium stable isotopes (CFIRM) 1 250 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
1		~~C-NR4-S-Q219~~				X		X		X	X		X	X		X	X		E	5	P	BNS	②
2		~~C-R22A-D-Q219~~				X		X		X	X		X	X		X	X		E	5	P	BNS	②
3		~~C-R22A-S-Q219~~				X		X		X	X		X	X		X	X		E	5	P	BNS	②
4		~~C-R27-D-Q219~~				X		X		X	X		X	X		X	X		E	5	P	BNS	②
5		~~C-R27-S-Q219~~				X		X		X	X		X	X		X	X		E	5	P	BNS	②
		~~C-TAZ-D-Q219~~				X		X		X	X		X	X		X	X		E	5	P	BNS	②
7	N036155-10	MW-918-Q219	6/19/19	0810		X		X		X	X		X	X		X	X		E	5	P	BNS	②
8		~~C-TAZ-S-Q219~~				X		X		X	X		X	X		X	X		E	5	P	BNS	②
9	-11	R-19-Q219	6/19/19	0800		X		X		X	X		X	X		X	X		E	5	P	BNS	②
10		~~R-28-Q219~~				X		X		X	X		X	X		X	X		E	5	P	BNS	②
11		~~R63-Q219~~				X		X		X	X		X	X		X	X		E	5	P	BNS	②
12	-12	RRB-Q219	6/19/19	0925		X		X		X	X		X	X		X	X		E	5	P	BNS	②
13	-13	C-NR4-D-SW1-Q219	6/19/19	1300		X		X		X	X		X	X		X	X		E	5	P	BNS	②
14	-14	C-NR4-S-SW2-Q219	6/19/19	1320		X		X		X	X		X	X		X	X		E	5	P	BNS	②

Relinquished by (Signature and Printed Name):	Date/Time:	Received by (Signature and Printed Name):	Date/Time:
Nara Tep	6/19/19 1600	JORDAN VGO	6/19/19 1600
JORDAN VGO	6/19/19 1600	JORDAN VGO	6/19/19 1600

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 3% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives: H=HCL; N=HNO_3; S=H_2SO_4; C=4°C; Z=$Zn(AC)_2$; O=NaOH; T=$Na_2S_2O_3$; Others/Specify: B (NH4)2SO4/NH4OH

Container Type: T=Tube; V=VOA; P=Pint; J=Jar; B=Tedlar; G=Glass; M=Metal; M=Metal; C=Can

White=Laboratory Copy

Yellow=Customer's Copy

ASSET LABORATORIES
ANALYTICAL SUPPORT SERVICES FOR ENVIRONMENTAL TECHNOLOGIES

Contact us:
Nevada: 3151 W. Post Road, Las Vegas, NV 89118
P: 702.307.2659 F: 702.307.2691
California: 11060 Artesia Blvd., Ste C, Cerritos, CA 90703
P: 562.219.7435 F:562.219.7436
www.assetlaboratories.com

CHAIN OF CUSTODY RECORD

Client: Arcadis	Report to: Dan Bush	Bill to: Marty Bloes	
Address: 1410 Rocky Ridge Dr # 330	Company: Arcadis	Address:	
Address: Roseville, CA 95661	Email: dan.bush@arcadis.com; daniel.moore@critigen.com	Address:	
Phone: 916-786-3302 Fax:	Address: 1410 Rocky Ridge Dr # 330 Roseville, CA 95661	Email to: mbloes@pivox.com	P.O.#
Submitted By: Nam Tel	Phone: 916-786-3302 Fax:	Phone: 949-727-1400, ext 200	Fax:
Title: sample tech			
Signature: Date: 6/19/19	Sampled By: Nam Tel		
I hereby authorize ASSET Labs to perform the tests indicated below.	I attest to the validity and authenticity of this sample. I am aware that tampering with or intentionally mislabeling the sample location, date or time of collection is considered fraud and may be grounds for		
Project Name: PG&E Topock - RMP	Signature: Date: 6/19/19		
Project Number: RC000753.0801			

Matrix			
Ground	x	Sediment	
Potable		Soil	
NPDES		Other Solid	
Surface			

EDD Requirement		QA/QC	
Excel EDD		RTNE	
Geotracker		RWQCB	✓
Labspec		CalTrans	
Others	✓	LEVEL III	
Specify: RWQCB		LEVEL IV	
Global ID:		Regulatory	
		Specify State:	

Sample Receipt Condition	Y	N
1. Chilled	✓	
2. Headspace		
3. Container Intact	✓	
4. Seal Present	✓	
5. IR number	2	
6. Method of Cooling: ICE		
Sample Temp: 3.5/3.5/4.9/3.2		

Item No.	Laboratory Work Order No.	Sample ID/Location	Sample Date	Sample Time	Others	Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 3x250 mL poly	Field QC Cr(VI) FF (E218.6) (NH4)2, SO4, NH4, OH 250 ml Poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Cr 3x500mL poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 Ca, Mg, K, Na, B 3x500mL poly	Dissolved metals (SW6010B/SW6020Adis) FF; HNO3 As, Mn, Fe, Se, Mo, Ba 3x500mL poly	Total metals (SW6010B); HNO3 Fe 500 mL poly	Anions (E300.0); Br, Cl, SO4 1 liter poly	Specific Conductance (E120.1) 1 liter poly	pH (SM4500HB) 1 liter poly	TDS (SM2540C) 1 liter poly	Alkalinity (Total, reported as CaCO3) (SM2320B) 1 liter poly	TSS (SM2540) 1 liter poly	Nitrate/Nitrite (SM4500N03) Nitrogen; H2SO4 125 mL poly	Turn Around Time	No. of Container	Container Type	PRESERVATION	Remarks
		~~AB1-Q219~~					X												E	1	P	BN	Hold
		~~AB2-Q219~~					X												E	1	P	BN	Hold
	N036155-15	AB3-Q219	6/19/19	1330			X												E	1	P	BN	Hold

Relinquished by (Signature and Printed Name): Nam Tel Date/Time: 6/19/19 1600
Relinquished by (Signature and Printed Name): JORDAN Ned Date/Time: 6/19/19 1600
Relinquished by (Signature and Printed Name): JORDAN Ned Date/Time: 6/19/19 0800
Relinquished by (Signature and Printed Name): JORDAN Ned Date/Time: 6/19/19 0800
Relinquished by (Signature and Printed Name): Date/Time:
Relinquished by (Signature and Printed Name): Date/Time:

Turn Around Time (TAT)

	A	< 24 Hrs or Same Day TAT
	B	= Next Workday
	C	= 2 Workdays
	D	= 3 Workdays
X	E	= Routine 5-7 Workdays

TAT Starts at 8 AM the following day if samples received after 3:00PM.

Special Instruction:

Terms
1. All samples will be disposed in 45 days and records will be destroyed in 5 years upon submission of final report.
2. Regular TAT is 5-7 business days, surcharges will apply for rush analysis
Less than 24 Hrs.=200% Next Day=100% 2 Workdays=50% 3 Workdays=35 % 4 Workdays=20%
3. Custom EDD formats will be an additional 5% of the total project price.
4. Add 10% surcharge for Level III Data Packages, 15% for Level IV Data Packages. Surcharge applied on total project price.
5. Trip Blanks and Equipment Blanks are billable sample.
6. Asset Laboratories is not responsible for samples collected using incorrect methodology.
7. Terms are net 30 days.
8. All reports are submitted in electronic format. Please inform ASSET Laboratories if hard copy of report is needed.
9. For subcontract analysis, TAT and Surcharges will vary.

Preservatives:			
H=HCL	N=HNO_3	S=H_2SO_4	C=4°C
Z=$Zn(AC)_2$	O=NaOH	T=$Na_2S_2O_3$	
Others/Specify:	B	(NH4)2SO4/NH4OH	

Container Type:		
T=Tube	V=VOA	P=Pint
J=Jar	B=Tedlar	G=Glass
M=Metal	M=Metal	C=Can

White=Laboratory Copy
Yellow=Customer's Copy

ASSET Laboratories

Please review the checklist below. Any NO signifies non-compliance. Any non-compliance will be noted and must be understood as having an impact on the quality of the data. All tests will be performed as requested regardless of any compliance issues.

If you have any questions or further instruction, please contact our Project Coordinator at (702) 307-2659.

Cooler Received/Opened On:	6/19/2019	Workorder:	N036155
Rep sample Temp (Deg C):	3.5/3.5/4.8/3.2	IR Gun ID:	2

Temp Blank: ☑ Yes ☐ No

Carrier name: ASSET

Last 4 digits of Tracking No.: NA Packing Material Used: None

Cooling process: ☑ Ice ☐ Ice Pack ☐ Dry Ice ☐ Other ☐ None

Sample Receipt Checklist

1. Shipping container/cooler in good condition?	Yes ☑	No ☐	Not Present ☐
2. Custody seals intact, signed, dated on shippping container/cooler?	Yes ☐	No ☐	Not Present ☑
3. Custody seals intact on sample bottles?	Yes ☐	No ☐	Not Present ☑
4. Chain of custody present?	Yes ☑	No ☐	
5. Sampler's name present in COC?	Yes ☑	No ☐	
6. Chain of custody signed when relinquished and received?	Yes ☑	No ☐	
7. Chain of custody agrees with sample labels?	Yes ☑	No ☐	
8. Samples in proper container/bottle?	Yes ☑	No ☐	
9. Sample containers intact?	Yes ☑	No ☐	
10. Sufficient sample volume for indicated test?	Yes ☑	No ☐	
11. All samples received within holding time?	Yes ☐	No ☑	
12. Temperature of rep sample or Temp Blank within acceptable limit?	Yes ☑	No ☐	NA ☐
13. Water - VOA vials have zero headspace?	Yes ☐	No ☐	NA ☑
14. Water - pH acceptable upon receipt? Example: pH > 12 for (CN,S); pH<2 for Metals	Yes ☑	No ☐	NA ☐
15. Did the bottle labels indicate correct preservatives used?	Yes ☑	No ☐	NA ☐
16. Were there Non-Conformance issues at login?	Yes ☑	No ☐	NA ☐
Was Client notified?	Yes ☐	No ☐	NA ☑

Comments: Samples for pH were past holding time upon receipt.

Checklist Completed By: YR YR 6/24/2019

Reviewed By: LG 063019

ASSET Laboratories

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-001A	C-CON-D-Q219	6/19/2019 9:55:00 AM	7/3/2019	Groundwater	EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-001B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-001C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-001D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-001E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-002A	C-CON-S-Q219	6/19/2019 10:15:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-002B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-002C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-002D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-002D	C-CON-S-Q219	6/19/2019 10:15:00 AM	7/3/2019	Groundwater	SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-002E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-003A	C-MAR-D-Q219	6/19/2019 8:35:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-003B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-003C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-003D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-003E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-004A	C-MAR-S-Q219	6/19/2019 8:55:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-004B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-004B	C-MAR-S-Q219	6/19/2019 8:55:00 AM	7/3/2019	Groundwater	EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-004C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-004D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-004E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-005A	C-NR1-D-Q219	6/19/2019 11:00:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-005B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-005C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-005D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-005E	C-NR1-D-Q219	6/19/2019 11:00:00 AM	7/3/2019	Groundwater	SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-006A	C-NR1-S-Q219	6/19/2019 11:15:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-006B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-006C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-006D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-006E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-007A	C-NR3-D-Q219	6/19/2019 12:05:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-007B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-007C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-007C	C-NR3-D-Q219	6/19/2019 12:05:00 PM	7/3/2019	Groundwater	EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-007D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-007E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-008A	C-NR3-S-Q219	6/19/2019 12:25:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-008B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-008C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-008D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-008E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-009A	MW-917-Q219	6/19/2019 12:35:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-009B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-009B	MW-917-Q219	6/19/2019 12:35:00 PM	7/3/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-009C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-009D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-009E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-010A	MW-918-Q219	6/19/2019 8:10:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-010B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-010C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-010D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-010D	MW-918-Q219	6/19/2019 8:10:00 AM	7/3/2019	Groundwater		Total Suspended Solids Prep	☐	☐	☐	WW
N036155-010E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-011A	R-19-Q219	6/19/2019 8:00:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-011B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-011C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-011D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-011E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-012A	RRB-Q219	6/19/2019 9:25:00 AM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-012B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-012C	RRB-Q219	6/19/2019 9:25:00 AM	7/3/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-012D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-012E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-013A	C-NR4-D-Q219	6/19/2019 1:00:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW
N036155-013B			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-013C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-013D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-013E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-014A	C-NR4-S-Q219	6/19/2019 1:20:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☐	☐	☐	WW

WORK ORDER Summary

28-Jun-19

WorkOrder: N036155

Client ID: ARCUS02

Project: PG&E Topock - RMP, RC000753.801D **QC Level:** Level IV **Date Received:** 6/19/2019

Comments:

Sample ID	Client Sample ID	Date Collected	Date Due	Matrix	Test No	Test Name	Hld	MS	Sub	Storage
N036155-014B	C-NR4-S-Q219	6/19/2019 1:20:00 PM	7/3/2019	Groundwater	EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	DISSOLVED METALS BY ICP	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
			7/3/2019		EPA 6020	DISSOLVED METALS BY ICP-MS	☐	☐	☐	WW
N036155-014C			7/3/2019		EPA 3010A	AQPREP TOTAL METALS: ICP, FLAA	☐	☐	☐	WW
			7/3/2019		EPA 6010B	TOTAL METALS BY ICP	☐	☐	☐	WW
N036155-014D			7/3/2019		EPA 120.1	SPECIFIC CONDUCTANCE	☐	☐	☐	WW
			7/3/2019		SM4500-H+B	pH	☐	☐	☐	WW
			7/3/2019		SM2540D	TOTAL NON-FILTERABLE RESIDUE	☐	☐	☐	WW
			7/3/2019			Total Suspended Solids Prep	☐	☐	☐	WW
N036155-014E			7/3/2019		SM4500-NO3F	NITRATE/NITRITE-N BY CADMIUM REDUCTION	☐	☐	☐	WW
N036155-015A	AB3-Q219	6/19/2019 1:30:00 PM	7/3/2019		EPA 218.6	Hexavalent Chromium by IC	☑	☐	☐	WW
N036155-016A	FOLDER	7/3/2019	7/3/2019		EDD	RWQCB	☐	☐	☐	LAB
			7/3/2019		Folder	Folder	☐	☐	☐	LAB
			7/3/2019		Folder	Folder	☐	☐	☐	LAB

List of Analysts

ASSET Laboratories Work Order: N036155

NAME	TEST METHOD
Quennie Manimtim	SM 4500-NO3F
Claire Ignacio	EPA 6010B_Dissolved, EPA 6010B
Lilia Ramit	EPA 120.1, SM 4500-H+B, SM 2540D
Ria Abes	EPA 218.6
Hanah Glodoviza	EPA 6020_Dissolved

EPA 120.1

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134631 **Analyst:** LSR

ASSET #: N036155 **Date Analyzed:** 20-Jun

Method: EPA 120.1

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.			X			
11. LCS compounds within control limits.			X			
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			X			
16. Digestion log complete and included in package (if applicable)			X			
Preliminary Report						
17. Does the raw data match the preliminary report?	X					
18. Are analytical results correct?	X					
19. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer: Silvia Ramit Date: 6/24/2019

2nd Level Reviewer: Mary 7/11/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Conductivity Logbook

Date: 6/20/19 1410
Analyst: KR

Standard	Std ID	Reading	Comments
9.98 uS/cm	CINV-190516A	10.12 @22.6°C	% Rec: (90-110%)
1411 |	190425C	1411 @22.7°C	
10007 |	190516B	10070 @22.7°C	
100390 ↓	190218C	100100 @22.7°C	

	Sample ID	Matrix	Reading	Comments
1	NDB6155-1D	H2O	918 @25.6°C	
2	1DDUP	|	923 @25.6°C	
3	2D	|	912 @25.5°C	
4	3D	|	908 @25.3°C	
5	4D	|	905 @25.3°C	
6	5D	|	912 @25.3°C	
7	6D	|	914 @25.3°C	
8	7D	|	911 @25.2°C	
9	8D	|	917 @25.3°C	
10	9D	|	916 @25.5°C	
Dup	10D	|	921 @25.5°C	RPD Criteria: 2%
	Std Chk:			% Rec: (90-110%)

Julia Ramit 6/24/2019

Date:
Analyst: CONT'D

Standard	Std ID	Reading	Comments
1413 uS/cm	CINV-190313A	1428 @25.7°C	% Rec: (90-110%)
10000 |	| B	9990 @25.5°C	
99999 |	CINV-190524A	97600 @25.4°C	

	Sample ID	Matrix	Reading	Comments
1	NDB6155-11D	H2O	922 @25.5°C	
2	12D	|	923 @25.3°C	
3	13D	|	926 @25.3°C	
4	14D	|	927 @25.6°C	
5	14DDUP	|	928 @25.4°C	
6				
7				
8				
9				
10	1413 uS/cm	CINV-190313A	1429 @25.5°C	
Dup	10000 |	| B	10000 @25.7°C	RPD Criteria: 2%
	Std Chk: 99999 |	CINV-190524A	98300 @25.7°C	% Rec: (90-110%)

Logbook # 7

SM 4500-H+B

pH Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134630 **Instrument ID:** pH meter

ASSET #: N036155 **Analyst:** LSR

Date Analyzed: 20-Jun

Method: EPA 150.1

pH Meter Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. Was the meter calibrated using 3 buffers (4,7 and 10)?	X					
2. Was a closing buffer used at the end of analysis?	X					
3. Was the meter checked every 10 samples?	X					
Sample Information						
4. Are all samples analyzed within hold time.		X				
QC Items						
5. Was a duplicate sample analyzed?	X					
Raw Data and Miscellaneous Information						
6. Are Non-Conformances documented			X			
7. Runlog complete and included in package.	X					
Preliminary Report						
8. Does the raw data match the preliminary report?	X					
9. Are analytical results correct?	X					
10. Is the QC summary report present and complete?	X					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Julia Ramit Date: 6/21/2019

2nd Level Reviewer 7/11/2019 Date: —

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

pH Logbook

Date: 6/19/19 1650
Analyst: LSR

Standard	Std ID	pH	Comments
Buffer 7	CIN-190422A	6.96 @25C	
Buffer 4	↓ B	4.04 @25C	
Buffer 10	CIN-190430A	10.02 @25C	
Slope		98.6%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	ND36053-1B	H2O	7.06 @25°C	
2	2B		7.08 @25°C	
3	3B		6.91 @25°C	
4	3BDUP		6.95 @25°C	
5	4B		7.33 @25°C	
6	5B		7.38 @25°C	
7	6B		7.26 @25°C	
8	7B		7.27 @25°C	
9	8B		7.24 @25°C	
10	9B		7.07 @25°C	
Dup	10B		7.35 @25°C	Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	CIN-190422C	6.95 @25°C	Accept: +/-0.05 pH units from expected value

Date: 6/20/19 1125
Analyst: LSR

Julia Ramit 6/21/2019

Standard	Std ID	pH	Comments
Buffer 7	CIN-190422A	7.00 @25°C	
Buffer 4	↓ B	4.02 @25°C	
Buffer 10	CIN-190430A	10.02 @25C	
Slope		98.3%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	ND36015-1D	H2O	11.20 @25C	
2	ND36054-1E		7.79 @25C	
3	1EDUP		7.81 @25°C	
4	2E		8.01 @25C	
5	ND36055-1D		8.17 @25C	
6	2D		8.18 @25°C	
7	3D		8.20 @25°C	
8	4D		8.21 @25°C	
9	5D		8.17 @25°C	
10	6D		8.17 @25°C	
Dup	7D		8.11 @25C	Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	CIN-~~190430A~~ 190422C	6.97 @25C	Accept: +/-0.05 pH units from expected value

Logbook #15

pH Logbook

Date: 6/20/19 1125
Analyst: LSR (CONT'D)

Standard	Std ID	pH	Comments
Buffer 7	CIW-190422A	7.00 @ 25C	
Buffer 4	" B	4.02 @ 25C	
Buffer 10	CIW-190430A	10.02 @ 25C	
Slope		98.3%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NOB615-8D	H2O	8.14 @ 25C	
2	" 9D	"	8.14 @ 25C	
3	" 10D	"	8.22 @ 25C	
4	" 11D	"	8.22 @ 25C	
5	" 11DDUP	"	8.24 @ 25C	
6	" 12D	"	8.15 @ 25C	
7	" 13D	"	8.15 @ 25C	
8	" 14D	"	8.18 @ 25C	
9	NOB6162-36	"	7.14 @ 25C	
10				
Dup				Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	CIW-190422C	6.96 @ 25C	Accept: +/-0.05 pH units from expected value

Date: 6/20/19 1500
Analyst: LSR

Julia Ramit 6/21/2019

Standard	Std ID	pH	Comments
Buffer 7	CIW-190422A	7.00 @ 25C	
Buffer 4	" B	4.02 @ 25C	
Buffer 10	CIW-190430A	10.02 @ 25C	
Slope		98.3%	Acceptance Criteria: 95%-105%

	Sample ID	Matrix	pH	Comments
1	NOB6015-2B	Soil	8.99 @ 25°C	
2	" 2BDUP	"	9.01 @ 25C	
3	NOB6158-1A	Solid	7.90 @ 25C	
4	" 2A	"	7.91 @ 25C	
5				
6				
7				
8				
9				
10				
Dup				Accept: 10% water, 20% soil
	Buffer 7, 4, 10 (Circle one)	CIW-190422C	6.96 @ 25C	Accept: +/-0.05 pH units from expected value

Logbook #15

SM 2540D

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74300/74301 **Analyst:** LSR

ASSET #: N036155 **Date Analyzed:** 21-Jun

Method: EPA 160.2 / SM 2540D

Initial Calibration	1st Level Review Y	1st Level Review N	1st Level Review N/A	2nd Level Review Y	2nd Level Review N	2nd Level Review N/A
1. ICAL before initial sample analysis or every 24 hrs.			X			
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)			X			
3. ICV within ± 15% of expected value.			X			
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.			X			
5. CCV within ± 15% of expected value.			X			
6. Calibration blanks run after ICV and CCV?			X			
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)			X			
Sample Information						
8. All samples are within linear range.			X			
9. Are all samples analyzed within hold time.	X					
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X					
11. LCS compounds within control limits.	X					
12. MS/MSD, RPD's are within control limits	X					
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			
14. Runlog complete and included in package.	X					
15. Spectrophotometer tape included (Spec work only)			**X**			
16. Digestion log complete and included in package (if applicable)			**X**			
Preliminary Report						
17. Does the raw data match the preliminary report?	**X**					
18. Are analytical results correct?	**X**					
19. Is the QC summary report present and complete?	**X**					

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed			
2. Matrix / units correct			
3. Does batch meet QC requirements?			
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)			
5. Is first level review correct and complete?			

1st Level Reviewer Silvia Ramit Date: 6/24/2019

2nd Level Reviewer 7/11/2019 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: SM 2540D
TEST NAME: Total Non-Filterable Residue
MATRIX: Water

FORMULA:

Calculate TSS concentration in mg/L, in the original sample as follows:

$$\text{TSS, mg/L} = \frac{(A-B)*1000000}{C}$$

Where:

A = weight in g of dish + residue after drying
B = weight of dish in g
C = volume of sample used in mL

For **N036155-001D,** TSS concentration in mg/L is calculated as follows:

$$\text{TSS, mg/L} = \frac{(1.3977- 1.3968) *1000000}{200}$$
$$= 4.5 \text{ mg/L}$$

Since reporting limit is 10 mg/L, therefore:

TSS = ND mg/L

Julia Ramit 6/24/2019

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/21/2019 9:05:34 A**
Prep End Date: **6/21/2019 2:45:00 P**

Reviewed/ Date: Nancy 7/11/2019

Initials/ Date: Lilia Ramit 6/24/2019

Prep Batch **74300** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74300	Water		100	☐	0	0	100	1.000		
MB-74300	Water		100	☐	0	0	100	1.000		
N036155-001D	Groundwater		200	☐	0	0	100	0.500		
N036155-001D-DU	Groundwater		200	☐	0	0	100	0.500		
N036155-002D	Groundwater		200	☐	0	0	100	0.500		
N036155-003D	Groundwater		200	☐	0	0	100	0.500		
N036155-004D	Groundwater		200	☐	0	0	100	0.500		
N036155-005D	Groundwater		200	☐	0	0	100	0.500		
N036155-006D	Groundwater		200	☐	0	0	100	0.500		
N036155-007D	Groundwater		200	☐	0	0	100	0.500		
N036155-008D	Groundwater		200	☐	0	0	100	0.500		
N036155-009D	Groundwater		200	☐	0	0	100	0.500		
N036155-010D	Groundwater		200	☐	0	0	100	0.500		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10411	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190619A	1000 ppm Talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/21/2019 9:05:34 A**
Prep End Date:

Reviewed/ Date: _____

Initials/ Date: Lilia Ramit 6/24/2019

Prep Factor Units
mL / mL

Prep Batch **74300** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74300	Water IWST190619A		100	☐	0	0	100	1.000		
MB-74300	Water		100	☐	0	0	100	1.000		
N036155-001D	Groundwater		100	☐	0	0	100	1.000		
N036155-001D-DU	Groundwater		100	☐	0	0	100	1.000		
N036155-002D	Groundwater		100	☐	0	0	100	1.000		
N036155-003D	Groundwater		100	☐	0	0	100	1.000		
N036155-004D	Groundwater		100	☐	0	0	100	1.000		
N036155-005D	Groundwater		100	☐	0	0	100	1.000		
N036155-006D	Groundwater		100	☐	0	0	100	1.000		
N036155-007D	Groundwater		100	☐	0	0	100	1.000		
N036155-008D	Groundwater		100	☐	0	0	100	1.000		
N036155-009D	Groundwater		100	☐	0	0	100	1.000		
N036155-010D	Groundwater		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

10 4/11

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/21/2019 9:05:36 A**
Prep End Date: **6/21/2019 2:45:00 P**

Reviewed/ Date: 7/11/2019
Initials/ Date: Lilia Ramit 6/24/2019

Prep Batch **74301** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: **mL / mL**

Temp. (°C): **105**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74301	Water		100	☐	0	0	100	1.000		
MB-74301	Water		100	☐	0	0	100	1.000		
N036115-015D	Groundwater		200	☐	0	0	100	0.500		
N036115-015D-DU	Groundwater		200	☐	0	0	100	0.500		
N036115-016D	Groundwater		200	☐	0	0	100	0.500		
N036155-011D	Groundwater		200	☐	0	0	100	0.500		
N036155-012D	Groundwater		200	☐	0	0	100	0.500		
N036155-013D	Groundwater		200	☐	0	0	100	0.500		
N036155-014D	Groundwater		200	☐	0	0	100	0.500		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10411	Glass Fiber Filter, 47mm

Spk ID	Spike Name	SampType	AmtAdd
IWST190619A	1000 ppm Talc	LCS	100

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **6/21/2019 9:05:36 A**
Prep End Date:

Reviewed/ Date: _____
Initials/ Date: Julia Ramit 6/24/2019

Prep Batch **74301** Prep Code: **160.2_W_PRE** Technician: **Lilia Ramit**

Prep Factor Units: mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74301	Water	IWST190619A	100	☐	0	0	100	1.000		
MB-74301	Water		100	☐	0	0	100	1.000		
N036115-015D	Groundwater		100	☐	0	0	100	1.000		
N036115-015D-DU	Groundwater		100	☐	0	0	100	1.000		
N036115-016D	Groundwater		100	☐	0	0	100	1.000		
N036155-011D	Groundwater		100	☐	0	0	100	1.000		
N036155-012D	Groundwater		100	☐	0	0	100	1.000		
N036155-013D	Groundwater		100	☐	0	0	100	1.000		
N036155-014D	Groundwater		100	☐	0	0	100	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

6/11

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

SOLIDS RAW DATA

TEST : (TSS) TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
6/21/19 905	MB 74300	100	1.4082 1.4085	1.4086 1.4086	
	LCS 74300	100	1.4018 1.4021	1.4925 1.4926	
1	N036157-1D	200	1.3967 1.3968	1.3975 1.3977	
2	1D DUP	200	1.4078 1.4081	1.4087 1.4089	
3	2D	200	1.4028 1.4031	1.4033 1.4034	1
4	3D	200	1.4017 1.4021	1.4033 1.4035	
5	4D	200	1.3986 1.3989	1.4008 1.4008	
6	5D	200	1.4252 1.4254	1.4256 1.4258	
7	6D	200	1.4082 1.4085	1.4089 1.4089	
8	7D	200	1.4170 1.4173	1.4178 1.4177	

Julia Ramit 6/24/2019

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ORELAP/NELAP Cert 4046

SOLIDS RAW DATA

TEST :TSS/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
6/21/19 9	N036155-8D	200	1.4204 1.4203	1.4209 1.4210	
10	9D	200	1.4027 1.4030	1.4032 1.4032	
11	10D	200	1.4035 1.4037	1.4040 1.4041	
					1
	Julia Ramit	6/24/2019			

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TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
6/21/2019							
MB-74300	100	1.4085	1.4086	1.0000	1.00	1	MBLK
LCS-74300	100	1.4021	1.4926	905.0000	1.00	905	LCS
N036155-001D	200	1.3968	1.3977	9.0000	0.50	4.5	SAMP
N036155-001DDUP	200	1.4081	1.4089	8.0000	0.50	4	DUP
N036155-002D	200	1.4031	1.4034	3.0000	0.50	1.5	SAMP
N036155-003D	200	1.4021	1.4035	14.0000	0.50	7	SAMP
N036155-004D	200	1.3989	1.4008	19.0000	0.50	9.5	SAMP
N036155-005D	200	1.4254	1.4258	4.0000	0.50	2	SAMP
N036155-006D	200	1.4085	1.4089	4.0000	0.50	2	SAMP
N036155-007D	200	1.4173	1.4177	4.0000	0.50	2	SAMP
N036155-008D	200	1.4203	1.421	7.0000	0.50	3.5	SAMP
N036155-009D	200	1.403	1.4032	2.0000	0.50	1	SAMP
N036155-010D	200	1.4037	1.4041	4.0000	0.50	2	SAMP

Silvia Ramit 6/24/2019

SOLIDS RAW DATA

TEST (TSS)/ TDS/TS

Date	Sample ID	Sample Vol. (ml)	Crucible + Filter (TSS) Crucible (TDS, TS) Tare Wt.(g)	Crucible + Filter+Sample (TSS) Crucible + Sample (TDS, TS) Tare Wt.(g)	Comments
6/21/19 905	MB 714301	100	~~1.4080~~ 1.4058 1.4055	1.4058 1.4056	
	LCS 714301	100	1.4269 1.4266	1.45180 1.5180	
12	N036115-15D	200	1.4086 1.4084	1.40859 1.4087	
13	15D DUP	200	1.3980 1.3977	1.3982 1.3980	
14	16D	200	1.4020 1.4021	1.4022 1.4022	1
15	N036155-11D	200	1.4086 1.4088	1.4093 1.4091	
16	12D	200	1.3943 1.3940	1.3946 1.3946	
17	13D	200	1.4045 1.4044	1.4048 1.4049	
18	14D	200	1.4265 1.4268	1.4270 1.4270	
	0.9999 Ω	1445	6/21/19 LM		

Julia Ramit 6/24/2019

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ELAP Cert 2676 | NV Cert NV00922
ORELAP/NELAP Cert 4046

TOTAL SUSPENDED SOLIDS, TSS

TSS, mg/L = (A-B) * 10000*PF

where:

A = weight in g of aluminum dish + filter disc + residue after drying
B = weight in g of aluminum dish + filter disc
PF = 100/volume of sample used in mL

Date:	vol of sample (mL)	weight in g of aluminum dish + filter disc (B)	weight in g of aluminum dish + filter disc + residue after drying (A)	A-B*10000	Prep Fact (PF)	TSS, mg/L	Sample Type
6/21/2019							
MB-74301	100	1.4055	1.4056	1.0000	1.00	1	MBLK
LCS-74301	100	1.4266	1.5180	914.0000	1.00	914	LCS
N036115-015D	200	1.4084	1.4087	3.0000	0.50	1.5	SAMP
N036115-015DDUP	200	1.3977	1.398	3.0000	0.50	1.5	DUP
N036115-016D	200	1.4021	1.4022	1.0000	0.50	0.5	SAMP
N036155-011D	200	1.4088	1.4091	3.0000	0.50	1.5	SAMP
N036155-012D	200	1.394	1.3946	6.0000	0.50	3	SAMP
N036155-013D	200	1.4044	1.4049	5.0000	0.50	2.5	SAMP
N036155-014D	200	1.4268	1.427	2.0000	0.50	1	SAMP

Julia Ramit 6/24/2019

EPA 218.6

IC Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

IC ARCUS
REV 2.0
011416

QC Batch Number: R134632
ASSET #: N036155

Instrument ID: IC-07
Analyst: RBA
Date Analyzed: 6/20/2019

Method:

- [ ] EPA 300.0
- [ ] EPA 7199
- [X] EPA 218.6/EPA 218.7
- [ ] EPA 218.6/EPA 218.7 LL
- [ ] Others _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. ICAL before initial sample analysis and is not more than 4 weeks old.	X			x		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995, r =0.999 (Cr6+))	X			x		
3. ICV within ± 10% of expected value.	X			x		
Continuing Calibration						
4. CCV after every 10 injections and at the end of analysis sequence.	X			x		
5. CCV within ± 10% of expected value. (± 5% for EPA 218.6)	X			x		
6. Calibration blanks run after ICV and CCV?	X			x		
7. Is the buffer less than MDL? If not, discontinue analysis. (Cr6+ only)	X			x		
8. Do all calibration blanks (ICB and CCBs) meet criteria? (<1/2PQL for 300, <0.02 for Cr6+)	X			x		
9. Is low level check at PQL within ± 20% for 218.6/218.7/7199? ± 30% for 218.6/218.7LL?	X			x		
Sample Information						
10. All samples are within linear range.	X			x		
11. All samples pH within 9.3-9.7 when analyzed?	X			x		
12. Duplicate sample injections for every sample. (7199 only)			X			x
13. For Topock, matrix spike protocol performed on all samples? (Cr6+ only)	X			x		
14. For Hinkley DOM samples, matrix spike protocol performed on all samples ? (Cr6+ only)			X			x
15. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			x		
16. For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			x
17. For samples that failed Cr vs Cr6+ criteria, is matrix spike protocol performed ?			X			x
18. For dilution and MS spike protocol, spike recovery within 90-110%? (Cr6+ only)	X			x		
19. EPA 3060A digestion performed on solid samples (7199 only)			X			x
20. Are all peaks within RT window, ± 0.2 min?	X			x		
21. Are all samples analyzed within hold time?	X			x		
22. For Hinkley projects (DOM & ATU only), are samples with result ≤ 0.2 ug/L analyzed by low level method? (Cr6+ only)			X			x
QC Items						
23. Method blank values meets criteria. (<1/2 PQL for 300, <0.02 for Cr6+)	X			x		
24. LCS compounds are within control limits.	X			x		
25. MS/MSD, RPD's are within control limits.	X			x		
26. Soluble and Insoluble matrix spike within control limits (7199 solids only)			X			x
Raw Data and Miscellaneous Information						
27. Runlog complete and included in package.	X			x		
28. Extraction log complete and included in package (if applicable)			X			x
29. All manual integrations initialed, date and reasons included.	X			x		
30. Before and after manual integration chromatogram included in the package	X			x		
31. All samples and QC raw data present in package.	X			x		
Preliminary Report						
32. Does the raw data match the preliminary report?	X			x		
33. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			x		
34 Is the QC summary report present and complete?	X			x		

Comments:

SECOND LEVEL REVIEW:

	Y	N	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Is QC present and complete?	X		
4. Are analytical results correct? (dilutions,calculations)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer: RBA Date: 7/9/2019

2nd Level Reviewer: NS 7/9/2019 Date: —

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 218.6
TEST NAME: HEXAVALENT CHROMIUM BY IC
MATRIX: Groundwater

FORMULA:

Calculate the Hexavalent Chromium concentration, in µg/L, in the original sample as follows:

$$Cr^{+6}, \mu g/L = A * DF$$

where:

A = µg/L, IC Cr+6 calculated concentration
DF = dilution factor

For Sample **N036155-001A** , the concentration in µg/L is calculated as follows:

$$Cr^{+6}, \mu g/L = 0.0000 * 1$$

$$Cr^{+6}, \mu g/L = 0.0000$$

Since PQL is 0.2 µg/L,

$$\mathbf{Cr^{+6}, \mu g/L = ND}$$

NS 7/11/2019

ANALYSIS RUN LOG

INJECTION LOG: 190604A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	06/04/19 3:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/04/19 3:46 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	06/04/19 3:56 PM	Reported
13	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 4:05 PM	Not Reported

jrba 6/7/2019

Injection Log Summary

Sequence Details

Name:	**IC-07_190604A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Jun/19 16:36:11**
No. of Injections:	**16**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		06/04/2019 15:37	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,	11	1000	Unknown		06/04/2019 15:46	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		06/04/2019 15:56	Finished	ICB R190508A
13	BLANK	13	1000	Unknown		06/04/2019 16:05	Finished	BLANK
14	SHUTDOWN	14	1000	Unknown		06/04/2019 16:15	Finished	
15	Eluent: R190604A	15	1000	Unknown		n.a.	Finished	Eluent
16	PCR: R190604B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

rba 6/7/2019

INJECTION LOG: 190620A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	06/20/19 8:59 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	06/20/19 9:10 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/20/19 9:19 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	06/20/19 9:29 AM	Reported
14	MB-R134632	MBLK	1	Hexavalent Chromium	06/20/19 9:38 AM	Reported
15	LCS-R134632	LCS	1	Hexavalent Chromium	06/20/19 9:48 AM	Reported
16	N036156-001A	SAMP	1	Hexavalent Chromium	06/20/19 9:57 AM	Not Reported
17	N036157-002A	SAMP	1	Hexavalent Chromium	06/20/19 10:06 AM	Not Reported
18	N036156-001A	SAMP	50	Hexavalent Chromium	06/20/19 10:27 AM	Reported
19	N036156-001ADUP	DUP	50	Hexavalent Chromium	06/20/19 10:38 AM	Reported
20	N036156-001AMS	MS	50	Hexavalent Chromium	06/20/19 10:47 AM	Reported
21	N036156-001AMSD	MSD	50	Hexavalent Chromium	06/20/19 10:57 AM	Reported
22	N036157-002A	SAMP	1	Hexavalent Chromium	06/20/19 11:06 AM	Reported
23	N036157-002AMS	MS	1	Hexavalent Chromium	06/20/19 11:15 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	06/20/19 11:25 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	06/20/19 11:34 AM	Reported
26	N036155-001A	SAMP	1	Hexavalent Chromium	06/20/19 12:39 PM	Reported
27	N036155-001AMS	MS	1	Hexavalent Chromium	06/20/19 12:50 PM	Reported
28	N036155-002A	SAMP	1	Hexavalent Chromium	06/20/19 1:00 PM	Reported
29	N036155-002AMS	MS	1	Hexavalent Chromium	06/20/19 1:09 PM	Reported
30	N036155-003A	SAMP	1	Hexavalent Chromium	06/20/19 1:19 PM	Reported
31	N036155-003AMS	MS	1	Hexavalent Chromium	06/20/19 1:28 PM	Reported
32	N036155-004A	SAMP	1	Hexavalent Chromium	06/20/19 1:38 PM	Reported
33	N036155-004AMS	MS	1	Hexavalent Chromium	06/20/19 1:47 PM	Reported
34	N036155-005A	SAMP	1	Hexavalent Chromium	06/20/19 1:57 PM	Reported
35	N036155-005AMS	MS	1	Hexavalent Chromium	06/20/19 2:06 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	06/20/19 2:15 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	06/20/19 2:25 PM	Reported
38	N036155-006A	SAMP	1	Hexavalent Chromium	06/20/19 2:34 PM	Reported
39	N036155-006AMS	MS	1	Hexavalent Chromium	06/20/19 2:44 PM	Reported
40	N036155-007A	SAMP	1	Hexavalent Chromium	06/20/19 2:53 PM	Reported
41	N036155-007AMS	MS	1	Hexavalent Chromium	06/20/19 3:03 PM	Reported
42	N036155-008A	SAMP	1	Hexavalent Chromium	06/20/19 3:12 PM	Reported

INJECTION LOG: 190620A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N036155-008AMS	MS	1	Hexavalent Chromium	06/20/19 3:22 PM	Reported
44	N036155-009A	SAMP	1	Hexavalent Chromium	06/20/19 3:31 PM	Reported
45	N036155-009AMS	MS	1	Hexavalent Chromium	06/20/19 3:41 PM	Reported
46	N036155-010A	SAMP	1	Hexavalent Chromium	06/20/19 3:50 PM	Reported
47	N036155-010AMS	MS	1	Hexavalent Chromium	06/20/19 4:00 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	06/20/19 4:09 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	06/20/19 4:18 PM	Reported
50	N036155-011A	SAMP	1	Hexavalent Chromium	06/20/19 4:28 PM	Reported
51	N036155-011AMS	MS	1	Hexavalent Chromium	06/20/19 4:37 PM	Reported
52	N036155-012A	SAMP	1	Hexavalent Chromium	06/20/19 4:47 PM	Reported
53	N036155-012AMS	MS	1	Hexavalent Chromium	06/20/19 4:56 PM	Reported
54	N036155-013A	SAMP	1	Hexavalent Chromium	06/20/19 5:06 PM	Reported
55	N036155-013AMS	MS	1	Hexavalent Chromium	06/20/19 5:15 PM	Reported
56	N036155-014A	SAMP	1	Hexavalent Chromium	06/20/19 5:25 PM	Reported
57	N036155-014AMS	MS	1	Hexavalent Chromium	06/20/19 5:34 PM	Reported
58	N036157-002A	SAMP	1	Hexavalent Chromium	06/20/19 5:44 PM	Not Reported
59	CCV-5	CCV	1	Hexavalent Chromium	06/20/19 5:53 PM	Reported
60	CCB-5	CCB	1	Hexavalent Chromium	06/20/19 6:03 PM	Reported
61	BLANK	BLANK	1	Hexavalent Chromium	06/20/19 6:12 PM	Not Reported
62	BLANK	BLANK	1	Hexavalent Chromium	06/20/19 6:21 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190620A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**21/Jun/19 09:28:06**
No. of Injections:	**65**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		06/20/2019 08:59	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		06/20/2019 09:10	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		06/20/2019 09:19	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		06/20/2019 09:29	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		06/20/2019 09:38	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		06/20/2019 09:48	Finished	LCS @5ppb, IWST-190423B
16	N036156-001A,SAMP	7	1000	Unknown		06/20/2019 09:57	Finished	SAMP, 10mL
17	N036157-002A,SAMP	8	1000	Unknown		06/20/2019 10:06	Finished	SAMP, 10mL
18	N036156-001A,SAMP	1	1000	Unknown		06/20/2019 10:27	Finished	SAMP, 0.2>10mL
19	N036156-001ADUP,D	2	1000	Unknown		06/20/2019 10:38	Finished	DUP, 0.2>10mL
20	N036156-001AMS,MS	3	1000	Unknown		06/20/2019 10:47	Finished	MS (5ppb), IWST-190423B,0.2
21	N036156-001AMSD,M	4	1000	Unknown		06/20/2019 10:57	Finished	MSD (5ppb), IWST-190423B,0.
22	N036157-002A,SAMP	5	1000	Unknown		06/20/2019 11:06	Finished	SAMP, 10mL
23	N036157-002AMS,MS	6	1000	Unknown		06/20/2019 11:15	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	7	1000	Unknown		06/20/2019 11:25	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	8	1000	Unknown		06/20/2019 11:34	Finished	CCB R190508A
26	N036155-001A,SAMP	1	1000	Unknown		06/20/2019 12:39	Finished	SAMP, 10mL
27	N036155-001AMS,MS	2	1000	Unknown		06/20/2019 12:50	Finished	MS (1ppb), IWST-190423B,10
28	N036155-002A,SAMP	3	1000	Unknown		06/20/2019 13:00	Finished	SAMP, 10mL
29	N036155-002AMS,MS	4	1000	Unknown		06/20/2019 13:09	Finished	MS (1ppb), IWST-190423B,10
30	N036155-003A,SAMP	5	1000	Unknown		06/20/2019 13:19	Finished	SAMP, 10mL
31	N036155-003AMS,MS	6	1000	Unknown		06/20/2019 13:28	Finished	MS (1ppb), IWST-190423B,10
32	N036155-004A,SAMP	7	1000	Unknown		06/20/2019 13:38	Finished	SAMP, 10mL
33	N036155-004AMS,MS	8	1000	Unknown		06/20/2019 13:47	Finished	MS (1ppb), IWST-190423B,10
34	N036155-005A,SAMP	9	1000	Unknown		06/20/2019 13:57	Finished	SAMP, 10mL
35	N036155-005AMS,MS	10	1000	Unknown		06/20/2019 14:06	Finished	MS (1ppb), IWST-190423B,10
36	CCV-3,CCV,1,	11	1000	Unknown		06/20/2019 14:15	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	12	1000	Unknown		06/20/2019 14:25	Finished	CCB R190508A
38	N036155-006A,SAMP	13	1000	Unknown		06/20/2019 14:34	Finished	SAMP, 10mL
39	N036155-006AMS,MS	14	1000	Unknown		06/20/2019 14:44	Finished	MS (1ppb), IWST-190423B,10
40	N036155-007A,SAMP	15	1000	Unknown		06/20/2019 14:53	Finished	SAMP, 10mL
41	N036155-007AMS,MS	16	1000	Unknown		06/20/2019 15:03	Finished	MS (1ppb), IWST-190423B,10
42	N036155-008A,SAMP	17	1000	Unknown		06/20/2019 15:12	Finished	SAMP, 10mL
43	N036155-008AMS,MS	18	1000	Unknown		06/20/2019 15:22	Finished	MS (1ppb), IWST-190423B,10
44	N036155-009A,SAMP	19	1000	Unknown		06/20/2019 15:31	Finished	SAMP, 10mL
45	N036155-009AMS,MS	20	1000	Unknown		06/20/2019 15:41	Finished	MS (1ppb), IWST-190423B,10
46	N036155-010A,SAMP	21	1000	Unknown		06/20/2019 15:50	Finished	SAMP, 10mL
47	N036155-010AMS,MS	22	1000	Unknown		06/20/2019 16:00	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	23	1000	Unknown		06/20/2019 16:09	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	24	1000	Unknown		06/20/2019 16:18	Finished	CCB R190508A
50	N036155-011A,SAMP	25	1000	Unknown		06/20/2019 16:28	Finished	SAMP, 10mL
51	N036155-011AMS,MS	26	1000	Unknown		06/20/2019 16:37	Finished	MS (1ppb), IWST-190423B,10
52	N036155-012A,SAMP	27	1000	Unknown		06/20/2019 16:47	Finished	SAMP, 10mL
53	N036155-012AMS,MS	28	1000	Unknown		06/20/2019 16:56	Finished	MS (1ppb), IWST-190423B,10
54	N036155-013A,SAMP	29	1000	Unknown		06/20/2019 17:06	Finished	SAMP, 10mL
55	N036155-013AMS,MS	30	1000	Unknown		06/20/2019 17:15	Finished	MS (1ppb), IWST-190423B,10
56	N036155-014A,SAMP	31	1000	Unknown		06/20/2019 17:25	Finished	SAMP, 10mL
57	N036155-014AMS,MS	32	1000	Unknown		06/20/2019 17:34	Finished	MS (1ppb), IWST-190423B,10
58	N036157-002A,SAMP	33	1000	Unknown		06/20/2019 17:44	Finished	SAMP, 10mL
59	CCV-5,CCV,1,	34	1000	Unknown		06/20/2019 17:53	Finished	CCV @5ppb, IWST-190423A
60	CCB-5,CCB,1,	35	1000	Unknown		06/20/2019 18:03	Finished	CCB R190508A

61	BLANK	36	1000	Unknown		06/20/2019 18:12	Finished	BLANK
62	BLANK	37	1000	Unknown		06/20/2019 18:21	Finished	BLANK
63	SHUTDOWN	38	1000	Unknown		06/20/2019 18:31	Finished	
64	Eluent: R190617A	39	1000	Unknown		n.a.	Finished	Eluent
65	PCR: R190618A	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

SAMPLE PREPARATION LOG

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 6/20/19
Time Prepared: 0920H
Prepared By: NBA

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-1903294
NH4OH + NH4SO4 eluent: M906184
NH4OH + NH4SO4 buffer: M905084

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M036156-W1A	9.32	-	-250ml	-250ml		
2)	M036157-W2A	9.38	-				
3)	M036155-W1A	9.32	-				1/3
4)	1A	9.35	-				2/3
5)	1A	9.36	-				3/3
6)	2A	9.37	-				1/3
7)	2A	9.34	-				2/3
8)	2A	9.33	-				3/3
9)	3A	9.40	-				1/3
10)	3A	9.39	-				2/3
11)	3A	9.42	-				3/3
12)	4A	9.36	-				1/3
13)	4A	9.37	-				2/3
14)	5A	9.31	-				1/3
15)	5A	9.30	-				2/3
	5A	9.32	-				3/3
	4A	9.38	-				3/3

Sample Preparation

Date Prepared: 6/20/19
Time Prepared: 0920A
Prepared By: NBA

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CLNV-1903294
NH4OH + NH4SO4 eluent: M906184
NH4OH + NH4SO4 buffer: M905084

6N NaOH
M903294

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	M036155-6A	9.33	-	-250ml	-250ml		1/3
2)	6A	9.34	-				2/3
3)	6A	9.36	-				3/3
4)	7A	9.21	9.34			+3 dps NaOH	1/3
5)	7A	9.20	9.34			+2 "	2/3
6)	7A	9.26	9.36			+2 "	3/3
7)	8A	9.32	-				1/3
8)	8A	9.33	-				2/3
9)	8A	9.36	-				3/3
10)	9A	9.34	-				1/3
11)	9A	9.34	-				2/3
12)	9A	9.38	-				3/3
13)	10A	9.26	9.34			+1 dp NaOH	1/3
14)	10A	9.30	-				2/3
15)	10A	9.29	9.38			+1 " "	3/3
	11A	9.37	-				1/3

Logbook No. 16

Hexavalent Chromium Preparation and Runlog

Sample Preparation

Date Prepared: 6/20/19
Time Prepared: 0920H
Prepared By: MSA

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CHV-15071254
NH4OH + NH4SO4 eluent: M9061874
NH4OH + NH4SO4 buffer: M9050584

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	MW6155-11A	9.49	-	~30mL	~50mL		2/3
2)	11B	9.39	-				3/3
3)	12A	9.41	-				1/3
4)	12B	9.44	-				2/3
5)	MW	9.42	-				3/3
6)	13A	9.21	9.50			+ 3 drops NaOH	1/3
7)	13B	9.26	9.48			+ 2 " "	2/3
8)	13B	9.22	9.48			+ 3 " "	3/3
9)	14A	9.38	9.36			+ 2 " "	1/3
10)	14B	9.30	-				2/3
11)	14B	9.31	-				3/3
12)							
13)							
14)							
15)							

Sample Preparation

Date Prepared: 6/21/19
Time Prepared: 0728H
Prepared By: MSA

slope: 98.12
M4: 4.00
7: 6.95
10: 10.02

Reagent ID:
Sulfuric Acid: 10901
Diphenylcarbazide: CHV-15032SA
NH4OH + NH4SO4 eluent: M9062IA
NH4OH + NH4SO4 buffer: M9050584

6N NaOH - M9032SA

	Sample ID.	pH of sample	pH after treatment	Initial Volume of sample	Final Volume after buffer add'n	Volume of buffer added	Comments
1)	MW6178-W1A	8.72	9.45	~250mL	~250mL	+8 drops NaOH	
2)							
3)							
4)							
5)							
6)							
7)							
8)							
9)							
10)							
11)							
12)							
13)							
14)							
15)							

Logbook No. 16

INITIAL CALIBRATION DATA SUMMARY

(EPA 218.6) - INITIAL CALIBRATION

Instrument ID: IC-07
Date Calibrated: 6/4/2019

Initial Calibration:

Hexavalent Chromium	STD1	STD2	STD3	STD4	STD5	STD6	
COMPOUND, in ug/L	0.2	1	5	10	15	20	R^2
Area,mAU*min	0.0517	0.2582	1.2770	2.5503	3.8530	5.1464	1.0000

	Stock	Working
Standard Concentration:	1,000,000 PPB	1,000 PPB
Standard ID:	ISST-190404A	IWST-190423A

Calibration Acceptance Criteria: > 0.999 Correlation

* Please note that the instrument printout for Area were represented in three decimal places. The exact values are represented in the ICAL summary for calculation purposes.

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ICV**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/4/2019**	SeqNo: **3416713**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	4.971	0.20	5.000	0	99.4	90	110				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ZZZZZZ**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/4/2019**	SeqNo: **3416714**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.199	0.20	0.2000	0	99.4	80	120				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **CCV**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.060	0.20	5.000	0	101	95	105				

Sample ID **PQL@0.2ppb**	SampType: **CCV2**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ZZZZZZ**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416717**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	0.198	0.20	0.2000	0	98.8	80	120				

Sample ID **CCV-2**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ZZZZZZ**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416727**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.088	0.20	10.00	0	101	95	105				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **CCV**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416739**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.079	0.20	5.000	0	102	95	105				

Sample ID **CCV-4**	SampType: **CCV1**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ZZZZZZ**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3418139**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	10.109	0.20	10.00	0	101	95	105				

Sample ID **CCV-5**	SampType: **CCV**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **CCV**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3418149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	5.072	0.20	5.000	0	101	95	105				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
  Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **ICB**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/4/2019**	SeqNo: **3416715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **CCB**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416718**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **CCB**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416728**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **CCB**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3416740**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Sample ID **CCB-4**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **CCB**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3418140**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 218.6_WPGE

Sample ID **CCB-5**	SampType: **CCB**	TestCode: **218.6_WPGE**	Units: **µg/L**	Prep Date:	RunNo: **134632**
Client ID: **CCB**	Batch ID: **R134632**	TestNo: **EPA 218.6**		Analysis Date: **6/20/2019**	SeqNo: **3418150**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Hexavalent Chromium	ND	0.20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

RETENTION TIME SUMMARY

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 6/20/2019

Sample Name	Retention Time	Evaluation
ICV	4.740	
CCV-1	4.740	
CCV-2	4.740	
CCV-3	4.731	
CCV-4	4.740	
CCV-5	4.731	

Average	4.736
Actual RT Window	4.656 - 4.816
Applied RT Window	4.536 - 4.936

MB-R134632	N.A.	N.A.
LCS-R134632	4.731	PASS
N036156-001A	4.698	PASS
N036157-002A	4.740	PASS
N036156-001A	4.740	PASS
N036156-001ADUP	4.740	PASS
N036156-001AMS	4.740	PASS
N036156-001AMSD	4.740	PASS
N036157-002A	4.740	PASS
N036157-002AMS	4.740	PASS
N036155-001A	N.A.	N.A.
N036155-001AMS	4.731	PASS
N036155-002A	N.A.	N.A.
N036155-002AMS	4.731	PASS
N036155-003A	N.A.	N.A.
N036155-003AMS	4.740	PASS
N036155-004A	N.A.	N.A.
N036155-004AMS	4.723	PASS
N036155-005A	N.A.	N.A.
N036155-005AMS	4.731	PASS
N036155-006A	N.A.	N.A.
N036155-006AMS	4.731	PASS

RETENTION TIME (RT) SUMMARY

Instrument ID: IC-07

Analytical Sequence

Date Analyzed: 6/20/2019

Sample Name	Retention Time	Evaluation
ICV	4.740	
CCV-1	4.740	
CCV-2	4.740	
CCV-3	4.731	
CCV-4	4.740	
CCV-5	4.731	
Average	4.736	
Actual RT Window	4.656 - 4.816	
Applied RT Window	4.536 - 4.936	
N036155-007A	N.A.	N.A.
N036155-007AMS	4.731	PASS
N036155-008A	N.A.	N.A.
N036155-008AMS	4.731	PASS
N036155-009A	N.A.	N.A.
N036155-009AMS	4.731	PASS
N036155-010A	N.A.	N.A.
N036155-010AMS	4.731	PASS
N036155-011A	N.A.	N.A.
N036155-011AMS	4.731	PASS
N036155-012A	N.A.	N.A.
N036155-012AMS	4.731	PASS
N036155-013A	N.A.	N.A.
N036155-013AMS	4.731	PASS
N036155-014A	N.A.	N.A.
N036155-014AMS	4.731	PASS
N036157-002A	4.740	PASS

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **HEXAVALENT CHROMIUM by Ion Chromatography** Matrix: **WATER**
Method Number: EPA 218.6 Unit: ug/L
Analysis Date(s): 5/5/2017, 5/8/2017, 5/9/2017, 5/10/2017, 5/11/2017, 5/12/2017, 5/15/2017
Analyst: Ria Abes

Instrument Name: **IC-07** **Acceptance Criteria:** MDL < spike < 10X MDL

Datafile	170505	170508	170509	170510	170511	170512	170515						
Analyte	**#1**	**#2**	**#3**	**#4**	**#5**	**#6**	**#7**	**Spike Conc., mg/L**	**SD**	**$t_{(n-1)}$ value**	**MDL**	**PQL**	**Remarks**
Hexavalent Chromium	0.1949	0.2135	0.1840	0.1828	0.2011	0.1936	0.1911	0.20	0.0105	3.143	**0.0331**	**0.20**	OK,meets criteria

Students' **t** Values at 99% CL

#	$t_{(n-1)}$
10	2.821
9	2.896
8	2.998
7	3.143

LOD & PQL Verification 2018 (1st Quarter)

Method Name: **Hexavalent Chromium by IC** Matrix: **WATER**
Method Number: EPA Method 218.6/7199 Unit: µg/L
Analysis Date(s): 3/21/2018
Analyst: Ria Abes

Instrument Name: **IC-07**

Compound	MDL	LOD Spike Conc., µg/L	LOD actual Conc., µg/L
Hexavalent Chromium	0.0331	0.100	0.116

Compound	PQL	PQL Spike Conc., µg/L	PQL actual Conc., µg/L	% Recovery
Hexavalent Chromium	0.200	0.200	0.201	**100**

RAW DATA

INITIAL CALIBRATION

INJECTION LOG: 190604A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	ICV	ICV	1	Hexavalent Chromium	06/04/19 3:37 PM	Reported
11	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/04/19 3:46 PM	Reported
12	ICB	ICB	1	Hexavalent Chromium	06/04/19 3:56 PM	Reported
13	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 4:05 PM	Not Reported

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Injection Log Summary

Sequence Details

Name:	**IC-07_190604A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**04/Jun/19 16:36:11**
No. of Injections:	**16**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	ICV,ICV,1,	10	1000	Unknown		06/04/2019 15:37	Finished	ICV @5ppb, IWST-190423B
11	PQL@0.2ppb,CCV2,1	11	1000	Unknown		06/04/2019 15:46	Finished	PQL @ 0.2ppb
12	ICB,ICB,1,	12	1000	Unknown		06/04/2019 15:56	Finished	ICB R190508A
13	BLANK	13	1000	Unknown		06/04/2019 16:05	Finished	BLANK
14	SHUTDOWN	14	1000	Unknown		06/04/2019 16:15	Finished	
15	Eluent: R190604A	15	1000	Unknown		n.a.	Finished	Eluent
16	PCR: R190604B	16	1000	Unknown		n.a.	Finished	Post-Column Reagent

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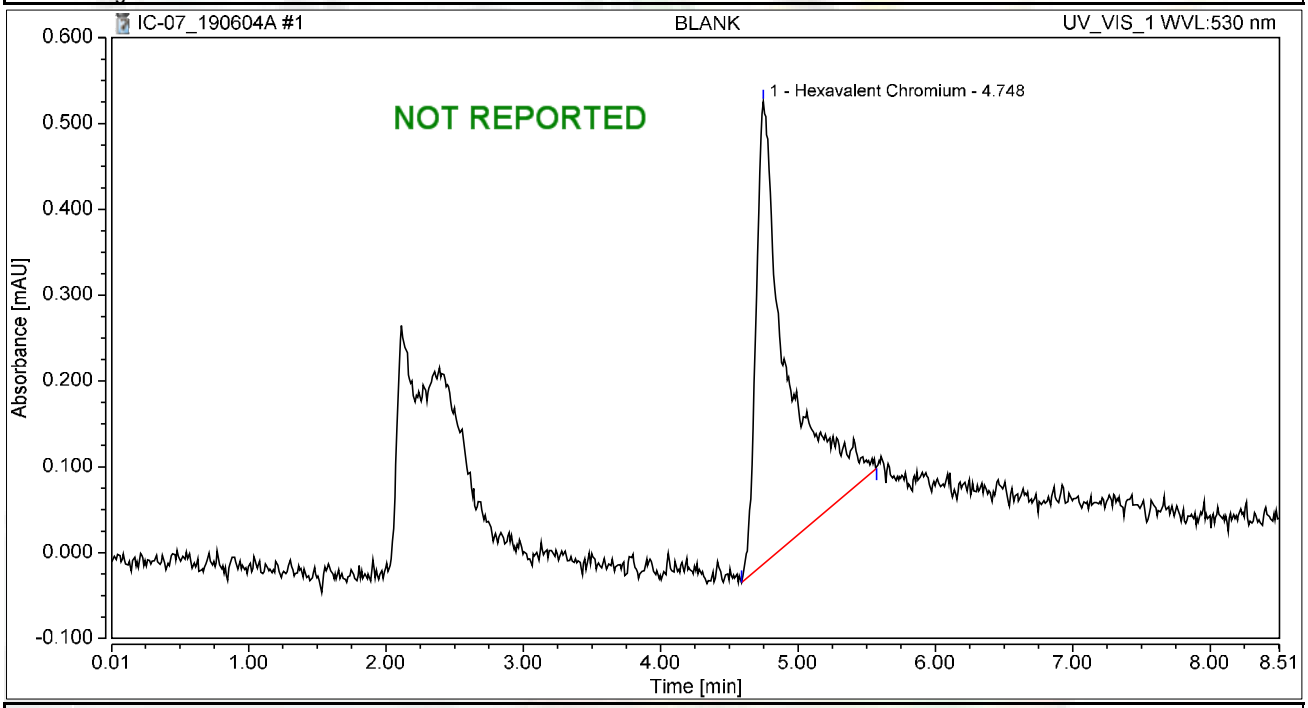
Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:11**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

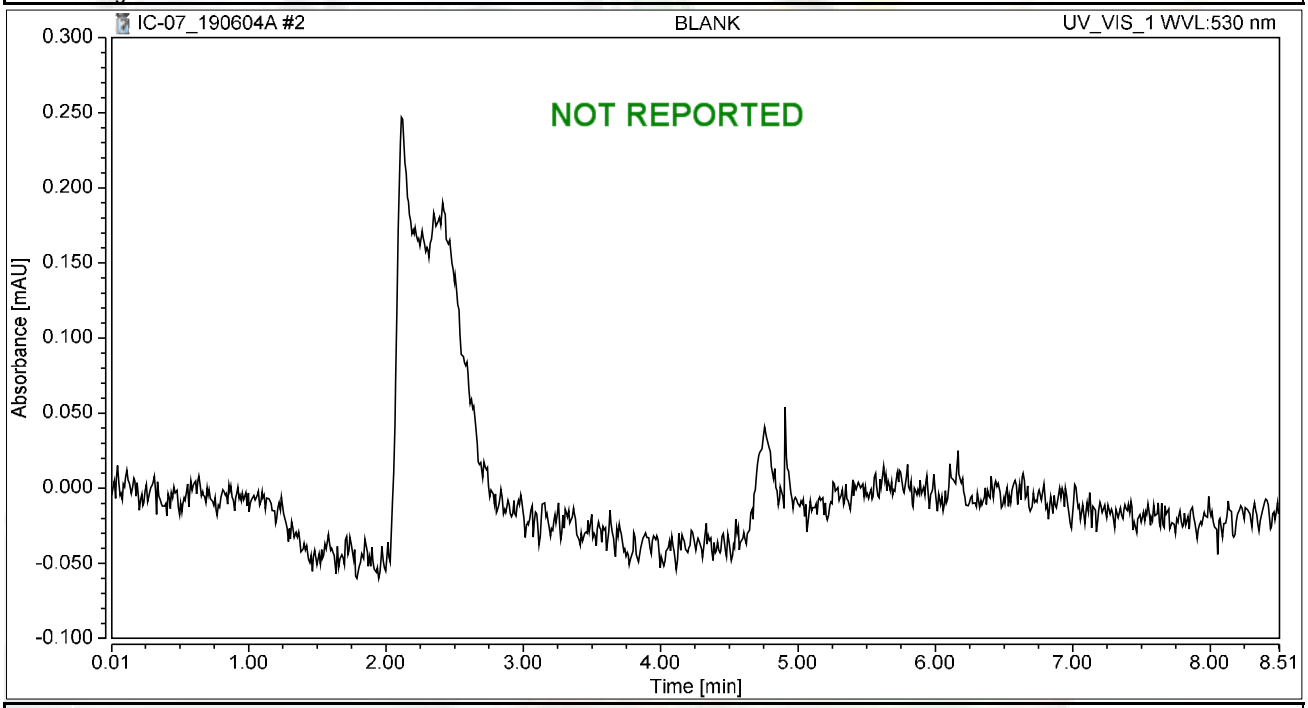
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.144	0.538	100.00	100.00	0.5608
Total:			**0.144**	**0.538**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

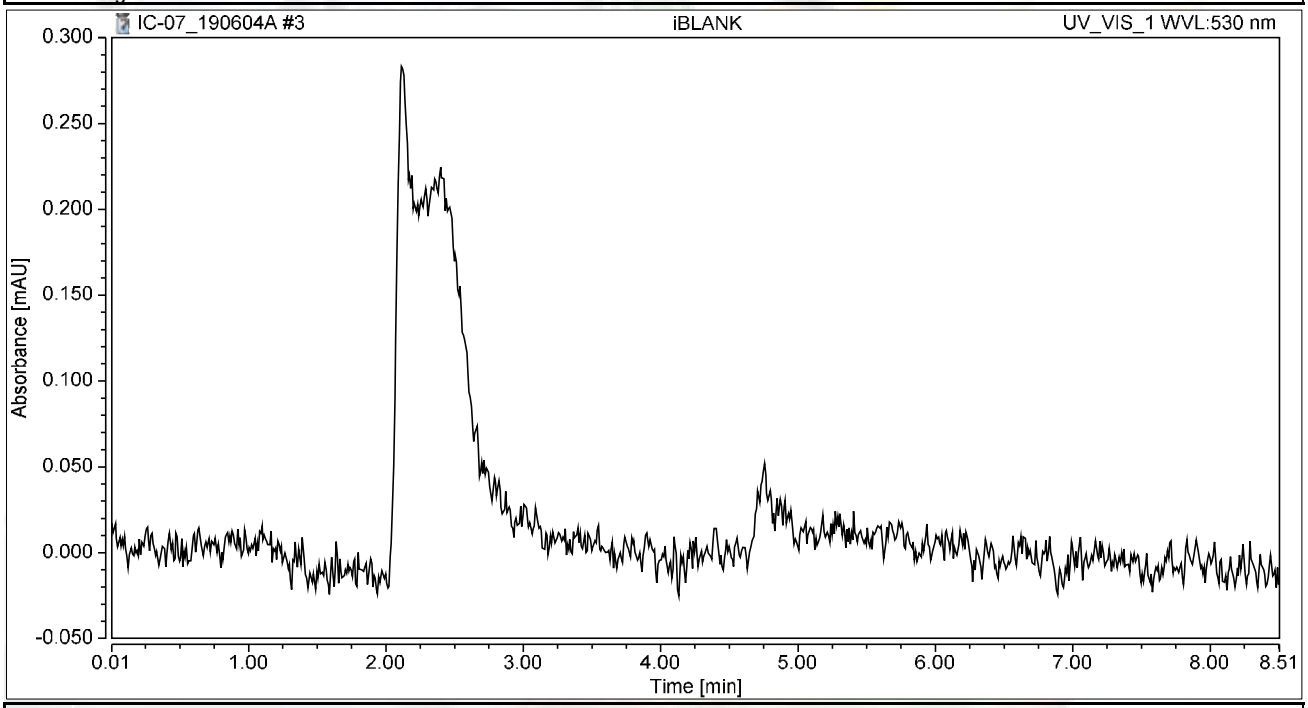
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**iBLANK**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

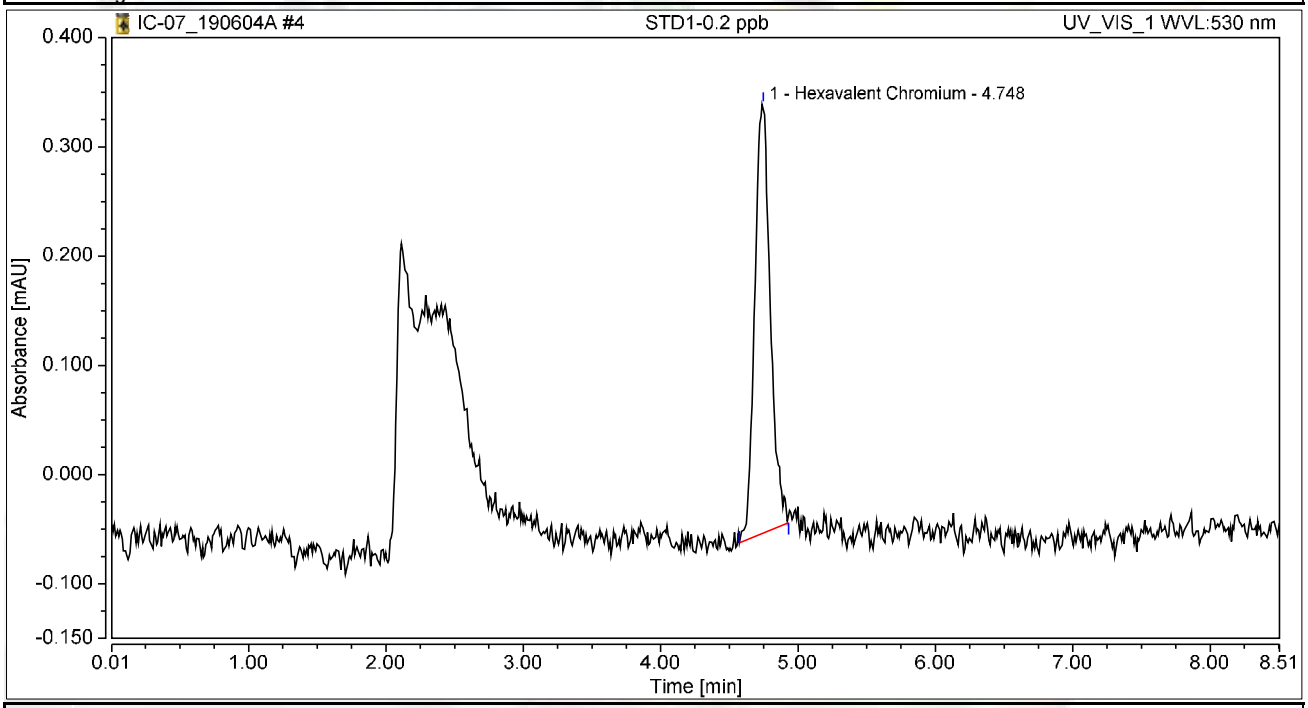
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD1-0.2 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**01**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:40**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

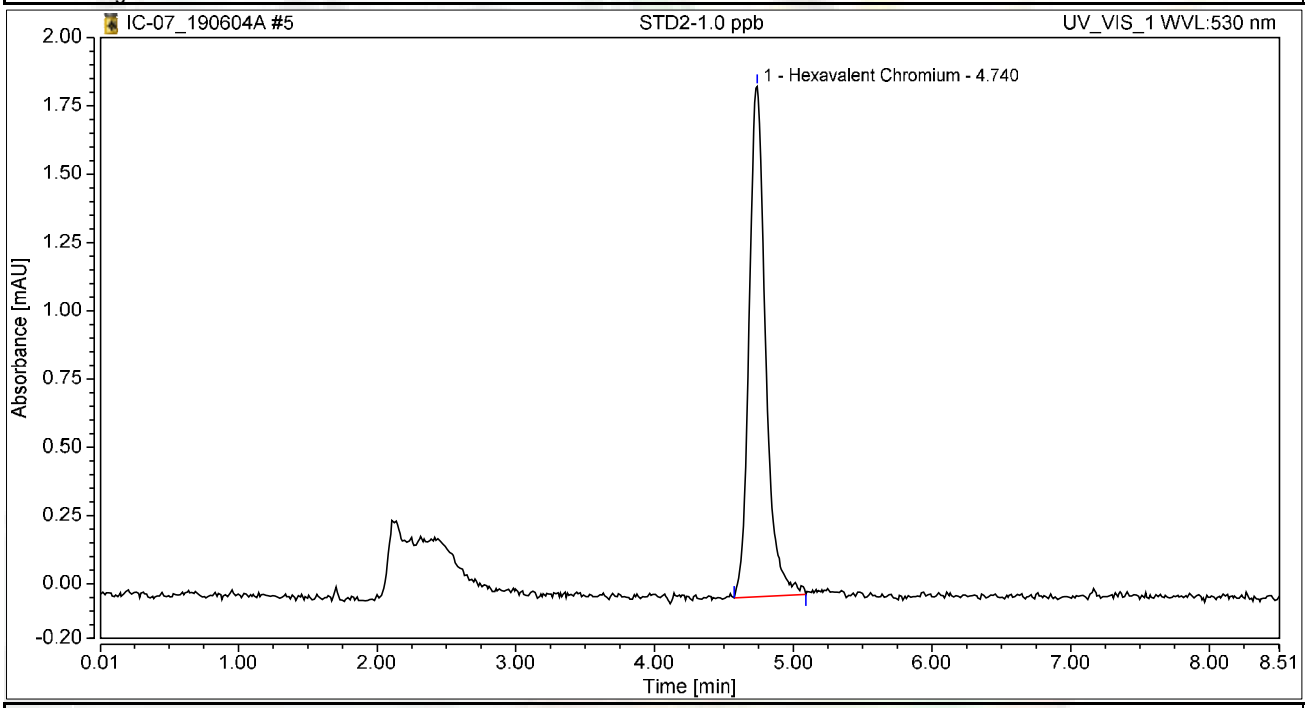
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.748	0.052	0.392	100.00	100.00	0.2013
Total:			**0.052**	**0.392**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD2-1.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**02**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

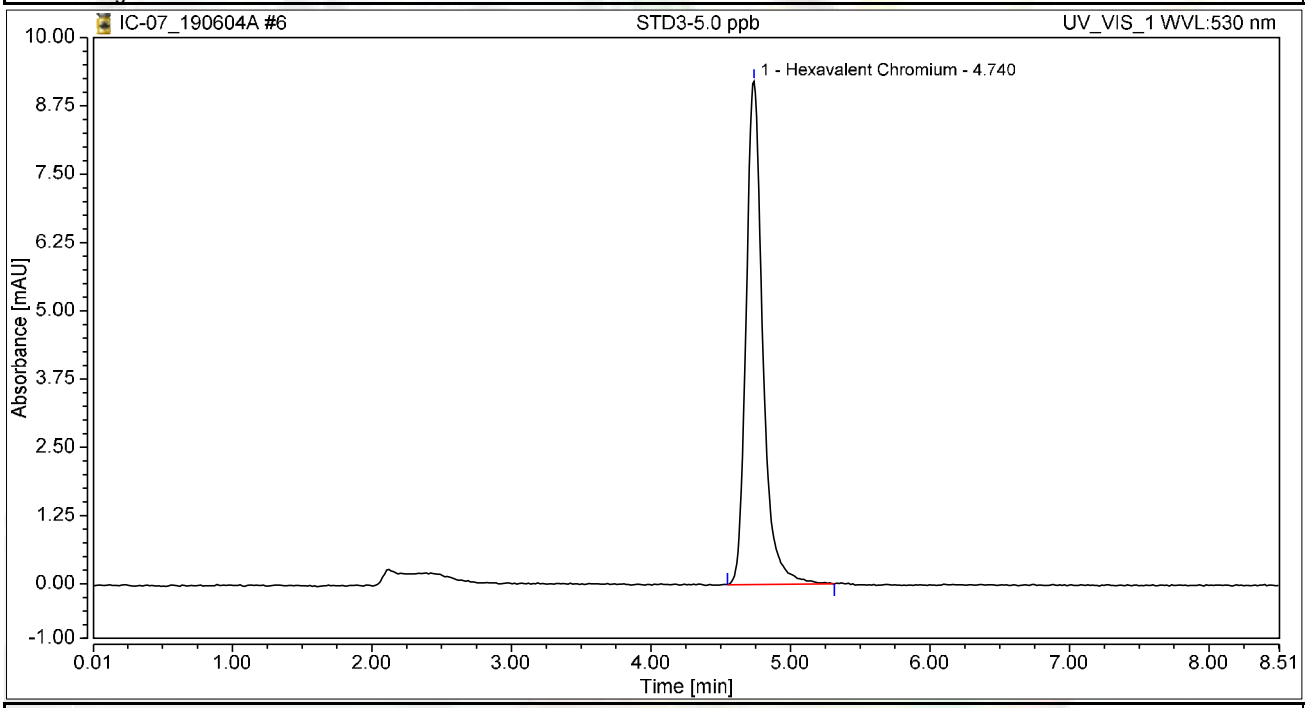
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.258	1.868	100.00	100.00	1.0056
Total:			**0.258**	**1.868**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD3-5.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**03**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 14:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

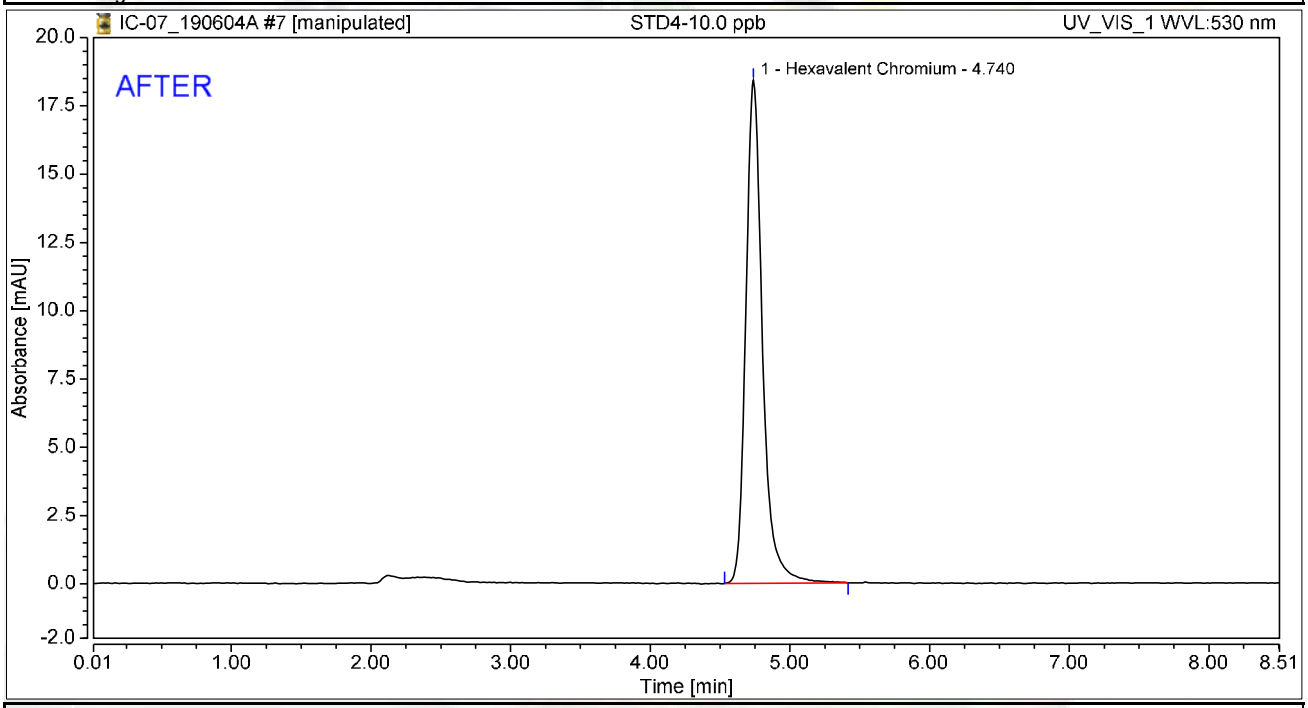
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.277	9.214	100.00	100.00	4.9723
Total:			**1.277**	**9.214**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.550	18.422	100.00	100.00	9.9303
Total:			**2.550**	**18.422**	**100.00**	**100.00**	

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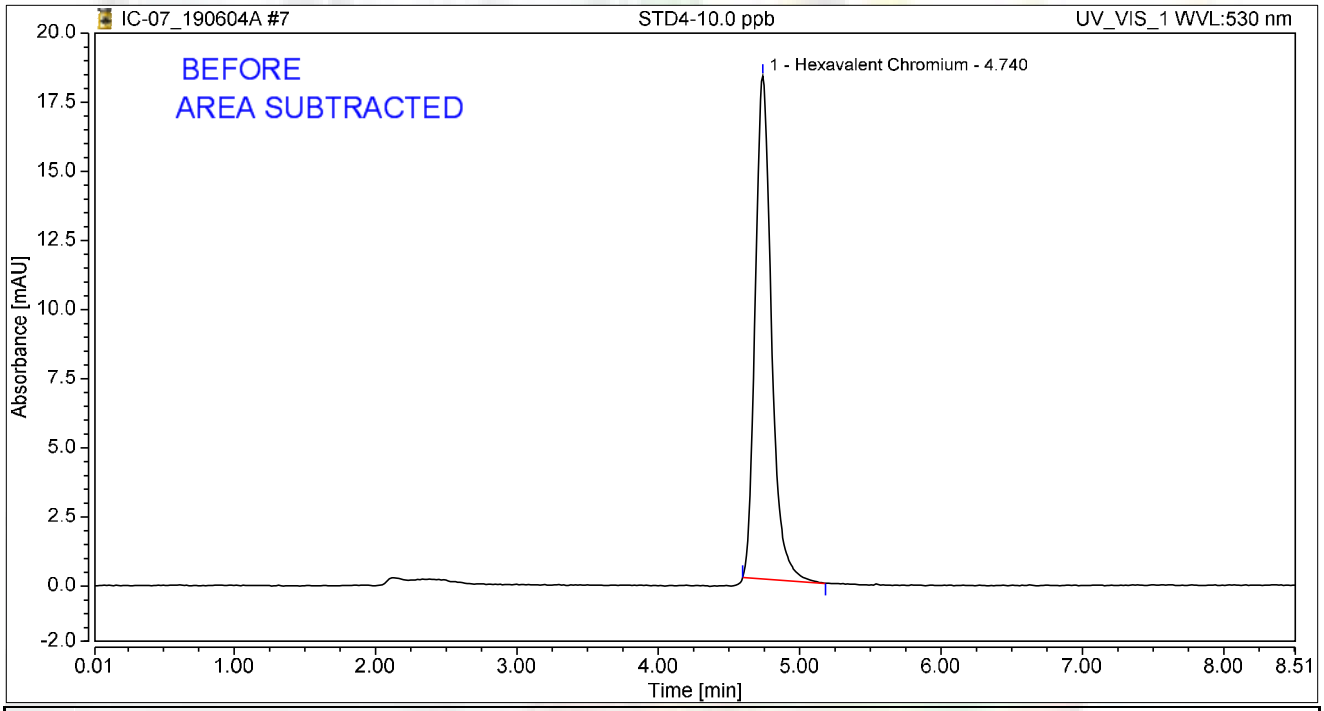
Chromatogram and Results

Injection Details

Injection Name:	**STD4-10.0 ppb**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**04**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.429	18.178	100.00	100.00	9.5179
Total:			**2.429**	**18.178**	**100.00**	**100.00**	

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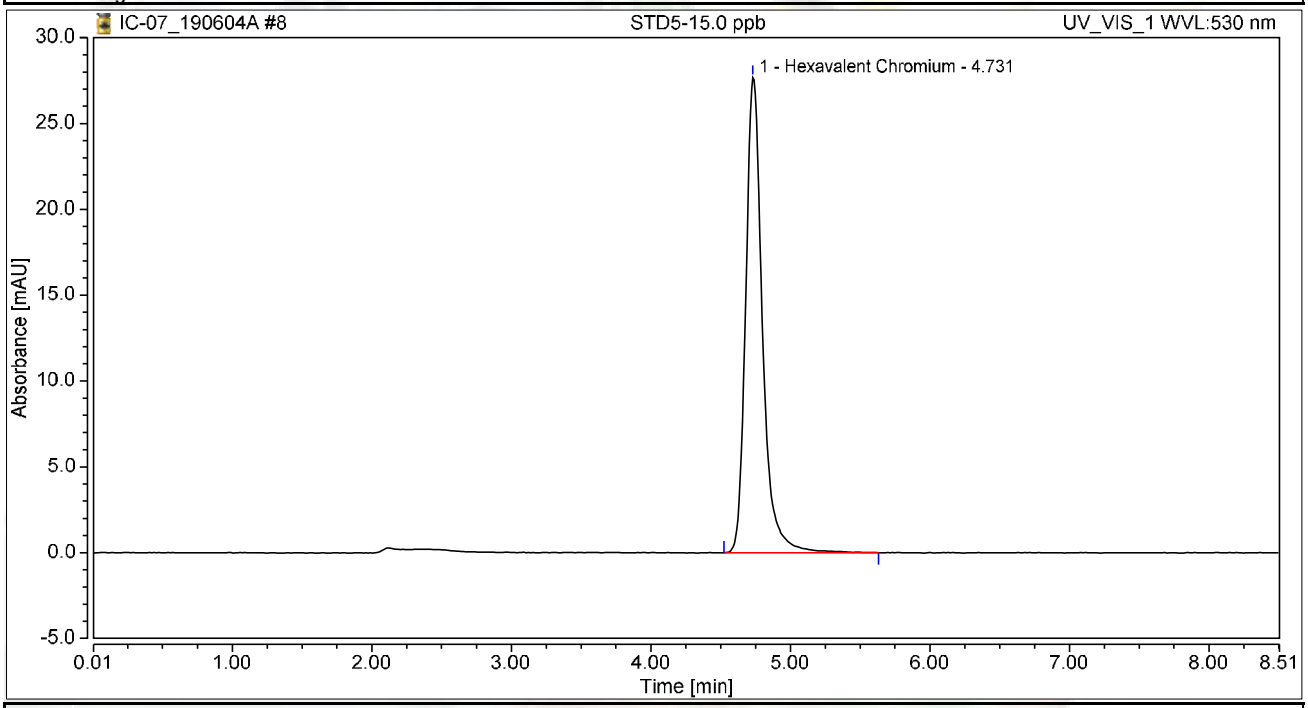
Chromatogram and Results

Injection Details

Injection Name:	**STD5-15.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**05**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

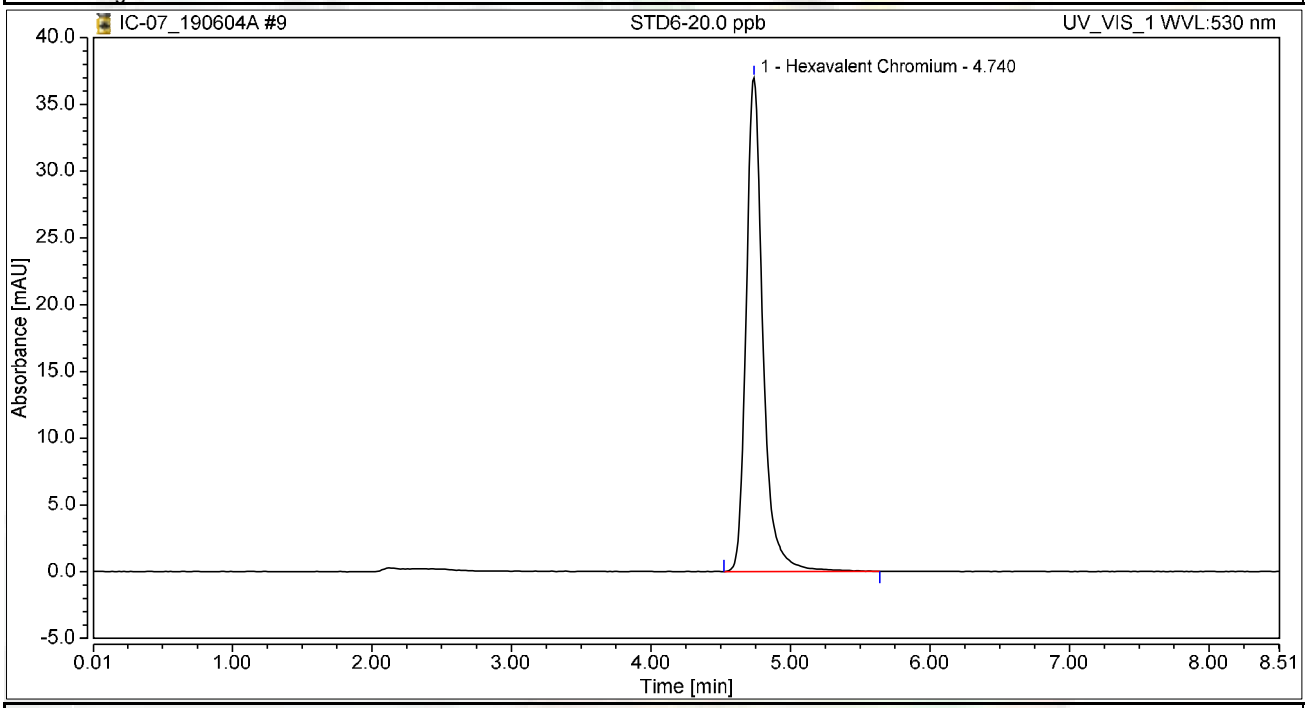
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	3.853	27.685	100.00	100.00	15.0030
Total:			**3.853**	**27.685**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**STD6-20.0 ppb**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Calibration Standard**	*Channel:*	**UV_VIS_1**
Calibration Level:	**06**	*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:28**	*Sample Weight:*	**1.0000**

Chromatogram



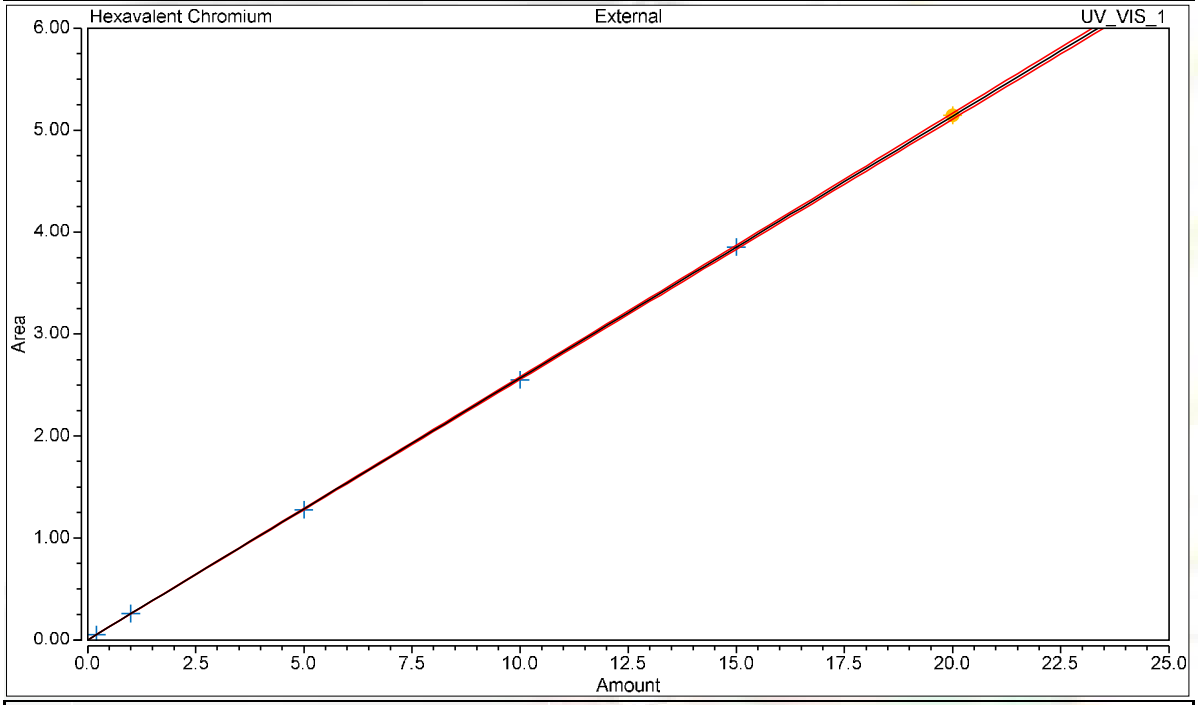
Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	5.146	36.991	100.00	100.00	20.0393
Total:			**5.146**	**36.991**	**100.00**	**100.00**	

Initial Calibration Summary

Calibration Details	Hexavalent Chromium		
Calibration Type	Lin	*Offset (C0)*	0.0000
Evaluation Type	Area	*Slope (C1)*	0.2568
Number of Calibration Points	6	*Curve (C2)*	0.0000
Number of disabled Calibration Points	0	*R-Square*	0.99998

Calibration Plot Hexavalent Chromium



Calibration Results Hexavalent Chromium

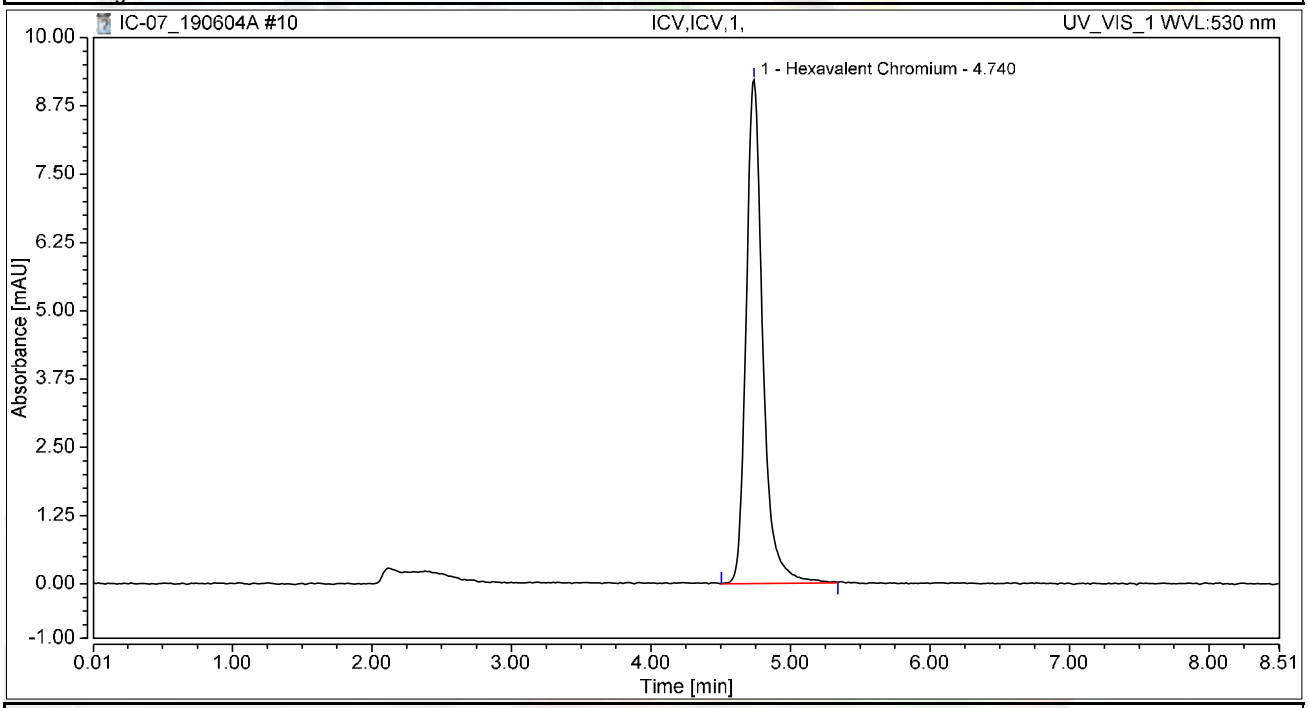
No.	Injection Name	Calibration Level	X Value	Y Value	Area mAU*min	Height mAU
4	STD1-0.2 ppb	01	0.2000	0.0517	0.052	0.392
5	STD2-1.0 ppb	02	1.0000	0.2582	0.258	1.868
6	STD3-5.0 ppb	03	5.0000	1.2770	1.277	9.214
7	STD4-10.0 ppb	04	10.0000	2.5503	2.550	18.422
8	STD5-15.0 ppb	05	15.0000	3.8530	3.853	27.685
9	STD6-20.0 ppb	06	20.0000	5.1464	5.146	36.991

Chromatogram and Results

Injection Details

Injection Name:	**ICV,ICV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

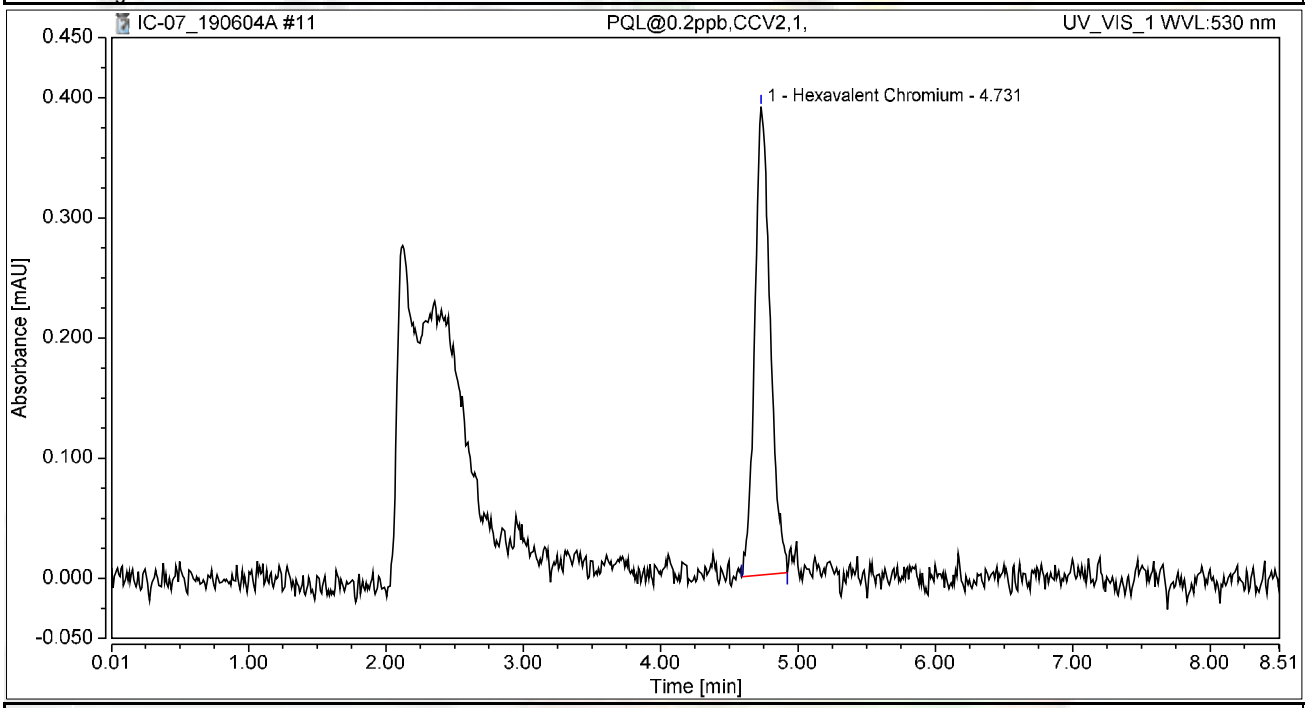
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.277	9.219	100.00	100.00	4.9710
Total:			**1.277**	**9.219**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:46**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

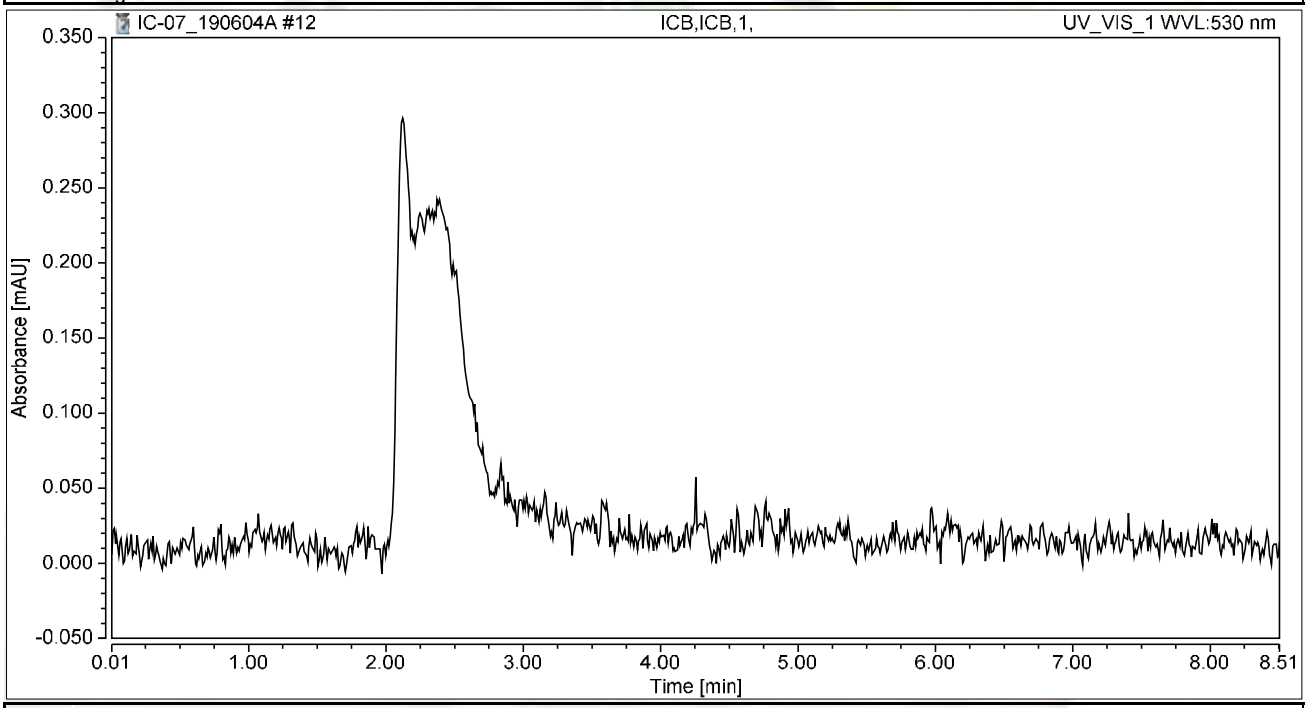
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.051	0.390	100.00	100.00	0.1988
Total:			**0.051**	**0.390**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**ICB,ICB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 15:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

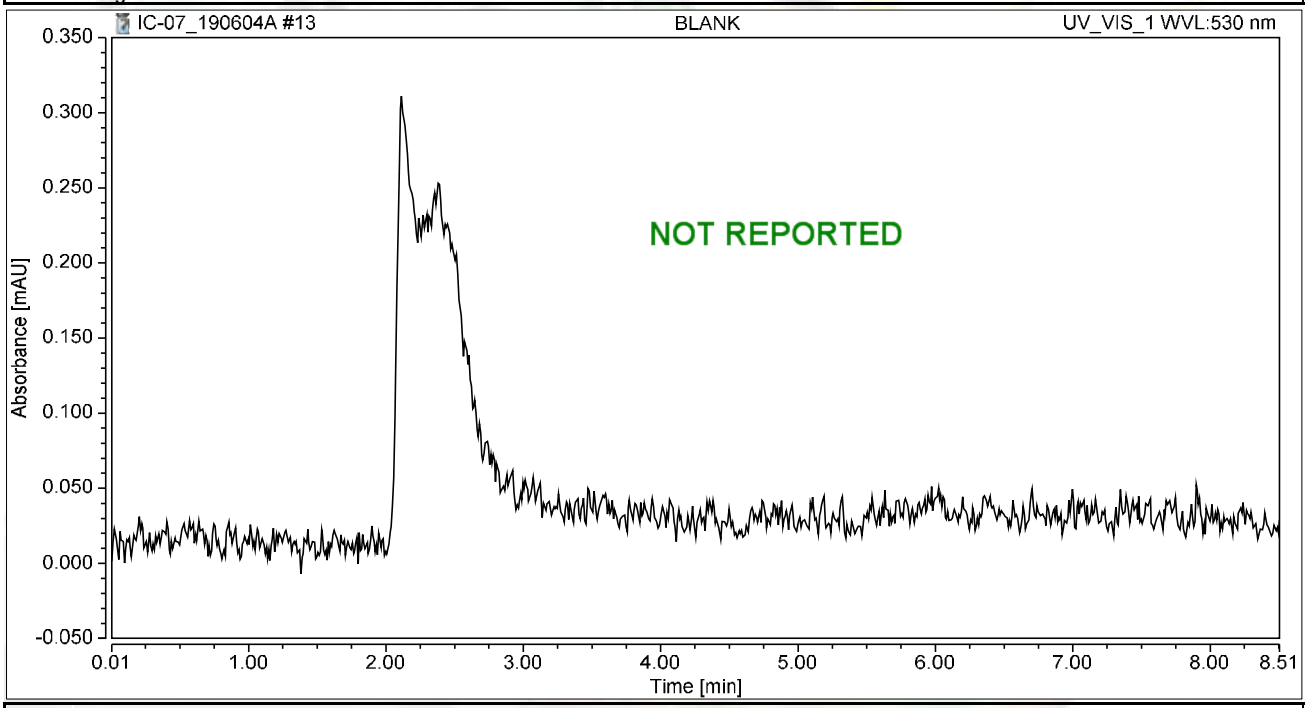
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**04/Jun/19 16:05**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

RAW DATA

INJECTION LOG: 190620A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
1	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:11 PM	Not Reported
2	BLANK	BLANK	1	Hexavalent Chromium	06/04/19 2:21 PM	Not Reported
3	iBLANK	iBLANK	1	Hexavalent Chromium	06/04/19 2:31 PM	Reported
4	STD-0.2 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:40 PM	Reported
5	STD-1.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:50 PM	Reported
6	STD-5.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 2:59 PM	Reported
7	STD-10.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:09 PM	Reported
8	STD-15.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:18 PM	Reported
9	STD-20.0 ppb	ICAL	1	Hexavalent Chromium	06/04/19 3:28 PM	Reported
10	BLANK	BLANK	1	Hexavalent Chromium	06/20/19 8:59 AM	Not Reported
11	CCV-1	CCV	1	Hexavalent Chromium	06/20/19 9:10 AM	Reported
12	PQL@0.2ppb	CCV2	1	Hexavalent Chromium	06/20/19 9:19 AM	Reported
13	CCB-1	CCB	1	Hexavalent Chromium	06/20/19 9:29 AM	Reported
14	MB-R134632	MBLK	1	Hexavalent Chromium	06/20/19 9:38 AM	Reported
15	LCS-R134632	LCS	1	Hexavalent Chromium	06/20/19 9:48 AM	Reported
16	N036156-001A	SAMP	1	Hexavalent Chromium	06/20/19 9:57 AM	Not Reported
17	N036157-002A	SAMP	1	Hexavalent Chromium	06/20/19 10:06 AM	Not Reported
18	N036156-001A	SAMP	50	Hexavalent Chromium	06/20/19 10:27 AM	Reported
19	N036156-001ADUP	DUP	50	Hexavalent Chromium	06/20/19 10:38 AM	Reported
20	N036156-001AMS	MS	50	Hexavalent Chromium	06/20/19 10:47 AM	Reported
21	N036156-001AMSD	MSD	50	Hexavalent Chromium	06/20/19 10:57 AM	Reported
22	N036157-002A	SAMP	1	Hexavalent Chromium	06/20/19 11:06 AM	Reported
23	N036157-002AMS	MS	1	Hexavalent Chromium	06/20/19 11:15 AM	Reported
24	CCV-2	CCV1	1	Hexavalent Chromium	06/20/19 11:25 AM	Reported
25	CCB-2	CCB	1	Hexavalent Chromium	06/20/19 11:34 AM	Reported
26	N036155-001A	SAMP	1	Hexavalent Chromium	06/20/19 12:39 PM	Reported
27	N036155-001AMS	MS	1	Hexavalent Chromium	06/20/19 12:50 PM	Reported
28	N036155-002A	SAMP	1	Hexavalent Chromium	06/20/19 1:00 PM	Reported
29	N036155-002AMS	MS	1	Hexavalent Chromium	06/20/19 1:09 PM	Reported
30	N036155-003A	SAMP	1	Hexavalent Chromium	06/20/19 1:19 PM	Reported
31	N036155-003AMS	MS	1	Hexavalent Chromium	06/20/19 1:28 PM	Reported
32	N036155-004A	SAMP	1	Hexavalent Chromium	06/20/19 1:38 PM	Reported
33	N036155-004AMS	MS	1	Hexavalent Chromium	06/20/19 1:47 PM	Reported
34	N036155-005A	SAMP	1	Hexavalent Chromium	06/20/19 1:57 PM	Reported
35	N036155-005AMS	MS	1	Hexavalent Chromium	06/20/19 2:06 PM	Reported
36	CCV-3	CCV	1	Hexavalent Chromium	06/20/19 2:15 PM	Reported
37	CCB-3	CCB	1	Hexavalent Chromium	06/20/19 2:25 PM	Reported
38	N036155-006A	SAMP	1	Hexavalent Chromium	06/20/19 2:34 PM	Reported
39	N036155-006AMS	MS	1	Hexavalent Chromium	06/20/19 2:44 PM	Reported
40	N036155-007A	SAMP	1	Hexavalent Chromium	06/20/19 2:53 PM	Reported
41	N036155-007AMS	MS	1	Hexavalent Chromium	06/20/19 3:03 PM	Reported
42	N036155-008A	SAMP	1	Hexavalent Chromium	06/20/19 3:12 PM	Reported

INJECTION LOG: 190620A

Instrument ID: IC-07

Sample No	Sample Name	Type	DF	Peak Name	Injection Date/Time	Comments
43	N036155-008AMS	MS	1	Hexavalent Chromium	06/20/19 3:22 PM	Reported
44	N036155-009A	SAMP	1	Hexavalent Chromium	06/20/19 3:31 PM	Reported
45	N036155-009AMS	MS	1	Hexavalent Chromium	06/20/19 3:41 PM	Reported
46	N036155-010A	SAMP	1	Hexavalent Chromium	06/20/19 3:50 PM	Reported
47	N036155-010AMS	MS	1	Hexavalent Chromium	06/20/19 4:00 PM	Reported
48	CCV-4	CCV1	1	Hexavalent Chromium	06/20/19 4:09 PM	Reported
49	CCB-4	CCB	1	Hexavalent Chromium	06/20/19 4:18 PM	Reported
50	N036155-011A	SAMP	1	Hexavalent Chromium	06/20/19 4:28 PM	Reported
51	N036155-011AMS	MS	1	Hexavalent Chromium	06/20/19 4:37 PM	Reported
52	N036155-012A	SAMP	1	Hexavalent Chromium	06/20/19 4:47 PM	Reported
53	N036155-012AMS	MS	1	Hexavalent Chromium	06/20/19 4:56 PM	Reported
54	N036155-013A	SAMP	1	Hexavalent Chromium	06/20/19 5:06 PM	Reported
55	N036155-013AMS	MS	1	Hexavalent Chromium	06/20/19 5:15 PM	Reported
56	N036155-014A	SAMP	1	Hexavalent Chromium	06/20/19 5:25 PM	Reported
57	N036155-014AMS	MS	1	Hexavalent Chromium	06/20/19 5:34 PM	Reported
58	N036157-002A	SAMP	1	Hexavalent Chromium	06/20/19 5:44 PM	Not Reported
59	CCV-5	CCV	1	Hexavalent Chromium	06/20/19 5:53 PM	Reported
60	CCB-5	CCB	1	Hexavalent Chromium	06/20/19 6:03 PM	Reported
61	BLANK	BLANK	1	Hexavalent Chromium	06/20/19 6:12 PM	Not Reported
62	BLANK	BLANK	1	Hexavalent Chromium	06/20/19 6:21 PM	Not Reported

Injection Log Summary

Sequence Details

Name:	**IC-07_190620A**	*Created On:*	**24/Jul/12 17:17:21**
Directory:	**Instrument Data\IC-7\2019**	*Created By:*	**ics 5000**
Data Vault:	**ChromeleonLocal3**	*Updated On:*	**21/Jun/19 09:28:06**
No. of Injections:	**65**	*Updated By:*	**ics 5000**

Injection Details

No.	Injection Name	Position	Volume µL	Type	Level	Inject Time	Status	Comment
1	BLANK	1	1000	Unknown		06/04/2019 14:11	Finished	BLANK
2	BLANK	2	1000	Unknown		06/04/2019 14:21	Finished	BLANK
3	iBLANK	3	1000	Unknown		06/04/2019 14:31	Finished	INSTRUMENT BLANK
4	STD1-0.2 ppb	4	1000	Calibration Standard	01	06/04/2019 14:40	Finished	0.2 ppb, IWST-190423A
5	STD2-1.0 ppb	5	1000	Calibration Standard	02	06/04/2019 14:50	Finished	1.0 ppb, IWST-190423A
6	STD3-5.0 ppb	6	1000	Calibration Standard	03	06/04/2019 14:59	Finished	5.0 ppb, IWST-190423A
7	STD4-10.0 ppb	7	1000	Calibration Standard	04	06/04/2019 15:09	Finished	10 ppb, IWST-190423A
8	STD5-15.0 ppb	8	1000	Calibration Standard	05	06/04/2019 15:18	Finished	15 ppb, IWST-190423A
9	STD6-20.0 ppb	9	1000	Calibration Standard	06	06/04/2019 15:28	Finished	20 ppb, IWST-190423A
10	BLANK	1	1000	Unknown		06/20/2019 08:59	Finished	BLANK
11	CCV-1,CCV,1,	2	1000	Unknown		06/20/2019 09:10	Finished	CCV @5ppb, IWST-190423A
12	PQL@0.2ppb,CCV2,1	3	1000	Unknown		06/20/2019 09:19	Finished	PQL @ 0.2ppb
13	CCB-1,CCB,1,	4	1000	Unknown		06/20/2019 09:29	Finished	CCB R190508A
14	MB-H2O,MBLK,1,	5	1000	Unknown		06/20/2019 09:38	Finished	MB R190508A
15	LCS-H2O,LCS,1,	6	1000	Unknown		06/20/2019 09:48	Finished	LCS @5ppb, IWST-190423B
16	N036156-001A,SAMF	7	1000	Unknown		06/20/2019 09:57	Finished	SAMP, 10mL
17	N036157-002A,SAMF	8	1000	Unknown		06/20/2019 10:06	Finished	SAMP, 10mL
18	N036156-001A,SAMF	1	1000	Unknown		06/20/2019 10:27	Finished	SAMP, 0.2>10mL
19	N036156-001ADUP,D	2	1000	Unknown		06/20/2019 10:38	Finished	DUP, 0.2>10mL
20	N036156-001AMS,MS	3	1000	Unknown		06/20/2019 10:47	Finished	MS (5ppb), IWST-190423B,0.2
21	N036156-001AMSD,M	4	1000	Unknown		06/20/2019 10:57	Finished	MSD (5ppb), IWST-190423B,0
22	N036157-002A,SAMF	5	1000	Unknown		06/20/2019 11:06	Finished	SAMP, 10mL
23	N036157-002AMS,MS	6	1000	Unknown		06/20/2019 11:15	Finished	MS (1ppb), IWST-190423B,10
24	CCV-2,CCV1,1,	7	1000	Unknown		06/20/2019 11:25	Finished	CCV @10ppb, IWST-190423A
25	CCB-2,CCB,1,	8	1000	Unknown		06/20/2019 11:34	Finished	CCB R190508A
26	N036155-001A,SAMF	1	1000	Unknown		06/20/2019 12:39	Finished	SAMP, 10mL
27	N036155-001AMS,MS	2	1000	Unknown		06/20/2019 12:50	Finished	MS (1ppb), IWST-190423B,10
28	N036155-002A,SAMF	3	1000	Unknown		06/20/2019 13:00	Finished	SAMP, 10mL
29	N036155-002AMS,MS	4	1000	Unknown		06/20/2019 13:09	Finished	MS (1ppb), IWST-190423B,10
30	N036155-003A,SAMF	5	1000	Unknown		06/20/2019 13:19	Finished	SAMP, 10mL
31	N036155-003AMS,MS	6	1000	Unknown		06/20/2019 13:28	Finished	MS (1ppb), IWST-190423B,10
32	N036155-004A,SAMF	7	1000	Unknown		06/20/2019 13:38	Finished	SAMP, 10mL
33	N036155-004AMS,MS	8	1000	Unknown		06/20/2019 13:47	Finished	MS (1ppb), IWST-190423B,10
34	N036155-005A,SAMF	9	1000	Unknown		06/20/2019 13:57	Finished	SAMP, 10mL
35	N036155-005AMS,MS	10	1000	Unknown		06/20/2019 14:06	Finished	MS (1ppb), IWST-190423B,10
36	CCV-3,CCV,1,	11	1000	Unknown		06/20/2019 14:15	Finished	CCV @5ppb, IWST-190423A
37	CCB-3,CCB,1,	12	1000	Unknown		06/20/2019 14:25	Finished	CCB R190508A
38	N036155-006A,SAMF	13	1000	Unknown		06/20/2019 14:34	Finished	SAMP, 10mL
39	N036155-006AMS,MS	14	1000	Unknown		06/20/2019 14:44	Finished	MS (1ppb), IWST-190423B,10
40	N036155-007A,SAMF	15	1000	Unknown		06/20/2019 14:53	Finished	SAMP, 10mL
41	N036155-007AMS,MS	16	1000	Unknown		06/20/2019 15:03	Finished	MS (1ppb), IWST-190423B,10
42	N036155-008A,SAMF	17	1000	Unknown		06/20/2019 15:12	Finished	SAMP, 10mL
43	N036155-008AMS,MS	18	1000	Unknown		06/20/2019 15:22	Finished	MS (1ppb), IWST-190423B,10
44	N036155-009A,SAMF	19	1000	Unknown		06/20/2019 15:31	Finished	SAMP, 10mL
45	N036155-009AMS,MS	20	1000	Unknown		06/20/2019 15:41	Finished	MS (1ppb), IWST-190423B,10
46	N036155-010A,SAMF	21	1000	Unknown		06/20/2019 15:50	Finished	SAMP, 10mL
47	N036155-010AMS,MS	22	1000	Unknown		06/20/2019 16:00	Finished	MS (1ppb), IWST-190423B,10
48	CCV-4,CCV1,1,	23	1000	Unknown		06/20/2019 16:09	Finished	CCV @10ppb, IWST-190423A
49	CCB-4,CCB,1,	24	1000	Unknown		06/20/2019 16:18	Finished	CCB R190508A
50	N036155-011A,SAMF	25	1000	Unknown		06/20/2019 16:28	Finished	SAMP, 10mL
51	N036155-011AMS,MS	26	1000	Unknown		06/20/2019 16:37	Finished	MS (1ppb), IWST-190423B,10
52	N036155-012A,SAMF	27	1000	Unknown		06/20/2019 16:47	Finished	SAMP, 10mL
53	N036155-012AMS,MS	28	1000	Unknown		06/20/2019 16:56	Finished	MS (1ppb), IWST-190423B,10
54	N036155-013A,SAMF	29	1000	Unknown		06/20/2019 17:06	Finished	SAMP, 10mL
55	N036155-013AMS,MS	30	1000	Unknown		06/20/2019 17:15	Finished	MS (1ppb), IWST-190423B,10
56	N036155-014A,SAMF	31	1000	Unknown		06/20/2019 17:25	Finished	SAMP, 10mL
57	N036155-014AMS,MS	32	1000	Unknown		06/20/2019 17:34	Finished	MS (1ppb), IWST-190423B,10
58	N036157-002A,SAMF	33	1000	Unknown		06/20/2019 17:44	Finished	SAMP, 10mL
59	CCV-5,CCV,1,	34	1000	Unknown		06/20/2019 17:53	Finished	CCV @5ppb, IWST-190423A
60	CCB-5,CCB,1,	35	1000	Unknown		06/20/2019 18:03	Finished	CCB R190508A

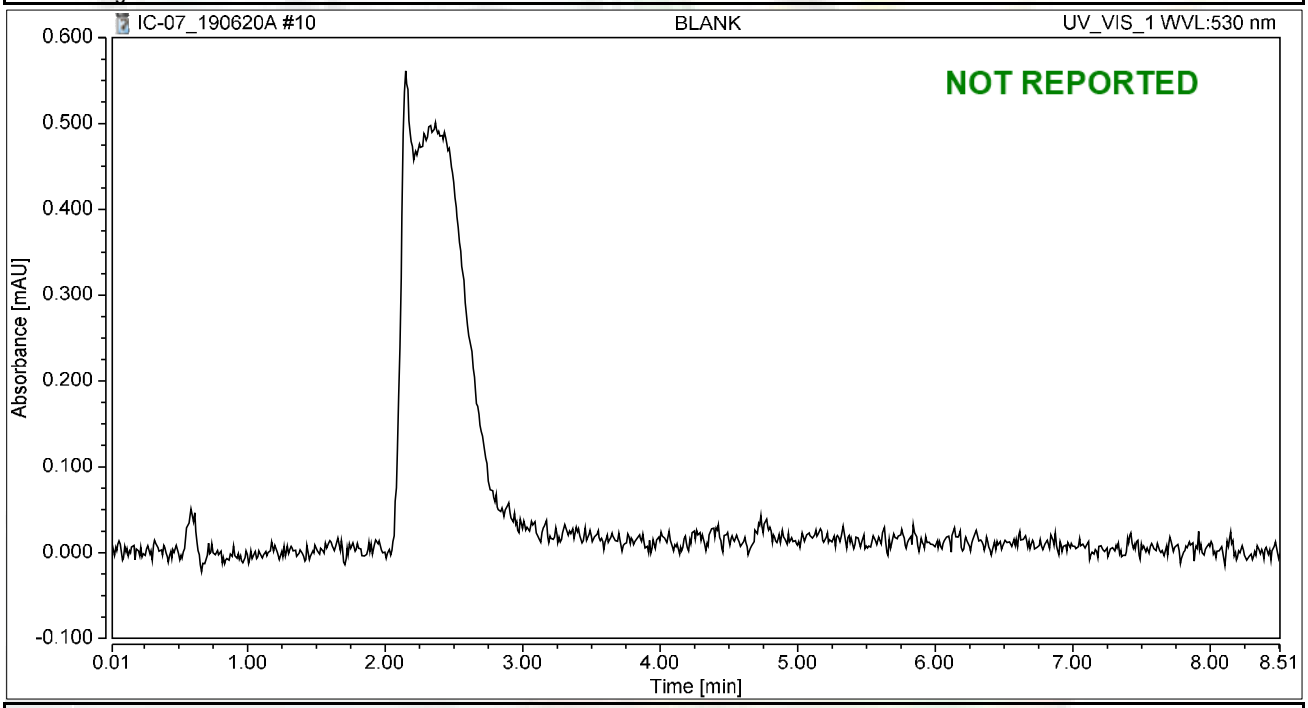
61	BLANK	36	1000	Unknown		06/20/2019 18:12	Finished	BLANK
62	BLANK	37	1000	Unknown		06/20/2019 18:21	Finished	BLANK
63	SHUTDOWN	38	1000	Unknown		06/20/2019 18:31	Finished	
64	Eluent: R190617A	39	1000	Unknown		n.a.	Finished	Eluent
65	PCR: R190618A	40	1000	Unknown		n.a.	Finished	Post-Column Reagent

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 08:59**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

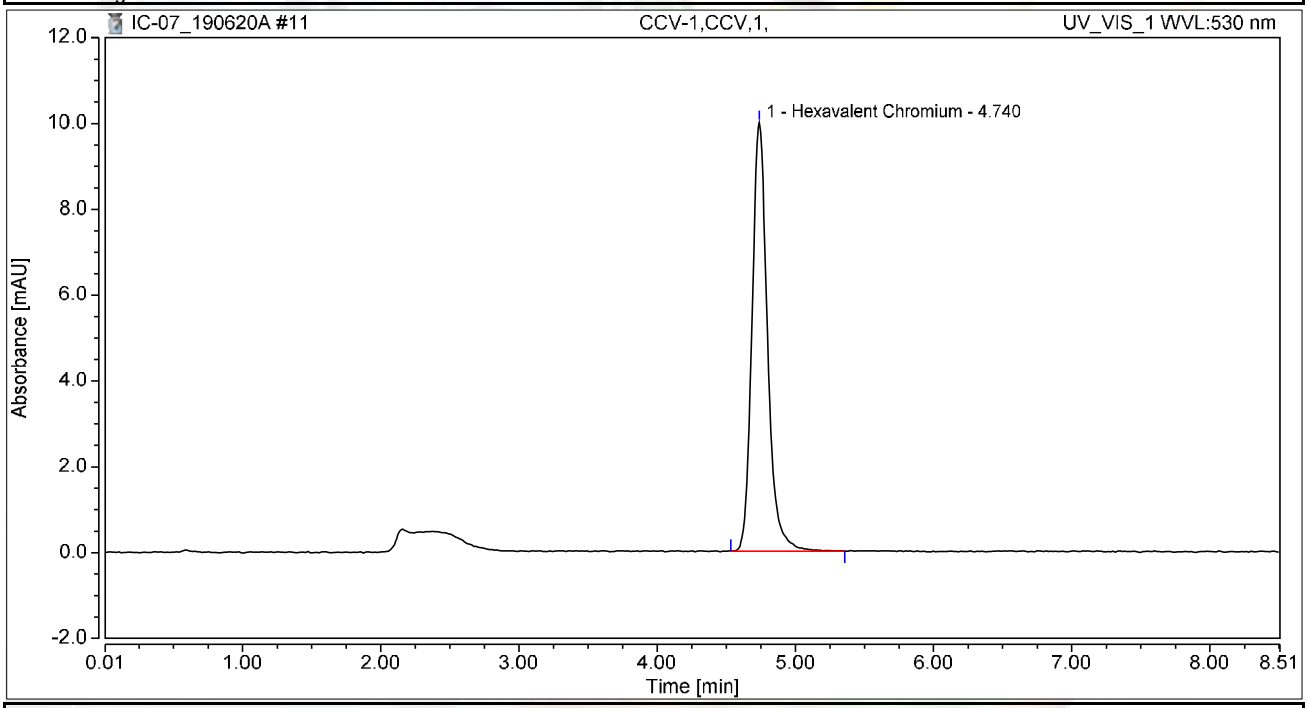
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-1,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 09:10**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

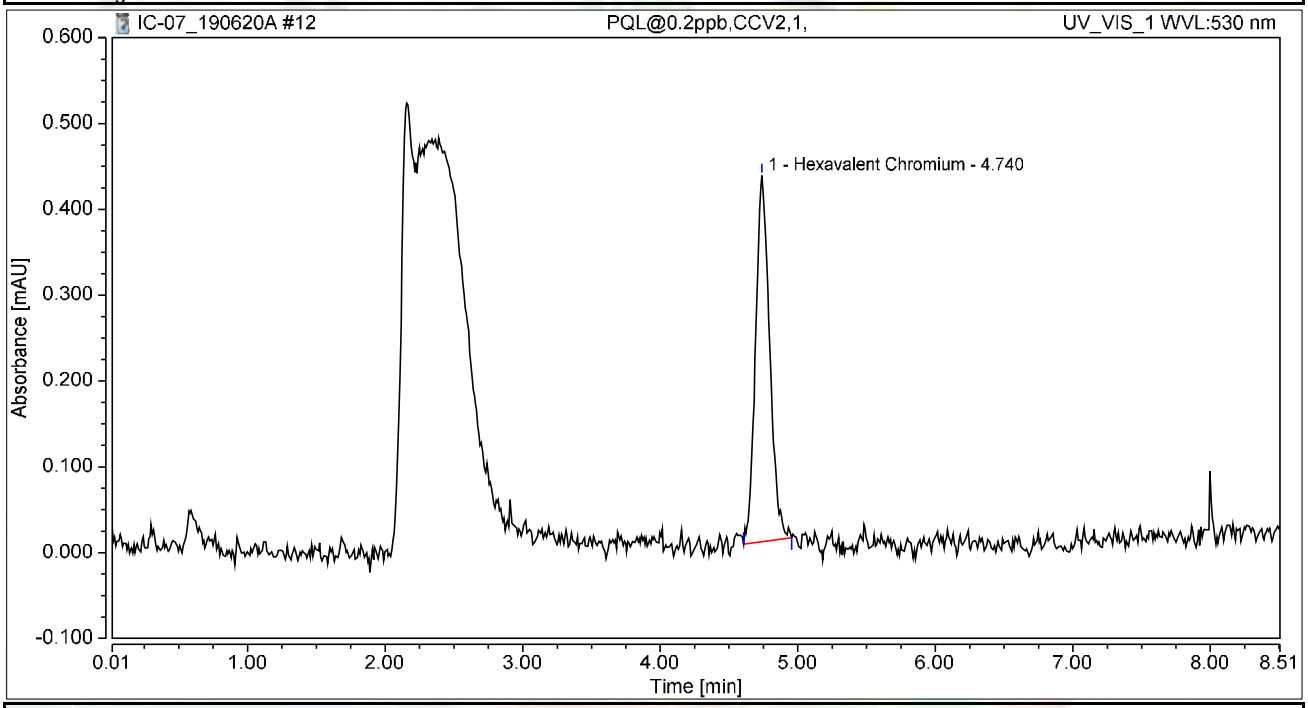
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.300	9.988	100.00	100.00	5.0604
Total:			**1.300**	**9.988**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**PQL@0.2ppb,CCV2,1,**	*Run Time (min):*	**8.49**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 09:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

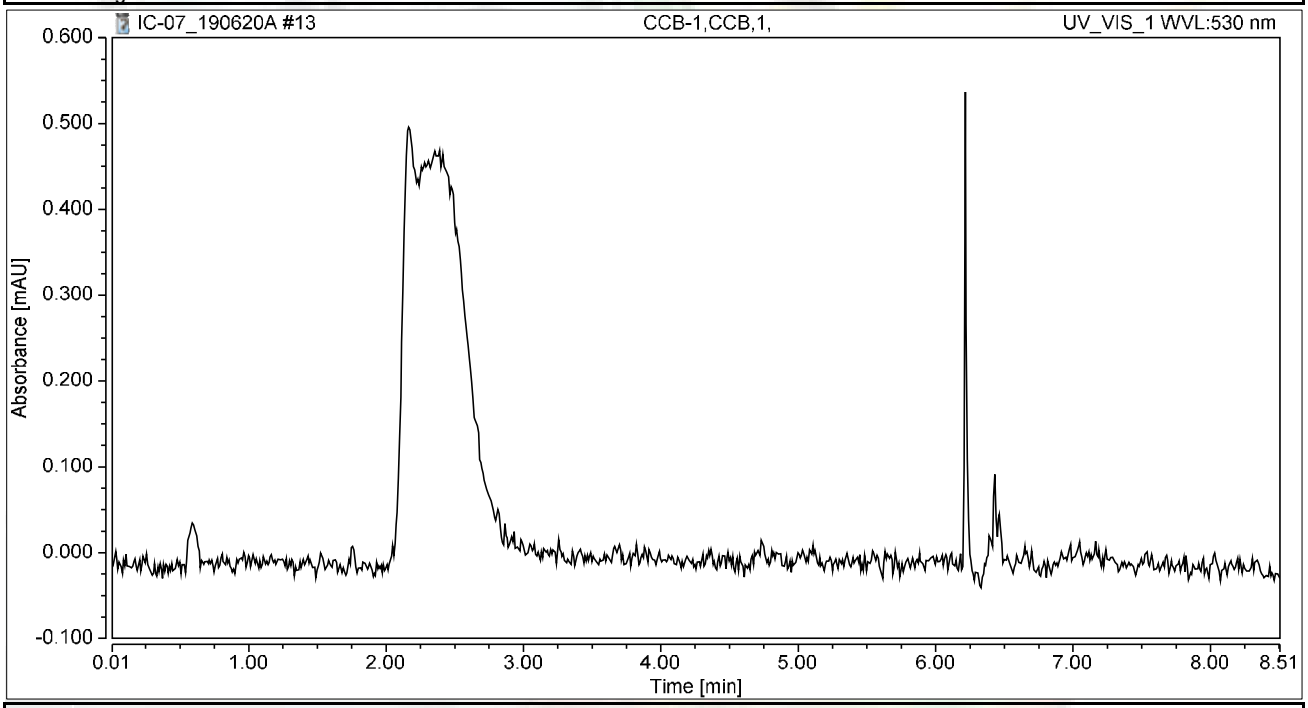
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.051	0.426	100.00	100.00	0.1976
Total:			**0.051**	**0.426**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-1,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 09:29**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

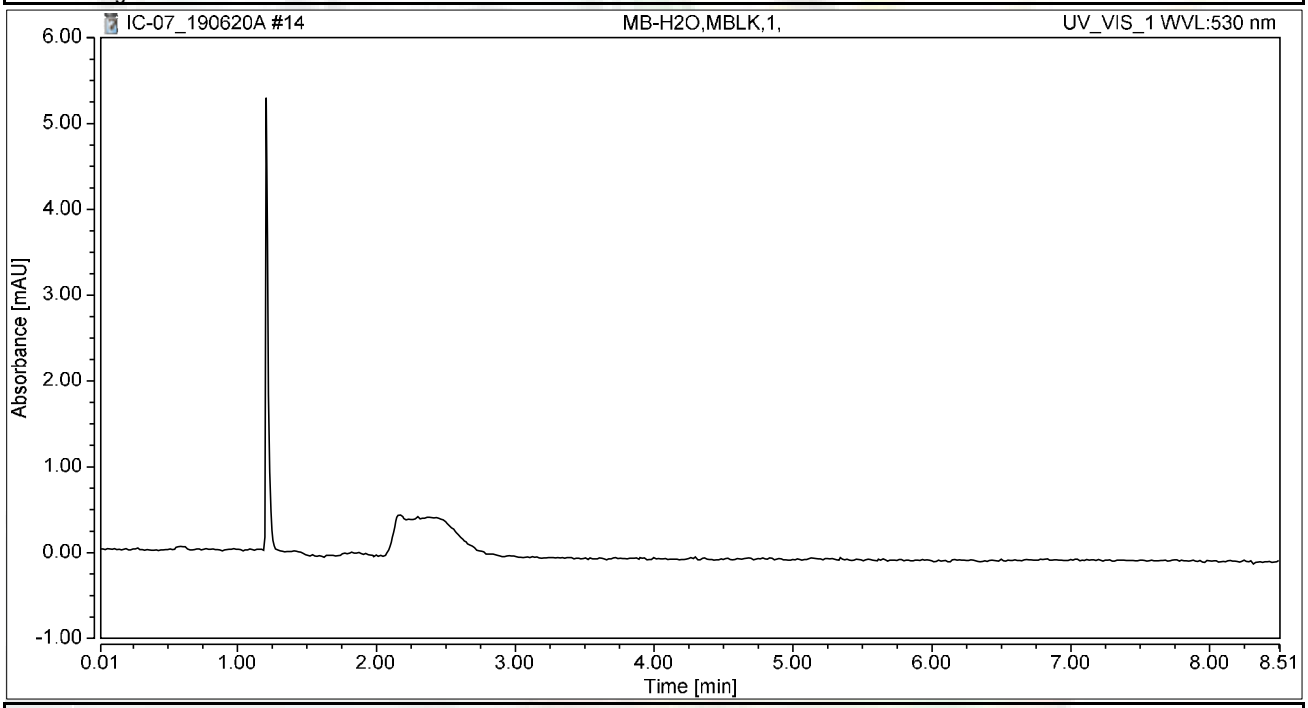
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**MB-H2O,MBLK,1,**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 09:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

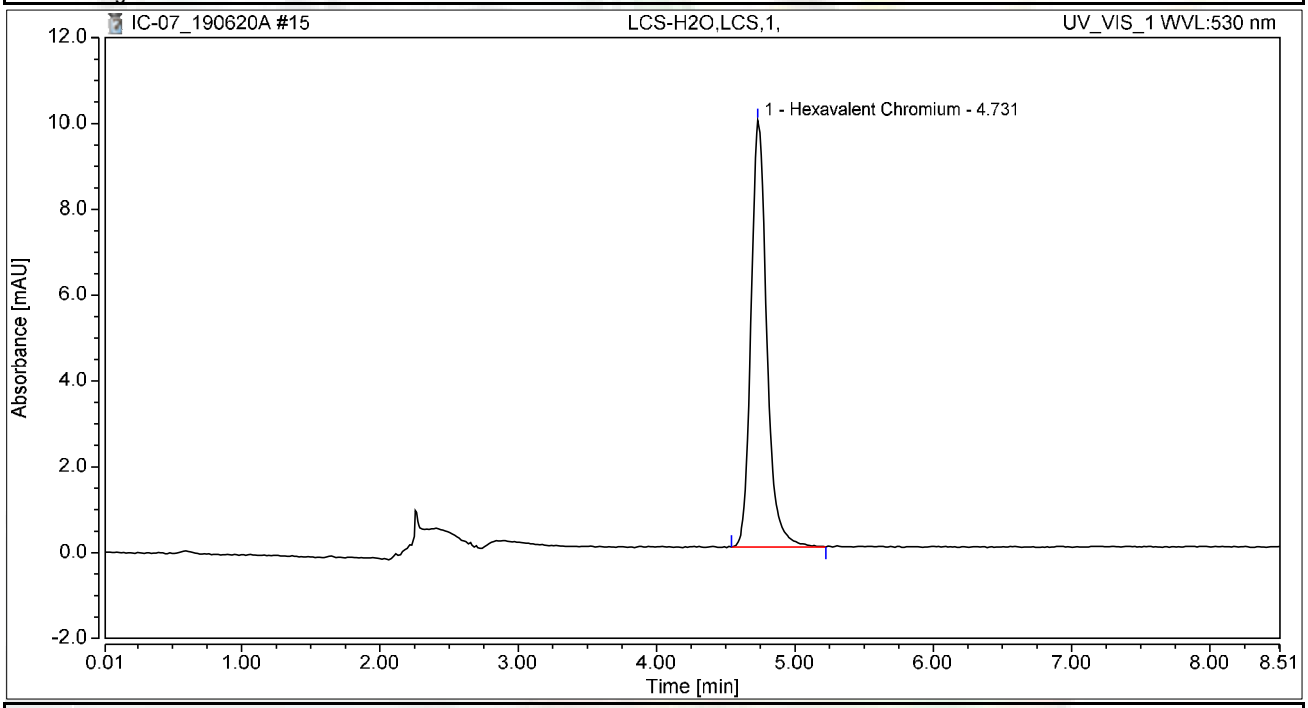
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**LCS-H2O,LCS,1,**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 09:48**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

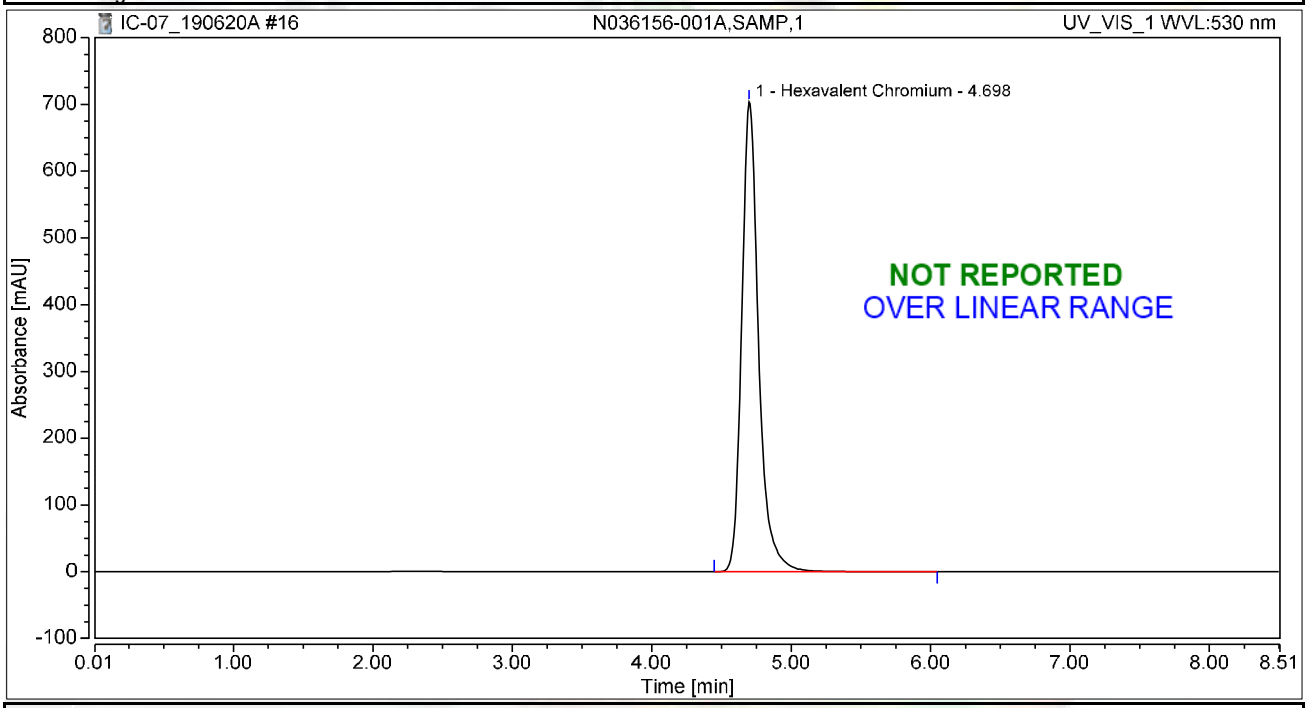
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.317	9.938	100.00	100.00	5.1269
Total:			**1.317**	**9.938**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036156-001A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 09:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

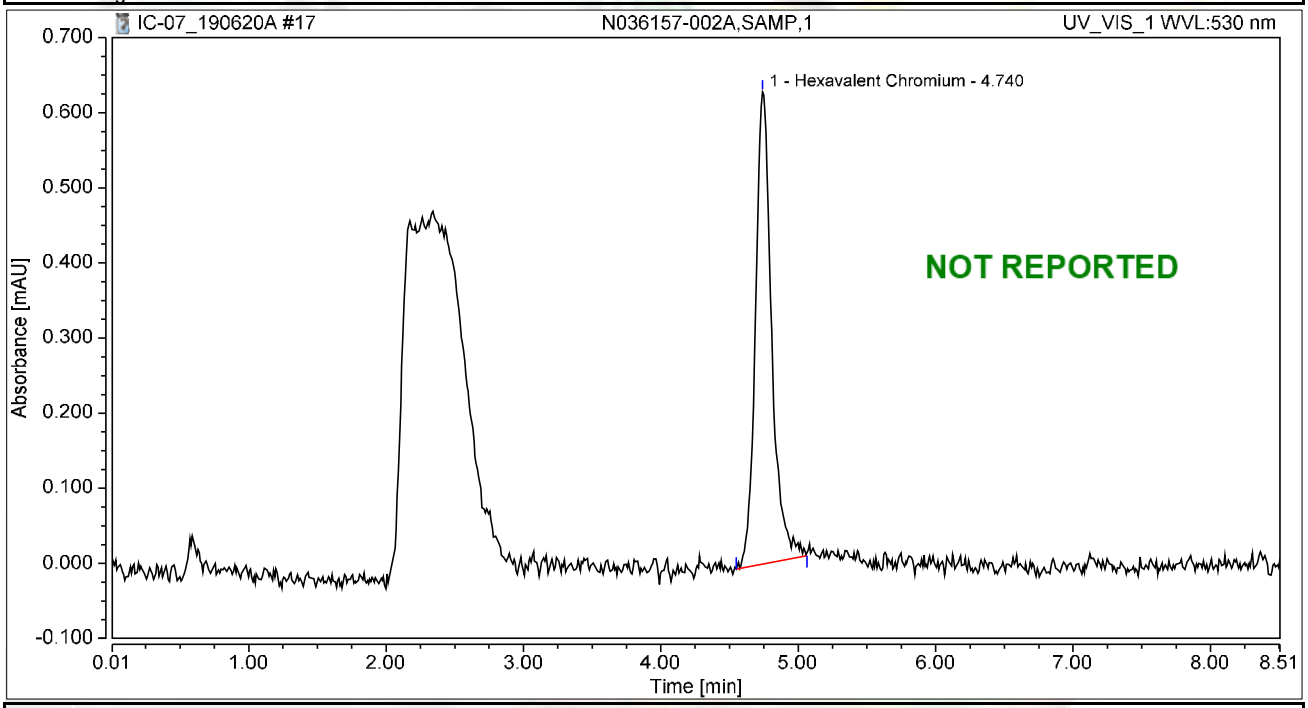
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.698	98.884	703.765	100.00	100.00	385.0356
Total:			**98.884**	**703.765**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036157-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 10:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

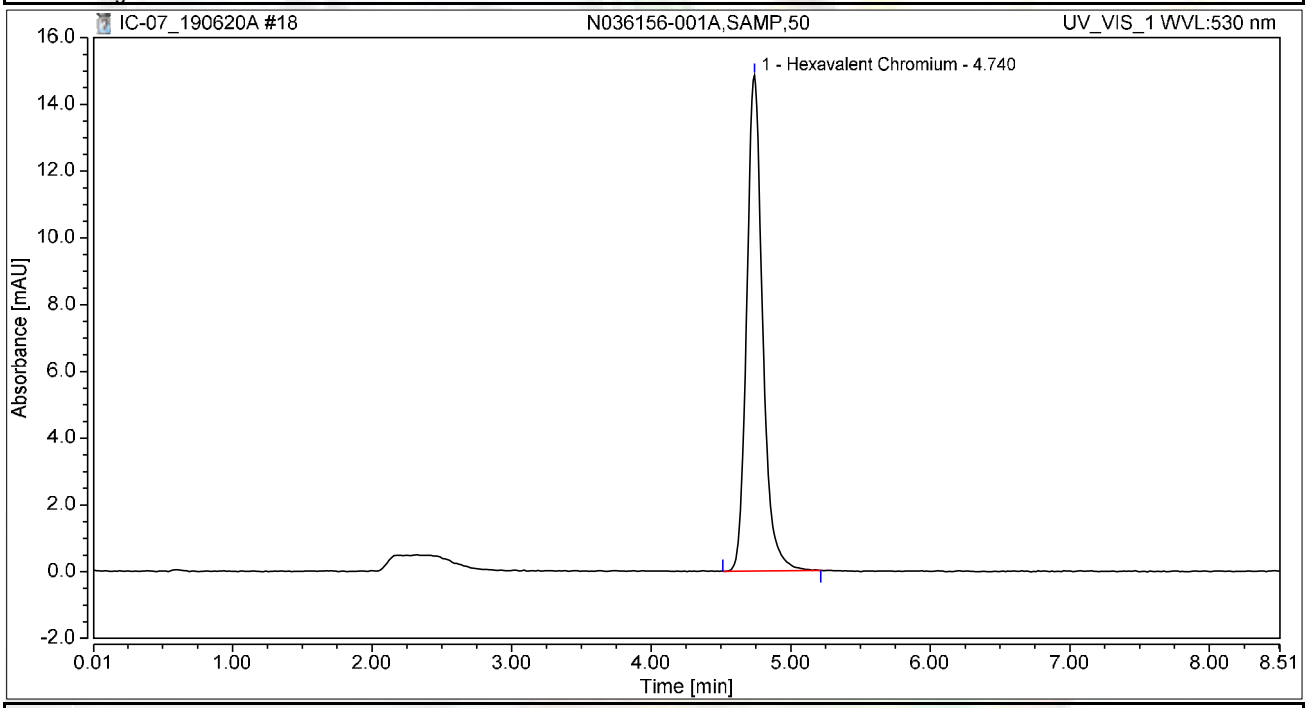
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.086	0.629	100.00	100.00	0.3356
Total:			**0.086**	**0.629**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036156-001A,SAMP,50**	*Run Time (min):*	**8.50**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 10:27**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

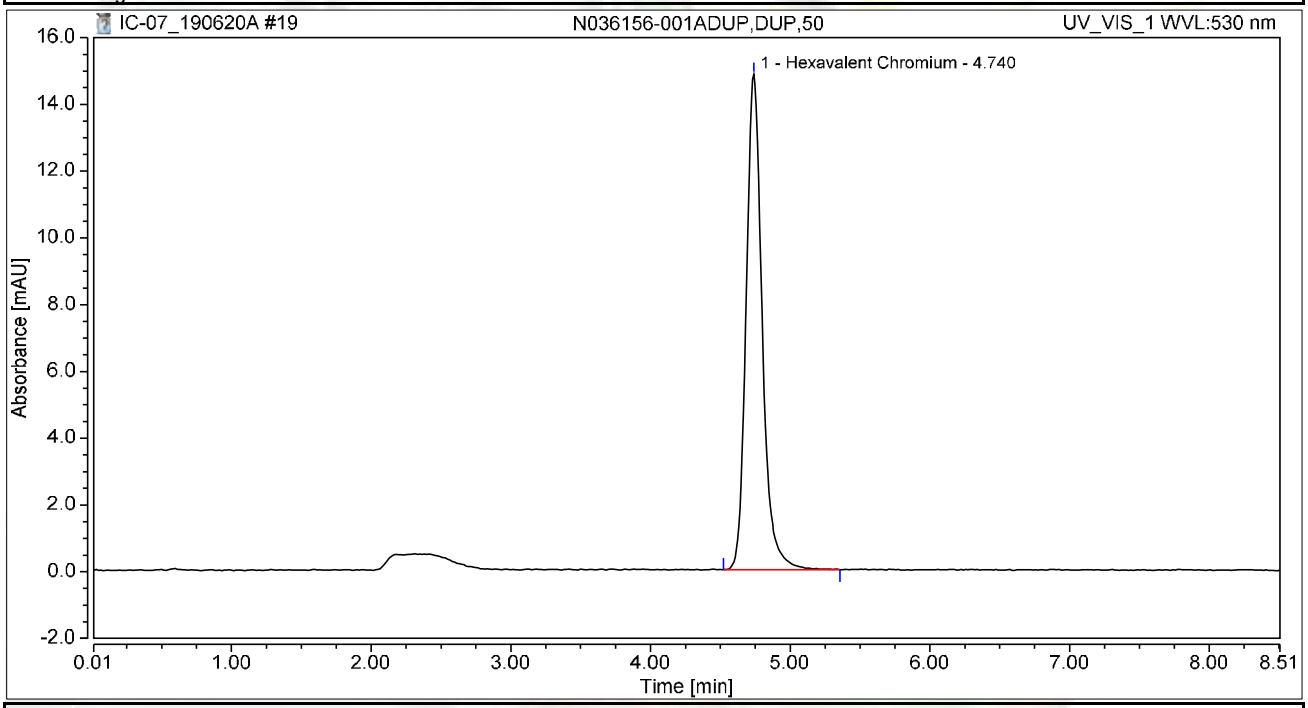
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.967	14.849	100.00	100.00	7.6608
Total:			**1.967**	**14.849**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036156-001ADUP,DUP,50**	*Run Time (min):*	**8.49**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 10:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

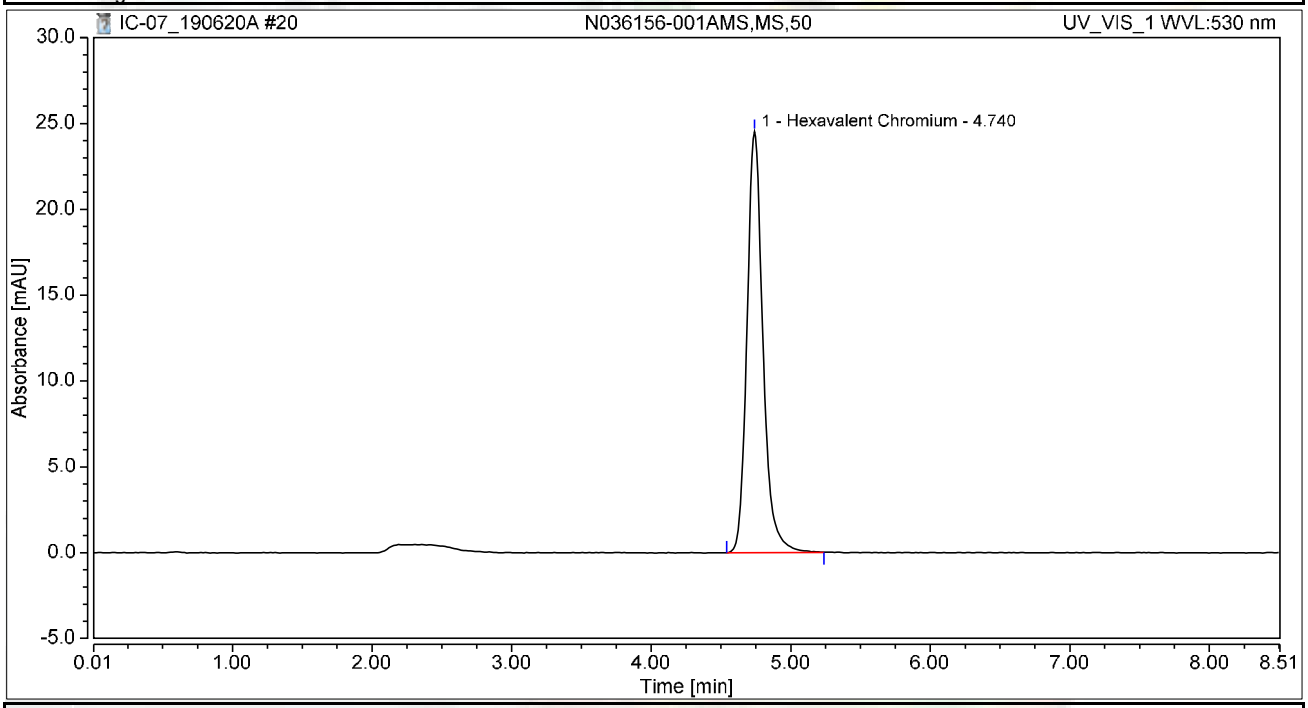
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	1.985	14.846	100.00	100.00	7.7286
Total:			**1.985**	**14.846**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036156-001AMS,MS,50**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 10:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

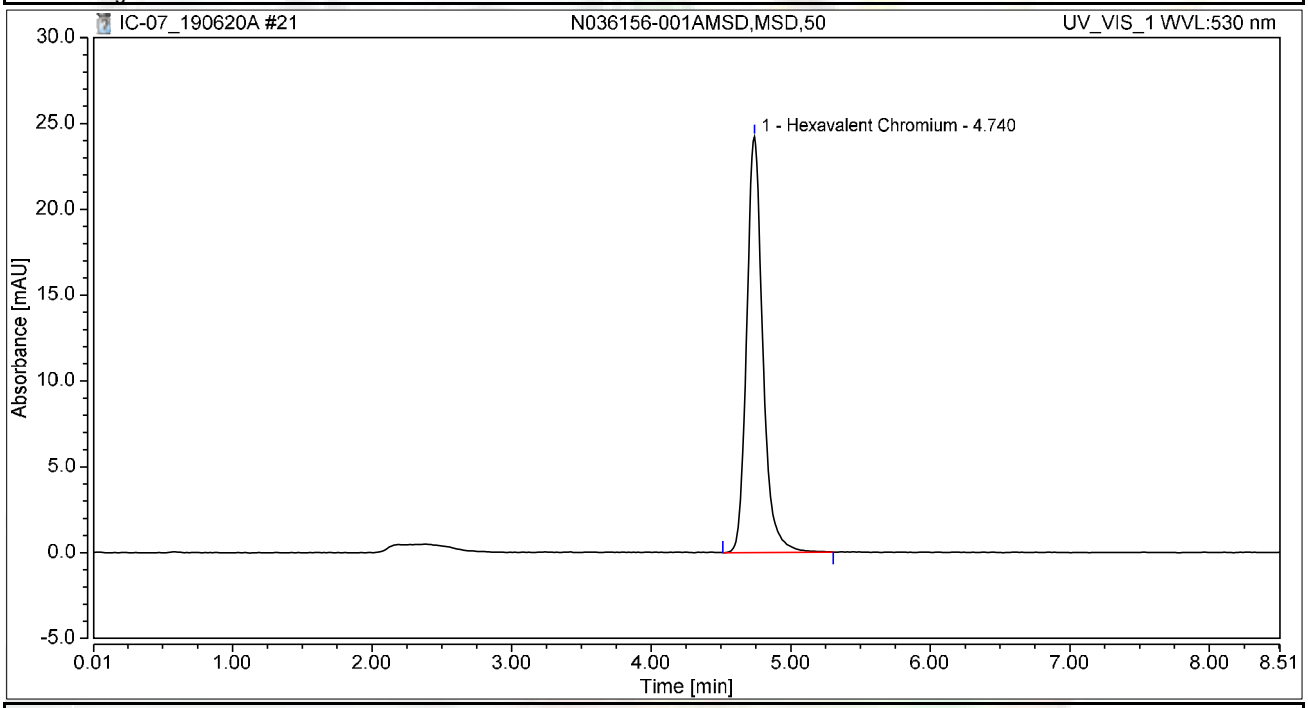
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.258	24.519	100.00	100.00	12.6848
Total:			**3.258**	**24.519**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036156-001AMSD,MSD,50**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 10:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

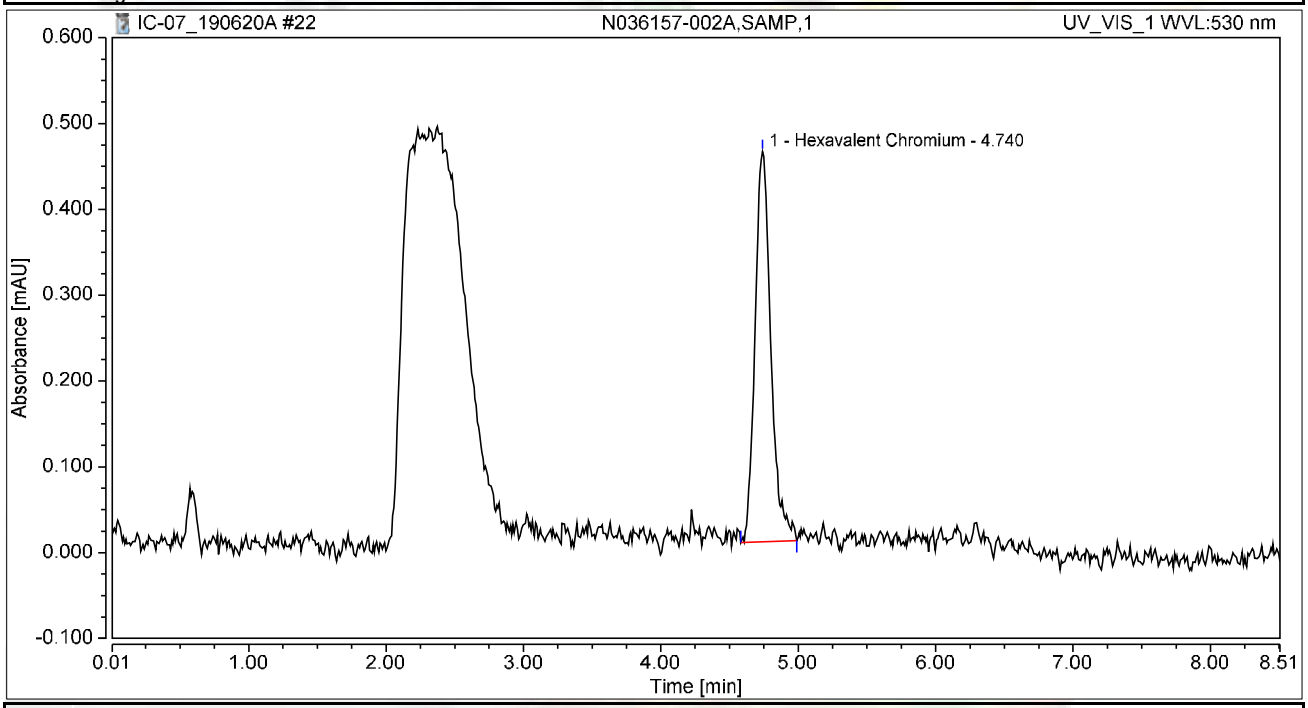
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	3.249	24.236	100.00	100.00	12.6526
Total:			**3.249**	**24.236**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036157-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 11:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

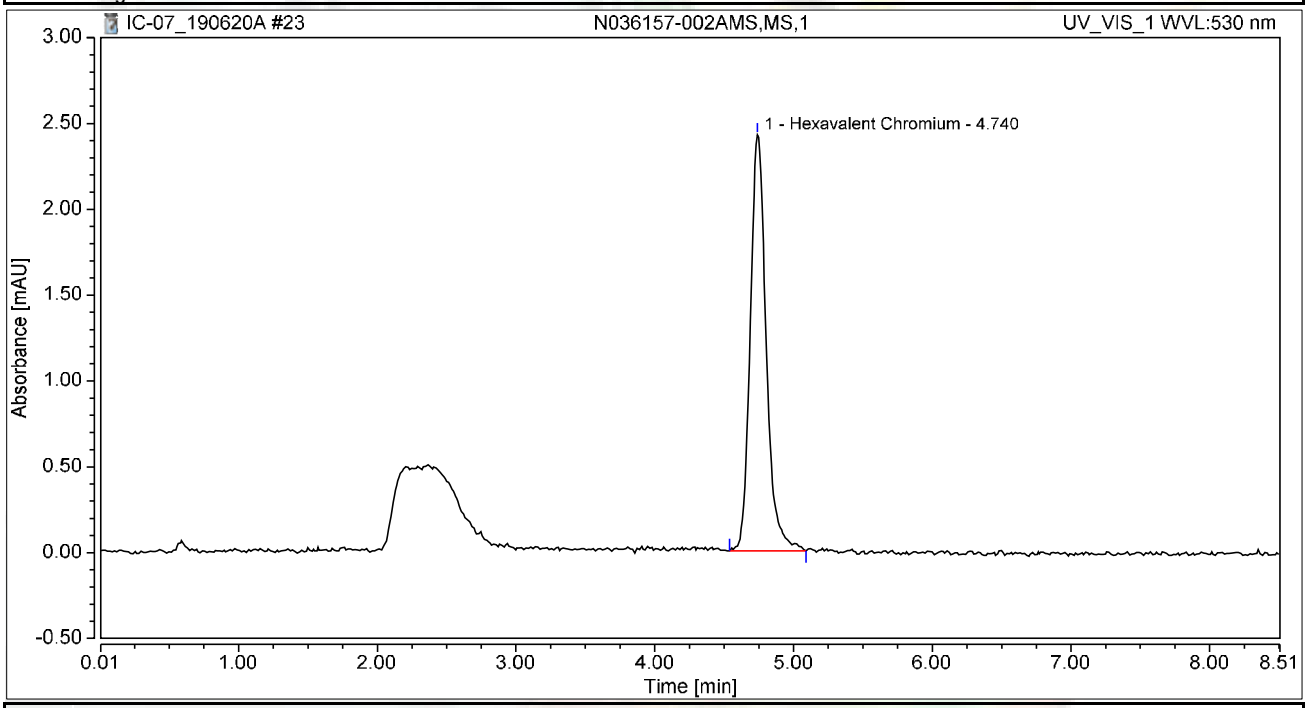
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.061	0.455	100.00	100.00	0.2366
Total:			**0.061**	**0.455**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036157-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 11:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

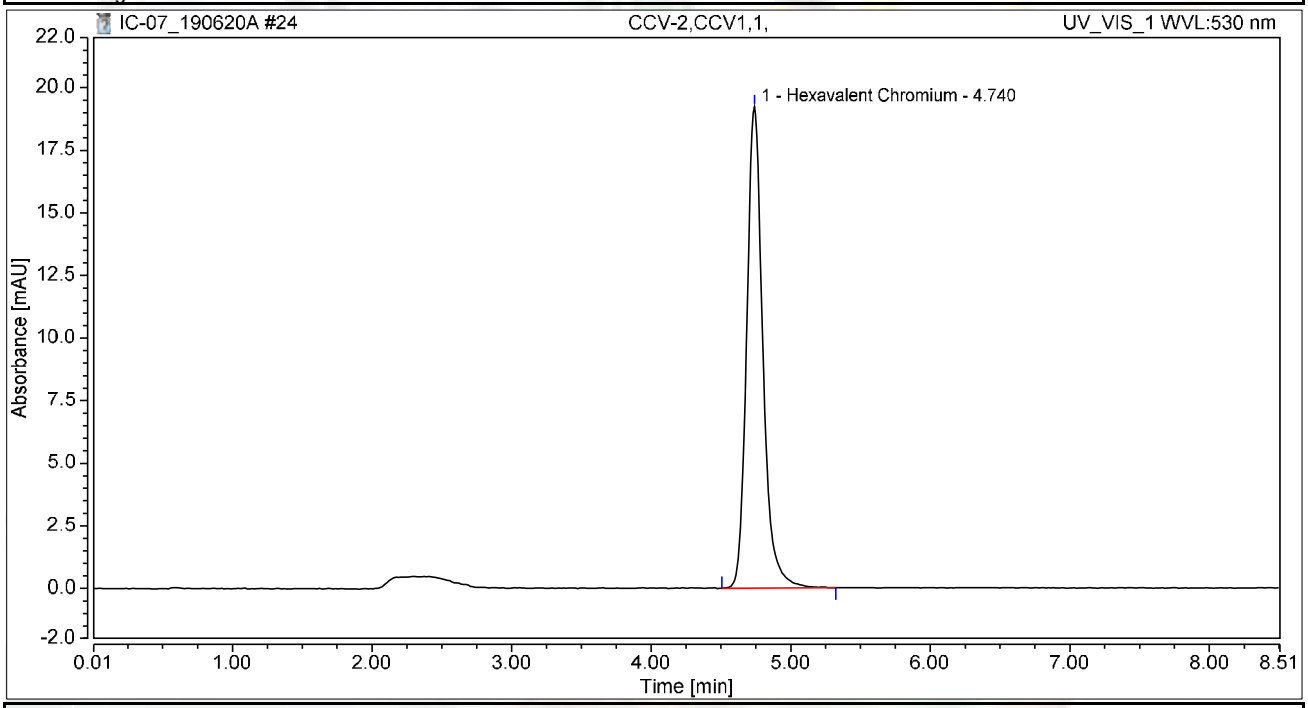
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.323	2.422	100.00	100.00	1.2579
Total:			**0.323**	**2.422**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-2,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 11:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

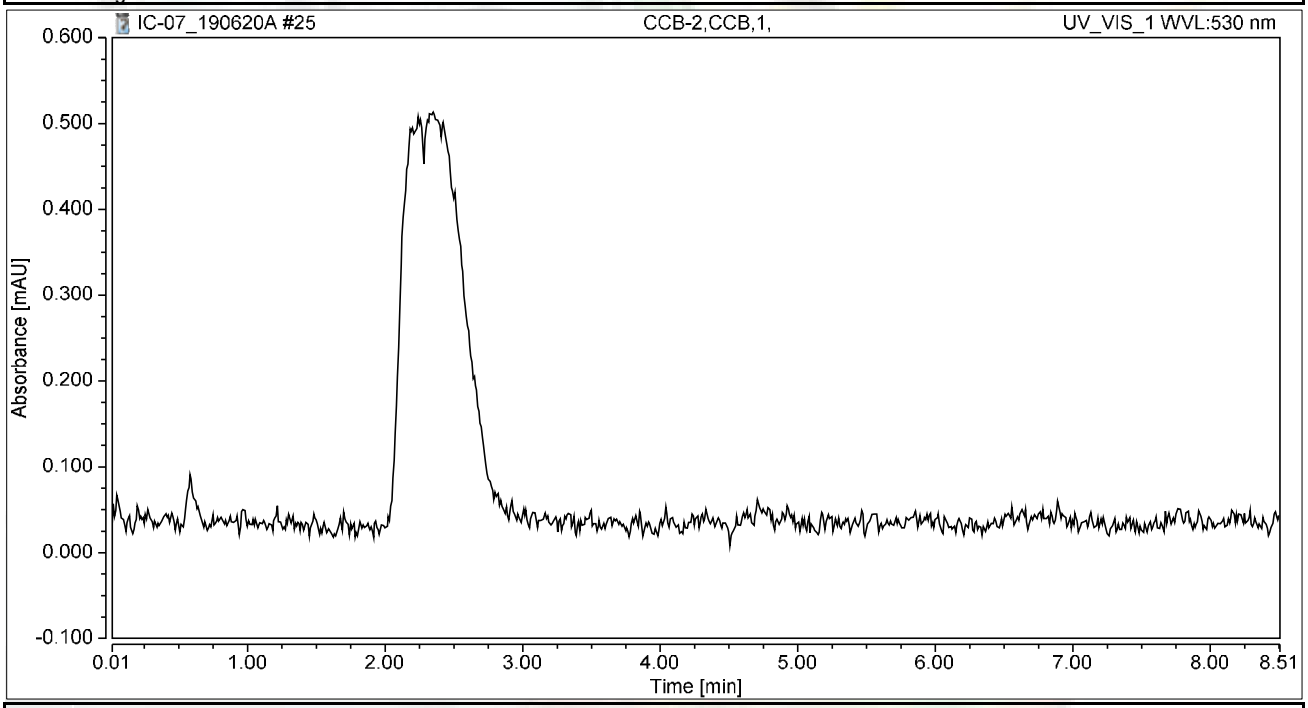
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.591	19.235	100.00	100.00	10.0884
Total:			**2.591**	**19.235**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-2,CCB,1,**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 11:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

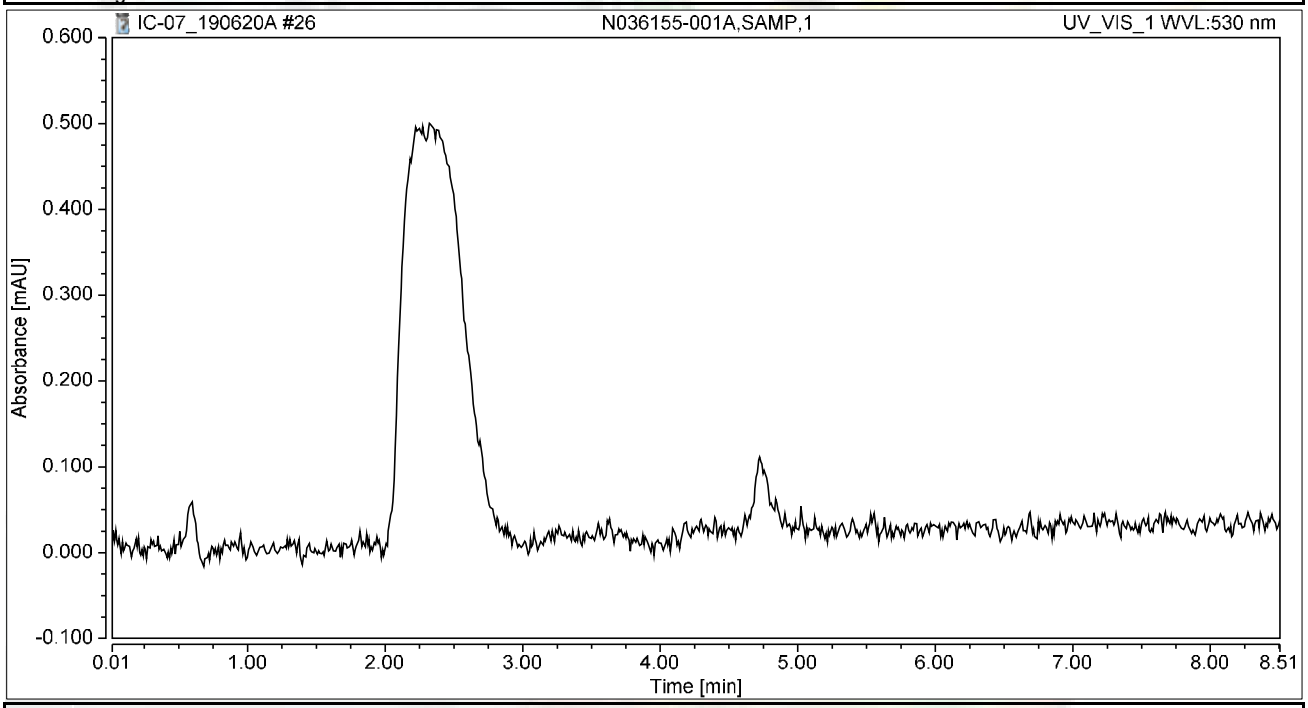
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-001A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**1**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 12:39**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

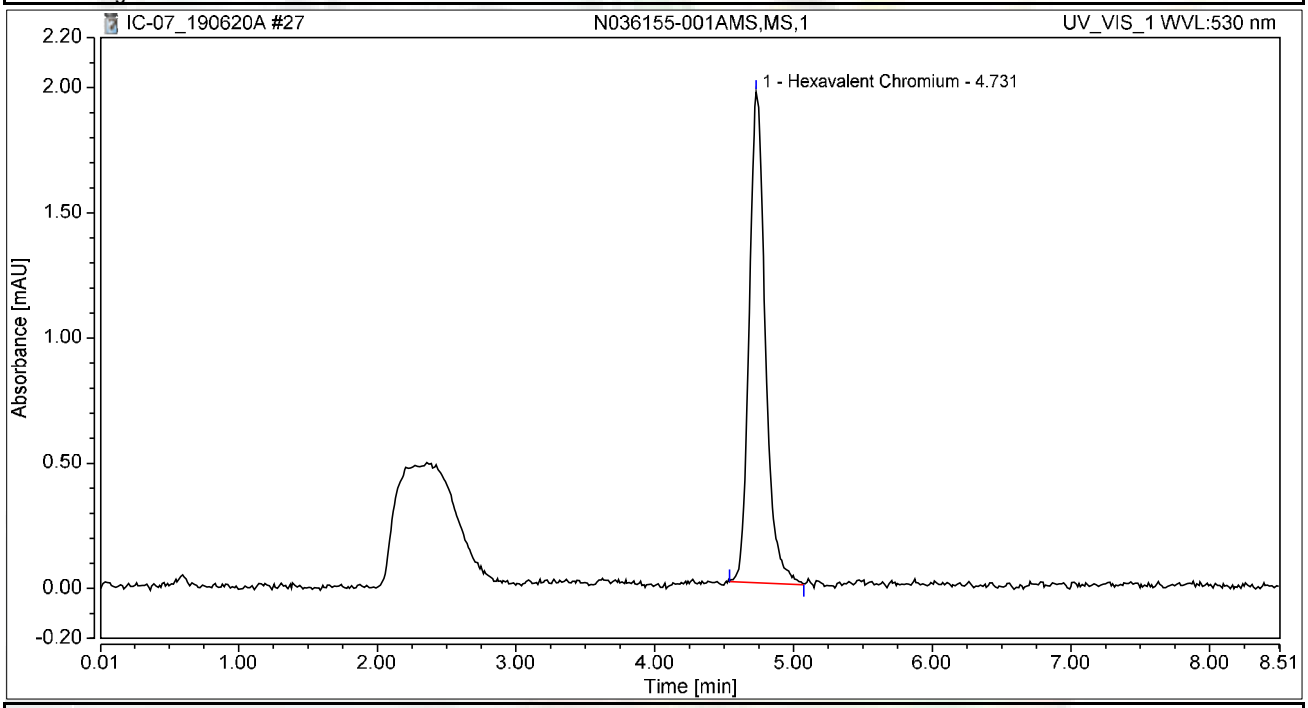
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-001AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**2**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 12:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

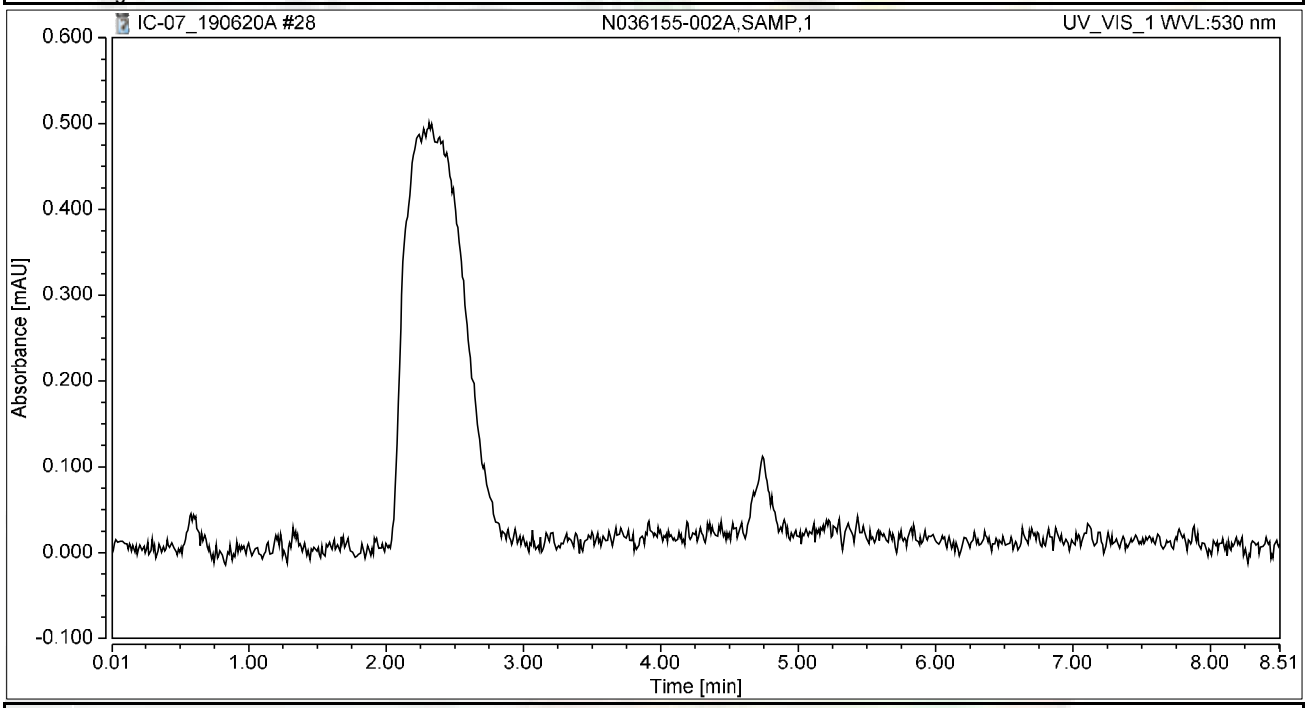
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.265	1.959	100.00	100.00	1.0332
Total:			**0.265**	**1.959**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**3**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 13:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

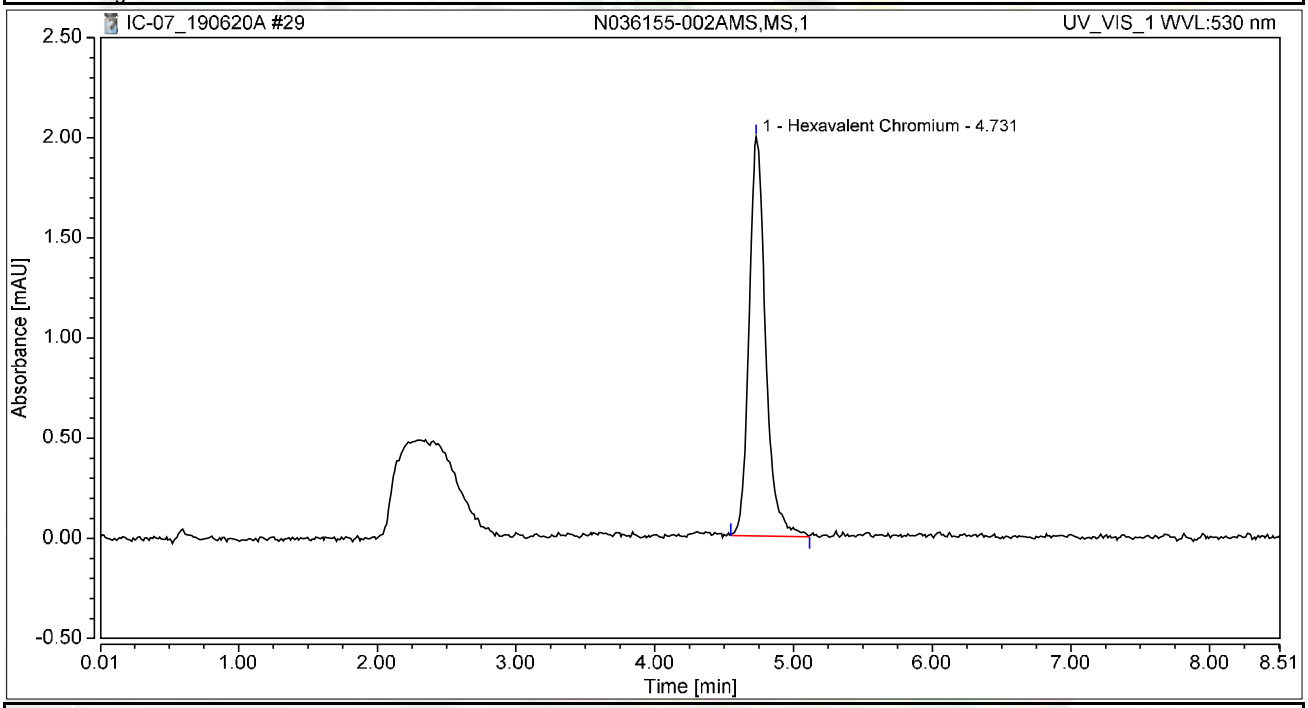
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-002AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**4**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 13:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

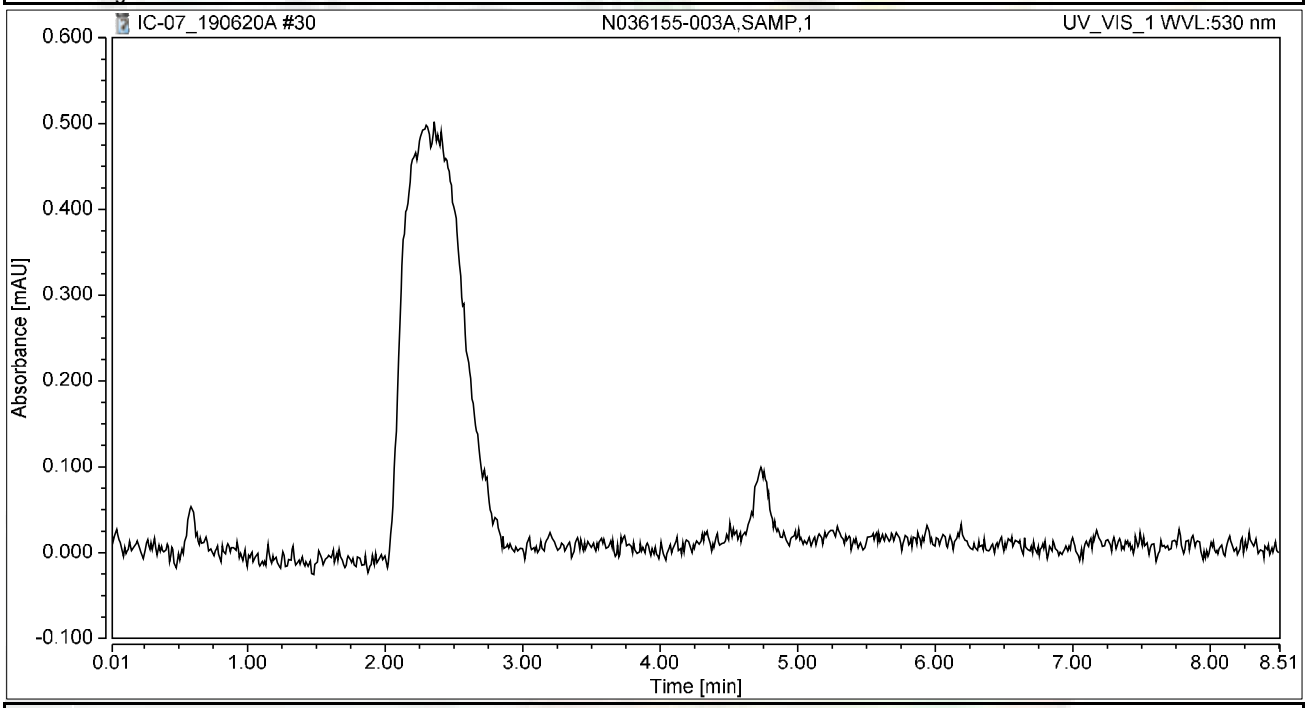
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.275	1.993	100.00	100.00	1.0697
Total:			**0.275**	**1.993**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-003A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**5**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 13:19**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

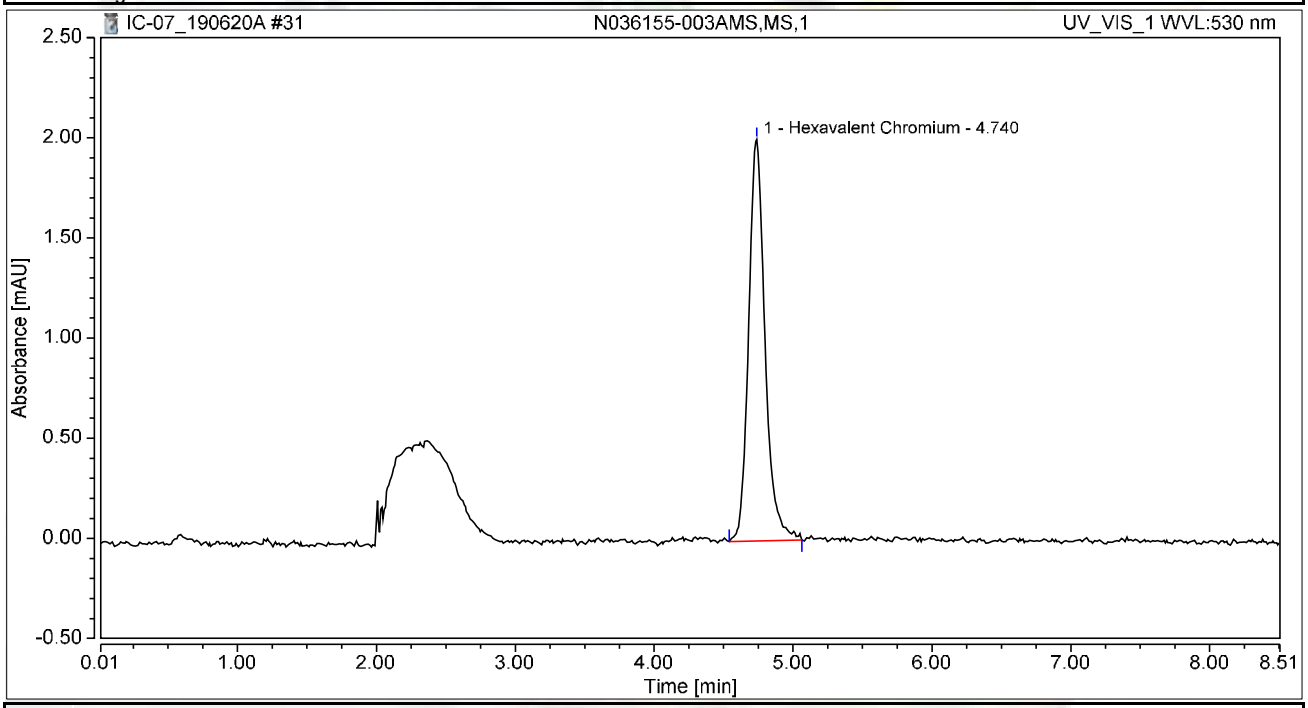
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-003AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**6**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 13:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

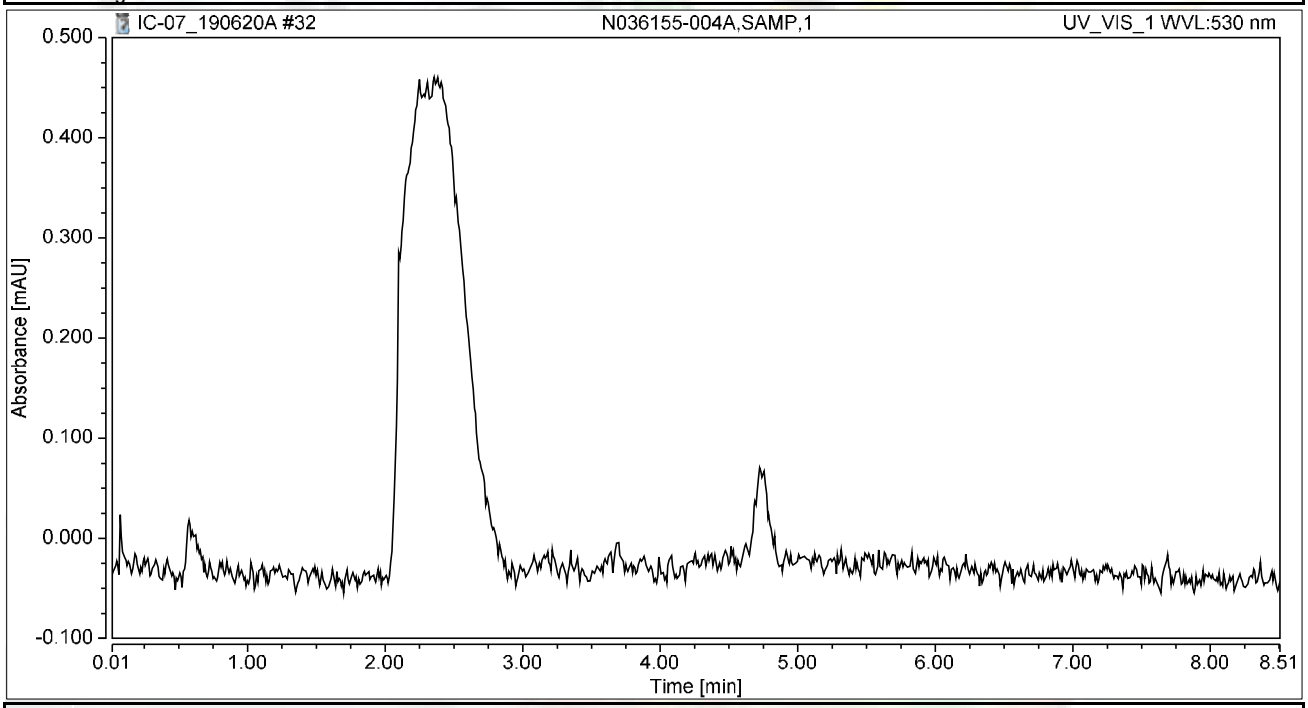
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.275	2.005	100.00	100.00	1.0702
Total:			**0.275**	**2.005**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-004A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**7**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 13:38**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

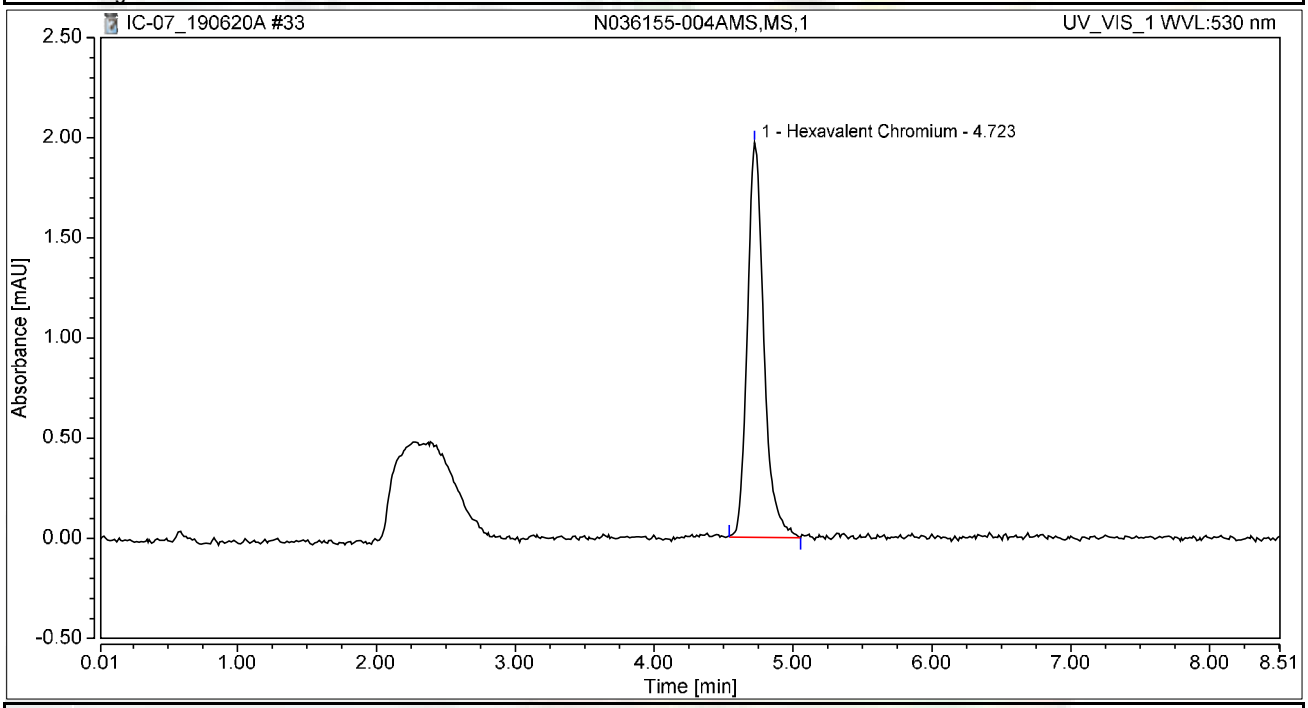
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-004AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**8**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 13:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

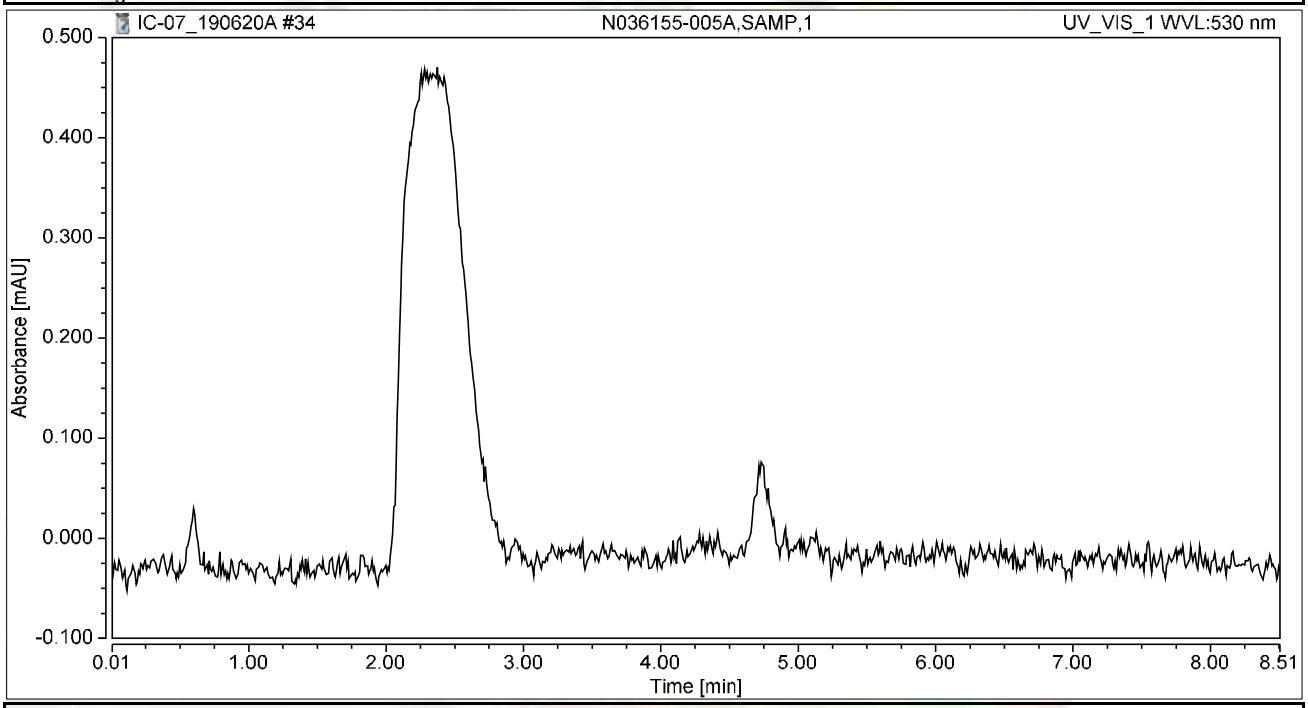
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.723	0.272	1.970	100.00	100.00	1.0588
Total:			**0.272**	**1.970**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-005A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**9**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 13:57**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

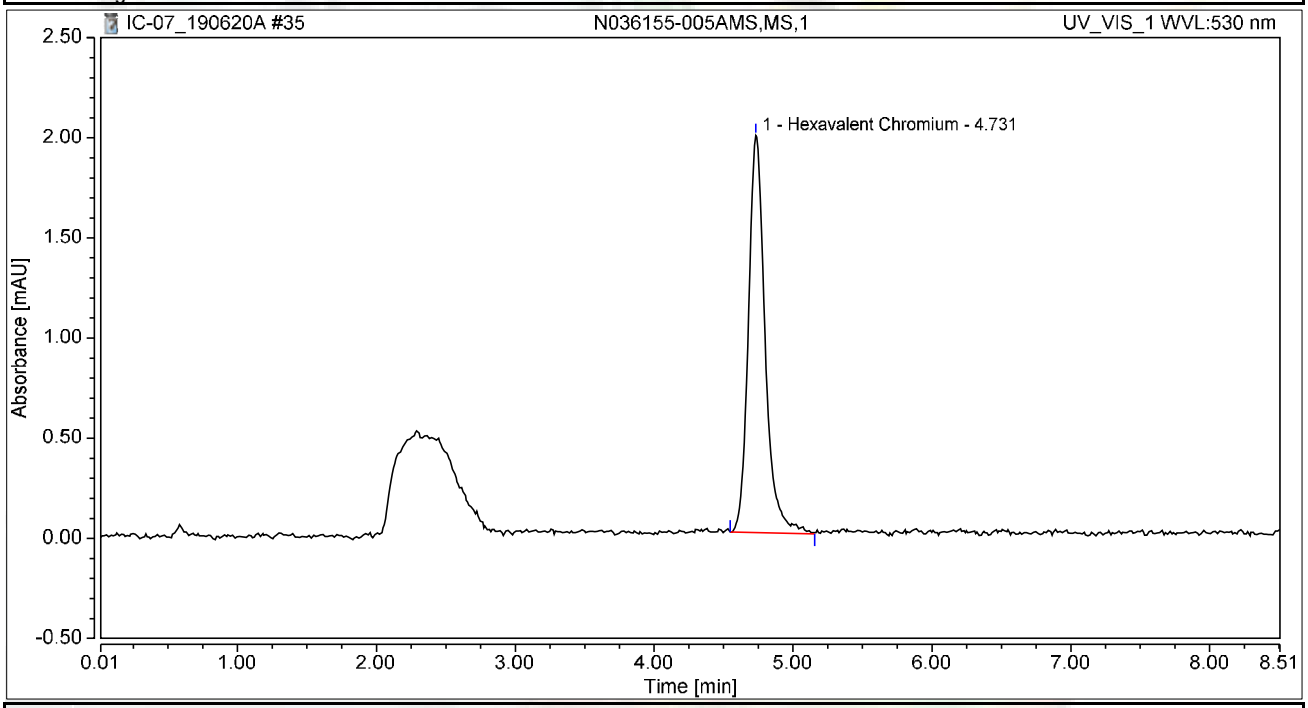
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-005AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**10**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 14:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

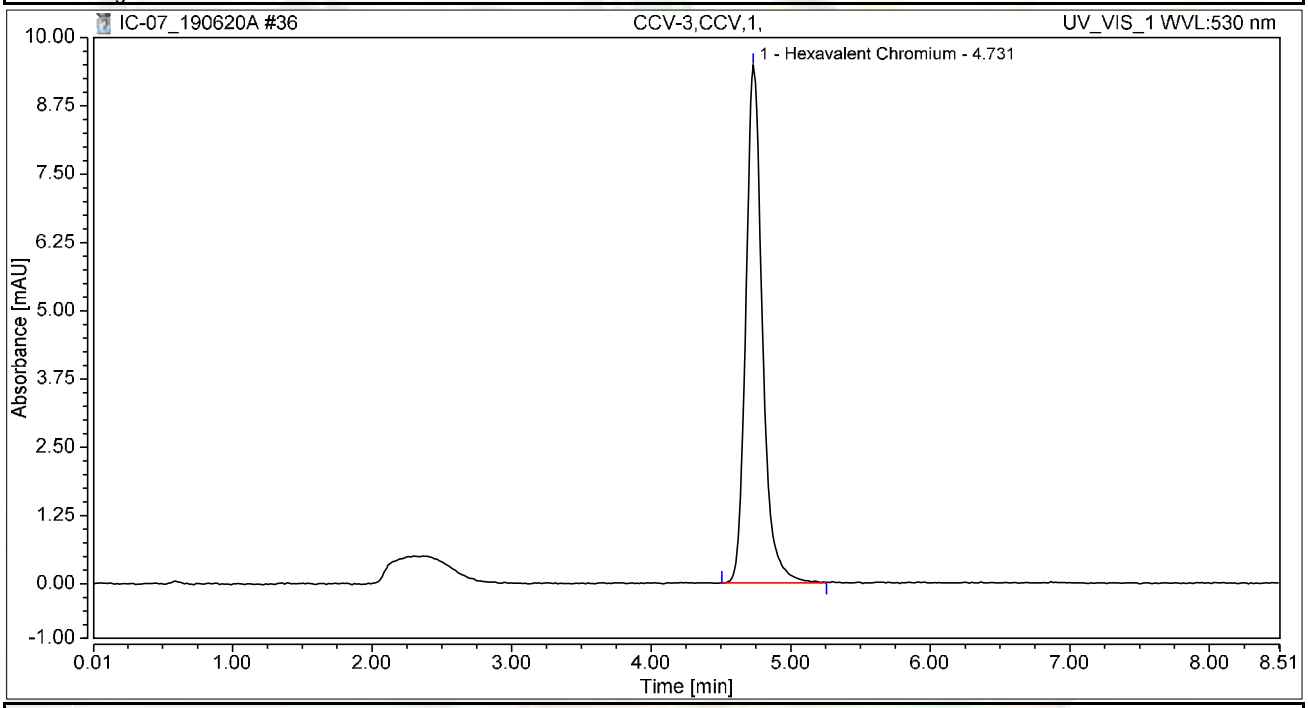
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.277	1.982	100.00	100.00	1.0805
Total:			**0.277**	**1.982**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-3,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**11**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 14:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

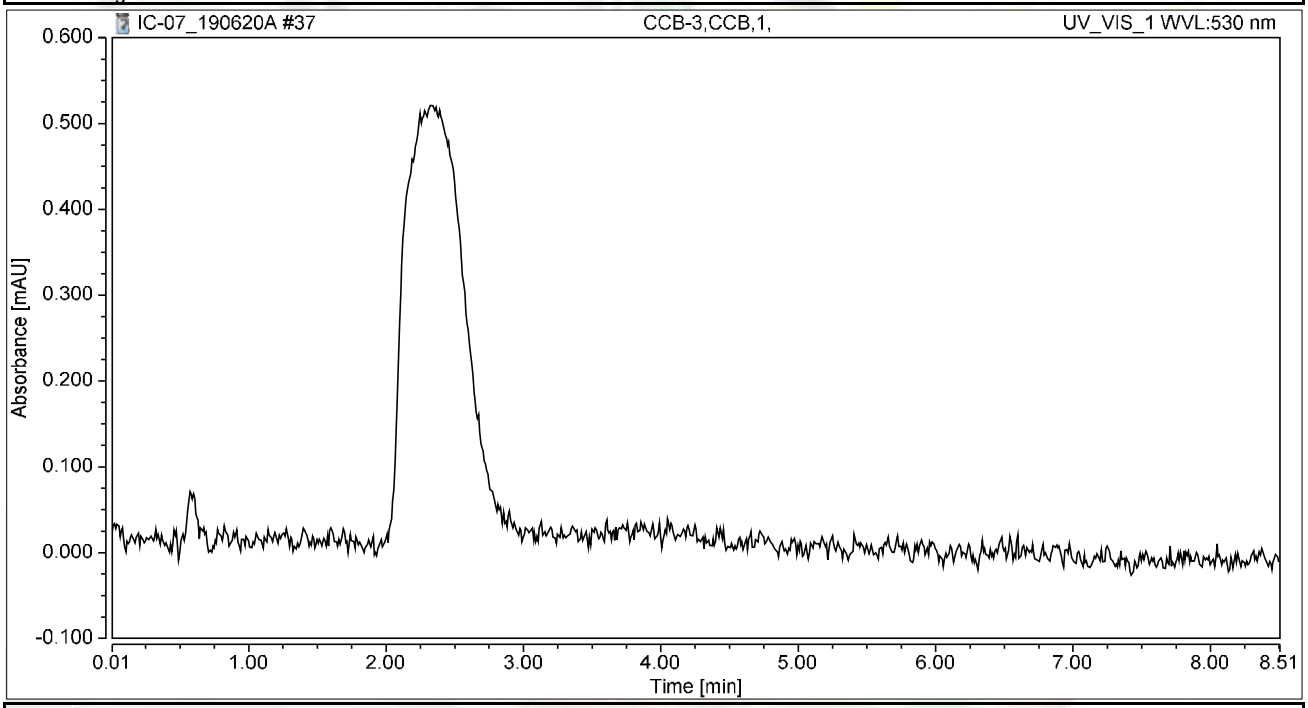
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.304	9.477	100.00	100.00	5.0794
Total:			**1.304**	**9.477**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-3,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**12**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 14:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

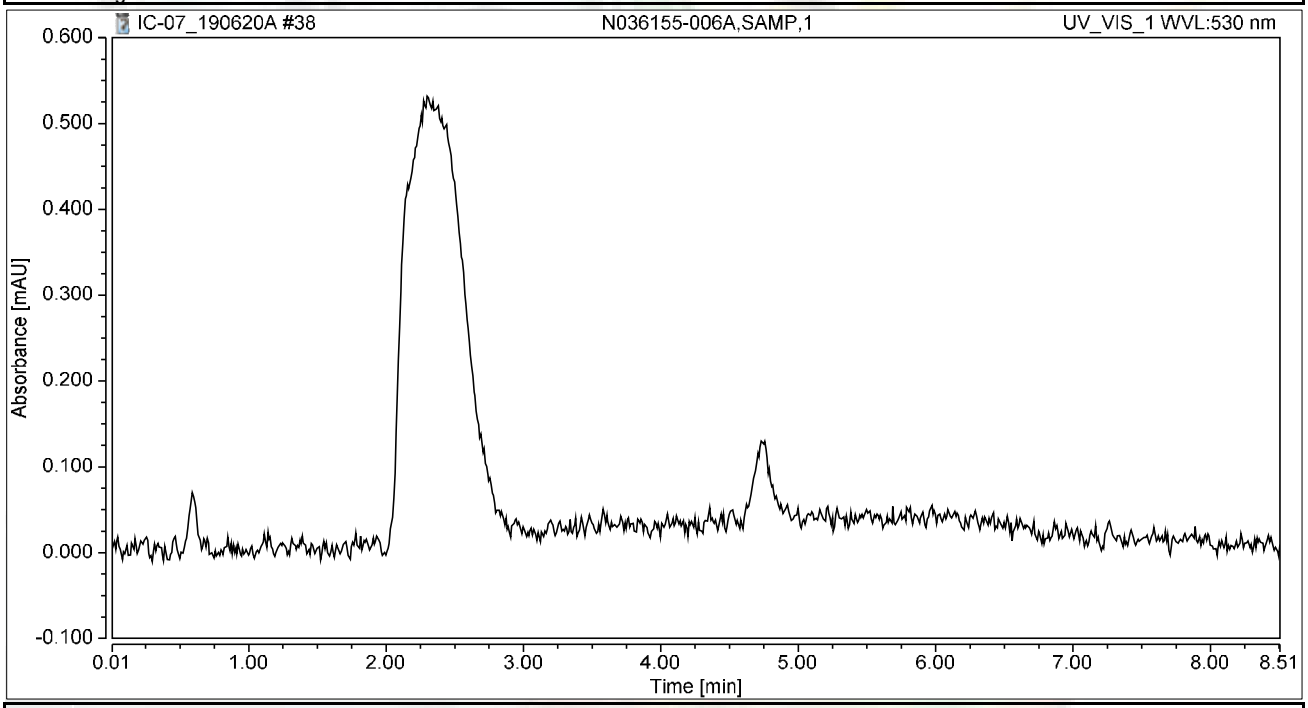
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-006A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**13**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 14:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

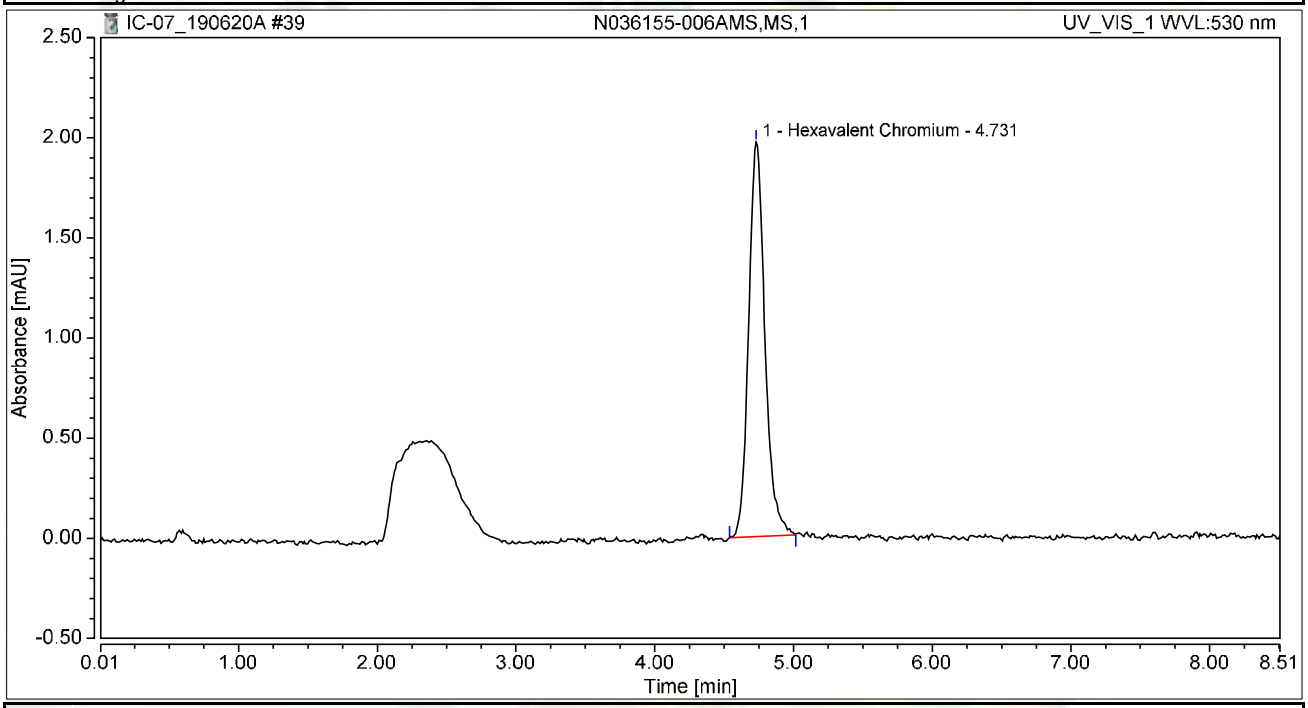
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-006AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**14**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 14:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

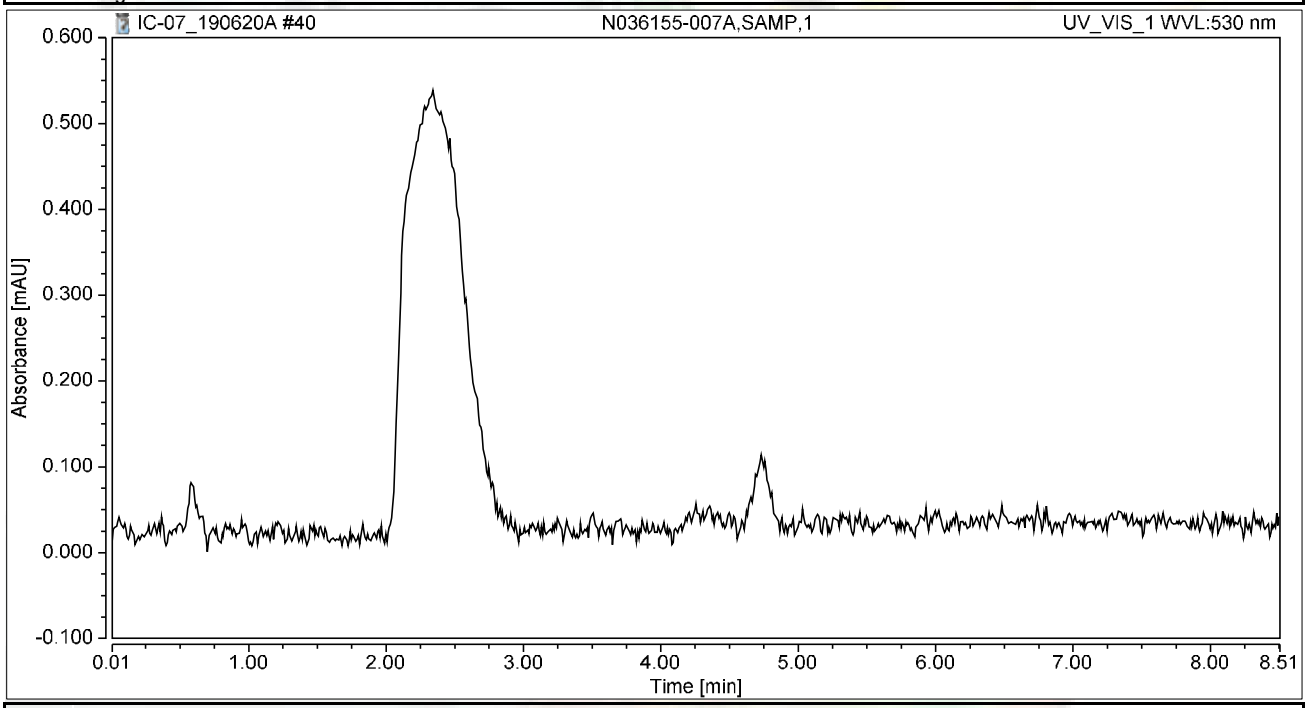
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.267	1.970	100.00	100.00	1.0410
Total:			**0.267**	**1.970**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-007A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**15**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 14:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

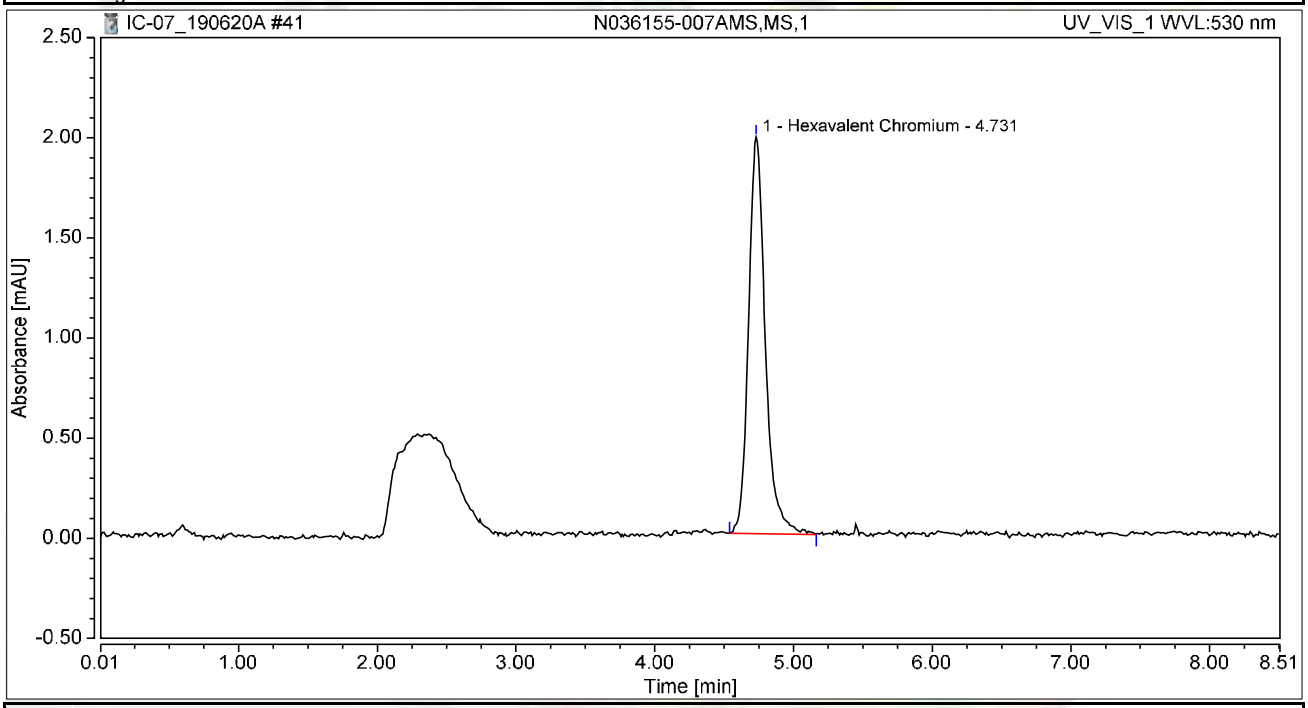
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-007AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**16**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 15:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

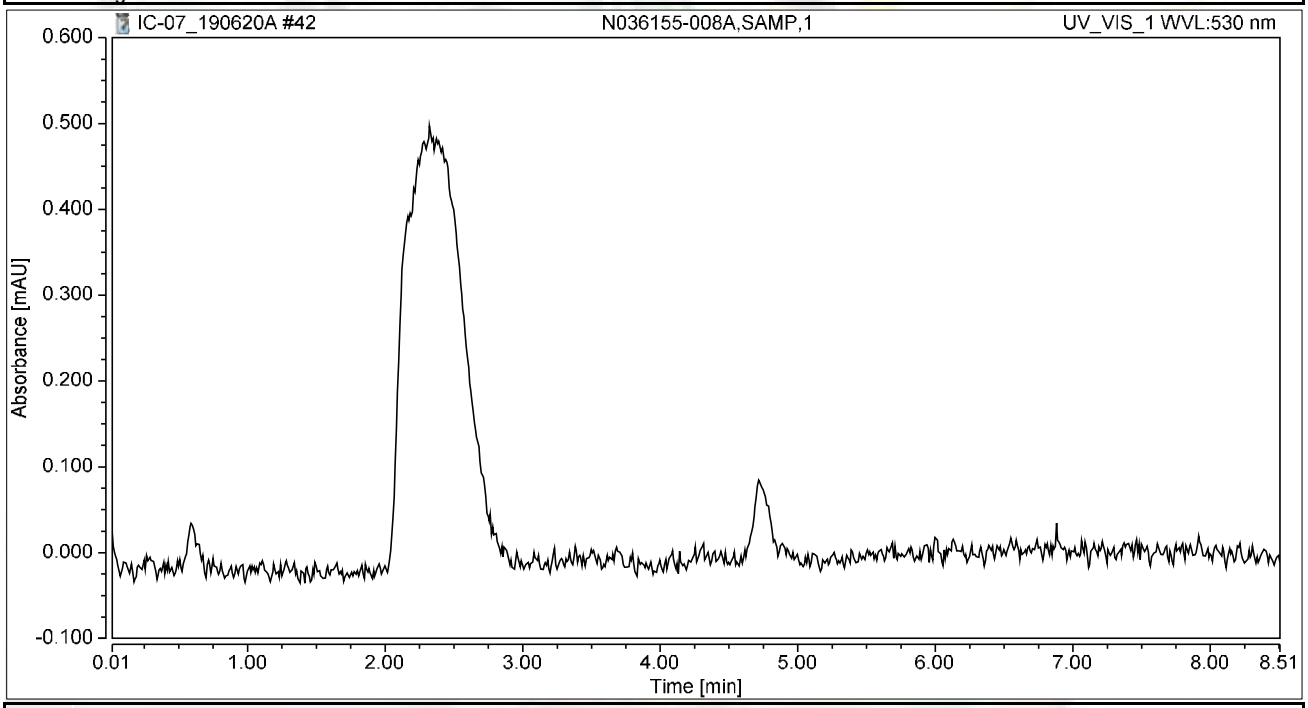
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.278	1.981	100.00	100.00	1.0806
Total:			**0.278**	**1.981**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-008A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**17**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 15:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

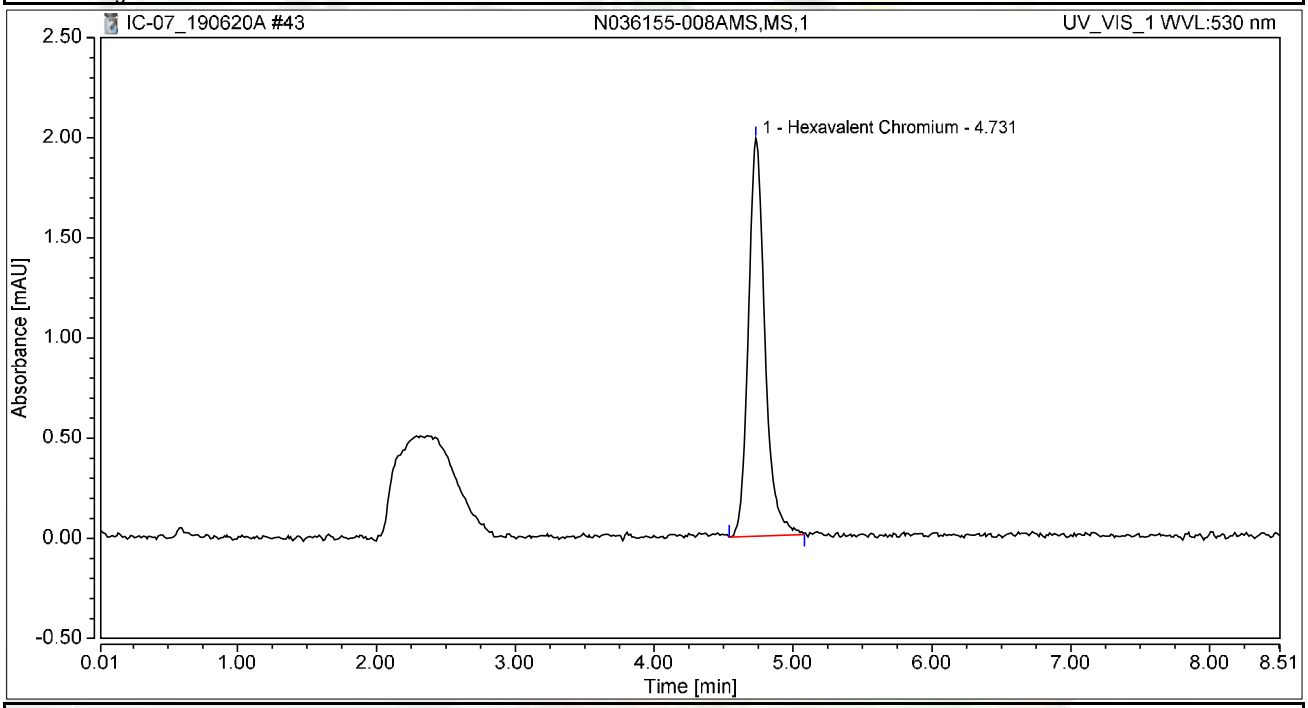
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-008AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**18**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 15:22**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

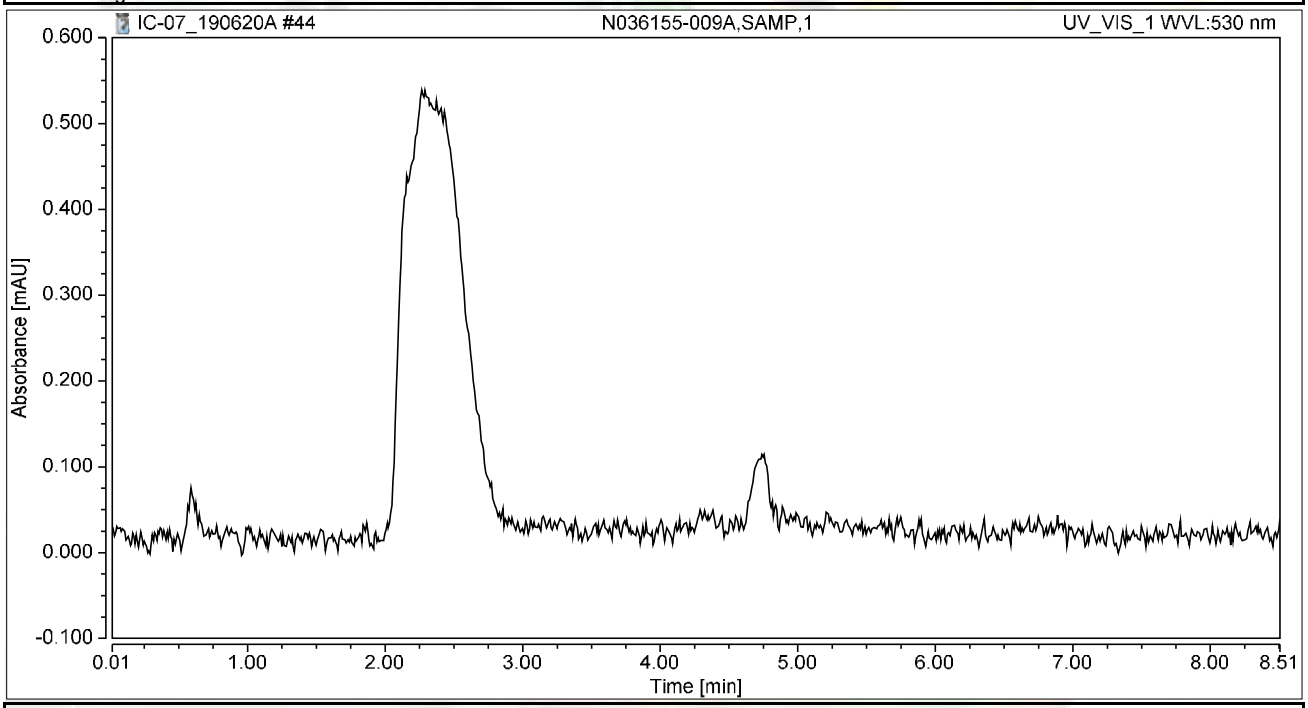
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.275	1.984	100.00	100.00	1.0690
Total:			**0.275**	**1.984**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-009A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**19**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 15:31**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

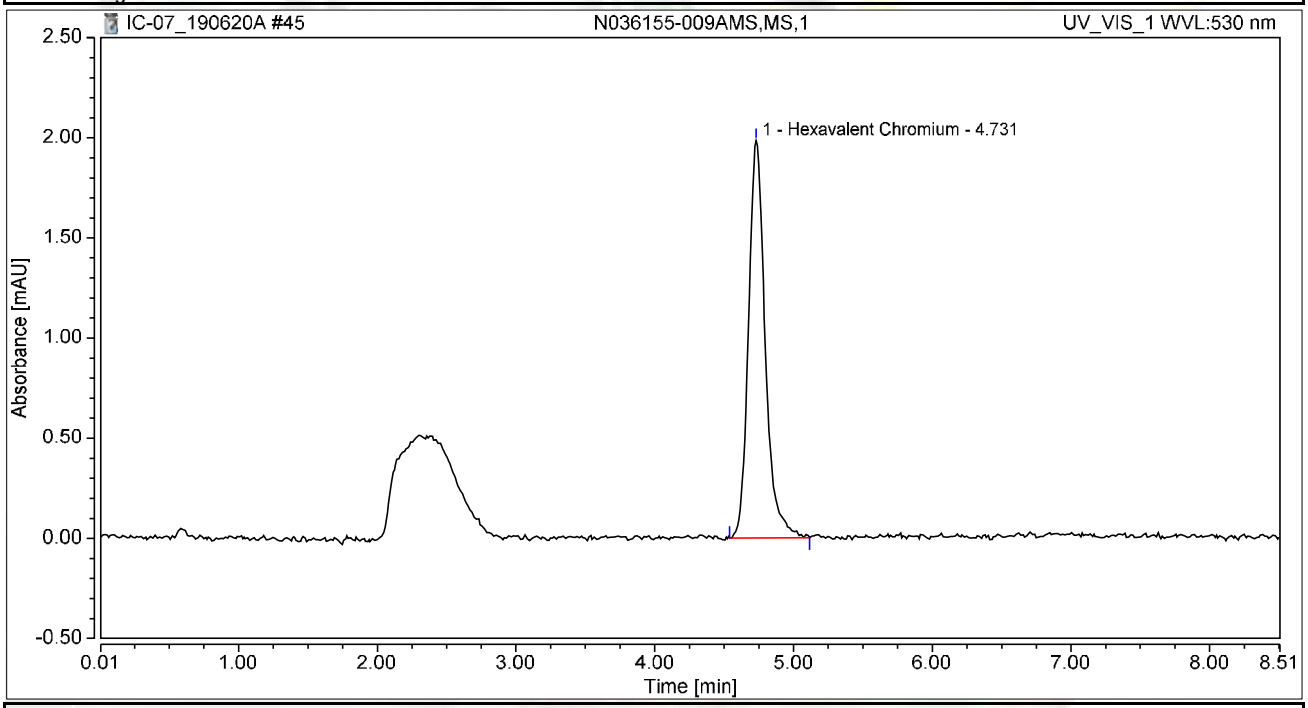
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-009AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**20**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 15:41**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

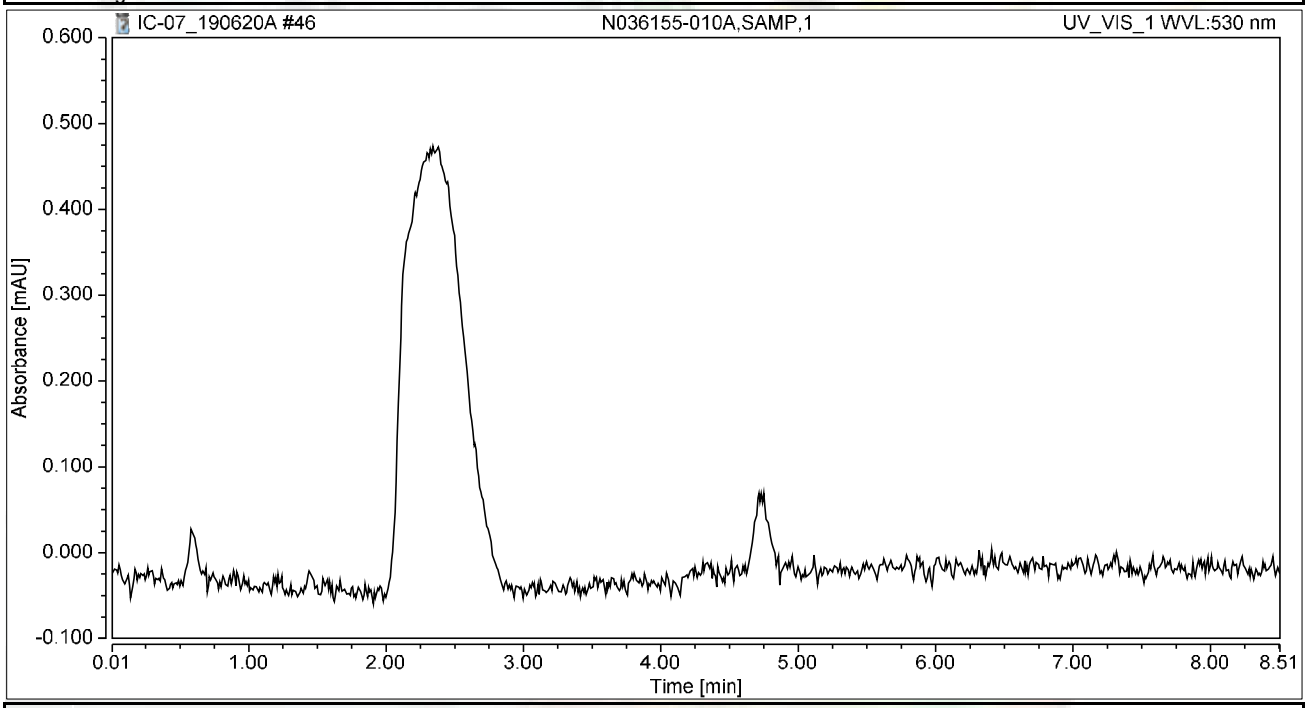
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.277	1.985	100.00	100.00	1.0799
Total:			**0.277**	**1.985**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-010A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**21**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 15:50**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

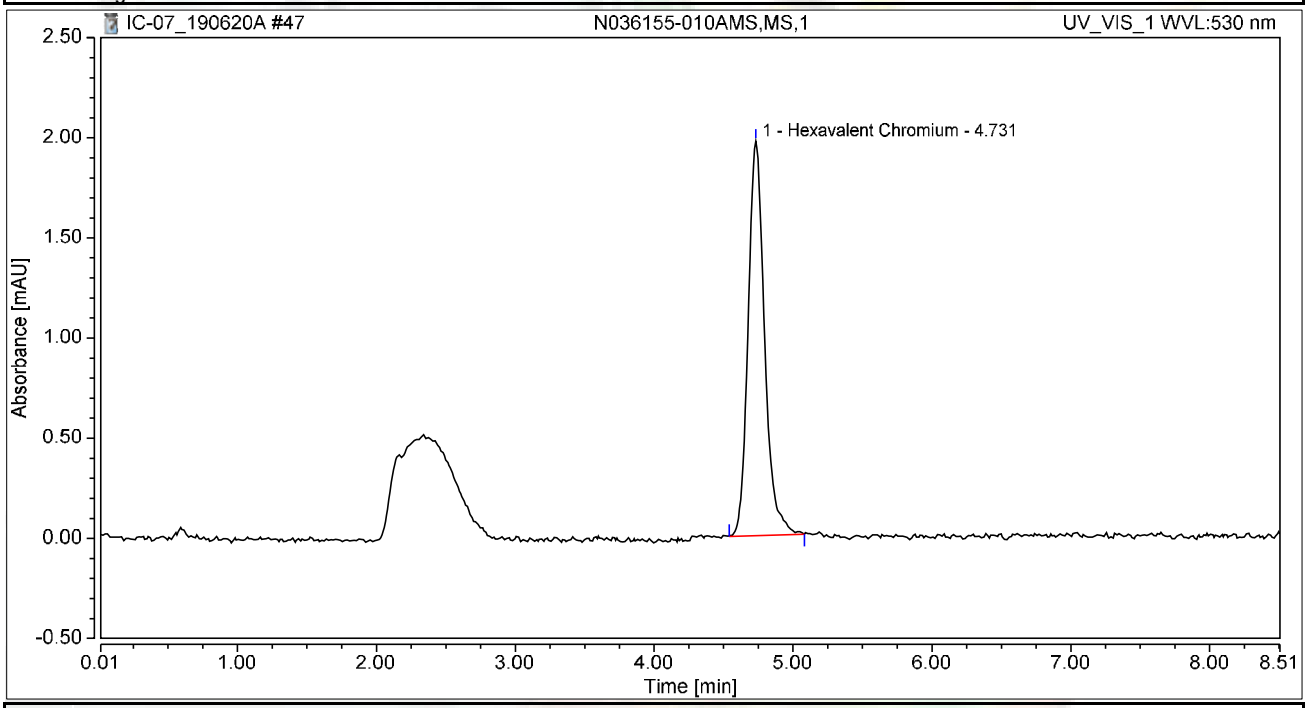
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-010AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**22**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 16:00**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

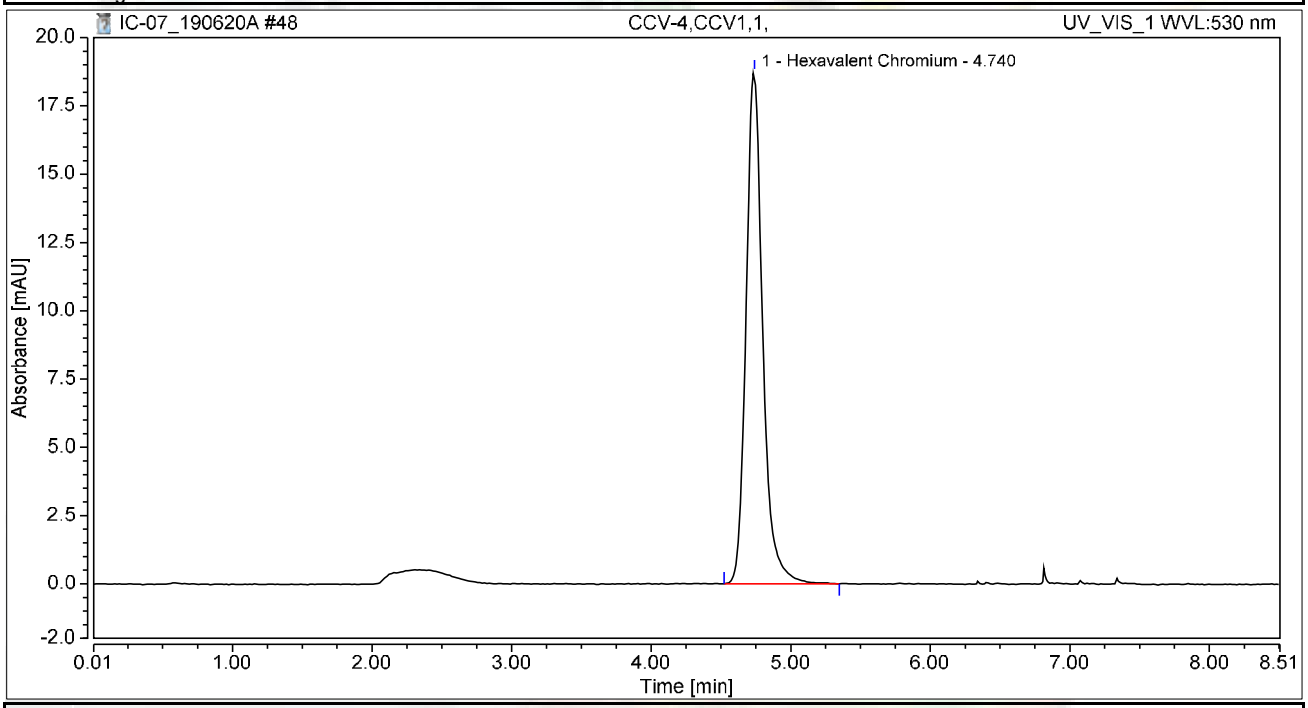
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.271	1.969	100.00	100.00	1.0557
Total:			**0.271**	**1.969**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-4,CCV1,1,**	*Run Time (min):*	**8.50**
Vial Number:	**23**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 16:09**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

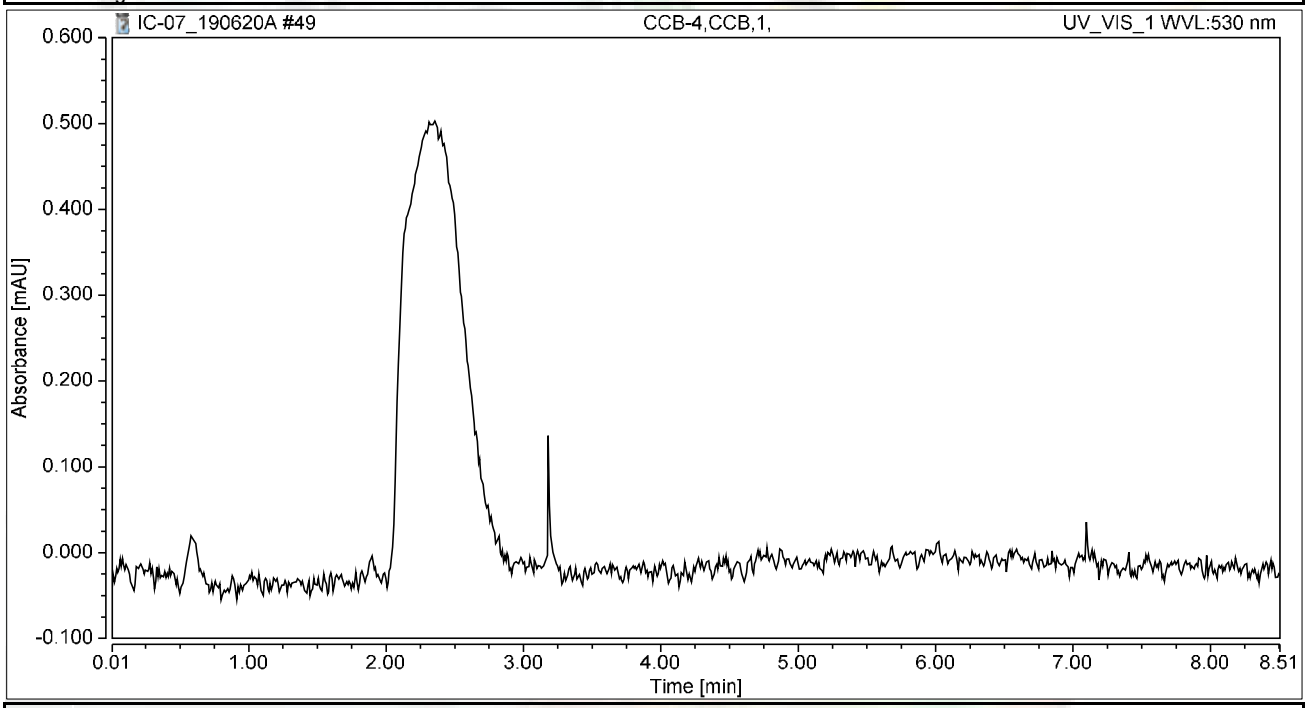
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	2.596	18.738	100.00	100.00	10.1089
Total:			**2.596**	**18.738**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-4,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**24**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 16:18**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

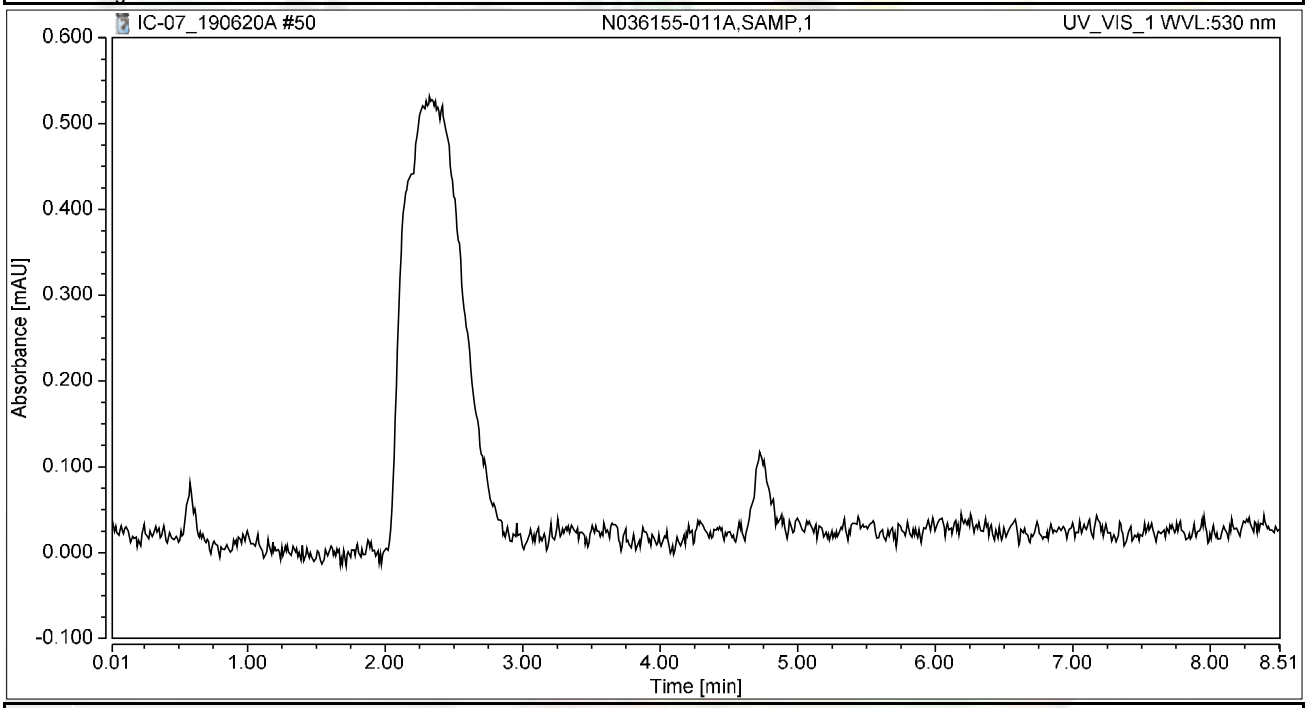
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-011A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**25**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 16:28**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

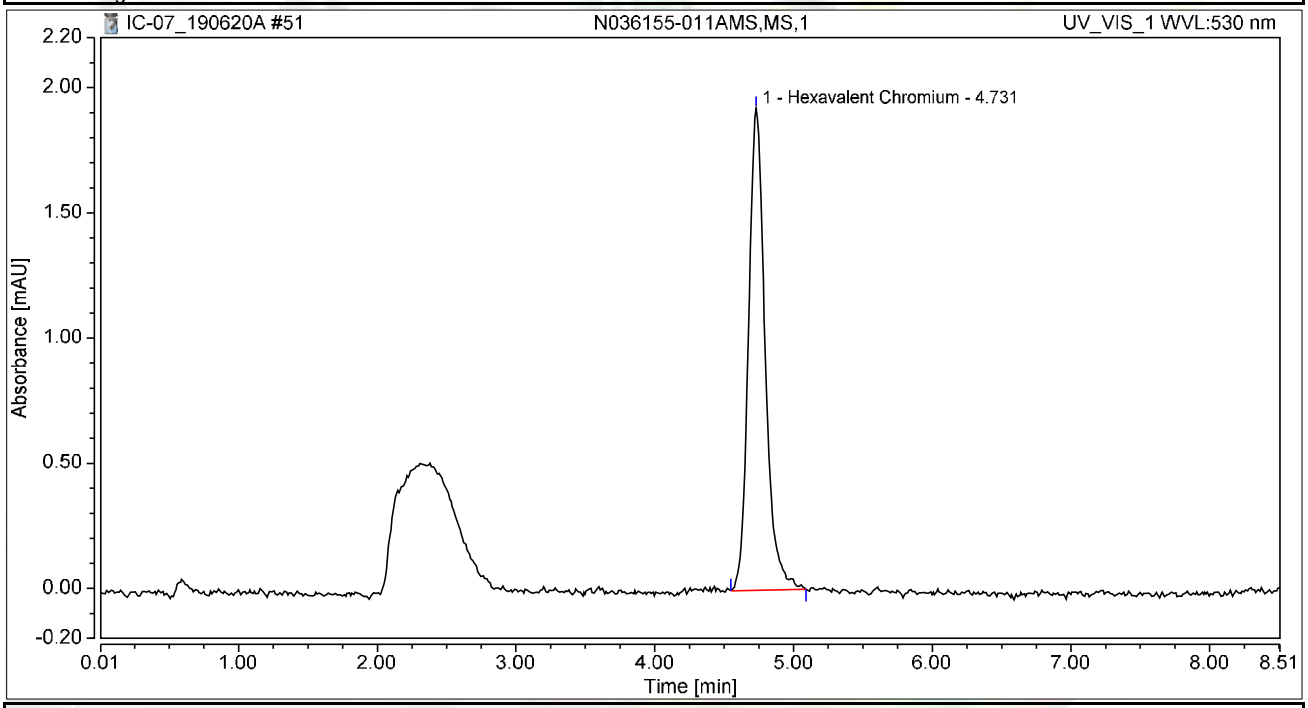
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-011AMS,MS,1**	*Run Time (min):*	**8.50**
Vial Number:	**26**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 16:37**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

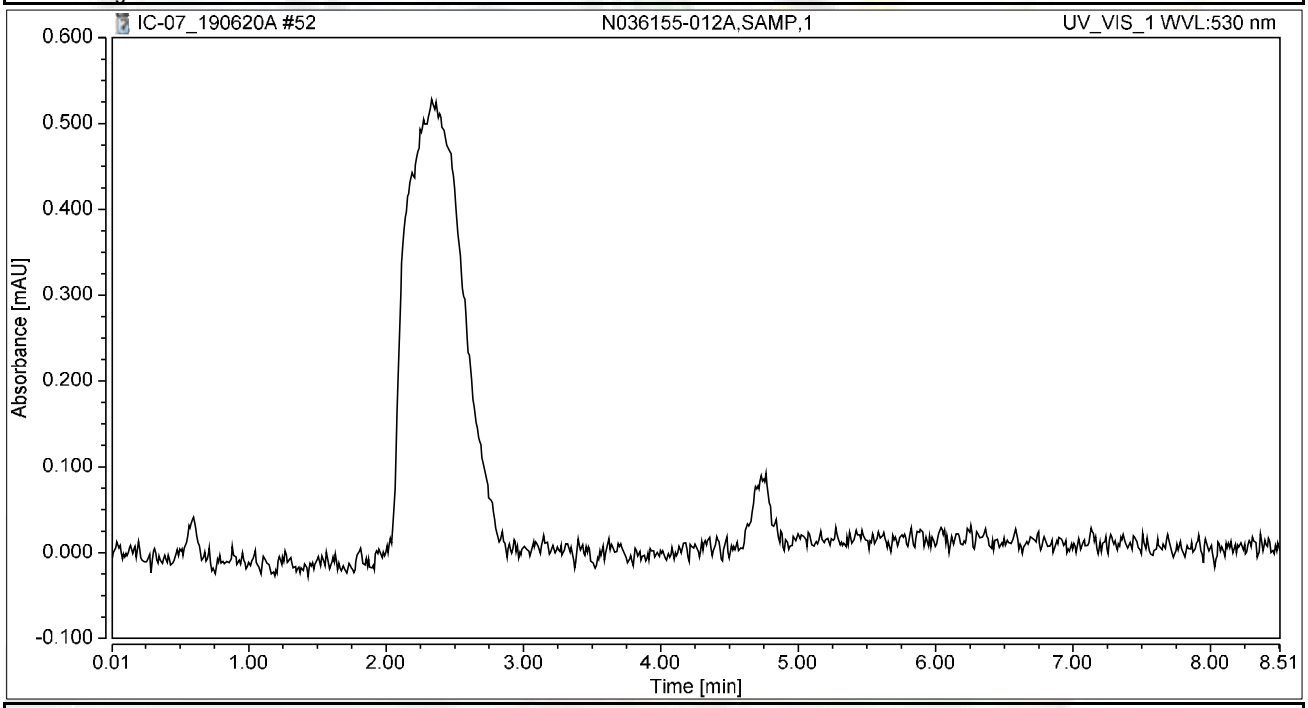
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.268	1.925	100.00	100.00	1.0419
Total:			**0.268**	**1.925**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-012A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**27**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 16:47**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

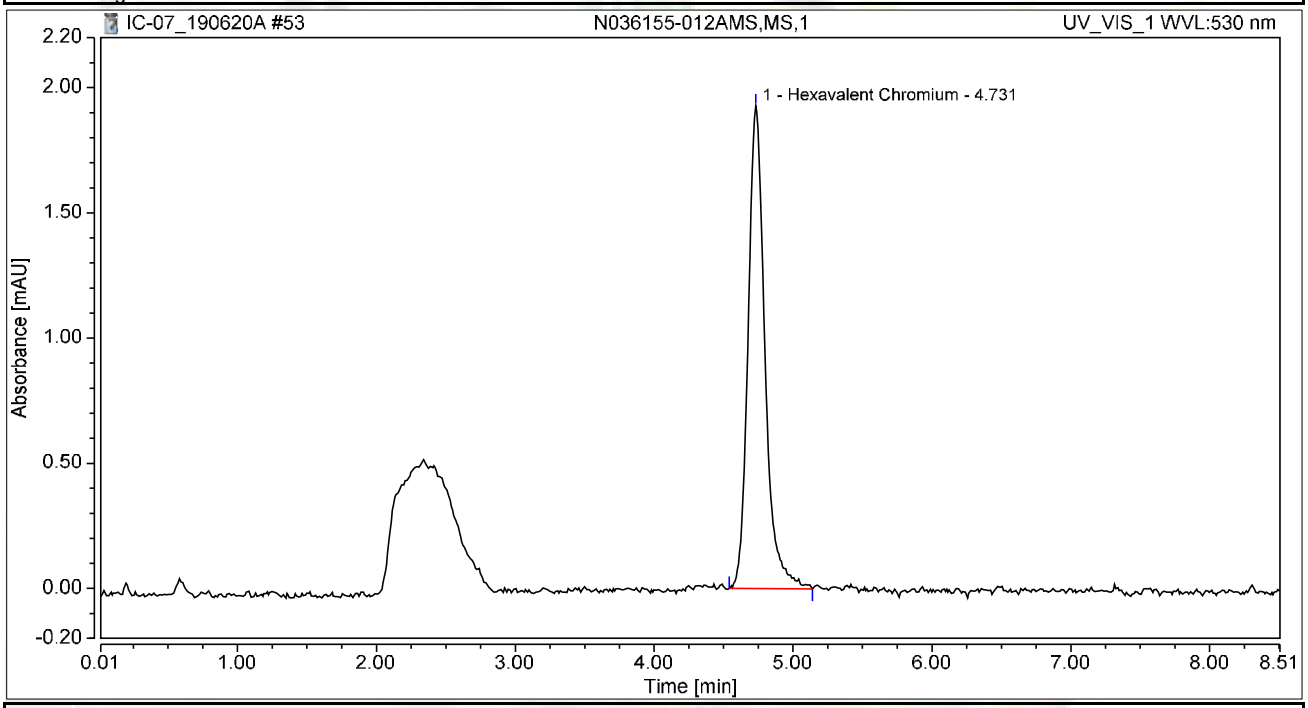
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-012AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**28**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 16:56**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

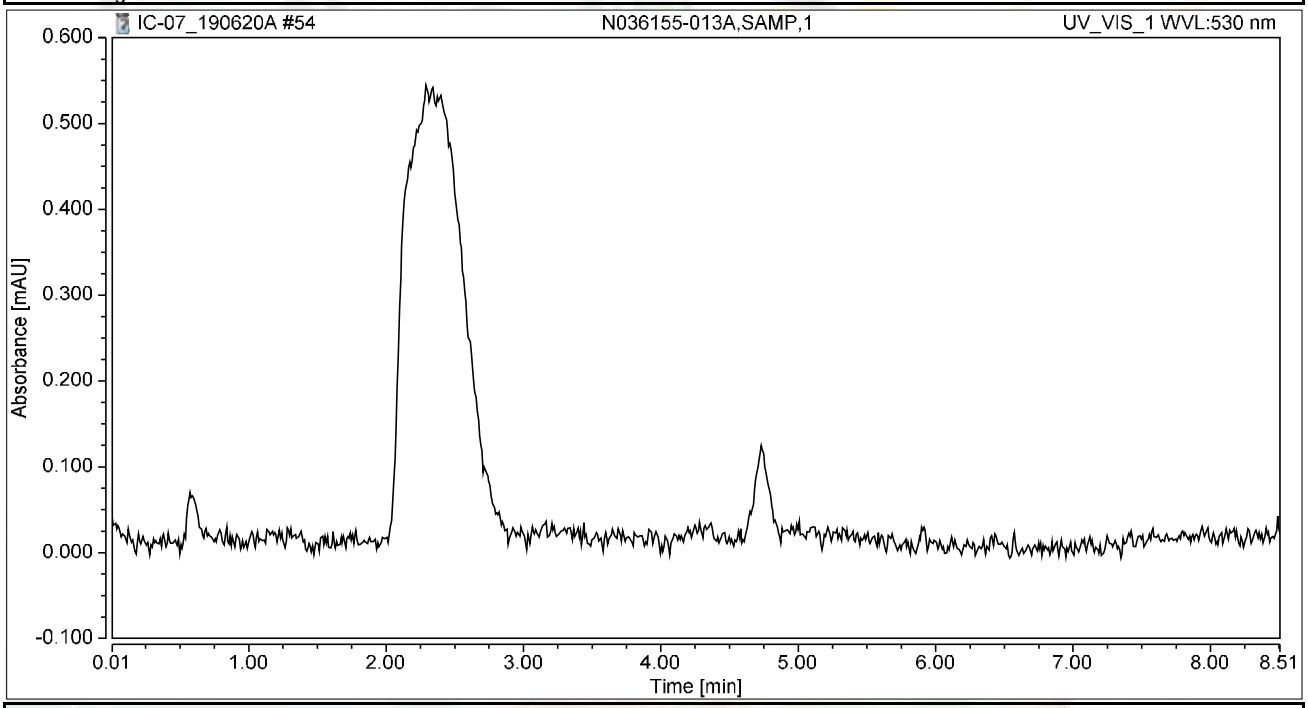
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.272	1.928	100.00	100.00	1.0596
Total:			**0.272**	**1.928**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-013A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**29**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 17:06**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

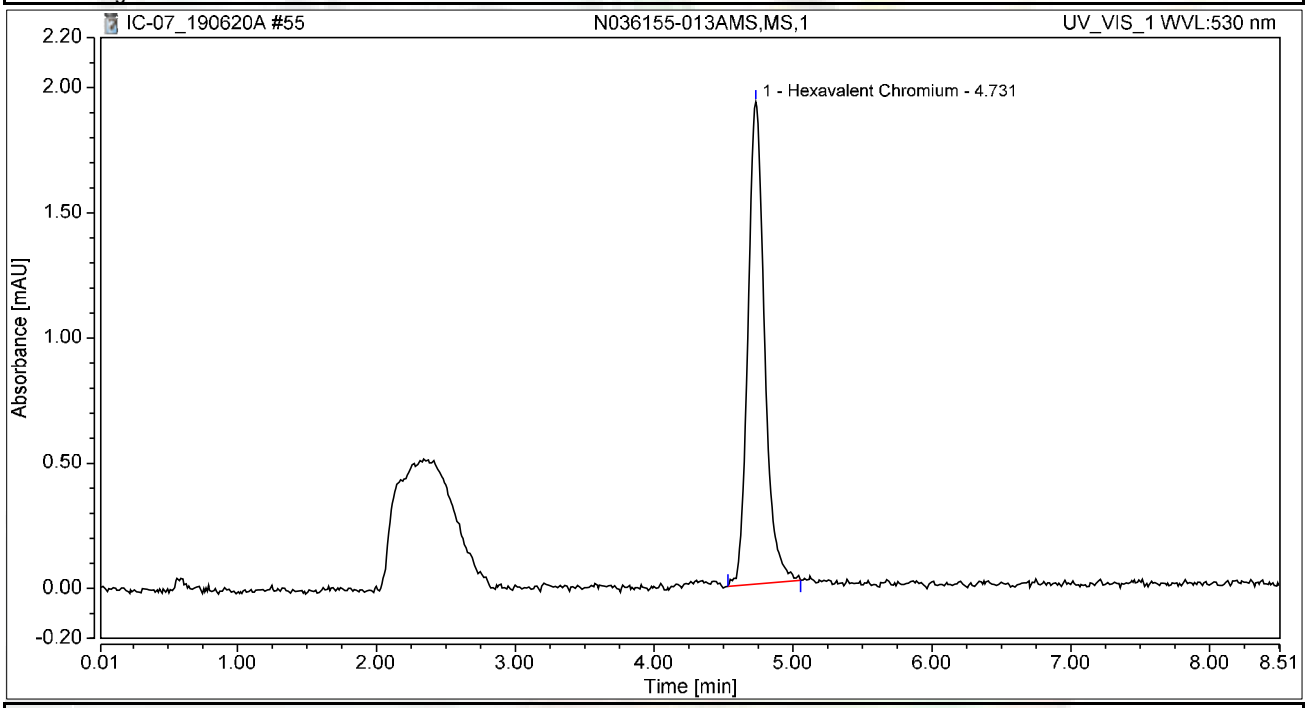
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-013AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**30**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 17:15**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

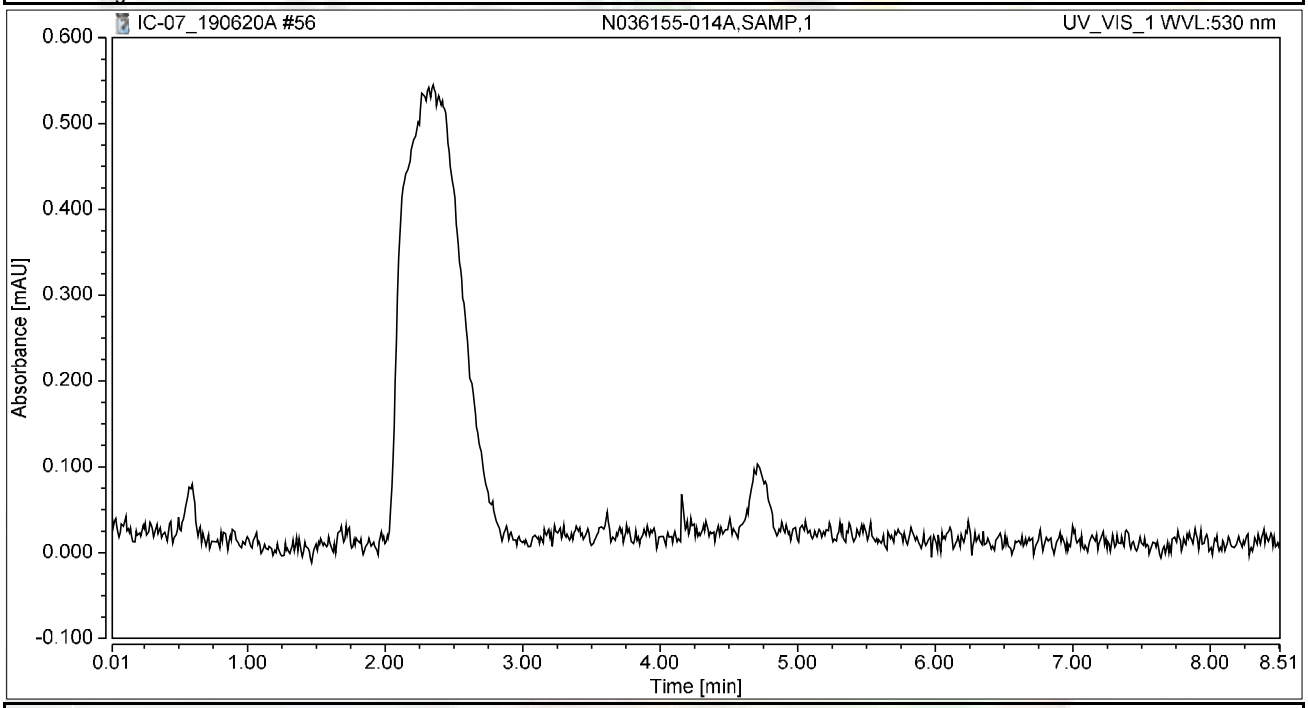
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.268	1.926	100.00	100.00	1.0437
Total:			**0.268**	**1.926**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-014A,SAMP,1**	*Run Time (min):*	**8.49**
Vial Number:	**31**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 17:25**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

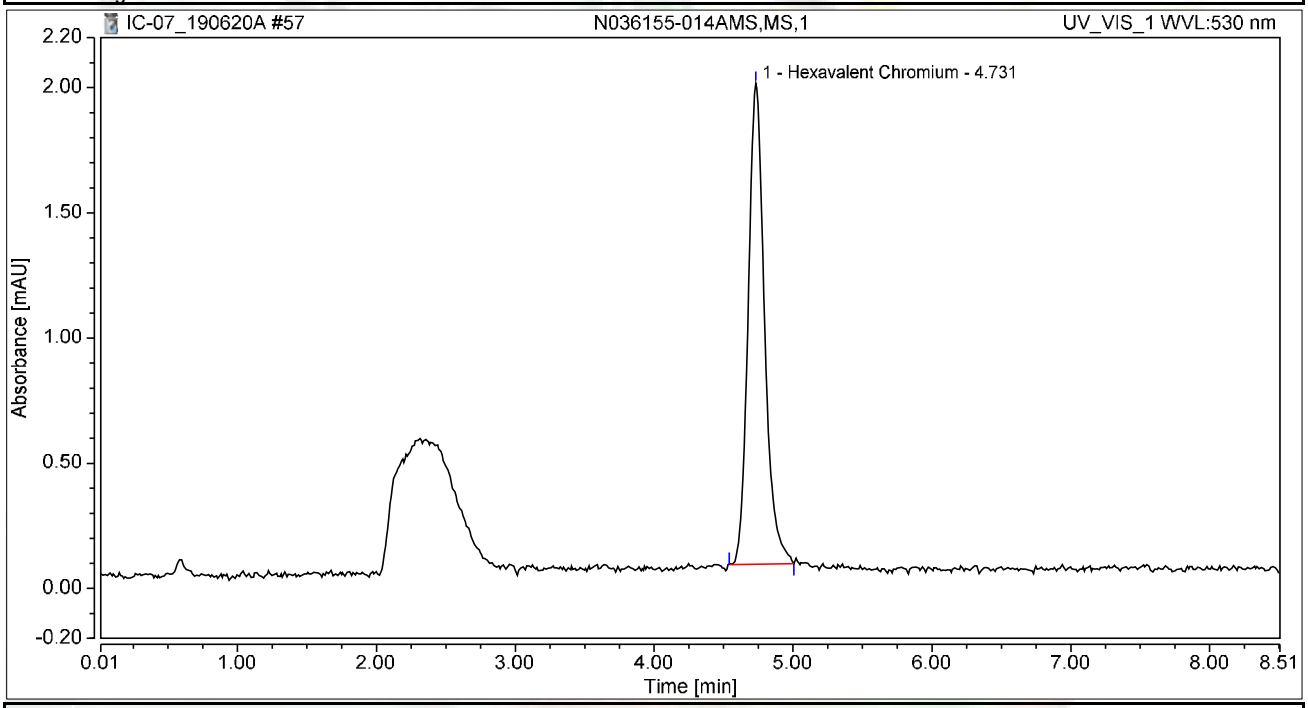
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036155-014AMS,MS,1**	*Run Time (min):*	**8.49**
Vial Number:	**32**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 17:34**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

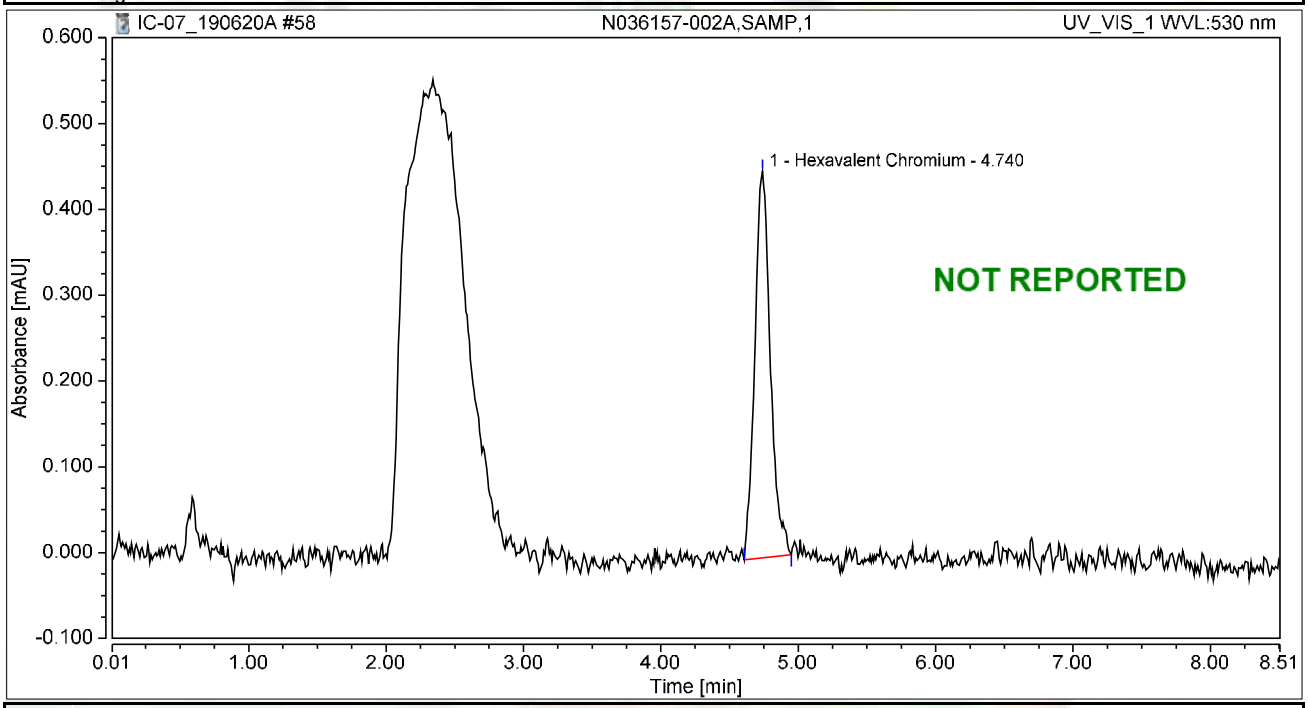
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	0.263	1.920	100.00	100.00	1.0230
Total:			**0.263**	**1.920**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**N036157-002A,SAMP,1**	*Run Time (min):*	**8.50**
Vial Number:	**33**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 17:44**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

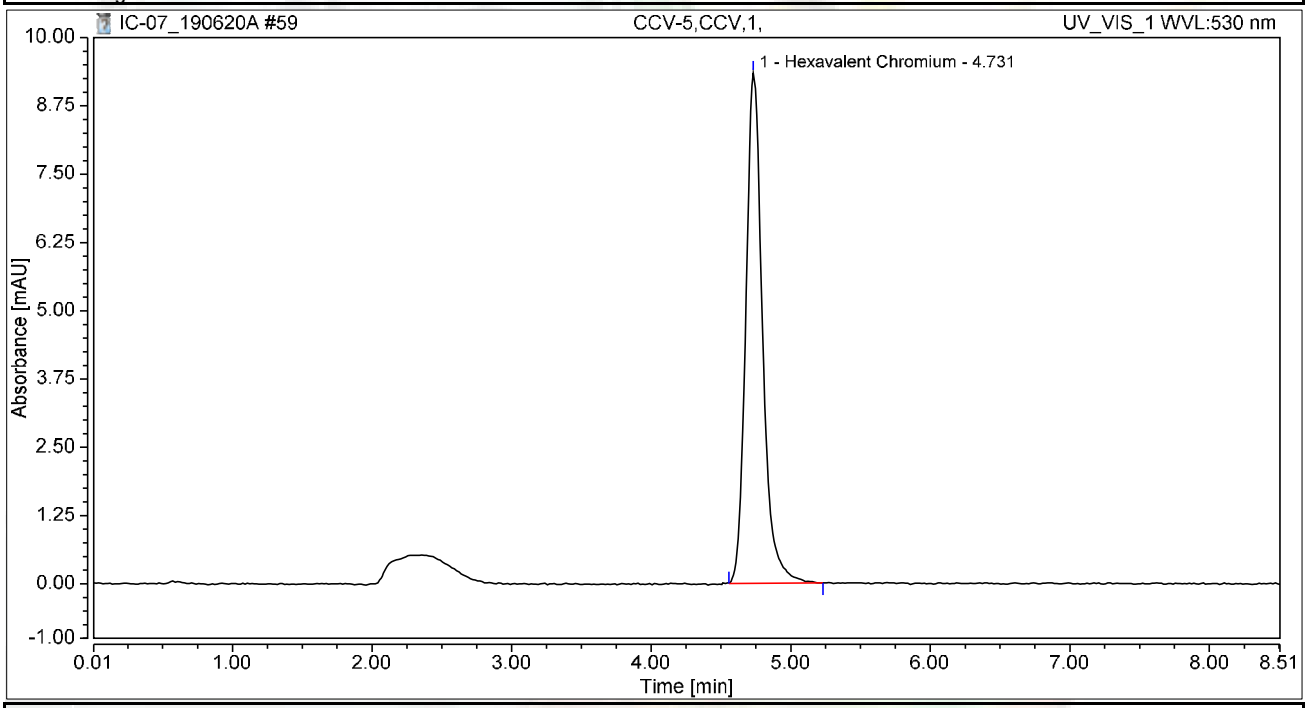
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.740	0.059	0.450	100.00	100.00	0.2297
Total:			**0.059**	**0.450**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCV-5,CCV,1,**	*Run Time (min):*	**8.50**
Vial Number:	**34**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 17:53**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

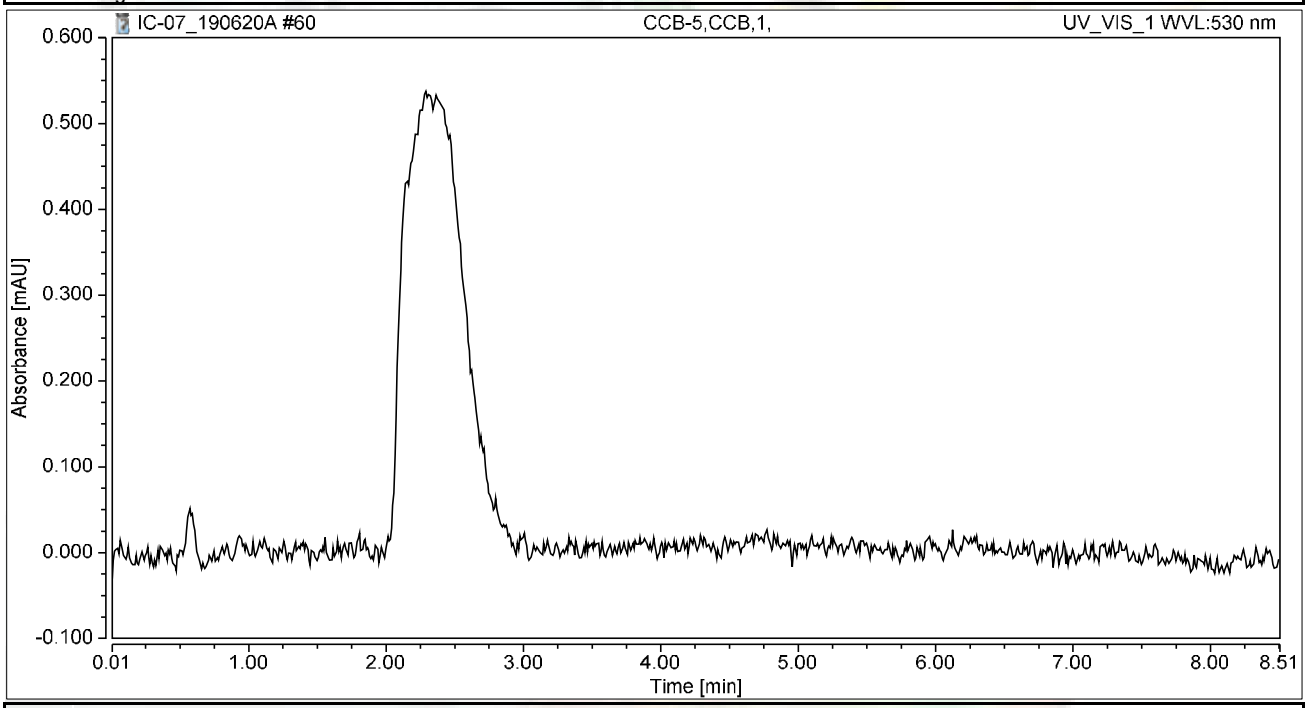
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
1	Hexavalent Chromium	4.731	1.303	9.347	100.00	100.00	5.0719
Total:			**1.303**	**9.347**	**100.00**	**100.00**	

Chromatogram and Results

Injection Details

Injection Name:	**CCB-5,CCB,1,**	*Run Time (min):*	**8.50**
Vial Number:	**35**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 18:03**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

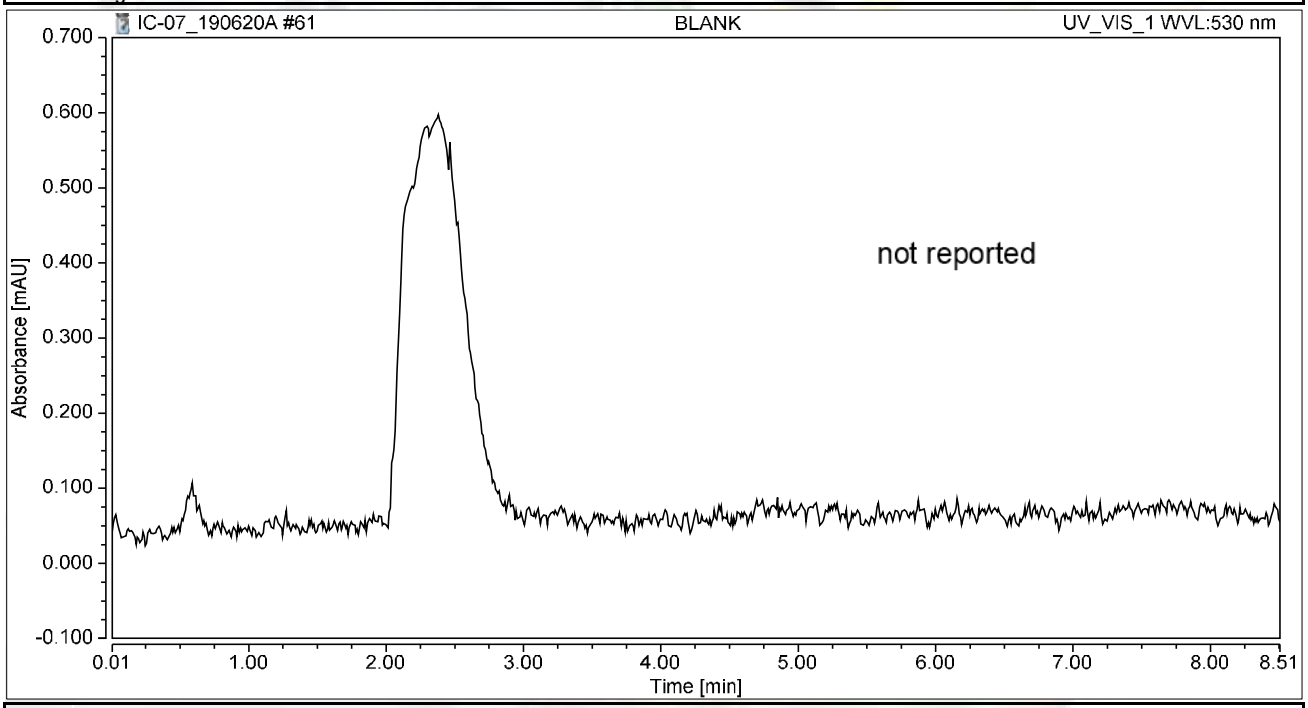
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**36**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 18:12**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

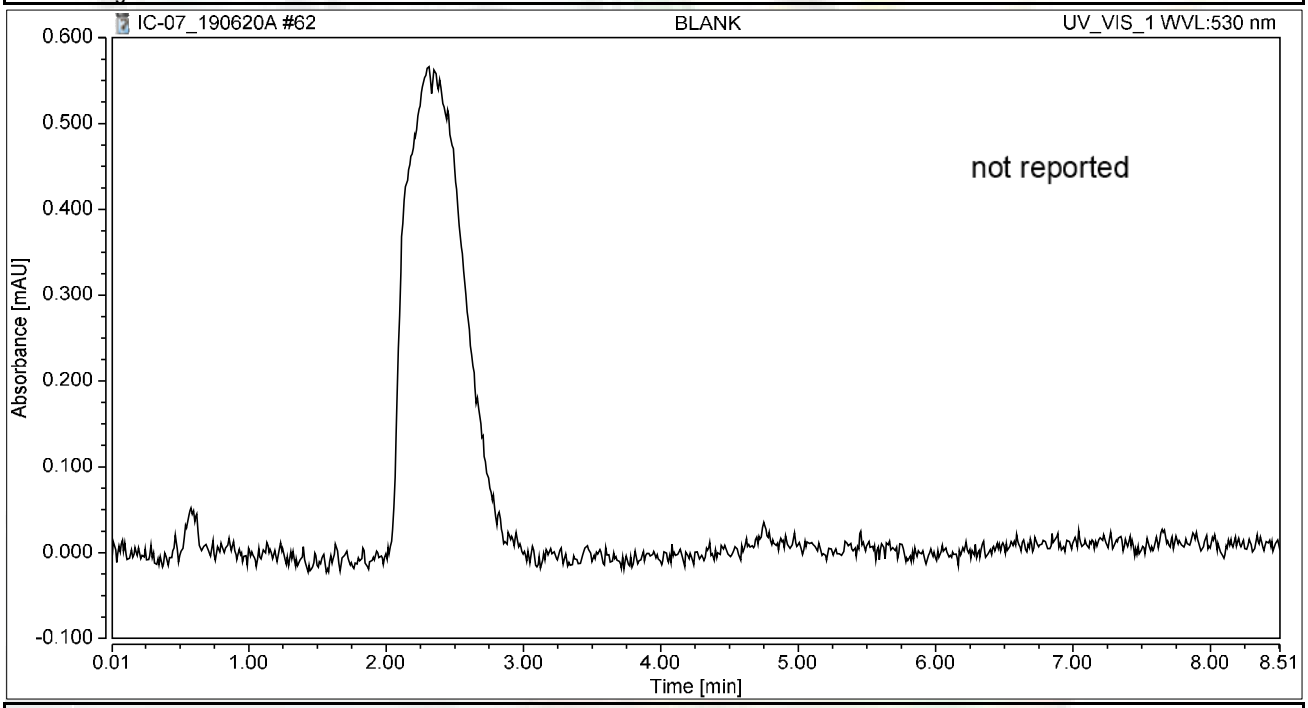
No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

Chromatogram and Results

Injection Details

Injection Name:	**BLANK**	*Run Time (min):*	**8.50**
Vial Number:	**37**	*Injection Volume:*	**1000.00**
Injection Type:	**Unknown**	*Channel:*	**UV_VIS_1**
Calibration Level:		*Wavelength:*	**530.0**
Instrument Method:	**Hex Chrom 4 mm**	*Bandwidth:*	**n.a.**
Processing Method:	**190604_IC-07_Cr6_218_6_HIGH**	*Dilution Factor:*	**1.0000**
Injection Date/Time:	**20/Jun/19 18:21**	*Sample Weight:*	**1.0000**

Chromatogram



Integration Results

No.	Peak Name	Retention Time min	Area mAU*min	Height mAU	Relative Area %	Relative Height %	Amount ug/L
n.a.	Hexavalent Chromium	n.a.	n.a.	n.a.	n.a.	n.a.	n.a.
Total:			**0.000**	**0.000**	**0.00**	**0.00**	

SM 4500-NO3F

Wet Chemistry Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: R134671 **Analyst:** QBM

ASSET #: N036115, N036155 **Date Analyzed:** 6/21/2019

Method: 4500_N03

Initial Calibration	1st Level Review Y	N	N/A	2nd Level Review Y	N	N/A
1. ICAL before initial sample analysis or every 24 hrs.	X			X		
2. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
3. ICV within ± 15% of expected value.	X			X		
Continuing Calibration						
4. CCV after every 10 samples and at the end of analysis sequence.	X			X		
5. CCV within ± 15% of expected value.	X			X		
6. Calibration blanks run after ICV and CCV?	X			X		
7. Do all calibration blanks (ICB and CCBs) meet criteria? (< PQL)	X			X		
Sample Information						
8. All samples are within linear range.	X			X		
9. Are all samples analyzed within hold time.	X			X		
QC Items						
10. Method blank values are below 1/2 the reporting limit.	X			X		
11. LCS compounds within control limits.	X			X		
12. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
13. Are Non-Conformances documented			X			X
14. Runlog complete and included in package.	X			X		
15. Spectrophotometer tape included (Spec work only)			X			X
16. Digestion log complete and included in package (if applicable)			X			X
Preliminary Report						
17. Does the raw data match the preliminary report?	X			X		
18. Are analytical results correct?	X			X		
19. Is the QC summary report present and complete?	X			X		

Comments:

SECOND LEVEL REVIEW:

	Yes	No	N/A
1. All assigned sample(s) analyzed	x		
2. Matrix / units correct	x		
3. Does batch meet QC requirements?	x		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	x		
5. Is first level review correct and complete?	x		

1st Level Reviewer QBM Date: 7/11/2019

2nd Level Reviewer NS 7/11/2019 Date:

SAMPLE CALCULATION

Sample Calculation

METHOD: EPA 4500N03F
TEST NAME: Nitrate/Nitrite-N by Automated Cadmium Reduction
MATRIX: Groundwater

FORMULA:

Calculate the Nitrate/Nitrite-N concentration, in mg/L, in the original sample as follows:

Nitrate/Nitrite-N, mg/L= A * DF

where:

A = mg/L, instrument calculated concentration
DF = dilution factor

For: **N036155-001E**

The concentration in mg/L is calculated as follows:

Nitrate/Nitrite-N	=	0.3763	*	1
	=	0.3763	mg/L	

Reporting result in two significant figures,

Nitrate/Nitrite-N = 0.38 mg/L

NS 7/11/2019

INITIAL CALIBRATION DATA SUMMARY

EPA 353.2 NO3 as N (NO3CD) - Endpoint

General setup

Measuring unit	**ppm**
Number of decimals	4
Stabilization time (sec)	26
Measurement time (sec)	3
Sample volume (µl)	450
Filter	546
Reagent prime	No
CD Reduction	Yes

Limits and dilution

Low level	**-0.2**
High level	4
Max linearity	4
Blank min	0
Blank max	0.049
Postdilution factor %	10
Factor Calculations	No

Washes

Number of final washes	6
Wash every	R1, R2

O.D.Corrections

Carry Over	**No**
Carry Over value	0.0000
Blank	No
Gain	No

Reagents

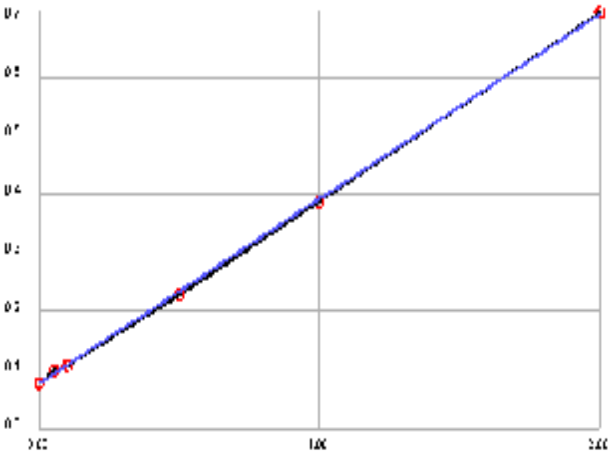
N.	Volume (µl)	Incubation time (sec)
1	200	102
2	300	663
3	0	0

QC

N.	Value	Tolerance
1	1	0.1

Calibration

Curve type	Linear (Calibrants)
Curve forced to zero	No
Blank inclusion	No



Formula	y = 0.3143x + 0.0777
Correlation	.999835

Calibrant	Energy	Set	Conc
1	0.0773	0.0000	-0.0011
2	0.1004	0.0500	0.0724
3	0.1082	0.1000	0.0972
4	0.2298	0.5000	0.4841
5	0.3881	1.0000	0.9879
6	0.7092	2.0000	2.0096

Notes:

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICV**	SampType: **ICV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **ICV**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418283**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.479	0.050	0.5000	0	95.9	90	110				

Sample ID **CCV-1**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCV**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418294**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.490	0.050	0.5000	0	98.0	90	110				

Sample ID **CCV-2**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCV**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418305**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.489	0.050	0.5000	0	97.7	90	110				

Sample ID **CCV-3**	SampType: **CCV**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCV**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418309**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	0.492	0.050	0.5000	0	98.5	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INITIAL CALIBRATION AND CONTINUING CALIBRATION BLANK SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 4500N03F_W

Sample ID **ICB**	SampType: **ICB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **ICB**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418284**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-1**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCB**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418295**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-2**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCB**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418306**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Sample ID **CCB-3**	SampType: **CCB**	TestCode: **4500N03F_W**	Units: **mg/L**	Prep Date:	RunNo: **134671**
Client ID: **CCB**	Batch ID: **R134671**	TestNo: **SM4500-NO3**		Analysis Date: **6/21/2019**	SeqNo: **3418310**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Nitrate/Nitrite as N	ND	0.050									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

LOGBOOK DATA, QUANTITATION REPORT and/or SPECTRA

Advanced Technology Laboratories, Inc.

3151 W. Post Rd.
Las Vegas, NV. 89118
702-307-2659
702-307-2691
www.atl-labs.com

Time start: 06-21-2019 16:49
Time end: 06-21-2019 19:23

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
1	<BLANK>	18:48:41	0.0055		0.0794
2	<BLANK>	18:49:42	0.0014		0.0781
3	<CAL1>	18:50:36	-0.0011	[0]	0.0773
4	<CAL2>	18:51:31	0.0724	[0.05]	0.1004
5	<CAL3>	18:52:27	0.0972	[0.1]	0.1082
6	<CAL4>	18:53:27	0.4841	[0.5]	0.2298
7	<CAL5>	18:54:23	0.9879	[1]	0.3881
8	<CAL6>	18:55:18	2.0096	[2]	0.7092
9	,BLANK,BLANK,1, NOT REPORTED	18:56:20	0.0240		0.0852
10	,ICV,ICV,1,	18:57:14	0.4794		0.2283
11	,ICB,ICB,1,	18:58:09	0.0173		0.0831
12	,MB-H2O,MBLK,1,	18:59:05	-0.0005		0.0775
13	,LCS-H2O,LCS,1,	19:00:05	0.4953		0.2333
14	,N036115-014E,SAMP,1,	19:01:01	0.3607		0.1910
15	,N036155-001E,SAMP,1,	19:01:56	0.3763		0.1959
16	,N036155-002E,SAMP,1,	19:02:58	0.3731		0.1949
17	,N036155-002EDUP,DUP,1,	19:03:52	0.3947		0.2017
18	,N036155-003E,SAMP,1,	19:04:48	0.3629		0.1917
19	,N036155-003EMS,MS,1,	19:05:43	0.8828		0.3551
20	,N036155-003EMSD,MSD,1,	19:06:43	0.8988		0.3601
21	,BLANK, NOT REPORTED	19:07:39	0.0097		0.0807
22	,CCV-1,CCV,1,	19:08:22	0.4902		0.2317
23	,CCB-1,CCB,1,	19:09:11	0.0039		0.0789
24	,N036155-004E,SAMP,1,	19:09:54	0.3826		0.1979
25	,N036155-005E,SAMP,1,	19:10:42	0.3658		0.1926
26	,N036155-006E,SAMP,1,	19:11:26	0.4195		0.2095

			EPA 353.2 NO3 as N		
			ppm	Flags	OD
27	,N036155-007E,SAMP,1,	19:12:08	0.3769		0.1961
28	,N036155-008E,SAMP,1,	19:12:51	0.3495		0.1875
29	,N036155-009E,SAMP,1,	19:13:41	0.3600		0.1908
30	,N036155-010E,SAMP,1,	19:14:23	0.3673		0.1931
31	,N036155-011E,SAMP,1,	19:15:06	0.3422		0.1852
32	,N036155-012E,SAMP,1,	19:15:54	0.3463		0.1865
33	,BLANK, NOT REPORTED	19:16:37	0.0017		0.0782
34	,CCV-2,CCV,1,	19:17:19	0.4886		0.2312
35	,CCB-2,CCB,1,	19:18:03	-0.0031		0.0767
36	,N036155-013E,SAMP,1,	19:18:52	0.3562		0.1896
37	,N036155-014E,SAMP,1,	19:19:34	0.3603		0.1909
38	,BLANK, NOT REPORTED	19:20:18	-0.0050		0.0761
39	,CCV-3,CCV,1,	19:21:06	0.4924		0.2324
40	,CCB-3,CCB,1,	19:21:49	-0.0040		0.0764

Nitrate/Nitrite as N by Cadmium Reduction Preparation and Runlog

Matrix:

Method: SM 4500-NO3-F/ EPA 353.2
Insturument: Easy Chem Analyzer

Date Analyzed: 6/21/2019
Time Analyzed: 4:49 PM
Analyzed By: QBM

Reagent ID #
Ammonium Chloride reagent/Buffer: R190528B
Color reagent: R190528C
2% Copper Sulfate: R190528A
Ammonium Hydroxide: CINV-190425A

Sample ID.	Sample Wt./Vol.	Sample pH	Std Code	Spike Amt Added (mL)	Spike Conc.(PPM)	Final Volume (mL)	Dilution (F/I)	Reading & Calculations (mg/L)	Comments
N036115-014E		7.70							
N036155-001E		8.03							
N036155-002E		7.16							
N036155-003E		8.13							
N036155-004E		8.34							
N036155-005E		8.36							
N036155-006E		8.27							
N036155-007E		8.10							
N036155-008E		8.13							
N036155-009E		7.82							
N036155-010E		7.38							
N036155-011E		8.05							
N036155-012E		7.83							
N036155-013E		8.57							
N036155-014E		8.10							

Advanced Technology Laboratories, Inc.
Book # 1

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Nitrate/Nitrite by Cadmium Reduction**
Method Number: SM4500NO3F
Analysis Date(s): 10/25,2017, 10/26/2017, 10/27/2017
Analyst/Technician: Quennie B. Manimtim

Matrix: **Water**
Unit: mg/L
Spike Conc: 0.05 mg/L

Analyte	#1	#2	#3	#4	#5	#6	#7	Ave	SD	$t_{(n-1)}$ value	MDL	PQL
Nitrate/Nitrite as N	0.0573	0.0562	0.0500	0.0730	0.0698	0.0637	0.0564	0.0609	0.0082	3.143	0.0259	0.05
Method Blank												
Nitrate/Nitrite as N	0.0160	0.0067	0.0064	0.0204	0.0173	0.0036	0.0083	0.0112	0.0065	3.143	0.0317	0.05

MDL: **0.0317** **mg/L**

EPA 6010B
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74525
ASSET #: N036155
Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 7/13/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?	X			X		
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits		X			X	
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% Rec of Fe in N036155-001B MSD failed, high bias. However, LCS passed criteria.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/15/2019

2nd Level Reviewer NS 7/15/2019 Date: –

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N036155-003B** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.04362 * 1 *(25/25) * 1000

Iron , ug/L = 43.62

Reporting results in two significant figures,

Iron , ug/L = 44

NS 7/16/2019

% RSD SUMMARY

RSD SUMMARY: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	106.64	15	<PQL
Standard1	ICAL	1	Fe	0.02	4.34	15	PASS
Standard2	ICAL	1	Fe	0.05	0.29	15	PASS
Standard3	ICAL	1	Fe	2	0.11	15	PASS
Standard4	ICAL	1	Fe	5	0.096	15	PASS
Standard5	ICAL	1	Fe	7.5	0.029	15	PASS
Standard6	ICAL	1	Fe	10	0.082	15	PASS
Standard7	ICAL	1	Fe	20	0.13	15	PASS
ICV	ICV	1	Fe	10.078	0.093	15	PASS
ICB	ICB	1	Fe	0.0038	29.49	15	<PQL
~~LLCCV1~~ LLICV	CCV1	1	Fe	0.021	1.051	20	PASS
ICSA1	ICSA	1	Fe	179.89	0.38	15	PASS
ICSAB1	ICSAB	1	Fe	184.99	0.46	15	PASS
CCV1	CCV	1	Fe	10.15	0.094	15	PASS
CCB1	CCB	1	Fe	-0.0027	24.9	15	<PQL
CCV2	CCV	1	Fe	9.95	0.091	15	PASS
CCB2	CCB	1	Fe	0.0024	29.43	15	<PQL
CCV3	CCV	1	Fe	10.08	0.011	15	PASS
CCB3	CCB	1	Fe	0.00044	220.16	15	<PQL
ICSA2	ICSA	1	Fe	179.48	0.59	15	PASS
ICSAB2	ICSAB	1	Fe	182.83	0.17	15	PASS
MB-74525	MBLK	1	Fe	-0.0029	19.58	15	<PQL
LCS-74525	LCS	1	Fe	0.1	0.16	15	PASS
N036155-001B	SAMP	1	Fe	0.0012	11.24	15	PASS
N036155-001B	SAMP	5	Fe	-0.0025	14.4	15	PASS
CCV4	CCV	1	Fe	10.019	0.097	15	PASS
CCB4	CCB	1	Fe	0.00089	61.36	15	<PQL
N036155-001B-PS	PS	1	Fe	0.11	0.83	15	PASS
N036155-001B-MS	MS	1	Fe	0.12	0.53	15	PASS
N036155-001B-MSD	MSD	1	Fe	0.13	0.7	15	PASS
N036155-002B	SAMP	1	Fe	-0.0003	128.59	15	<PQL
N036155-003B	SAMP	1	Fe	0.044	0.99	15	PASS
N036155-004B	SAMP	1	Fe	0.0034	20.44	15	<PQL
N036155-005B	SAMP	1	Fe	0.00083	14.91	15	PASS
N036155-006B	SAMP	1	Fe	0.0033	9.45	15	PASS
N036155-007B	SAMP	1	Fe	0.002	41.54	15	<PQL
N036155-008B	SAMP	1	Fe	0.0043	14.49	15	PASS
CCV5	CCV	1	Fe	10.029	0.11	15	PASS
CCB5	CCB	1	Fe	0.00019	533.4	15	<PQL
N036155-009B	SAMP	1	Fe	0.0016	20.8	15	<PQL
N036155-010B	SAMP	1	Fe	0.011	3.4	15	PASS
N036155-011B	SAMP	1	Fe	0.024	0.62	15	PASS

NS 7/16/2019

RSD SUMMARY: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N036155-012B	SAMP	1	Fe	0.017	1.07	15	PASS
N036155-013B	SAMP	1	Fe	0.0016	8.57	15	PASS
N036155-014B	SAMP	1	Fe	0.0016	40.092	15	<PQL
CCV6	CCV	1	Fe	10.05	0.079	15	PASS
CCB6	CCB	1	Fe	0.00072	152.23	15	<PQL
ICSA3	ICSA	1	Fe	179.41	0.092	15	PASS
ICSAB3	ICSAB	1	Fe	183.53	0.29	15	PASS
CCV7	CCV	1	Fe	10.027	0.074	15	PASS
CCB7	CCB	1	Fe	0.0016	49	15	<PQL
CCV8	CCV	1	Fe	10.015	0.046	15	PASS
CCB8	CCB	1	Fe	0.00054	110.99	15	<PQL
ICSA4	ICSA	1	Fe	178.64	0.27	15	PASS
ICSAB4	ICSAB	1	Fe	182.46	0.23	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190713A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	07/13/2019	11:05:20 AM
2	Standard1	ICAL	1	07/13/2019	11:10:03 AM
3	Standard2	ICAL	1	07/13/2019	11:14:45 AM
4	Standard3	ICAL	1	07/13/2019	11:19:00 AM
5	Standard4	ICAL	1	07/13/2019	11:23:15 AM
6	Standard5	ICAL	1	07/13/2019	11:27:30 AM
7	Standard6	ICAL	1	07/13/2019	11:31:46 AM
8	Standard7	ICAL	1	07/13/2019	11:36:01 AM
250	ICV	ICV	1	07/13/2019	11:39:10 AM
1	ICB	ICB	1	07/13/2019	11:43:28 AM
2	~~LLCCV1~~ LLICV	CCV1	1	07/13/2019	11:48:10 AM
9	ICSA1	ICSA	1	07/13/2019	11:52:54 AM
10	ICSAB1	ICSAB	1	07/13/2019	11:58:50 AM
71	MB-74407	MBLK	1	07/13/2019	12:16:53 PM
72	LCS-74407	LCS	1	07/13/2019	12:21:35 PM
73	N036115-001B	SAMP	1	07/13/2019	12:25:48 PM
74	N036115-001B	SAMP	5	07/13/2019	12:30:00 PM
75	N036115-001B-PS	PS	1	07/13/2019	12:34:12 PM
76	N036115-001B-MS	MS	1	07/13/2019	12:38:25 PM
77	N036115-001B-MSD	MSD	1	07/13/2019	12:42:37 PM
78	N036115-002B	SAMP	1	07/13/2019	12:46:51 PM
79	N036115-003B	SAMP	1	07/13/2019	12:51:04 PM
80	N036115-004B	SAMP	1	07/13/2019	12:55:18 PM
7	CCV1	CCV	1	07/13/2019	12:59:33 PM
1	CCB1	CCB	1	07/13/2019	01:03:49 PM
81	N036115-005B	SAMP	1	07/13/2019	01:08:30 PM
82	N036115-006B	SAMP	1	07/13/2019	01:12:45 PM
83	N036115-007B	SAMP	1	07/13/2019	01:16:59 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
84	N036115-008B	SAMP	1	07/13/2019	01:21:11 PM
85	N036115-013B	SAMP	1	07/13/2019	01:25:24 PM
86	N036115-014B	SAMP	1	07/13/2019	01:29:37 PM
87	N036115-015B	SAMP	1	07/13/2019	01:33:50 PM
88	N036115-016B	SAMP	1	07/13/2019	01:38:03 PM
89	MB-74405	MBLK	1	07/13/2019	01:42:15 PM
90	LCS-74405	LCS	1	07/13/2019	01:46:57 PM
7	CCV2	CCV	1	07/13/2019	01:51:10 PM
1	CCB2	CCB	1	07/13/2019	01:55:26 PM
91	N036115-001C	SAMP	1	07/13/2019	02:00:07 PM
92	N036115-001C	SAMP	5	07/13/2019	02:04:21 PM
93	N036115-001C-PS	PS	1	07/13/2019	02:08:36 PM
94	N036115-001C-MS	MS	1	07/13/2019	02:12:51 PM
95	N036115-001C-MSD	MSD	1	07/13/2019	02:17:06 PM
96	N036115-002C	SAMP	1	07/13/2019	02:21:19 PM
97	N036115-003C	SAMP	1	07/13/2019	02:25:32 PM
98	N036115-004C	SAMP	1	07/13/2019	02:29:47 PM
99	N036115-005C	SAMP	1	07/13/2019	02:33:59 PM
100	N036115-006C	SAMP	1	07/13/2019	02:38:11 PM
7	CCV3	CCV	1	07/13/2019	02:42:25 PM
1	CCB3	CCB	1	07/13/2019	02:46:40 PM
9	ICSA2	ICSA	1	07/13/2019	02:51:21 PM
10	ICSAB2	ICSAB	1	07/13/2019	02:57:46 PM
101	N036115-007C	SAMP	1	07/13/2019	03:03:44 PM
102	N036115-008C	SAMP	1	07/13/2019	03:07:56 PM
103	N036115-013C	SAMP	1	07/13/2019	03:12:09 PM
104	N036115-014C	SAMP	1	07/13/2019	03:16:22 PM
105	N036115-015C	SAMP	1	07/13/2019	03:20:38 PM
106	N036115-016C	SAMP	1	07/13/2019	03:24:53 PM
107	MB-74525	MBLK	1	07/13/2019	03:29:08 PM
108	LCS-74525	LCS	1	07/13/2019	03:33:50 PM
109	N036155-001B	SAMP	1	07/13/2019	03:38:05 PM
110	N036155-001B	SAMP	5	07/13/2019	03:42:17 PM
7	CCV4	CCV	1	07/13/2019	03:46:30 PM
1	CCB4	CCB	1	07/13/2019	03:50:46 PM
111	N036155-001B-PS	PS	1	07/13/2019	03:55:27 PM
112	N036155-001B-MS	MS	1	07/13/2019	03:59:41 PM
113	N036155-001B-MSD	MSD	1	07/13/2019	04:03:55 PM
114	N036155-002B	SAMP	1	07/13/2019	04:08:10 PM
115	N036155-003B	SAMP	1	07/13/2019	04:12:23 PM
116	N036155-004B	SAMP	1	07/13/2019	04:16:36 PM
117	N036155-005B	SAMP	1	07/13/2019	04:20:50 PM
118	N036155-006B	SAMP	1	07/13/2019	04:25:04 PM
119	N036155-007B	SAMP	1	07/13/2019	04:29:18 PM
120	N036155-008B	SAMP	1	07/13/2019	04:33:33 PM
7	CCV5	CCV	1	07/13/2019	04:37:46 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CCB5	CCB	1	07/13/2019	04:42:02 PM
121	N036155-009B	SAMP	1	07/13/2019	04:46:44 PM
122	N036155-010B	SAMP	1	07/13/2019	04:50:59 PM
123	N036155-011B	SAMP	1	07/13/2019	04:55:12 PM
124	N036155-012B	SAMP	1	07/13/2019	04:59:25 PM
125	N036155-013B	SAMP	1	07/13/2019	05:03:39 PM
126	N036155-014B	SAMP	1	07/13/2019	05:07:54 PM
127	MB-74460	MBLK	1	07/13/2019	05:12:08 PM
128	LCS-74460	LCS	1	07/13/2019	05:16:51 PM
129	N036155-001C	SAMP	1	07/13/2019	05:21:06 PM
130	N036155-001C	SAMP	5	07/13/2019	05:25:21 PM
7	CCV6	CCV	1	07/13/2019	05:29:36 PM
1	CCB6	CCB	1	07/13/2019	05:33:52 PM
9	ICSA3	ICSA	1	07/13/2019	05:38:32 PM
10	ICSAB3	ICSAB	1	07/13/2019	05:44:58 PM
131	N036155-001C-PS	PS	1	07/13/2019	05:50:55 PM
132	N036155-001C-MS	MS	1	07/13/2019	05:55:09 PM
133	N036155-001C-MSD	MSD	1	07/13/2019	05:59:24 PM
134	N036155-002C	SAMP	1	07/13/2019	06:03:37 PM
135	N036155-003C	SAMP	1	07/13/2019	06:07:52 PM
136	N036155-004C	SAMP	1	07/13/2019	06:12:06 PM
137	N036155-005C	SAMP	1	07/13/2019	06:16:21 PM
138	N036155-006C	SAMP	1	07/13/2019	06:20:36 PM
139	N036155-007C	SAMP	1	07/13/2019	06:24:50 PM
140	N036155-008C	SAMP	1	07/13/2019	06:29:05 PM
7	CCV7	CCV	1	07/13/2019	06:33:19 PM
1	CCB7	CCB	1	07/13/2019	06:37:35 PM
141	N036155-009C	SAMP	1	07/13/2019	06:42:16 PM
142	N036155-010C	SAMP	1	07/13/2019	06:46:32 PM
143	N036155-011C	SAMP	1	07/13/2019	06:50:46 PM
144	N036155-012C	SAMP	1	07/13/2019	06:55:00 PM
145	N036155-013C	SAMP	1	07/13/2019	06:59:15 PM
146	N036155-014C	SAMP	1	07/13/2019	07:03:29 PM
7	CCV8	CCV	1	07/13/2019	07:07:43 PM
1	CCB8	CCB	1	07/13/2019	07:11:58 PM
9	ICSA4	ICSA	1	07/13/2019	07:16:38 PM
10	ICSAB4	ICSAB	1	07/13/2019	07:23:04 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/10/2019 8:52:26 A**
Prep End Date: **7/10/2019 1:00:00 P**
Prep Batch **74525** Prep Code: **3010_W_DISS**

Reviewed/ Date: NS 7/16/2019
Initials/ Date: for
Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS1-74525	Aqueous		25	☐	0	0	25	1.000		
LCS2-74525	Aqueous		25	☐	0	0	25	1.000		
MB-74525	Aqueous		25	☐	0	0	25	1.000		
N036155-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-009B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11131	HYDROCHLORIC ACID
11139	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/10/2019 8:52:26 A**
Prep End Date: **7/10/2019 1:00:00 P**
Reviewed/ Date: NS 7/16/2019
Initials/ Date: for
Prep Batch **74525** Prep Code: **3010_W_DISS** Technician: **Mark Gesmundo**
Prep Factor Units **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N036155-010B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-011B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N036215-002D	Groundwater	<2	25	☐	0	0	25	1.000		
N036215-002D-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036215-002D-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036215-003D	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11131	HYDROCHLORIC ACID
11139	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190713A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	07/13/2019	11:05:20 AM	Fe	273.954	-63	0.00	mg/L	
Standard1	07/13/2019	11:10:03 AM	Fe	273.954	679	0.0200	mg/L	
Standard2	07/13/2019	11:14:45 AM	Fe	273.954	16404	0.050	mg/L	
Standard3	07/13/2019	11:19:00 AM	Fe	273.954	65773	2.000	mg/L	
Standard4	07/13/2019	11:23:15 AM	Fe	273.954	163763	5.000	mg/L	
Standard5	07/13/2019	11:27:30 AM	Fe	273.954	244585	7.500	mg/L	
Standard6	07/13/2019	11:31:46 AM	Fe	273.954	325242	10.000	mg/L	
Standard7	07/13/2019	11:36:01 AM	Fe	273.954	641432	20.000	mg/L	0.9998

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICV**	SampType: **ICV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ICV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437172**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10078.113	20	10000	0	101	90	110				

Sample ID ~~LLCCV1~~ **LLICV**	SampType: **CCV1**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	20.655	20	20.00	0	103	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10145.926	20	10000	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9954.287	20	10000	0	99.5	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10080.407	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

NS 7/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437225**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10018.932	20	10000	0	100	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10029.477	20	10000	0	100	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10050.296	20	10000	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10027.278	20	10000	0	100	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCV**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437271**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10014.700	20	10000	0	100	90	110				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ICB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437173**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.769	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.702697	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437200**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2.369	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437212**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.437	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437226**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.894	20									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437238**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.187	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437250**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.723	20									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437264**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.592	20									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **CCB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437272**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.541	20									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSA** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	537431.875	50	500000	0	107	80	120				
Calcium	519713.472	500	500000	0	104	80	120				
Iron	179887.453	20	200000	0	89.9	80	120				
Magnesium	505112.791	100	500000	0	101	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSAB** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437176**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	552296.995	50	500000	0	110	80	120				
Calcium	536798.525	500	500000	0	107	80	120				
Iron	184993.067	20	200000	0	92.5	80	120				
Magnesium	526957.502	100	500000	0	105	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSA** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437213**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532102.581	50	500000	0	106	80	120				
Calcium	521633.790	500	500000	0	104	80	120				
Iron	179480.576	20	200000	0	89.7	80	120				
Magnesium	499659.564	100	500000	0	99.9	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSAB** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	546080.858	50	500000	0	109	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSAB** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437214**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	537926.182	500	500000	0	108	80	120				
Iron	182829.874	20	200000	0	91.4	80	120				
Magnesium	515578.012	100	500000	0	103	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSA** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437251**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533384.682	50	500000	0	107	80	120				
Calcium	523395.311	500	500000	0	105	80	120				
Iron	179411.829	20	200000	0	89.7	80	120				
Magnesium	495493.828	100	500000	0	99.1	80	120				

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSAB** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437252**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	547973.436	50	500000	0	110	80	120				
Calcium	540707.433	500	500000	0	108	80	120				
Iron	183529.086	20	200000	0	91.8	80	120				
Magnesium	513403.763	100	500000	0	103	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WDPG** Units: **ug/L** Prep Date: RunNo: **135068**
Client ID: **ICSA** Batch ID: **R135068** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	534020.144	50	500000	0	107	80	120				
Calcium	525171.249	500	500000	0	105	80	120				
Iron	178639.847	20	200000	0	89.3	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ICSA**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437273**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	492692.864	100	500000	0	98.5	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ICSAB**	Batch ID: **R135068**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437274**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	548742.026	50	500000	0	110	80	120				
Calcium	541955.719	500	500000	0	108	80	120				
Iron	182458.095	20	200000	0	91.2	80	120				
Magnesium	509690.444	100	500000	0	102	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0071	100.71	65-125	PASS
Standard2	ICAL	1	1.035	103.51	65-125	PASS
Standard3	ICAL	1	1.05	104.97	65-125	PASS
Standard4	ICAL	1	1.033	103.32	65-125	PASS
Standard5	ICAL	1	1.087	108.69	65-125	PASS
Standard6	ICAL	1	1.025	102.53	65-125	PASS
Standard7	ICAL	1	1.026	102.62	65-125	PASS
ICV	ICV	1	1.035	103.49	65-125	PASS
ICB	ICB	1	1	99.96	65-125	PASS
~~LLCCV1~~ LLICV	CCV1	1	1.0006	100.06	65-125	PASS
ICSA1	ICSA	1	0.93	93.31	65-125	PASS
ICSAB1	ICSAB	1	0.91	90.6	65-125	PASS
CCV1	CCV	1	1.022	102.25	65-125	PASS
CCB1	CCB	1	1.023	102.32	65-125	PASS
CCV2	CCV	1	1.043	104.31	65-125	PASS
CCB2	CCB	1	1.039	103.88	65-125	PASS
CCV3	CCV	1	1.012	101.16	65-125	PASS
CCB3	CCB	1	1.0077	100.77	65-125	PASS
ICSA2	ICSA	1	0.91	91.42	65-125	PASS
ICSAB2	ICSAB	1	0.89	88.91	65-125	PASS
MB-74525	MBLK	1	1.016	101.61	65-125	PASS
LCS-74525	LCS	1	0.94	93.56	65-125	PASS
N036155-001B	SAMP	1	1.032	103.25	65-125	PASS
N036155-001B	SAMP	5	1.0088	100.88	65-125	PASS
CCV4	CCV	1	1.014	101.39	65-125	PASS
CCB4	CCB	1	1.005	100.5	65-125	PASS
N036155-001B-PS	PS	1	1.027	102.66	65-125	PASS
N036155-001B-MS	MS	1	1.029	102.93	65-125	PASS
N036155-001B-MSD	MSD	1	1.02	101.96	65-125	PASS
N036155-002B	SAMP	1	1.04	104.04	65-125	PASS
N036155-003B	SAMP	1	1.033	103.33	65-125	PASS
N036155-004B	SAMP	1	1.039	103.9	65-125	PASS
N036155-005B	SAMP	1	1.058	105.82	65-125	PASS
N036155-006B	SAMP	1	1.039	103.92	65-125	PASS
N036155-007B	SAMP	1	1.039	103.87	65-125	PASS
N036155-008B	SAMP	1	1.037	103.72	65-125	PASS
CCV5	CCV	1	1.01	101.01	65-125	PASS
CCB5	CCB	1	1.004	100.4	65-125	PASS
N036155-009B	SAMP	1	1.028	102.83	65-125	PASS
N036155-010B	SAMP	1	1.038	103.8	65-125	PASS

INTERNAL STANDARD: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N036155-011B	SAMP	1	1.036	103.64	65-125	PASS
N036155-012B	SAMP	1	1.059	105.93	65-125	PASS
N036155-013B	SAMP	1	1.069	106.91	65-125	PASS
N036155-014B	SAMP	1	1.059	105.91	65-125	PASS
CCV6	CCV	1	1.0095	100.95	65-125	PASS
CCB6	CCB	1	1.0083	100.83	65-125	PASS
ICSA3	ICSA	1	0.92	92.24	65-125	PASS
ICSAB3	ICSAB	1	0.89	89.45	65-125	PASS
CCV7	CCV	1	1.016	101.58	65-125	PASS
CCB7	CCB	1	1.013	101.26	65-125	PASS
CCV8	CCV	1	1.024	102.35	65-125	PASS
CCB8	CCB	1	1.019	101.91	65-125	PASS
ICSA4	ICSA	1	0.93	93.24	65-125	PASS
ICSAB4	ICSAB	1	0.91	90.6	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N036155
Test Method: EPA 6010B
Analysis Date: 7/13/2019

Matrix: Groundwater
Batch No.: 74525

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036155-001B DT 5x	Iron	Fe	ug/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WDPGEPPB

Sample ID **N036155-001B-PS**	SampType: **PS**	TestCode: **6010_WDPG**	Units: **ug/L**	Prep Date:	RunNo: **135068**
Client ID: **ZZZZZZ**	Batch ID: **74525**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**	SeqNo: **3437227**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	108.313	20	100.0	0	108	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

EPA 6010B

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74460
ASSET #: N036155

Instrument ID: ICP-02
Analyst: CEI
Date Analyzed: 7/13/2019

Method:

[X] EPA 6010B / 200.7
[ ] EPA 6020 / 200.8
[ ] EPA 7470A / 7471A/245.1
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)			X			X
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?	X			X		
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/15/2019

2nd Level Reviewer NS 7/15/2019 Date: –

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6010B
TEST NAME: Heavy Metals by ICP
MATRIX: Groundwater

FORMULA:

Calculate the Iron concentration, in ug/L , in the original sample as follows:

Iron , ug/L = A * DF * PF *CF

where:

A = mg/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL
CF= Conversion Factor from mg/L to ug/L, 1000

For Sample **N036155-001C** , the concentration ir ug/L is calculated as follows:

Iron , ug/L = 0.04513 * 1 * (25/25) * 1000

Iron , ug/L = 45.13

Reporting results in two significant figures,

Iron , ug/L = 45

NS 7/16/2019

% RSD SUMMARY

RSD SUMMARY: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
CalBlk	IBLK	1	Fe	0	106.64	15	<PQL
Standard1	ICAL	1	Fe	0.02	4.34	15	PASS
Standard2	ICAL	1	Fe	0.05	0.29	15	PASS
Standard3	ICAL	1	Fe	2	0.11	15	PASS
Standard4	ICAL	1	Fe	5	0.096	15	PASS
Standard5	ICAL	1	Fe	7.5	0.029	15	PASS
Standard6	ICAL	1	Fe	10	0.082	15	PASS
Standard7	ICAL	1	Fe	20	0.13	15	PASS
ICV	ICV	1	Fe	10.078	0.093	15	PASS
ICB	ICB	1	Fe	0.0038	29.49	15	<PQL
~~LLCCV1~~ LLICV	CCV1	1	Fe	0.021	1.051	20	PASS
ICSA1	ICSA	1	Fe	179.89	0.38	15	PASS
ICSAB1	ICSAB	1	Fe	184.99	0.46	15	PASS
CCV1	CCV	1	Fe	10.15	0.094	15	PASS
CCB1	CCB	1	Fe	-0.0027	24.9	15	<PQL
CCV2	CCV	1	Fe	9.95	0.091	15	PASS
CCB2	CCB	1	Fe	0.0024	29.43	15	<PQL
CCV3	CCV	1	Fe	10.08	0.011	15	PASS
CCB3	CCB	1	Fe	0.00044	220.16	15	<PQL
ICSA2	ICSA	1	Fe	179.48	0.59	15	PASS
ICSAB2	ICSAB	1	Fe	182.83	0.17	15	PASS
CCV4	CCV	1	Fe	10.019	0.097	15	PASS
CCB4	CCB	1	Fe	0.00089	61.36	15	<PQL
CCV5	CCV	1	Fe	10.029	0.11	15	PASS
CCB5	CCB	1	Fe	0.00019	533.4	15	<PQL
MB-74460	MBLK	1	Fe	-0.0044	2.3	15	PASS
LCS-74460	LCS	1	Fe	0.1	0.54	15	PASS
N036155-001C	SAMP	1	Fe	0.045	0.54	15	PASS
N036155-001C	SAMP	5	Fe	0.007	11.11	15	PASS
CCV6	CCV	1	Fe	10.05	0.079	15	PASS
CCB6	CCB	1	Fe	0.00072	152.23	15	<PQL
ICSA3	ICSA	1	Fe	179.41	0.092	15	PASS
ICSAB3	ICSAB	1	Fe	183.53	0.29	15	PASS
N036155-001C-PS	PS	1	Fe	0.15	0.53	15	PASS
N036155-001C-MS	MS	1	Fe	0.16	0.66	15	PASS
N036155-001C-MSD	MSD	1	Fe	0.16	0.73	15	PASS
N036155-002C	SAMP	1	Fe	0.036	9.2	15	PASS
N036155-003C	SAMP	1	Fe	0.2	0.49	15	PASS
N036155-004C	SAMP	1	Fe	0.19	0.64	15	PASS
N036155-005C	SAMP	1	Fe	0.049	2.061	15	PASS
N036155-006C	SAMP	1	Fe	0.046	1.59	15	PASS
N036155-007C	SAMP	1	Fe	0.039	2.0024	15	PASS

NS 7/16/2019

RSD SUMMARY: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Analyte	Reported Conc	RSD	Criteria	Comment
N036155-008C	SAMP	1	Fe	0.032	3.35	15	PASS
CCV7	CCV	1	Fe	10.027	0.074	15	PASS
CCB7	CCB	1	Fe	0.0016	49	15	<PQL
N036155-009C	SAMP	1	Fe	0.026	1.93	15	PASS
N036155-010C	SAMP	1	Fe	0.031	1.14	15	PASS
N036155-011C	SAMP	1	Fe	0.027	2.78	15	PASS
N036155-012C	SAMP	1	Fe	0.05	1.92	15	PASS
N036155-013C	SAMP	1	Fe	0.02	4.6	15	PASS
N036155-014C	SAMP	1	Fe	0.031	0.8	15	PASS
CCV8	CCV	1	Fe	10.015	0.046	15	PASS
CCB8	CCB	1	Fe	0.00054	110.99	15	<PQL
ICSA4	ICSA	1	Fe	178.64	0.27	15	PASS
ICSAB4	ICSAB	1	Fe	182.46	0.23	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190713A

Instrument ID: ICP-02

STANDARD CODE	
Standard1	MWST-190401G,0.5<50mL
Standard2	MWST-190401L
Standard3	MWST-190401Q,5<50mL
Standard4	MWST-190401Q,12.5<50mL
Standard5	MWST-190401Q,15<40mL
Standard6	MWST-190401Q,25<50mL
Standard7	MWST-190401Q
ICV	MWST-190401V
CCV	MWST-190401Q,25<50mL
ICSA/ICSAB	MWST-190401W/X
Int. Std. (Y)	MSST-190315A
PS Spike	MWST-190401D/E/F

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CalBlk	IBLK	1	07/13/2019	11:05:20 AM
2	Standard1	ICAL	1	07/13/2019	11:10:03 AM
3	Standard2	ICAL	1	07/13/2019	11:14:45 AM
4	Standard3	ICAL	1	07/13/2019	11:19:00 AM
5	Standard4	ICAL	1	07/13/2019	11:23:15 AM
6	Standard5	ICAL	1	07/13/2019	11:27:30 AM
7	Standard6	ICAL	1	07/13/2019	11:31:46 AM
8	Standard7	ICAL	1	07/13/2019	11:36:01 AM
250	ICV	ICV	1	07/13/2019	11:39:10 AM
1	ICB	ICB	1	07/13/2019	11:43:28 AM
2	~~LLCCV1~~ LLICV	CCV1	1	07/13/2019	11:48:10 AM
9	ICSA1	ICSA	1	07/13/2019	11:52:54 AM
10	ICSAB1	ICSAB	1	07/13/2019	11:58:50 AM
71	MB-74407	MBLK	1	07/13/2019	12:16:53 PM
72	LCS-74407	LCS	1	07/13/2019	12:21:35 PM
73	N036115-001B	SAMP	1	07/13/2019	12:25:48 PM
74	N036115-001B	SAMP	5	07/13/2019	12:30:00 PM
75	N036115-001B-PS	PS	1	07/13/2019	12:34:12 PM
76	N036115-001B-MS	MS	1	07/13/2019	12:38:25 PM
77	N036115-001B-MSD	MSD	1	07/13/2019	12:42:37 PM
78	N036115-002B	SAMP	1	07/13/2019	12:46:51 PM
79	N036115-003B	SAMP	1	07/13/2019	12:51:04 PM
80	N036115-004B	SAMP	1	07/13/2019	12:55:18 PM
7	CCV1	CCV	1	07/13/2019	12:59:33 PM
1	CCB1	CCB	1	07/13/2019	01:03:49 PM
81	N036115-005B	SAMP	1	07/13/2019	01:08:30 PM
82	N036115-006B	SAMP	1	07/13/2019	01:12:45 PM
83	N036115-007B	SAMP	1	07/13/2019	01:16:59 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
84	N036115-008B	SAMP	1	07/13/2019	01:21:11 PM
85	N036115-013B	SAMP	1	07/13/2019	01:25:24 PM
86	N036115-014B	SAMP	1	07/13/2019	01:29:37 PM
87	N036115-015B	SAMP	1	07/13/2019	01:33:50 PM
88	N036115-016B	SAMP	1	07/13/2019	01:38:03 PM
89	MB-74405	MBLK	1	07/13/2019	01:42:15 PM
90	LCS-74405	LCS	1	07/13/2019	01:46:57 PM
7	CCV2	CCV	1	07/13/2019	01:51:10 PM
1	CCB2	CCB	1	07/13/2019	01:55:26 PM
91	N036115-001C	SAMP	1	07/13/2019	02:00:07 PM
92	N036115-001C	SAMP	5	07/13/2019	02:04:21 PM
93	N036115-001C-PS	PS	1	07/13/2019	02:08:36 PM
94	N036115-001C-MS	MS	1	07/13/2019	02:12:51 PM
95	N036115-001C-MSD	MSD	1	07/13/2019	02:17:06 PM
96	N036115-002C	SAMP	1	07/13/2019	02:21:19 PM
97	N036115-003C	SAMP	1	07/13/2019	02:25:32 PM
98	N036115-004C	SAMP	1	07/13/2019	02:29:47 PM
99	N036115-005C	SAMP	1	07/13/2019	02:33:59 PM
100	N036115-006C	SAMP	1	07/13/2019	02:38:11 PM
7	CCV3	CCV	1	07/13/2019	02:42:25 PM
1	CCB3	CCB	1	07/13/2019	02:46:40 PM
9	ICSA2	ICSA	1	07/13/2019	02:51:21 PM
10	ICSAB2	ICSAB	1	07/13/2019	02:57:46 PM
101	N036115-007C	SAMP	1	07/13/2019	03:03:44 PM
102	N036115-008C	SAMP	1	07/13/2019	03:07:56 PM
103	N036115-013C	SAMP	1	07/13/2019	03:12:09 PM
104	N036115-014C	SAMP	1	07/13/2019	03:16:22 PM
105	N036115-015C	SAMP	1	07/13/2019	03:20:38 PM
106	N036115-016C	SAMP	1	07/13/2019	03:24:53 PM
107	MB-74525	MBLK	1	07/13/2019	03:29:08 PM
108	LCS-74525	LCS	1	07/13/2019	03:33:50 PM
109	N036155-001B	SAMP	1	07/13/2019	03:38:05 PM
110	N036155-001B	SAMP	5	07/13/2019	03:42:17 PM
7	CCV4	CCV	1	07/13/2019	03:46:30 PM
1	CCB4	CCB	1	07/13/2019	03:50:46 PM
111	N036155-001B-PS	PS	1	07/13/2019	03:55:27 PM
112	N036155-001B-MS	MS	1	07/13/2019	03:59:41 PM
113	N036155-001B-MSD	MSD	1	07/13/2019	04:03:55 PM
114	N036155-002B	SAMP	1	07/13/2019	04:08:10 PM
115	N036155-003B	SAMP	1	07/13/2019	04:12:23 PM
116	N036155-004B	SAMP	1	07/13/2019	04:16:36 PM
117	N036155-005B	SAMP	1	07/13/2019	04:20:50 PM
118	N036155-006B	SAMP	1	07/13/2019	04:25:04 PM
119	N036155-007B	SAMP	1	07/13/2019	04:29:18 PM
120	N036155-008B	SAMP	1	07/13/2019	04:33:33 PM
7	CCV5	CCV	1	07/13/2019	04:37:46 PM

A/S Loc	Sample Name	Type	DF	Acq Date	Acq Time
1	CCB5	CCB	1	07/13/2019	04:42:02 PM
121	N036155-009B	SAMP	1	07/13/2019	04:46:44 PM
122	N036155-010B	SAMP	1	07/13/2019	04:50:59 PM
123	N036155-011B	SAMP	1	07/13/2019	04:55:12 PM
124	N036155-012B	SAMP	1	07/13/2019	04:59:25 PM
125	N036155-013B	SAMP	1	07/13/2019	05:03:39 PM
126	N036155-014B	SAMP	1	07/13/2019	05:07:54 PM
127	MB-74460	MBLK	1	07/13/2019	05:12:08 PM
128	LCS-74460	LCS	1	07/13/2019	05:16:51 PM
129	N036155-001C	SAMP	1	07/13/2019	05:21:06 PM
130	N036155-001C	SAMP	5	07/13/2019	05:25:21 PM
7	CCV6	CCV	1	07/13/2019	05:29:36 PM
1	CCB6	CCB	1	07/13/2019	05:33:52 PM
9	ICSA3	ICSA	1	07/13/2019	05:38:32 PM
10	ICSAB3	ICSAB	1	07/13/2019	05:44:58 PM
131	N036155-001C-PS	PS	1	07/13/2019	05:50:55 PM
132	N036155-001C-MS	MS	1	07/13/2019	05:55:09 PM
133	N036155-001C-MSD	MSD	1	07/13/2019	05:59:24 PM
134	N036155-002C	SAMP	1	07/13/2019	06:03:37 PM
135	N036155-003C	SAMP	1	07/13/2019	06:07:52 PM
136	N036155-004C	SAMP	1	07/13/2019	06:12:06 PM
137	N036155-005C	SAMP	1	07/13/2019	06:16:21 PM
138	N036155-006C	SAMP	1	07/13/2019	06:20:36 PM
139	N036155-007C	SAMP	1	07/13/2019	06:24:50 PM
140	N036155-008C	SAMP	1	07/13/2019	06:29:05 PM
7	CCV7	CCV	1	07/13/2019	06:33:19 PM
1	CCB7	CCB	1	07/13/2019	06:37:35 PM
141	N036155-009C	SAMP	1	07/13/2019	06:42:16 PM
142	N036155-010C	SAMP	1	07/13/2019	06:46:32 PM
143	N036155-011C	SAMP	1	07/13/2019	06:50:46 PM
144	N036155-012C	SAMP	1	07/13/2019	06:55:00 PM
145	N036155-013C	SAMP	1	07/13/2019	06:59:15 PM
146	N036155-014C	SAMP	1	07/13/2019	07:03:29 PM
7	CCV8	CCV	1	07/13/2019	07:07:43 PM
1	CCB8	CCB	1	07/13/2019	07:11:58 PM
9	ICSA4	ICSA	1	07/13/2019	07:16:38 PM
10	ICSAB4	ICSAB	1	07/13/2019	07:23:04 PM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/5/2019 8:04:51 A**
Prep End Date: **7/5/2019 1:00:00 P**
Prep Batch **74460** Prep Code: **3010_W**

Reviewed/ Date: NS 7/16/2019
Initials/ Date: for
Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74460	Aqueous		25	☐	0	0	25	1.000		
MB-74460	Aqueous		25	☐	0	0	25	1.000		
N036155-001C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-001C-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-001C-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-002C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-003C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-004C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-005C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-006C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-007C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-008C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-009C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-010C	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11131	HYDROCHLORIC ACID
11139	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/5/2019 8:04:51 A**
Prep End Date: **7/5/2019 1:00:00 P**
Prep Batch **74460** Prep Code: **3010_W**

Reviewed/ Date: NS 7/16/2019
Initials/ Date: for
Technician: **Mark Gesmundo**

Prep Factor Units
mL / mL

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N036155-011C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-012C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-013C	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-014C	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
11131	HYDROCHLORIC ACID
11139	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
MWST-190401D	ICP Solution A	LCS,MS,MSD	0.5
MWST-190401E	ICP Solution B	LCS,MS,MSD	0.5
MWST-190401F	ICP Solution C	LCS,MS,MSD	0.5

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190713A

Instrument ID: ICP-02

Sample ID	Date	Time	Elem	Wavelength	Corrected Intensity	Concentration	Units	R
Iron								
CalBlk	07/13/2019	11:05:20 AM	Fe	273.954	-63	0.00	mg/L	
Standard1	07/13/2019	11:10:03 AM	Fe	273.954	679	0.0200	mg/L	
Standard2	07/13/2019	11:14:45 AM	Fe	273.954	16404	0.050	mg/L	
Standard3	07/13/2019	11:19:00 AM	Fe	273.954	65773	2.000	mg/L	
Standard4	07/13/2019	11:23:15 AM	Fe	273.954	163763	5.000	mg/L	
Standard5	07/13/2019	11:27:30 AM	Fe	273.954	244585	7.500	mg/L	
Standard6	07/13/2019	11:31:46 AM	Fe	273.954	325242	10.000	mg/L	
Standard7	07/13/2019	11:36:01 AM	Fe	273.954	641432	20.000	mg/L	0.9998

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID	**ICV**	SampType:	**ICV**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**135069**
Client ID:	**ICV**	Batch ID:	**R135069**	TestNo:	**EPA 6010B**			Analysis Date:	**7/13/2019**	SeqNo:	**3437275**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10078.113	20	10000	0	101	90	110				

Sample ID	~~**LLCCV1**~~ **LLICV**	SampType:	**CCV1**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**135069**
Client ID:	**ZZZZZZ**	Batch ID:	**R135069**	TestNo:	**EPA 6010B**			Analysis Date:	**7/13/2019**	SeqNo:	**3437277**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	20.655	20	20.00	0	103	80	120				

Sample ID	**CCV1**	SampType:	**CCV**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**135069**
Client ID:	**CCV**	Batch ID:	**R135069**	TestNo:	**EPA 6010B**			Analysis Date:	**7/13/2019**	SeqNo:	**3437290**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10145.926	20	10000	0	101	90	110				

Sample ID	**CCV2**	SampType:	**CCV**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**135069**
Client ID:	**CCV**	Batch ID:	**R135069**	TestNo:	**EPA 6010B**			Analysis Date:	**7/13/2019**	SeqNo:	**3437302**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	9954.287	20	10000	0	99.5	90	110				

Sample ID	**CCV3**	SampType:	**CCV**	TestCode:	**6010_WPGE**	Units:	**ug/L**	Prep Date:		RunNo:	**135069**
Client ID:	**CCV**	Batch ID:	**R135069**	TestNo:	**EPA 6010B**			Analysis Date:	**7/13/2019**	SeqNo:	**3437314**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10080.407	20	10000	0	101	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

NS 7/16/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437328**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10018.932	20	10000	0	100	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437340**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10029.477	20	10000	0	100	90	110				

Sample ID **CCV6**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437352**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10050.296	20	10000	0	101	90	110				

Sample ID **CCV7**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437366**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10027.278	20	10000	0	100	90	110				

Sample ID **CCV8**	SampType: **CCV**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCV**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437374**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	10014.700	20	10000	0	100	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICB**	SampType: **ICB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **ICB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437276**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	3.769	20									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437291**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	-2.702697	20									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437303**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	2.369	20									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437315**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.437	20									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437329**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.894	20									

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437341**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.187	20									

Sample ID **CCB6**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437353**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.723	20									

Sample ID **CCB7**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437367**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	1.592	20									

Sample ID **CCB8**	SampType: **CCB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **CCB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437375**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	0.541	20									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSA** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437278**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	537431.875	50	500000	0	107	80	120				
Calcium	519713.472	500	500000	0	104	80	120				
Iron	179887.453	20	200000	0	89.9	80	120				
Magnesium	505112.791	100	500000	0	101	80	120				

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSAB** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437279**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	552296.995	50	500000	0	110	80	120				
Calcium	536798.525	500	500000	0	107	80	120				
Iron	184993.067	20	200000	0	92.5	80	120				
Magnesium	526957.502	100	500000	0	105	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSA** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437316**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	532102.581	50	500000	0	106	80	120				
Calcium	521633.790	500	500000	0	104	80	120				
Iron	179480.576	20	200000	0	89.7	80	120				
Magnesium	499659.564	100	500000	0	99.9	80	120				

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSAB** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437317**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	546080.858	50	500000	0	109	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSAB** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437317**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Calcium	537926.182	500	500000	0	108	80	120				
Iron	182829.874	20	200000	0	91.4	80	120				
Magnesium	515578.012	100	500000	0	103	80	120				

Sample ID **ICSA3** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSA** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437354**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	533384.682	50	500000	0	107	80	120				
Calcium	523395.311	500	500000	0	105	80	120				
Iron	179411.829	20	200000	0	89.7	80	120				
Magnesium	495493.828	100	500000	0	99.1	80	120				

Sample ID **ICSAB3** SampType: **ICSAB** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSAB** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437355**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	547973.436	50	500000	0	110	80	120				
Calcium	540707.433	500	500000	0	108	80	120				
Iron	183529.086	20	200000	0	91.8	80	120				
Magnesium	513403.763	100	500000	0	103	80	120				

Sample ID **ICSA4** SampType: **ICSA** TestCode: **6010_WPGE** Units: **ug/L** Prep Date: RunNo: **135069**
Client ID: **ICSA** Batch ID: **R135069** TestNo: **EPA 6010B** Analysis Date: **7/13/2019** SeqNo: **3437376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	534020.144	50	500000	0	107	80	120				
Calcium	525171.249	500	500000	0	105	80	120				
Iron	178639.847	20	200000	0	89.3	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **ICSA4**	SampType: **ICSA**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **ICSA**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437376**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Magnesium	492692.864	100	500000	0	98.5	80	120				

Sample ID **ICSAB4**	SampType: **ICSAB**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:	RunNo: **135069**
Client ID: **ICSAB**	Batch ID: **R135069**	TestNo: **EPA 6010B**		Analysis Date: **7/13/2019**	SeqNo: **3437377**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Aluminum	548742.026	50	500000	0	110	80	120				
Calcium	541955.719	500	500000	0	108	80	120				
Iron	182458.095	20	200000	0	91.2	80	120				
Magnesium	509690.444	100	500000	0	102	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
CalBlk	IBLK	1	1	100	65-125	PASS
Standard1	ICAL	1	1.0071	100.71	65-125	PASS
Standard2	ICAL	1	1.035	103.51	65-125	PASS
Standard3	ICAL	1	1.05	104.97	65-125	PASS
Standard4	ICAL	1	1.033	103.32	65-125	PASS
Standard5	ICAL	1	1.087	108.69	65-125	PASS
Standard6	ICAL	1	1.025	102.53	65-125	PASS
Standard7	ICAL	1	1.026	102.62	65-125	PASS
ICV	ICV	1	1.035	103.49	65-125	PASS
ICB	ICB	1	1	99.96	65-125	PASS
~~LLCCV1~~ LLICV	CCV1	1	1.0006	100.06	65-125	PASS
ICSA1	ICSA	1	0.93	93.31	65-125	PASS
ICSAB1	ICSAB	1	0.91	90.6	65-125	PASS
CCV1	CCV	1	1.022	102.25	65-125	PASS
CCB1	CCB	1	1.023	102.32	65-125	PASS
CCV2	CCV	1	1.043	104.31	65-125	PASS
CCB2	CCB	1	1.039	103.88	65-125	PASS
CCV3	CCV	1	1.012	101.16	65-125	PASS
CCB3	CCB	1	1.0077	100.77	65-125	PASS
ICSA2	ICSA	1	0.91	91.42	65-125	PASS
ICSAB2	ICSAB	1	0.89	88.91	65-125	PASS
CCV4	CCV	1	1.014	101.39	65-125	PASS
CCB4	CCB	1	1.005	100.5	65-125	PASS
CCV5	CCV	1	1.01	101.01	65-125	PASS
CCB5	CCB	1	1.004	100.4	65-125	PASS
MB-74460	MBLK	1	1.0095	100.95	65-125	PASS
LCS-74460	LCS	1	0.93	93.25	65-125	PASS
N036155-001C	SAMP	1	1.056	105.57	65-125	PASS
N036155-001C	SAMP	5	1.02	101.95	65-125	PASS
CCV6	CCV	1	1.0095	100.95	65-125	PASS
CCB6	CCB	1	1.0083	100.83	65-125	PASS
ICSA3	ICSA	1	0.92	92.24	65-125	PASS
ICSAB3	ICSAB	1	0.89	89.45	65-125	PASS
N036155-001C-PS	PS	1	1.038	103.76	65-125	PASS
N036155-001C-MS	MS	1	1.032	103.24	65-125	PASS
N036155-001C-MSD	MSD	1	1.034	103.43	65-125	PASS
N036155-002C	SAMP	1	1.069	106.95	65-125	PASS
N036155-003C	SAMP	1	1.056	105.6	65-125	PASS
N036155-004C	SAMP	1	1.051	105.1	65-125	PASS
N036155-005C	SAMP	1	1.03	103.01	65-125	PASS
N036155-006C	SAMP	1	1.052	105.2	65-125	PASS

INTERNAL STANDARD: 190713A

Instrument ID: ICP-02

Sample Name	Type	DF	Yttrium, 1.0 mg/L			
			Reported Conc	%REC	Criteria	Comment
N036155-007C	SAMP	1	1.027	102.7	65-125	PASS
N036155-008C	SAMP	1	1.063	106.33	65-125	PASS
CCV7	CCV	1	1.016	101.58	65-125	PASS
CCB7	CCB	1	1.013	101.26	65-125	PASS
N036155-009C	SAMP	1	1.043	104.26	65-125	PASS
N036155-010C	SAMP	1	1.058	105.81	65-125	PASS
N036155-011C	SAMP	1	1.063	106.29	65-125	PASS
N036155-012C	SAMP	1	1.057	105.67	65-125	PASS
N036155-013C	SAMP	1	1.059	105.93	65-125	PASS
N036155-014C	SAMP	1	1.064	106.43	65-125	PASS
CCV8	CCV	1	1.024	102.35	65-125	PASS
CCB8	CCB	1	1.019	101.91	65-125	PASS
ICSA4	ICSA	1	0.93	93.24	65-125	PASS
ICSAB4	ICSAB	1	0.91	90.6	65-125	PASS

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-Metals in Water

Dilution Test Summary

Work Order No.: N036155
Test Method: EPA 6010B
Analysis Date: 11/11/2103

Matrix: Groundwater
Batch No.: 74460

Instrument ID: ICP-02
Instrument Description: Perkin Elmer Optima DV Series

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to Fe. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036155-001C DT 5x	Iron	Fe	ug/L	0	NA	45.13071	100.00%	10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6010_WPGEPPB

Sample ID **N036155-001C-PS**	SampType: **PS**	TestCode: **6010_WPGE**	Units: **ug/L**	Prep Date:			RunNo: **135069**		
Client ID: **ZZZZZZ**	Batch ID: **74460**	TestNo: **EPA 6010B**	**EPA 3010A**	Analysis Date: **7/13/2019**			SeqNo: **3437356**		

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Iron	146.046	20	100.0	45.13	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP**
Method Number: EPA 200.7/ 6010
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Matrix: **WATER**
Unit: mg/L

Instrument Name: **ICP-02**

Acceptance Criteria: MDL < spike < 10XMDL

Analyte	Wavelength	#1	#2	#3	#4	#5	#6	#7	Spike Conc., mg/L	SD	MDL	PQL
Ag	328.069	0.0033	0.0031	0.0033	0.0033	0.0031	0.0030	0.0047	0.003	0.00061604	**0.001936**	0.003
Al	237.312	0.0664	0.0603	0.0656	0.0650	0.0658	0.0660	0.0946	0.050	0.01254823	**0.039439**	0.050
As	188.983	0.0131	0.0089	0.0120	0.0089	0.0060	0.0102	0.0080	0.010	0.00223806	**0.007034**	0.010
B	249.679	0.1491	0.1267	0.1281	0.1467	0.1261	0.1195	0.1015	0.100	0.01801843	**0.056632**	0.100
Ba	233.529	0.0033	0.0031	0.0033	0.0031	0.0032	0.0030	0.0024	0.003	0.00033070	**0.001039**	0.003
Be	313.104	0.0012	0.0011	0.0012	0.0012	0.0011	0.0011	0.0011	0.001	0.00006873	**0.000216**	0.001
Ca	227.546	0.2381	0.2231	0.2559	0.2299	0.2194	0.2473	0.2691	0.200	0.02202408	**0.069222**	0.200
Cd	214.437	0.0031	0.0029	0.0031	0.0032	0.0031	0.0031	0.0025	0.003	0.00027049	**0.000850**	0.003
Co	228.614	0.0030	0.0028	0.0030	0.0031	0.0031	0.0031	0.0027	0.003	0.00014491	**0.000455**	0.003
Cr	267.719	0.0009	0.0008	0.0009	0.0012	0.0012	0.0013	0.0009	0.001	0.00017120	**0.000538**	0.001
Fe	273.953	0.0255	0.0226	0.0242	0.0255	0.0252	0.0248	0.0387	0.020	0.00552308	**0.017359**	0.020
Mg	279.079	0.1124	0.1052	0.1129	0.1315	0.1305	0.1314	0.1435	0.100	0.01532024	**0.048152**	0.100
Mn	257.607	0.0119	0.0111	0.0120	0.0122	0.0121	0.0122	0.0099	0.010	0.00098403	**0.003093**	0.010
Mo	202.03	0.0079	0.0068	0.0067	0.0065	0.0065	0.0062	0.0057	0.005	0.00083918	**0.002638**	0.005
Ni	231.604	0.0061	0.0056	0.0062	0.0060	0.0060	0.0062	0.0045	0.005	0.00062690	**0.001970**	0.005
Pb	220.351	0.0124	0.0117	0.0127	0.0115	0.0120	0.0118	0.0090	0.010	0.00126325	**0.003970**	0.010
Sb	206.836	0.0102	0.0095	0.0104	0.0112	0.0117	0.0111	0.0080	0.010	0.00117407	**0.003690**	0.010
Se	196.025	0.0102	0.0087	0.0114	0.0136	0.0144	0.0136	0.0075	0.010	0.00251341	**0.007900**	0.010
Sn	189.927	0.0095	0.0084	0.0090	0.0124	0.0126	0.0129	0.0099	0.010	0.00175765	**0.005524**	0.010
Ti	334.943	0.0114	0.0106	0.0115	0.0115	0.0115	0.0115	0.0098	0.010	0.00074093	**0.002329**	0.010
Tl	190.794	0.0170	0.0150	0.0165	0.0171	0.0180	0.0168	0.0151	0.015	0.00116288	**0.003655**	0.015
V	292.404	0.0025	0.0024	0.0025	0.0032	0.0032	0.0032	0.0027	0.003	0.00038496	**0.001210**	0.003
Zn	206.201	0.0109	0.0100	0.0107	0.0125	0.0124	0.0124	0.0095	0.010	0.00123731	**0.003889**	0.010

METHOD DETECTION LIMIT 2017

Method Name: **Metals by ICP** Matrix: **WATER**
Method Number: EPA 200.7/ 6010 Unit: mg/L
Analysis Date(s): 10/6, 10/7,11/10/17
Analyst: Mary Claire Ignacio

Instrument Name: **ICP-02**

Analyte	ICP-02 MDL	MDL Blank	Higher MDL	LOD	PQL
Ag	0.001936	0.002362	0.002362	0.002	0.003
Al	0.039439	0.039859	0.039859	0.04	0.5
As	0.007034	0.007672	0.007672	0.0075	0.01
B	0.056632	0.074419	0.074419	0.075	0.1
Ba	0.001039	0.000433	0.001039	0.001	0.003
Be	0.000216	0.000311	0.000311	0.0005	0.003
Ca	0.069222	0.084832	0.084832	0.1	0.5
Cd	0.000850	0.000592	0.000850	0.001	0.003
Co	0.000455	0.001902	0.001902	0.001	0.003
Cr	0.000538	0.000527	0.000538	0.001	0.003
Fe	0.017359	0.017751	0.017751	0.018	0.1
Mg	0.048152	0.043017	0.048152	0.05	0.1
Mn	0.003093	0.000782	0.003093	0.005	0.5
Mo	0.002638	0.002482	0.002638	0.0025	0.005
Ni	0.001970	0.000822	0.001970	0.0025	0.005
Pb	0.003970	0.002762	0.003970	0.005	0.005
Sb	0.003690	0.004504	0.004504	0.005	0.01
Se	0.007900	0.008549	0.008549	0.008	0.01
Sn	0.005524	0.003415	0.005524	0.0075	0.05
Ti	0.002329	0.001493	0.002329	0.005	0.05
Tl	0.003655	0.005987	0.005987	0.005	0.015
V	0.001210	0.000749	0.001210	0.002	0.003
Zn	0.003889	0.007683	0.007683	0.008	0.01

EPA 6020
Dissolved

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74467
ASSET #: N036155

Instrument ID: ICPMS-02
Analyst: HG
Date Analyzed: 7/6/2019

Method:

- [ ] EPA 6010B / 200.7
- [ ] EPA 7470A / 7471A/245.1
- [X] EPA 6020 / 200.8
- [ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?		X			X	
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?	X			X		
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.		X		X	X	
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

% RSD of Se in LLICV failed. However, % Recovery passed criteria.
Blank hit on Mn. Samples for reanalysis.
% Rec of As in CCV2 failed, high bias. Samples affected are for rerun.
% Rec of Cr in CCV3 failed, high bias. However, samples affected are ND for this analyte.

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer HSG Date: 7/8/2019

2nd Level Reviewer NS 7/8/2019 Date: —

Metals Technical Batch Review Checklist (ARCUS02)

ASSET LABORATORIES - LAS VEGAS

FIRST LEVEL REVIEW:

QC Batch Number: 74512
ASSET #: N036155

Instrument ID: ICPMS-02
Analyst: CEI
Date Analyzed: 7/10/2019

Method:

[ ] EPA 6010B / 200.7
[ ] EPA 7470A / 7471A/245.1
[X] EPA 6020 / 200.8
[ ] Other _____

Initial Calibration and Initial Calibration Verification	1st Level Review			2nd Level Review		
	Y	N	N/A	Y	N	N/A
1. Does correlation coefficient,r, meet criteria ?(r = 0.995)	X			X		
2. For ICV, all analytes within ± 10% of expected value? (±5% for EPA 200.7)	X			X		
3. Does the ICP/MS meet tune criteria? (ICP/MS only)	X			X		
4. % RSD calculated from 3 injections?	X			X		
5. Is low level check at PQL within ± 20% of expected value? (ICP/ICPMS only)	X			X		
Interference Check						
6. ICS A and AB at the start and end of sequence or twice during an 8-hr period.	X			X		
7. Are ICSA and AB within ± 20% of expected value?	X			X		
Continuing Calibration						
8. CCV after every 10 samples and end of analysis sequence.	X			X		
9. For CCV, all analytes within ± 10% of expected value?	X			X		
10. Calibration blank after ICVand CCV analysis.	X			X		
11. Do all calibration blanks (ICB and CCBs) meet criteria? (< 1/2 PQL)	X			X		
12 Is low level check twice during 8 hr period or at end within ± 30% of expected value? (ICP/ICPMS only)	X			X		
Sample Information						
13. All samples are within linear dynamic range.	X			X		
14. All hits above PQL have %RSD of less than or equal to 15%? (ICP/ICPMS only)	X			X		
15. Are all samples analyzed/digested within hold time.	X			X		
16. Dilution test performed and within ± 10% of undiluted sample.	X			X		
17. When dilution test fails, post digestion spike recovery within 80-120% of expected value.			X			X
18. For samples < 4 ppb, does the Cr result differs with Cr6+ by no more than 0.7 ppb?			X			X
19 For samples > 4 ppb, does the Cr result differs with Cr6+ by no more than 20%?			X			X
20. For samples that failed Cr6 vs CrT criteria, are samples reanalyzed for confirmation?			X			X
21. For samples with Total and Dissolved analysis, is Total concentration higher or equal to Dissolved concentration?			X			X
QC Items						
22. IS are within control limits (70-125% for ICPMS).	X			X		
23. Method blank values are below 1/2 the reporting limit.	X			X		
24. LCS compounds within control limits.	X			X		
25. MS/MSD, RPD's are within control limits	X			X		
Raw Data and Miscellaneous Information						
26. Are Non-Conformances documented			X			X
27. Runlog complete and included in package.	X			X		
28. Digestion log complete and included in package (if applicable)	X			X		
29. All sample raw data present in package.	X			X		
Preliminary Report						
30. Does the raw data match the preliminary report?	X			X		
31. Are analytical results correct?(Ex. dilutions, calculations.etc.)	X			X		
32. Are special instructions met?	X			X		

Comments:

As and Mn run

	Yes	No	N/A
1. All assigned sample(s) analyzed	X		
2. Matrix / units correct	X		
3. Does batch meet QC requirements?	X		
4. Are analytical results correct? (Ex. dilutions, calculations.etc.)	X		
5. Is first level review correct and complete?	X		

1st Level Reviewer CEI Date: 7/10/2019

2nd Level Reviewer NS 7/10/2019 Date: —

SAMPLE CALCULATION

SAMPLE CALCULATION

METHOD: EPA 6020
TEST NAME: Heavy Metals by ICP-MS
MATRIX: Groundwater

FORMULA:

Calculate the Arsenic concentration, in ug/L , in the original sample as follows:

Arsenic , ug/L = A * DF * PF

where:

A = ug/L, calculated concentration
DF = Dilution Factor
PF = Final Volume of Digestate, mL / Amount of Sample, mL

For Sample **N036155-001B** , the concentration in ug/L is calculated as follows:

Arsenic , ug/L = 2.30272 * 1 *(25 / 25)

Arsenic , ug/L = 2.30272

Reporting results in two significant figures,

Arsenic , ug/L = 2.3

NS 7/15/2019

% RSD SUMMARY

PERCENT RSD SUMMARY: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.076	15.086	15	<PQL	0.12	8.48	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.44	3.31	15	PASS	0.5	6.48	15	PASS
Std3-5/50 ppb	ICAL	1	4.86	0.65	15	PASS	4.98	0.61	15	PASS
Std4-10/100 ppb	ICAL	1	9.77	0.38	15	PASS	9.98	1.66	15	PASS
Std5-20/200 ppb	ICAL	1	21.8	1.52	15	PASS	21.85	0.58	15	PASS
Std6-40/400 ppb	ICAL	1	38.68	0.36	15	PASS	39.35	1	15	PASS
Std7-100/1000 ppb	ICAL	1	97.33	0.34	15	PASS	97.97	0.58	15	PASS
Std8-200/2000 ppb	ICAL	1	201.43	1.49	15	PASS	200.96	1.15	15	PASS
ICV	ICV	1	9.8	1.058	15	PASS	9.54	0.59	15	PASS
ICB	ICB	1	0.003	74.57	15	<PQL	0.0063	71.95	15	<PQL
LLICV	CCV1	1	1.018	1.25	20	PASS	1.012	2.44	20	PASS
ICSA1	ICSA	1	0.33	5.12	15	PASS	<0.000	N/A	15	<PQL
ICSAB1	ICSAB	1	19.63	1.022	15	PASS	18.82	0.39	15	PASS
CCV1	CCV	1	21.82	0.36	15	PASS	21.84	1.37	15	PASS
CCB1	CCB	1	0.0062	87.89	15	<PQL	<0.000	N/A	15	<PQL
MB-74467	MBLK	1	0.0098	33.68	15	<PQL	0.01	28.25	15	<PQL
LCS-74467	LCS	1	9.64	1.029	15	PASS	9.75	1.91	15	PASS
N036155-001B	SAMP	1	102.95	0.72	15	PASS	0.079	42.072	15	<PQL
N036155-001B	SAMP	5	21.4	0.38	15	PASS	0.00076	259.73	15	<PQL
N036155-001B-PS	PS	1	113.45	0.41	15	PASS	9.85	0.66	15	PASS
N036155-001B-MS	MS	1	114.47	0.52	15	PASS	9.48	0.27	15	PASS
N036155-001B-MSD	MSD	1	112.37	0.65	15	PASS	9.5	1.93	15	PASS
N036155-002B	SAMP	1	104.45	0.45	15	PASS	0.11	5.59	15	PASS
N036155-003B	SAMP	1	105.49	0.59	15	PASS	0.085	4.0088	15	PASS
CCV2	CCV	1	21.94	0.35	15	PASS	21.61	0.87	15	PASS
CCB2	CCB	1	0.014	50.054	15	<PQL	0.0071	36.0028	15	<PQL
N036155-004B	SAMP	1	105.75	0.29	15	PASS	0.076	16.091	15	<PQL
N036155-005B	SAMP	1	102.85	0.34	15	PASS	0.18	55.63	15	<PQL
N036155-006B	SAMP	1	102.89	0.44	15	PASS	0.087	7.9	15	PASS
N036155-007B	SAMP	1	106.27	0.5	15	PASS	0.056	16.41	15	<PQL
N036155-008B	SAMP	1	105.069	0.7	15	PASS	0.079	16.73	15	<PQL
N036155-009B	SAMP	1	104.017	0.54	15	PASS	0.094	10.85	15	PASS
N036155-010B	SAMP	1	102.25	0.15	15	PASS	0.066	19.67	15	<PQL
N036155-011B	SAMP	1	102.64	0.73	15	PASS	0.084	15.32	15	<PQL
N036155-012B	SAMP	1	103.17	1.23	15	PASS	0.097	9.46	15	PASS
N036155-013B	SAMP	1	104.22	0.54	15	PASS	0.088	16.57	15	<PQL
CCV3	CCV	1	21.71	0.13	15	PASS	22.0089	1.36	15	PASS
CCB3	CCB	1	0.021	54.57	15	<PQL	0.0058	156.37	15	<PQL
ICSA2	ICSA	1	0.32	1.27	15	PASS	<0.000	N/A	15	<PQL
ICSAB2	ICSAB	1	19.8	0.51	15	PASS	18.83	1.32	15	PASS

PERCENT RSD SUMMARY: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	137 Ba [3]				52 Cr [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N036155-014B	SAMP	1	103.94	0.39	15	PASS	0.08	15.59	15	<PQL
N036157-001A	SAMP	1	32.037	0.25	15	PASS	368.92	0.79	15	PASS
N036178-001B	SAMP	1	28.97	0.86	15	PASS	9.091	0.64	15	PASS
N036155-002B	SAMP	1	104.79	0.41	15	PASS	0.15	1.59	15	PASS
N036155-006B	SAMP	1	103.06	0.57	15	PASS	0.091	6.23	15	PASS
N036155-008B	SAMP	1	104.8	1.54	15	PASS	0.073	11.89	15	PASS
N036155-010B	SAMP	1	102.23	0.32	15	PASS	0.054	34.83	15	<PQL
N036155-014B	SAMP	1	103.42	0.0057	15	PASS	0.083	15.3	15	<PQL
CCV4	CCV	1	21.62	1.54	15	PASS	21.7	1.3	15	PASS
CCB4	CCB	1	0.0051	145.59	15	<PQL	0.0036	248.52	15	<PQL
N036157-001A	SAMP	5	6.49	0.62	15	PASS	72.86	0.26	15	PASS
N036178-001B	SAMP	1	29.26	0.67	15	PASS	8.98	1.35	15	PASS
CCV5	CCV	1	21.88	1.039	15	PASS	21.82	1.13	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
ICSA3	ICSA	1	0.32	1.86	15	PASS	<0.000	N/A	15	<PQL
ICSAB3	ICSAB	1	19.77	0.74	15	PASS	19.062	1.24	15	PASS
ICSAB3	ICSAB	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSA3	ICSA	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSAB3	ICSAB	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSA3	ICSA	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSAB3	ICSAB	1	<0.000		15	<PQL	<0.000		15	<PQL

NR

NS 7/15/2019

PERCENT RSD SUMMARY: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.079	15.71	15	<PQL	0.095	17.85	15	<PQL
Std2-0.5/5 ppb	ICAL	1	0.48	2.73	15	PASS	0.5	6.17	15	PASS
Std3-5/50 ppb	ICAL	1	5.095	1.98	15	PASS	5.055	0.98	15	PASS
Std4-10/100 ppb	ICAL	1	10.21	0.77	15	PASS	10.034	2.17	15	PASS
Std5-20/200 ppb	ICAL	1	22.31	0.79	15	PASS	22.15	0.5	15	PASS
Std6-40/400 ppb	ICAL	1	39.99	1.083	15	PASS	39.33	1.71	15	PASS
Std7-100/1000 ppb	ICAL	1	99.016	1.096	15	PASS	100.14	0.93	15	PASS
Std8-200/2000 ppb	ICAL	1	200.25	0.17	15	PASS	199.85	0.54	15	PASS
ICV	ICV	1	102.12	0.9	15	PASS	10.091	2.99	15	PASS
ICB	ICB	1	0.00054	360.077	15	<PQL	0.0047	300.23	15	<PQL
LLICV	CCV1	1	0.53	4.8	20	PASS	0.1	9.33	20	PASS
ICSA1	ICSA	1	0.62	23.1	15	NR!	0.031	94.26	15	<PQL
ICSAB1	ICSAB	1	19.32	0.74	15	PASS	19.99	0.8	15	PASS
CCV1	CCV	1	22.28	0.82	15	PASS	21.94	1.94	15	PASS
CCB1	CCB	1	0.016	24.96	15	<PQL	0.014	47.92	15	<PQL
MB-74467	MBLK	1	0.51	6.46	15	PASS	0.0031	634.75	15	<PQL
LCS-74467	LCS	1	102.036	1.22	15	PASS	9.71	0.48	15	PASS
N036155-001B	SAMP	1	<0.000	N/A	15	<PQL	2.21	2.64	15	PASS
N036155-001B	SAMP	5	<0.000	N/A	15	<PQL	0.4	4.76	15	PASS
N036155-001B-PS	PS	1	97.61	1.026	15	PASS	12.41	0.73	15	PASS
N036155-001B-MS	MS	1	97.64	0.18	15	PASS	12.25	2.21	15	PASS
N036155-001B-MSD	MSD	1	98.39	1.45	15	PASS	11.72	0.86	15	PASS
N036155-002B	SAMP	1	<0.000	N/A	15	<PQL	2.24	4.39	15	PASS
N036155-003B	SAMP	1	1.11	5.33	15	PASS	2.38	2.044	15	PASS
CCV2	CCV	1	22.12	0.93	15	PASS	22.34	0.43	15	PASS
CCB2	CCB	1	0.00094	194.36	15	<PQL	0.0098	110.81	15	<PQL
N036155-004B	SAMP	1	1.32	3.0082	15	PASS	2.34	4.34	15	PASS
N036155-005B	SAMP	1	<0.000	N/A	15	<PQL	2.24	4.61	15	PASS
N036155-006B	SAMP	1	1.074	1.67	15	PASS	2.14	1.72	15	PASS
N036155-007B	SAMP	1	<0.000	N/A	15	<PQL	2.26	6.28	15	PASS
N036155-008B	SAMP	1	<0.000	N/A	15	<PQL	2.19	0.79	15	PASS
N036155-009B	SAMP	1	<0.000	N/A	15	<PQL	2.22	2.17	15	PASS
N036155-010B	SAMP	1	<0.000	N/A	15	<PQL	2.17	0.89	15	PASS
N036155-011B	SAMP	1	<0.000	N/A	15	<PQL	2.18	1.72	15	PASS
N036155-012B	SAMP	1	0.76	4.55	15	PASS	2.3	1.85	15	PASS
N036155-013B	SAMP	1	0.61	11.94	15	PASS	2.24	4.44	15	PASS
CCV3	CCV	1	22.1	1.045	15	PASS	21.94	2.17	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	0.021	47.052	15	<PQL
ICSA2	ICSA	1	0.55	12.44	15	PASS	0.062	20.4	15	<PQL
ICSAB2	ICSAB	1	19.35	0.9	15	PASS	19.72	1.24	15	PASS

PERCENT RSD SUMMARY: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N036155-014B	SAMP	1	<0.000	N/A	15	<PQL	2.24	1.89	15	PASS
N036157-001A	SAMP	1	8.58	3.66	15	PASS	2.44	1.56	15	PASS
N036178-001B	SAMP	1	<0.000	N/A	15	<PQL	0.71	4.88	15	PASS
N036155-002B	SAMP	1	<0.000	N/A	15	<PQL	2.21	0.53	15	PASS
N036155-006B	SAMP	1	1.23	9.43	15	PASS	2.16	4.89	15	PASS
N036155-008B	SAMP	1	<0.000	N/A	15	<PQL	2.2	4.44	15	PASS
N036155-010B	SAMP	1	<0.000	N/A	15	<PQL	2.22	2.62	15	PASS
N036155-014B	SAMP	1	<0.000	N/A	15	<PQL	2.21	2.66	15	PASS
CCV4	CCV	1	22.13	0.92	15	PASS	21.8	1.76	15	PASS
CCB4	CCB	1	0.0013	274.5	15	<PQL	0.0037	371.15	15	<PQL
N036157-001A	SAMP	5	1.82	5.4	15	PASS	0.51	3.12	15	PASS
N036178-001B	SAMP	1	<0.000	N/A	15	<PQL	0.67	5.016	15	PASS
CCV5	CCV	1	22.36	1.21	15	PASS	21.51	1.85	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.012	117.088	15	<PQL
ICSA3	ICSA	1	0.58	14.89	15	PASS	0.054	25.7	15	<PQL
ICSAB3	ICSAB	1	19.44	1.49	15	PASS	19.77	2.13	15	PASS
ICSAB3	ICSAB	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSA3	ICSA	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSAB3	ICSAB	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSA3	ICSA	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSAB3	ICSAB	1	<0.000		15	<PQL	<0.000		15	<PQL

PERCENT RSD SUMMARY: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	62.57	15	<PQL	0.09	5.02	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.52	24.63	15	NR!	0.45	8.98	15	PASS
Std3-5/50 ppb	ICAL	1	5.15	6.19	15	PASS	4.82	2.91	15	PASS
Std4-10/100 ppb	ICAL	1	10	3.17	15	PASS	9.71	0.91	15	PASS
Std5-20/200 ppb	ICAL	1	21.86	4.93	15	PASS	21.58	0.87	15	PASS
Std6-40/400 ppb	ICAL	1	39.61	4.23	15	PASS	39.14	1.36	15	PASS
Std7-100/1000 ppb	ICAL	1	98.81	1.63	15	PASS	97.75	0.93	15	PASS
Std8-200/2000 ppb	ICAL	1	200.48	1.26	15	PASS	201.16	1.13	15	PASS
ICV	ICV	1	9.99	1.87	15	PASS	9.71	0.61	15	PASS
ICB	ICB	1	0.022	128.44	15	<PQL	0.03	32.7	15	<PQL
LLICV	CCV1	1	0.51	30.082	20	FAIL ~~NR!~~	0.49	6.11	20	PASS
ICSA1	ICSA	1	0.021	140.017	15	<PQL	0.048	42.72	15	<PQL
ICSAB1	ICSAB	1	18.87	2.035	15	PASS	20.73	1.36	15	PASS
CCV1	CCV	1	21.72	2.0043	15	PASS	21.51	0.66	15	PASS
CCB1	CCB	1	0.021	0.53	15	PASS	0.047	11.85	15	PASS
MB-74467	MBLK	1	<0.000	N/A	15	<PQL	0.0037	105.41	15	<PQL
LCS-74467	LCS	1	9.64	2.88	15	PASS	9.43	1.48	15	PASS
N036155-001B	SAMP	1	1.57	13.004	15	PASS	4.17	2.082	15	PASS
N036155-001B	SAMP	5	0.35	39.049	15	<PQL	0.78	10.17	15	PASS
N036155-001B-PS	PS	1	11.92	3.78	15	PASS	14.86	1.2	15	PASS
N036155-001B-MS	MS	1	10.97	2.062	15	PASS	14.47	1.053	15	PASS
N036155-001B-MSD	MSD	1	10.84	5.44	15	PASS	14.33	2.18	15	PASS
N036155-002B	SAMP	1	1.62	19.69	15	NR!	4.22	1.99	15	PASS
N036155-003B	SAMP	1	1.8	12.0046	15	PASS	4.15	1.77	15	PASS
CCV2	CCV	1	21.58	4.21	15	PASS	21.23	1.11	15	PASS
CCB2	CCB	1	0.033	29.58	15	<PQL	0.044	9.45	15	PASS
N036155-004B	SAMP	1	1.57	5.56	15	PASS	4.29	2.25	15	PASS
N036155-005B	SAMP	1	1.68	8.92	15	PASS	4.14	0.7	15	PASS
N036155-006B	SAMP	1	1.42	31.28	15	NR!	4.15	1.94	15	PASS
N036155-007B	SAMP	1	1.52	13.49	15	PASS	4.19	1.76	15	PASS
N036155-008B	SAMP	1	1.57	16.31	15	NR!	4.19	0.59	15	PASS
N036155-009B	SAMP	1	1.59	9.74	15	PASS	4.091	2.96	15	PASS
N036155-010B	SAMP	1	1.4	18.21	15	NR!	4.1	1.14	15	PASS
N036155-011B	SAMP	1	1.55	5.33	15	PASS	4.23	0.37	15	PASS
N036155-012B	SAMP	1	1.72	6.21	15	PASS	4.28	0.43	15	PASS
N036155-013B	SAMP	1	1.37	5.69	15	PASS	4.15	0.23	15	PASS
CCV3	CCV	1	21.044	8.27	15	PASS	21.46	0.87	15	PASS
CCB3	CCB	1	0.023	145.89	15	<PQL	0.05	5.58	15	PASS
ICSA2	ICSA	1	0.0016	665.38	15	<PQL	0.045	40.87	15	<PQL
ICSAB2	ICSAB	1	19.57	2.69	15	PASS	20.62	0.71	15	PASS

NS 7/15/2019

PERCENT RSD SUMMARY: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	78 Se [1]				95 Mo [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N036155-014B	SAMP	1	1.66	20.24	15	NR!	4.26	1.87	15	PASS
N036157-001A	SAMP	1	4.99	6.33	15	PASS	27.091	1.3	15	PASS
N036178-001B	SAMP	1	0.81	23.87	15	NR!	0.85	1.14	15	PASS
N036155-002B	SAMP	1	1.45	5.42	15	PASS	4.18	1.42	15	PASS
N036155-006B	SAMP	1	1.58	11.86	15	PASS	4.082	0.94	15	PASS
N036155-008B	SAMP	1	1.41	7.56	15	PASS	4.24	2.32	15	PASS
N036155-010B	SAMP	1	1.6	14.39	15	PASS	4.11	2.43	15	PASS
N036155-014B	SAMP	1	1.7	10.11	15	PASS	4.12	1.032	15	PASS
CCV4	CCV	1	21.14	2.54	15	PASS	21.48	0.79	15	PASS
CCB4	CCB	1	0.052	105.57	15	<PQL	0.048	2.77	15	PASS
N036157-001A	SAMP	5	1.066	17.35	15	NR!	5.34	3.32	15	PASS
N036178-001B	SAMP	1	0.54	7.95	15	PASS	0.78	6.9	15	PASS
CCV5	CCV	1	21.39	1.61	15	PASS	21.38	1.14	15	PASS
CCB5	CCB	1	0.029	33.8	15	<PQL	0.048	8.71	15	PASS
ICSA3	ICSA	1	0.0017	1254.77	15	<PQL	0.054	29.45	15	<PQL
ICSAB3	ICSAB	1	20.16	1.13	15	PASS	20.23	1.91	15	PASS
ICSAB3	ICSAB	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSA3	ICSA	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSAB3	ICSAB	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSA3	ICSA	1	<0.000		15	<PQL	<0.000		15	<PQL
ICSAB3	ICSAB	1	<0.000		15	<PQL	<0.000		15	<PQL

PERCENT RSD SUMMARY: 190710A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
Cal Blank	IBLK	1	0	N/A	15	<PQL	0	N/A	15	<PQL
Std1-0.1/1 ppb	ICAL	1	0.1	8.67	15	PASS	0.092	13.8	15	PASS
Std2-0.5/5 ppb	ICAL	1	0.53	2.65	15	PASS	0.49	5.7	15	PASS
Std3-5/50 ppb	ICAL	1	5.16	0.98	15	PASS	5.16	1.041	15	PASS
Std4-10/100 ppb	ICAL	1	10.26	1.54	15	PASS	9.97	1.86	15	PASS
Std5-20/200 ppb	ICAL	1	20.55	0.73	15	PASS	20.21	2.021	15	PASS
Std6-40/400 ppb	ICAL	1	40.59	1.17	15	PASS	40.19	0.89	15	PASS
Std7-100/1000 ppb	ICAL	1	100.72	0.48	15	PASS	101.12	1.12	15	PASS
Std8-200/2000 ppb	ICAL	1	199.45	1.0039	15	PASS	199.38	0.047	15	PASS
ICV	ICV	1	104.024	0.34	15	PASS	10.19	0.53	15	PASS
ICB	ICB	1	0.031	16.83	15	<PQL	0.024	23.3	15	<PQL
LLICV	CCV1	1	0.56	2.26	20	PASS	0.1	19.81	20	PASS
ICSA1	ICSA	1	<0.000	N/A	15	<PQL	0.017	107.48	15	<PQL
ICSAB1	ICSAB	1	19.87	2.19	15	PASS	21.2	1.043	15	PASS
CCV1	CCV	1	20.28	1.35	15	PASS	20.32	1.26	15	PASS
CCB1	CCB	1	<0.000	N/A	15	<PQL	0.0034	804.72	15	<PQL
CCV2	CCV	1	20.65	0.39	15	PASS	20.2	0.45	15	PASS
CCB2	CCB	1	<0.000	N/A	15	<PQL	0.0087	264.3	15	<PQL
MB-74512	MBLK	1	0.033	6.077	15	PASS	<0.000	N/A	15	<PQL
LCS-74512	LCS	1	102.44	1.17	15	PASS	10.062	1.56	15	PASS
N036155-001B	SAMP	1	<0.000	N/A	15	<PQL	2.3	3.77	15	PASS
N036155-001B	SAMP	5	<0.000	N/A	15	<PQL	0.42	4.8	15	PASS
N036155-001B-PS	PS	1	101.3	1.68	15	PASS	12.2	0.5	15	PASS
N036155-001B-MS	MS	1	100.97	0.23	15	PASS	12.52	1.38	15	PASS
N036155-001B-MSD	MSD	1	100.77	0.62	15	PASS	12.45	2.011	15	PASS
N036155-002B	SAMP	1	<0.000	N/A	15	<PQL	2.22	4.78	15	PASS
N036155-003B	SAMP	1	0.17	49.96	15	<PQL	2.3	2.46	15	PASS
CCV3	CCV	1	20.56	1.65	15	PASS	20.014	1.62	15	PASS
CCB3	CCB	1	<0.000	N/A	15	<PQL	<0.000	N/A	15	<PQL
N036155-004B	SAMP	1	0.66	9.69	15	PASS	2.28	2.74	15	PASS
N036155-005B	SAMP	1	<0.000	N/A	15	<PQL	2.25	2.88	15	PASS
N036155-006B	SAMP	1	<0.000	N/A	15	<PQL	2.17	4.23	15	PASS
N036155-007B	SAMP	1	<0.000	N/A	15	<PQL	2.15	7.18	15	PASS
N036155-008B	SAMP	1	<0.000	N/A	15	<PQL	2.23	3.59	15	PASS
N036155-009B	SAMP	1	<0.000	N/A	15	<PQL	2.16	5.31	15	PASS
N036155-010B	SAMP	1	<0.000	N/A	15	<PQL	2.23	3.046	15	PASS
N036155-011B	SAMP	1	<0.000	N/A	15	<PQL	2.15	3.059	15	PASS
N036155-012B	SAMP	1	<0.000	N/A	15	<PQL	2.31	0.97	15	PASS
N036155-013B	SAMP	1	<0.000	N/A	15	<PQL	2.24	3.44	15	PASS
CCV4	CCV	1	20.53	1.35	15	PASS	20.42	1.085	15	PASS
CCB4	CCB	1	<0.000	N/A	15	<PQL	0.011	81.53	15	<PQL

PERCENT RSD SUMMARY: 190710A

Instrument ID: ICPMS-02

Sample Name	Type	DF	55 Mn [2]				75 As [2]			
			Conc. [ppb]	RSD	Criteria	Comment	Conc. [ppb]	RSD	Criteria	Comment
N036155-014B	SAMP	1	<0.000	N/A	15	<PQL	2.32	1.43	15	PASS
CCV5	CCV	1	20.56	1.88	15	PASS	20.081	0.56	15	PASS
CCB5	CCB	1	<0.000	N/A	15	<PQL	0.00072	1082.72	15	<PQL
ICSA2	ICSA	1	<0.000	N/A	15	<PQL	0.033	110.8	15	<PQL
ICSAB2	ICSAB	1	20.27	1.24	15	PASS	21.68	0.79	15	PASS

ANALYSIS RUN LOG

INJECTION LOG: 190706A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0706001.D	RINSE	RINSE	1	07/06/19 2:17 PM
A0706002.D	RINSE	RINSE	1	07/06/19 2:22 PM
A0706003.D	RINSE	RINSE	1	07/06/19 2:27 PM
A0706004.D	Cal Blank	IBLK	1	07/06/19 2:32 PM
A0706005.D	Std1-0.1/1 ppb	ICAL	1	07/06/19 2:37 PM
A0706006.D	Std2-0.5/5 ppb	ICAL	1	07/06/19 2:42 PM
A0706007.D	Std3-5/50 ppb	ICAL	1	07/06/19 2:47 PM
A0706008.D	Std4-10/100 ppb	ICAL	1	07/06/19 2:52 PM
A0706009.D	Std5-20/200 ppb	ICAL	1	07/06/19 2:57 PM
A0706010.D	Std6-40/400 ppb	ICAL	1	07/06/19 3:02 PM
A0706011.D	Std7-100/1000 ppb	ICAL	1	07/06/19 3:07 PM
A0706012.D	Std8-200/2000 ppb	ICAL	1	07/06/19 3:12 PM
A0706013.D	ICV	ICV	1	07/06/19 3:34 PM
A0706014.D	ICB	ICB	1	07/06/19 3:39 PM
A0706015.D	LLICV	CCV1	1	07/06/19 3:44 PM
A0706016.D	ICSA1	ICSA	1	07/06/19 3:50 PM
A0706017.D	ICSAB1	ICSAB	1	07/06/19 3:55 PM
A0706018.D	MB-74450	MBLK	1	07/06/19 4:03 PM
A0706019.D	LCS-74450	LCS	1	07/06/19 4:08 PM
A0706020.D	N036362-001D	SAMP	1	07/06/19 4:13 PM
A0706021.D	N036362-001D	SAMP	5	07/06/19 4:18 PM
A0706022.D	N036362-001D-PS	PS	1	07/06/19 4:23 PM
A0706023.D	N036362-001D-MS	MS	1	07/06/19 4:28 PM
A0706024.D	N036362-001D-MSD	MSD	1	07/06/19 4:33 PM
A0706025.D	N036304-001D	SAMP	1	07/06/19 4:38 PM
A0706026.D	N036262-003C	SAMP	1	07/06/19 4:43 PM
A0706027.D	N036278-001K	SAMP	1	07/06/19 4:48 PM
A0706028.D	CCV1	CCV	1	07/06/19 4:53 PM
A0706029.D	CCB1	CCB	1	07/06/19 4:58 PM
A0706030.D	N036278-002K	SAMP	1	07/06/19 5:03 PM
A0706031.D	MB-74467	MBLK	1	07/06/19 5:08 PM
A0706032.D	LCS-74467	LCS	1	07/06/19 5:13 PM
A0706033.D	N036155-001B	SAMP	1	07/06/19 5:18 PM
A0706034.D	N036155-001B	SAMP	5	07/06/19 5:23 PM
A0706035.D	N036155-001B-PS	PS	1	07/06/19 5:28 PM
A0706036.D	N036155-001B-MS	MS	1	07/06/19 5:33 PM
A0706037.D	N036155-001B-MSD	MSD	1	07/06/19 5:38 PM
A0706038.D	N036155-002B	SAMP	1	07/06/19 5:43 PM
A0706039.D	N036155-003B	SAMP	1	07/06/19 5:48 PM
A0706040.D	CCV2	CCV	1	07/06/19 5:53 PM
A0706041.D	CCB2	CCB	1	07/06/19 5:58 PM
A0706042.D	N036155-004B	SAMP	1	07/06/19 6:03 PM

INJECTION LOG: 190706A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0706043.D	N036155-005B	SAMP	1	07/06/19 6:08 PM
A0706044.D	N036155-006B	SAMP	1	07/06/19 6:13 PM
A0706045.D	N036155-007B	SAMP	1	07/06/19 6:18 PM
A0706046.D	N036155-008B	SAMP	1	07/06/19 6:24 PM
A0706047.D	N036155-009B	SAMP	1	07/06/19 6:29 PM
A0706048.D	N036155-010B	SAMP	1	07/06/19 6:34 PM
A0706049.D	N036155-011B	SAMP	1	07/06/19 6:39 PM
A0706050.D	N036155-012B	SAMP	1	07/06/19 6:44 PM
A0706051.D	N036155-013B	SAMP	1	07/06/19 6:49 PM
A0706052.D	CCV3	CCV	1	07/06/19 6:54 PM
A0706053.D	CCB3	CCB	1	07/06/19 6:59 PM
A0706054.D	ICSA2	ICSA	1	07/06/19 7:04 PM
A0706055.D	ICSAB2	ICSAB	1	07/06/19 7:09 PM
A0706056.D	N036155-014B	SAMP	1	07/06/19 7:14 PM
A0706057.D	N036157-001A	SAMP	1	07/06/19 7:19 PM
A0706058.D	N036178-001B	SAMP	1	07/06/19 7:24 PM
A0706059.D	N036155-002B	SAMP	1	07/06/19 7:29 PM
A0706060.D	N036155-006B	SAMP	1	07/06/19 7:34 PM
A0706061.D	N036155-008B	SAMP	1	07/06/19 7:39 PM
A0706062.D	N036155-010B	SAMP	1	07/06/19 7:44 PM
A0706063.D	N036155-014B	SAMP	1	07/06/19 7:49 PM
A0706064.D	MB-74468	MBLK	1	07/06/19 7:54 PM
A0706065.D	LCS-74468	LCS	1	07/06/19 7:59 PM
A0706066.D	CCV4	CCV	1	07/06/19 8:04 PM
A0706067.D	CCB4	CCB	1	07/06/19 8:09 PM
A0706068.D	N036278-002J	SAMP	1	07/06/19 8:14 PM
A0706069.D	N036278-002J	SAMP	5	07/06/19 8:19 PM
A0706070.D	N036278-002J-PS	PS	1	07/06/19 8:24 PM
A0706071.D	N036278-002J-MS	MS	1	07/06/19 8:29 PM
A0706072.D	N036278-002J-MSD	MSD	1	07/06/19 8:34 PM
A0706073.D	N036278-001J	SAMP	1	07/06/19 8:39 PM
A0706074.D	N036261-001B	SAMP	1	07/06/19 8:44 PM
A0706075.D	N036261-001B	SAMP	5	07/06/19 8:49 PM
A0706076.D	N036157-001A	SAMP	5	07/06/19 8:54 PM
A0706077.D	N036178-001B	SAMP	1	07/06/19 8:59 PM
A0706078.D	CCV5	CCV	1	07/06/19 9:04 PM
A0706079.D	CCB5	CCB	1	07/06/19 9:09 PM
A0706080.D	ICSA3	ICSA	1	07/06/19 9:14 PM
A0706081.D	ICSAB3	ICSAB	1	07/06/19 9:19 PM
NR A0706082.D	ICSAB3	ICSAB	1	07/06/19 9:45 PM
A0706083.D	ICSA3	ICSA	1	07/06/19 9:54 PM
A0706084.D	ICSAB3	ICSAB	1	07/06/19 9:58 PM

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INJECTION LOG: 190706A

Instrument ID: ICPMS-02

	Data File	Sample Name	Type	DF	Acq. Date-Time
NR	A0706085.D	ICSA3	ICSA	1	07/07/19 12:11 AM
NR	A0706086.D	ICSAB3	ICSAB	1	07/07/19 12:14 AM

INJECTION LOG: 190710A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0710001.D	RINSE	RINSE	1	07/10/19 3:27 AM
A0710002.D	RINSE	RINSE	1	07/10/19 3:32 AM
A0710003.D	RINSE	RINSE	1	07/10/19 3:37 AM
A0710004.D	Cal Blank	IBLK	1	07/10/19 3:42 AM
A0710005.D	Std1-0.1/1 ppb	ICAL	1	07/10/19 3:47 AM
A0710006.D	Std2-0.5/5 ppb	ICAL	1	07/10/19 3:52 AM
A0710007.D	Std3-5/50 ppb	ICAL	1	07/10/19 3:57 AM
A0710008.D	Std4-10/100 ppb	ICAL	1	07/10/19 4:03 AM
A0710009.D	Std5-20/200 ppb	ICAL	1	07/10/19 4:08 AM
A0710010.D	Std6-40/400 ppb	ICAL	1	07/10/19 4:13 AM
A0710011.D	Std7-100/1000 ppb	ICAL	1	07/10/19 4:18 AM
A0710012.D	Std8-200/2000 ppb	ICAL	1	07/10/19 4:22 AM
A0710013.D	ICV	ICV	1	07/10/19 4:27 AM
A0710014.D	ICB	ICB	1	07/10/19 4:32 AM
A0710015.D	LLICV	CCV1	1	07/10/19 4:37 AM
A0710016.D	ICSA1	ICSA	1	07/10/19 4:42 AM
A0710017.D	ICSAB1	ICSAB	1	07/10/19 4:48 AM
A0710018.D	MB-74511	MBLK	1	07/10/19 5:11 AM
A0710019.D	LCS-74511	LCS	1	07/10/19 5:16 AM
A0710020.D	N036115-001B	SAMP	1	07/10/19 5:21 AM
A0710021.D	N036115-001B	SAMP	5	07/10/19 5:26 AM
A0710022.D	N036115-001B-PS	PS	1	07/10/19 5:31 AM
A0710023.D	N036115-001B-MS	MS	1	07/10/19 5:36 AM
A0710024.D	N036115-001B-MSD	MSD	1	07/10/19 5:41 AM
A0710025.D	N036115-002B	SAMP	1	07/10/19 5:46 AM
A0710026.D	N036115-003B	SAMP	1	07/10/19 5:51 AM
A0710027.D	N036115-004B	SAMP	1	07/10/19 5:56 AM
A0710028.D	CCV1	CCV	1	07/10/19 6:01 AM
A0710029.D	CCB1	CCB	1	07/10/19 6:06 AM
A0710030.D	N036115-005B	SAMP	1	07/10/19 6:11 AM
A0710031.D	N036115-006B	SAMP	1	07/10/19 6:16 AM
A0710032.D	N036115-007B	SAMP	1	07/10/19 6:21 AM
A0710033.D	N036115-008B	SAMP	1	07/10/19 6:26 AM
A0710034.D	N036115-009B	SAMP	1	07/10/19 6:31 AM
A0710035.D	N036115-010B	SAMP	1	07/10/19 6:36 AM
A0710036.D	N036115-013B	SAMP	1	07/10/19 6:41 AM
A0710037.D	N036115-014B	SAMP	1	07/10/19 6:46 AM
A0710038.D	N036115-015B	SAMP	1	07/10/19 6:51 AM
A0710039.D	N036115-016B	SAMP	1	07/10/19 6:56 AM
A0710040.D	CCV2	CCV	1	07/10/19 7:01 AM
A0710041.D	CCB2	CCB	1	07/10/19 7:06 AM
A0710042.D	N035662-001D	SAMP	1	07/10/19 7:11 AM

INJECTION LOG: 190710A

Instrument ID: ICPMS-02

Data File	Sample Name	Type	DF	Acq. Date-Time
A0710043.D	MB-74512	MBLK	1	07/10/19 7:16 AM
A0710044.D	LCS-74512	LCS	1	07/10/19 7:21 AM
A0710045.D	N036155-001B	SAMP	1	07/10/19 7:26 AM
A0710046.D	N036155-001B	SAMP	5	07/10/19 7:31 AM
A0710047.D	N036155-001B-PS	PS	1	07/10/19 7:36 AM
A0710048.D	N036155-001B-MS	MS	1	07/10/19 7:41 AM
A0710049.D	N036155-001B-MSD	MSD	1	07/10/19 7:46 AM
A0710050.D	N036155-002B	SAMP	1	07/10/19 7:51 AM
A0710051.D	N036155-003B	SAMP	1	07/10/19 7:56 AM
A0710052.D	CCV3	CCV	1	07/10/19 8:01 AM
A0710053.D	CCB3	CCB	1	07/10/19 8:06 AM
A0710054.D	N036155-004B	SAMP	1	07/10/19 8:11 AM
A0710055.D	N036155-005B	SAMP	1	07/10/19 8:16 AM
A0710056.D	N036155-006B	SAMP	1	07/10/19 8:21 AM
A0710057.D	N036155-007B	SAMP	1	07/10/19 8:26 AM
A0710058.D	N036155-008B	SAMP	1	07/10/19 8:31 AM
A0710059.D	N036155-009B	SAMP	1	07/10/19 8:36 AM
A0710060.D	N036155-010B	SAMP	1	07/10/19 8:41 AM
A0710061.D	N036155-011B	SAMP	1	07/10/19 8:46 AM
A0710062.D	N036155-012B	SAMP	1	07/10/19 8:51 AM
A0710063.D	N036155-013B	SAMP	1	07/10/19 8:56 AM
A0710064.D	CCV4	CCV	1	07/10/19 9:02 AM
A0710065.D	CCB4	CCB	1	07/10/19 9:07 AM
A0710066.D	N036155-014B	SAMP	1	07/10/19 9:12 AM
A0710067.D	CCV5	CCV	1	07/10/19 9:17 AM
A0710068.D	CCB5	CCB	1	07/10/19 9:22 AM
A0710069.D	ICSA2	ICSA	1	07/10/19 9:27 AM
A0710070.D	ICSAB2	ICSAB	1	07/10/19 9:32 AM

SAMPLE PREPARATION LOG

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/5/2019 10:37:21**
Prep End Date: **7/5/2019 4:00:00 P**
Reviewed/ Date: NS 7/15/2019
Initials/ Date: for
Prep Batch **74467** Prep Code: **3010_W_MSDI** Technician **Mark Gesmundo**
Prep Factor Units **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74467	Aqueous		25	☐	0	0	25	1.000		
MB-74467	Aqueous		25	☐	0	0	25	1.000		
N036155-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-010B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/5/2019 10:37:21**
Prep End Date: **7/5/2019 4:00:00 P**
Reviewed/ Date: NS 7/15/2019
Initials/ Date: for
Prep Batch **74467** Prep Code: **3010_W_MSDI** Technician **Mark Gesmundo**
Prep Factor Units **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N036155-011B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-014B	Groundwater	<2	25	☐	0	0	25	1.000		
N036157-001A	Groundwater	<2	25	☐	0	0	25	1.000		
N036178-001B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/9/2019 3:10:40 P**
Prep End Date: **7/9/2019 8:00:25 P**
Reviewed/ Date: NS 7/15/2019
Initials/ Date: for
Prep Batch **74512** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**
Prep Factor Units **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
LCS-74512	Aqueous		25	☐	0	0	25	1.000		
MB-74512	Aqueous		25	☐	0	0	25	1.000		
N036155-001B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-001B-MS	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-002B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-003B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-004B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-005B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-006B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-007B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-008B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-009B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-010B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

ASSET Laboratories

PREP BATCH REPORT

Prep Start Date: **7/9/2019 3:10:40 P**
Prep End Date: **7/9/2019 8:00:25 P**
Reviewed/ Date: NS 7/15/2019
Initials/ Date: for
Prep Batch **74512** Prep Code: **3010_W_MSDI** Technician: **Claire Ignacio**
Prep Factor Units **mL / mL**

Sample ID	Matrix	pH	SampAmt	3 Replicates	Sol Added	Sol Recov	Fin Vol	factor	Clean Up Code	TURB Check
N036155-011B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-012B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-013B	Groundwater	<2	25	☐	0	0	25	1.000		
N036155-014B	Groundwater	<2	25	☐	0	0	25	1.000		

Clean Up Code: A = ACID; F = FLORISIL; S = SILICA GEL; M = MERCURY; G = GPC

Number	Reagent Name
10238	HYDROCHLORIC ACID
10905	NITRIC ACID

Spk ID	Spike Name	SampType	AmtAdd
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution A		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution B		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD SolutionC		0.25
2MWST-190401	ICV/MS/MSD/LCS/LCSD Solution D		0.25

INSTRUMENT TUNING CHECK

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 6 Jul 2019 10:10:13 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	108985.00	0.00	
24 Mg	368491.00	0.00	
25 Mg	49481.30	0.00	
26 Mg	56432.80	0.00	
59 Co	776521.00	0.00	
115 In	653802.00	0.00	
206 Pb	180175.00	0.00	
207 Pb	159465.00	0.00	
208 Pb	389713.00	0.00	

RSD (%)

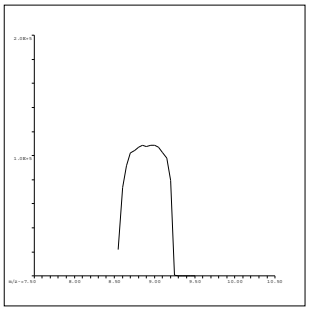
Element	Actual	Required	Flag
9 Be	1.23	5.00	
24 Mg	1.86	5.00	
25 Mg	1.91	5.00	
26 Mg	2.01	5.00	
59 Co	0.97	5.00	
115 In	0.77	5.00	
206 Pb	1.43	5.00	
207 Pb	1.71	5.00	
208 Pb	0.96	5.00	

Ion Ratio

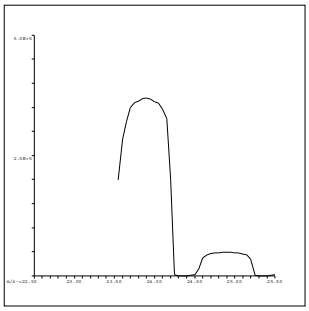
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

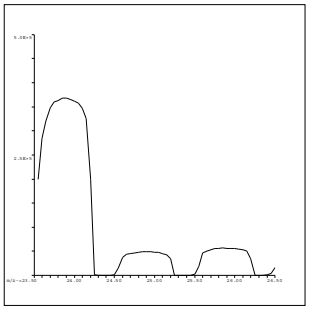
Element	Actual	Required	Flag



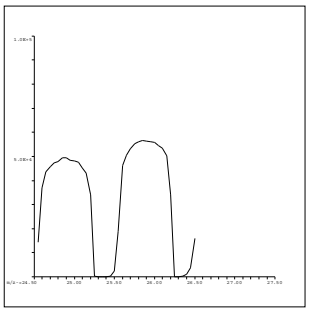
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



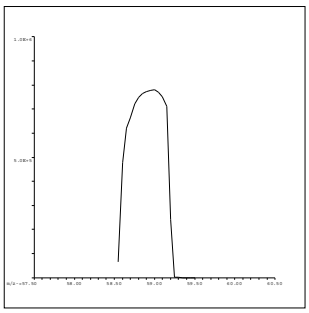
24 Mg
Mass Calib.
Actual: 23.90
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



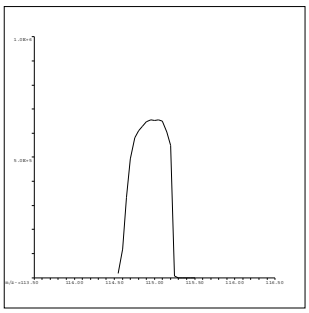
25 Mg
Mass Calib.
Actual: 24.90
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



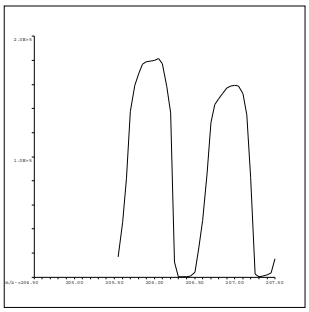
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



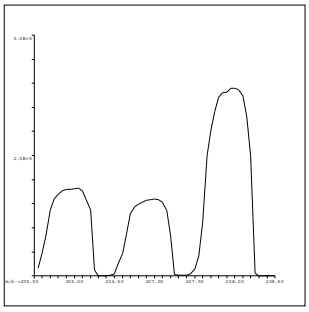
59 Co
Mass Calib.
Actual: 58.95
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



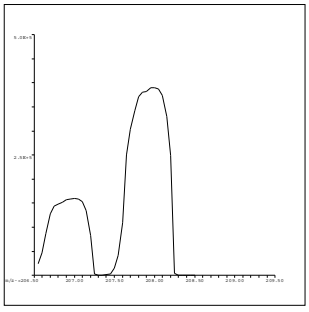
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 206.00
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 207.00
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:

QC Tune Result:Pass

QC Tune Report

Data File: C:\ICPMH\1\7500\QCTUNE.D
Date Acquired: 10 Jul 2019 03:08:42 am
Operator:
Misc Info:
Vial Number: 0
Current Method: C:\ICPMH\1\METHODS\TuneCHK.m

Minimum Response(CPS)

Element	Actual	Required	Flag
9 Be	139595.00	0.00	
24 Mg	406578.00	0.00	
25 Mg	52995.90	0.00	
26 Mg	60415.40	0.00	
59 Co	729044.00	0.00	
115 In	585427.00	0.00	
206 Pb	157490.00	0.00	
207 Pb	137371.00	0.00	
208 Pb	338358.00	0.00	

RSD (%)

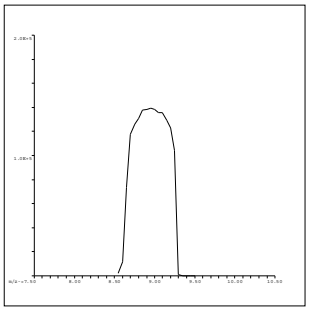
Element	Actual	Required	Flag
9 Be	0.78	5.00	
24 Mg	3.24	5.00	
25 Mg	3.71	5.00	
26 Mg	2.78	5.00	
59 Co	0.74	5.00	
115 In	0.99	5.00	
206 Pb	1.25	5.00	
207 Pb	0.66	5.00	
208 Pb	1.45	5.00	

Ion Ratio

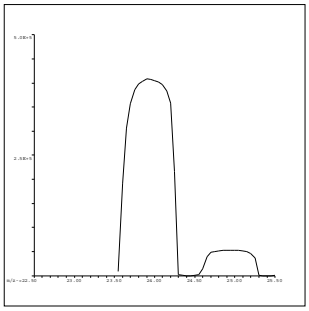
Element	Actual	Required	Flag
9 Be			
24 Mg			
25 Mg			
26 Mg			
59 Co			
115 In			
206 Pb			
207 Pb			
208 Pb			

Maximum Bkg. Count(CPS)

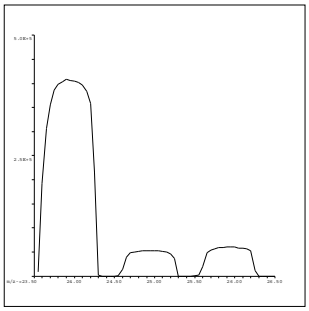
Element	Actual	Required	Flag



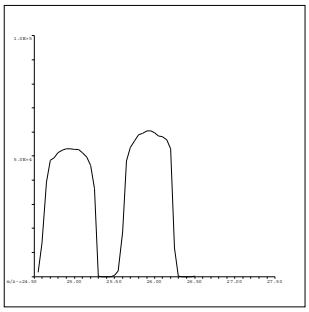
9 Be
Mass Calib.
Actual: 8.95
Required: 8.90-9.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



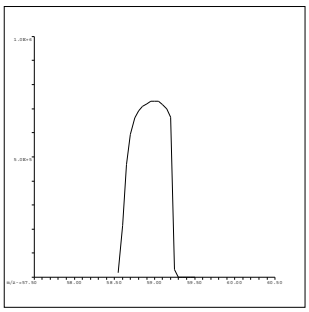
24 Mg
Mass Calib.
Actual: 23.95
Required: 23.90-24.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



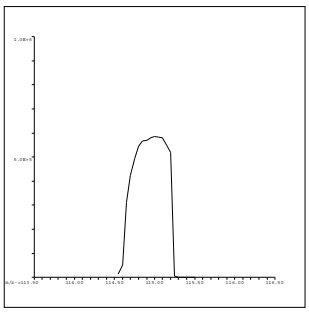
25 Mg
Mass Calib.
Actual: 24.95
Required: 24.90-25.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



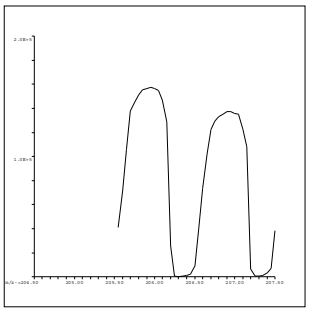
26 Mg
Mass Calib.
Actual: 25.90
Required: 25.90-26.10
Flag:
Peak Width
Actual: 0.65
Required: 0.75
Flag:



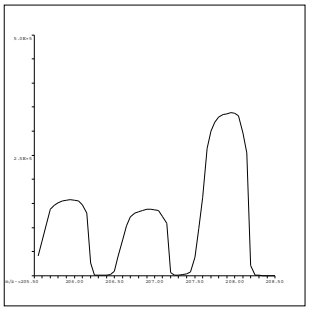
59 Co
Mass Calib.
Actual: 59.00
Required: 58.90-59.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



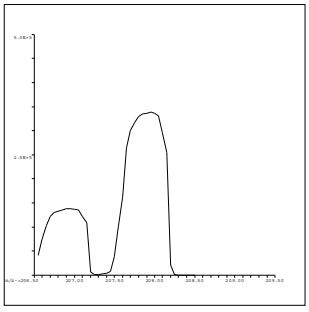
115 In
Mass Calib.
Actual: 115.00
Required: 114.90-115.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



206 Pb
Mass Calib.
Actual: 205.95
Required: 205.90-206.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



207 Pb
Mass Calib.
Actual: 206.95
Required: 206.90-207.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:



208 Pb
Mass Calib.
Actual: 207.95
Required: 207.90-208.10
Flag:
Peak Width
Actual: 0.60
Required: 0.75
Flag:

QC Tune Result:Pass

INITIAL CALIBRATION DATA SUMMARY

INITIAL CALIBRATION SUMMARY: 190706A

Instrument ID: ICPMS-02

Analyte	Data File	A0706004.D	A0706005.D	A0706006.D	A0706007.D	A0706008.D	A0706009.D	A0706010.D	A0706011.D	A0706012.D	
	Acq. Date-Time	07/06/2019 02:32 PM	07/06/2019 02:37 PM	07/06/2019 02:42 PM	07/06/2019 02:47 PM	07/06/2019 02:52 PM	07/06/2019 02:57 PM	07/06/2019 03:02 PM	07/06/2019 03:07 PM	07/06/2019 03:12 PM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	102338.5		105894.1	106388.3	105256.9	96034.1	105373.2	104338.7	102445.2	
55 Mn [2]	CPS	215.3		2164.3	20906.4	41239.4	81958.9	161002.8	394468.5	783103.5	0.9999
52 Cr [2]	CPS	376.6		4190.6	38449.6	75803.7	151022.6	298072.8	734391.6	1478548.6	0.9999
72 Ge (ISTD) [1]	CPS	56985.2		57168.1	56719.5	56940.4	51340.8	55869.8	55495.4	54493	
78 Se [1]	CPS	2.2		111.1	1063.4	2068	4077.3	8032.4	19904.1	39658.4	0.9999
72 Ge (ISTD) [2]	CPS	71757	74793.8	74416.8	74225.7	73956.7	67658.6	73520.4	72423	71612.3	
75 As [2]	CPS	108.4	227.6	708.9	6170.6	12092.2	24297.3	46795.7	117225.1	231209.4	0.9999
103 Rh (ISTD) [2]	CPS	1789884.1		1842079.4	1840638.3	1841470.2	1656531.3	1802587.4	1786050.7	1730354.3	
95 Mo [2]	CPS	93.3		2229.1	22822.7	45927.9	91686.9	180912.2	447558.7	892214.7	0.9999
159 Tb (ISTD) [3]	CPS	3981444.6		4069082.3	4098588.2	4084854.2	3687917.7	4039408.6	3995720.5	3946343.5	
137 Ba [3]	CPS	472.3		3585	35292.1	70212.4	140891.1	273425.7	679981.2	1389247.2	0.9998

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION SUMMARY: 190710A

Instrument ID: ICPMS-02

Analyte	Data File	A0710004.D	A0710005.D	A0710006.D	A0710007.D	A0710008.D	A0710009.D	A0710010.D	A0710011.D	A0710012.D	
	Acq. Date-Time	07/10/2019 03:42 AM	07/10/2019 03:47 AM	07/10/2019 03:52 AM	07/10/2019 03:57 AM	07/10/2019 04:03 AM	07/10/2019 04:08 AM	07/10/2019 04:13 AM	07/10/2019 04:18 AM	07/10/2019 04:22 AM	
	Type	CalBlk	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	CalStd	
	Level	1	2	3	4	5	6	7	8	9	
	Sample Name	Cal Blank	Std1-0.1/1 ppb	Std2-0.5/5 ppb	Std3-5/50 ppb	Std4-10/100 ppb	Std5-20/200 ppb	Std6-40/400 ppb	Std7-100/1000 ppb	Std8-200/2000 ppb	
	Concentration	0.00	0.1/1 ug/L	0.5/5 ug/L	5/50 ug/L	10/100 ug/L	20/200 ug/L	40/400 ug/L	100/1000 ug/L	200/2000 ug/L	R
45 Sc (ISTD) [2]	CPS	96278.5		96552.3	95773.5	96036.2	96570	96888.8	97145.9	96824.2	
55 Mn [2]	CPS	127.7		1941.7	17551.1	34894.2	70142.4	138895.4	345330.4	681535.8	1.0000
72 Ge (ISTD) [2]	CPS	61882.5	62144.5	62569.8	61866.8	62422.4	62594.2	62648.7	61914.1	61642.6	
75 As [2]	CPS	95.6	186.7	576.5	5134.6	9923.6	20076.9	39864.6	98965.8	194208.7	1.0000

Standard Code
ICAL: 2MSST-180608B
ICAL: 2MSST-190103A
ICAL: 2MWST-190401E
IS Mix: 2MWST-190401F

Calibration Acceptance Criteria: > 0.995 Correlation

INITIAL CALIBRATION AND CONTINUING CALIBRATION VERIFICATION SUMMARY

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV** SampType: **ICV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **ICV** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431121**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.091	0.10	10.00	0	101	90	110				
Barium	9.796	1.0	10.00	0	98.0	90	110				
Molybdenum	9.711	0.50	10.00	0	97.1	90	110				
Selenium	9.989	0.50	10.00	0	99.9	90	110				

Sample ID **LLICV** SampType: **CCV1** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **ZZZZZZ** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431123**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.103	0.10	0.1000	0	103	80	120				
Barium	1.018	1.0	1.000	0	102	80	120				
Molybdenum	0.494	0.50	0.5000	0	98.8	80	120				
Selenium	0.506	0.50	0.5000	0	101	80	120				

Sample ID **CCV1** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **CCV** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431136**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.938	0.10	20.00	0	110	90	110				
Barium	21.816	1.0	20.00	0	109	90	110				
Molybdenum	21.505	0.50	20.00	0	108	90	110				
Selenium	21.724	0.50	20.00	0	109	90	110				

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **CCV** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	22.339	0.10	20.00	0	112	90	110				S

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

%Rec of As in CCV2 failed, biased high. As not reported on this run. NS 7/15/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV2** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **CCV** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431148**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	21.942	1.0	20.00	0	110	90	110				
Molybdenum	21.232	0.50	20.00	0	106	90	110				
Selenium	21.584	0.50	20.00	0	108	90	110				

Sample ID **CCV3** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **CCV** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431160**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.942	0.10	20.00	0	110	90	110				
Barium	21.715	1.0	20.00	0	109	90	110				
Molybdenum	21.461	0.50	20.00	0	107	90	110				
Selenium	21.044	0.50	20.00	0	105	90	110				

Sample ID **CCV4** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **CCV** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431174**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.803	0.10	20.00	0	109	90	110				
Barium	21.624	1.0	20.00	0	108	90	110				
Molybdenum	21.478	0.50	20.00	0	107	90	110				
Selenium	21.142	0.50	20.00	0	106	90	110				

Sample ID **CCV5** SampType: **CCV** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **CCV** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.506	0.10	20.00	0	108	90	110				
Barium	21.884	1.0	20.00	0	109	90	110				
Molybdenum	21.378	0.50	20.00	0	107	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCV**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431186**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Selenium	21.392	0.50	20.00	0	107	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433664**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	10.193	0.10	10.00	0	102	90	110				
Manganese	104.024	0.50	100.0	0	104	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433666**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	0.102	0.10	0.1000	0	102	80	120				
Manganese	0.564	0.50	0.5000	0	113	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433679**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.316	0.10	20.00	0	102	90	110				
Manganese	20.282	0.50	20.00	0	101	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433691**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.199	0.10	20.00	0	101	90	110				
Manganese	20.651	0.50	20.00	0	103	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.014	0.10	20.00	0	100	90	110				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433703**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	20.564	0.50	20.00	0	103	90	110				

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433715**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.422	0.10	20.00	0	102	90	110				
Manganese	20.527	0.50	20.00	0	103	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCV**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433718**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	20.081	0.10	20.00	0	100	90	110				
Manganese	20.564	0.50	20.00	0	103	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICV**	SampType: **ICV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICV**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431195**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.544	1.0	10.00	0	95.4	90	110				

Sample ID **LLICV**	SampType: **CCV1**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ZZZZZZ**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431197**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	1.012	1.0	1.000	0	101	80	120				

Sample ID **CCV1**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCV**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431210**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.843	1.0	20.00	0	109	90	110				

Sample ID **CCV2**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCV**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431222**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.609	1.0	20.00	0	108	90	110				

Sample ID **CCV3**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCV**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431234**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	22.009	1.0	20.00	0	110	90	110				~~S~~

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

%Rec of Cr in CCV3 passed @110%.
Also, samples are non-detect.

NS 7/15/2019

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCV4**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCV**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431248**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.701	1.0	20.00	0	109	90	110				

Sample ID **CCV5**	SampType: **CCV**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCV**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431260**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	21.820	1.0	20.00	0	109	90	110				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT BLANKS

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431122**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431137**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431149**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431161**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431175**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431187**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	ND	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433665**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433680**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433692**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433704**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433716**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Manganese	ND	0.50									

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **CCB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433719**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICB**	SampType: **ICB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431196**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB1**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431211**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB2**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431223**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB3**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431235**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **CCB4**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431249**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits

Calculations are based on raw values

- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **CCB5**	SampType: **CCB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **CCB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431261**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

SUMMARY OF INSTRUMENT CHECK (ICSA & ICSAB)

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **ICSA** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431124**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.327	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB1** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **ICSAB** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431125**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.988	0.10	20.00	0	99.9	80	120				
Barium	19.634	1.0	20.00	0	98.2	80	120				
Molybdenum	20.730	0.50	20.00	0	104	80	120				
Selenium	18.874	0.50	20.00	0	94.4	80	120				

Sample ID **ICSA2** SampType: **ICSA** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **ICSA** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431162**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.320	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB2** SampType: **ICSAB** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **ICSAB** Batch ID: **R134931** TestNo: **EPA 6020** Analysis Date: **7/6/2019** SeqNo: **3431163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.722	0.10	20.00	0	98.6	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICSAB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431163**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	19.803	1.0	20.00	0	99.0	80	120				
Molybdenum	20.615	0.50	20.00	0	103	80	120				
Selenium	19.575	0.50	20.00	0	97.9	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICSA**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431188**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Barium	0.316	1.0									
Molybdenum	ND	0.50									
Selenium	ND	0.50									

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICSAB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431189**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	19.769	0.10	20.00	0	98.8	80	120				
Barium	19.774	1.0	20.00	0	98.9	80	120				
Molybdenum	20.225	0.50	20.00	0	101	80	120				
Selenium	20.155	0.50	20.00	0	101	80	120				

Qualifiers:

B Analyte detected in the associated Method Blank
ND Not Detected at the Reporting Limit
DO Surrogate Diluted Out
E Value above quantitation range
R RPD outside accepted recovery limits
Calculations are based on raw values
H Holding times for preparation or analysis exceeded
S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICSA**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433667**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICSAB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433668**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.198	0.10	20.00	0	106	80	120				
Manganese	19.874	0.50	20.00	0	99.4	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICSA**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433720**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	ND	0.10									
Manganese	ND	0.50									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ICSAB**	Batch ID: **R134984**	TestNo: **EPA 6020**		Analysis Date: **7/10/2019**	SeqNo: **3433721**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	21.678	0.10	20.00	0	108	80	120				
Manganese	20.273	0.50	20.00	0	101	80	120				

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSA1**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICSA**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431198**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB1**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICSAB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431199**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.816	1.0	20.00	0	94.1	80	120				

Sample ID **ICSA2**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICSA**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431236**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Sample ID **ICSAB2**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICSAB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431237**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	18.834	1.0	20.00	0	94.2	80	120				

Sample ID **ICSA3**	SampType: **ICSA**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICSA**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431262**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	ND	1.0									

Qualifiers:

- B Analyte detected in the associated Method Blank
- ND Not Detected at the Reporting Limit
- DO Surrogate Diluted Out
- E Value above quantitation range
- R RPD outside accepted recovery limits
- Calculations are based on raw values
- H Holding times for preparation or analysis exceeded
- S Spike/Surrogate outside of limits due to matrix interference

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID **ICSAB3**	SampType: **ICSAB**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID: **ICSAB**	Batch ID: **R134931**	TestNo: **EPA 6020**		Analysis Date: **7/6/2019**	SeqNo: **3431263**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	19.062	1.0	20.00	0	95.3	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

INTERNAL STANDARD SUMMARY

INTERNAL STANDARD: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	3981444.6	3981444.6	100	PASS	70-125	102338.5	102338.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	4149063.3	3981444.6	104.21	PASS	70-125	107069.2	102338.5	104.62	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	4069082.3	3981444.6	102.2	PASS	70-125	105894.1	102338.5	103.47	PASS	70-125
Std3-5/50 ppb	ICAL	1	4098588.2	3981444.6	102.94	PASS	70-125	106388.3	102338.5	103.96	PASS	70-125
Std4-10/100 ppb	ICAL	1	4084854.2	3981444.6	102.6	PASS	70-125	105256.9	102338.5	102.85	PASS	70-125
Std5-20/200 ppb	ICAL	1	3687917.7	3981444.6	92.63	PASS	70-125	96034.1	102338.5	93.84	PASS	70-125
Std6-40/400 ppb	ICAL	1	4039408.6	3981444.6	101.46	PASS	70-125	105373.2	102338.5	102.97	PASS	70-125
Std7-100/1000 ppb	ICAL	1	3995720.5	3981444.6	100.36	PASS	70-125	104338.7	102338.5	101.95	PASS	70-125
Std8-200/2000 ppb	ICAL	1	3946343.5	3981444.6	99.12	PASS	70-125	102445.2	102338.5	100.1	PASS	70-125
ICV	ICV	1	4138241.1	3981444.6	103.94	PASS	70-125	112258.4	102338.5	109.69	PASS	70-125
ICB	ICB	1	3921081	3981444.6	98.48	PASS	70-125	102439	102338.5	100.1	PASS	70-125
LLICV	CCV1	1	4699181.5	3981444.6	118.03	PASS	70-125	120367.4	102338.5	117.62	PASS	70-125
ICSA1	ICSA	1	3690371.1	3981444.6	92.69	PASS	70-125	96460.9	102338.5	94.26	PASS	70-125
ICSAB1	ICSAB	1	3777779.3	3981444.6	94.88	PASS	70-125	106093.3	102338.5	103.67	PASS	70-125
CCV1	CCV	1	3846314	3981444.6	96.61	PASS	70-125	98192.1	102338.5	95.95	PASS	70-125
CCB1	CCB	1	4078088	3981444.6	102.43	PASS	70-125	103544.9	102338.5	101.18	PASS	70-125
MB-74467	MBLK	1	3739231.9	3981444.6	93.92	PASS	70-125	94410.6	102338.5	92.25	PASS	70-125
LCS-74467	LCS	1	3712134.1	3981444.6	93.24	PASS	70-125	92954.4	102338.5	90.83	PASS	70-125
N036155-001B	SAMP	1	3676624.2	3981444.6	92.34	PASS	70-125	89167.2	102338.5	87.13	PASS	70-125
N036155-001B	SAMP	5	3773785	3981444.6	94.78	PASS	70-125	96238.3	102338.5	94.039	PASS	70-125
N036155-001B-PS	PS	1	3653323.2	3981444.6	91.76	PASS	70-125	91350.2	102338.5	89.26	PASS	70-125
N036155-001B-MS	MS	1	3644280.1	3981444.6	91.53	PASS	70-125	91313.4	102338.5	89.23	PASS	70-125
N036155-001B-MSD	MSD	1	3657500	3981444.6	91.86	PASS	70-125	90647.6	102338.5	88.58	PASS	70-125
N036155-002B	SAMP	1	3647642.3	3981444.6	91.62	PASS	70-125	90542.1	102338.5	88.47	PASS	70-125
N036155-003B	SAMP	1	3674079.1	3981444.6	92.28	PASS	70-125	90430.4	102338.5	88.36	PASS	70-125
CCV2	CCV	1	3847064.2	3981444.6	96.62	PASS	70-125	99729.7	102338.5	97.45	PASS	70-125
CCB2	CCB	1	4055521.2	3981444.6	101.86	PASS	70-125	104088.5	102338.5	101.71	PASS	70-125
N036155-004B	SAMP	1	3670152.3	3981444.6	92.18	PASS	70-125	91248.1	102338.5	89.16	PASS	70-125
N036155-005B	SAMP	1	3635054.5	3981444.6	91.3	PASS	70-125	89176.1	102338.5	87.14	PASS	70-125
N036155-006B	SAMP	1	3667700.9	3981444.6	92.12	PASS	70-125	90987.2	102338.5	88.91	PASS	70-125
N036155-007B	SAMP	1	3590427.4	3981444.6	90.18	PASS	70-125	89339.3	102338.5	87.3	PASS	70-125
N036155-008B	SAMP	1	3719432.2	3981444.6	93.42	PASS	70-125	91331	102338.5	89.24	PASS	70-125
N036155-009B	SAMP	1	3604929.4	3981444.6	90.54	PASS	70-125	88048.2	102338.5	86.036	PASS	70-125
N036155-010B	SAMP	1	3658150.1	3981444.6	91.88	PASS	70-125	88852.2	102338.5	86.82	PASS	70-125
N036155-011B	SAMP	1	3654589.1	3981444.6	91.79	PASS	70-125	89202	102338.5	87.16	PASS	70-125
N036155-012B	SAMP	1	3672580.1	3981444.6	92.24	PASS	70-125	89339.5	102338.5	87.3	PASS	70-125
N036155-013B	SAMP	1	3629047.2	3981444.6	91.15	PASS	70-125	89018.7	102338.5	86.98	PASS	70-125
CCV3	CCV	1	3841405.9	3981444.6	96.48	PASS	70-125	98013.7	102338.5	95.77	PASS	70-125
CCB3	CCB	1	4006510	3981444.6	100.63	PASS	70-125	101562.1	102338.5	99.24	PASS	70-125
ICSA2	ICSA	1	3793059.4	3981444.6	95.27	PASS	70-125	98748.3	102338.5	96.49	PASS	70-125
ICSAB2	ICSAB	1	3846723.3	3981444.6	96.62	PASS	70-125	106374.9	102338.5	103.94	PASS	70-125

INTERNAL STANDARD: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	159 Tb (ISTD) [3]					45 Sc (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N036155-014B	SAMP	1	3739161.1	3981444.6	93.91	PASS	70-125	97049.9	102338.5	94.83	PASS	70-125
N036157-001A	SAMP	1	3456624.2	3981444.6	86.82	PASS	70-125	88747	102338.5	86.72	PASS	70-125
N036178-001B	SAMP	1	3516733.8	3981444.6	88.33	PASS	70-125	85952.8	102338.5	83.99	PASS	70-125
N036155-002B	SAMP	1	3591971	3981444.6	90.22	PASS	70-125	88035.6	102338.5	86.024	PASS	70-125
N036155-006B	SAMP	1	3628838.6	3981444.6	91.14	PASS	70-125	88659	102338.5	86.63	PASS	70-125
N036155-008B	SAMP	1	3720210.1	3981444.6	93.44	PASS	70-125	89881.3	102338.5	87.83	PASS	70-125
N036155-010B	SAMP	1	3645177.6	3981444.6	91.55	PASS	70-125	88759.8	102338.5	86.73	PASS	70-125
N036155-014B	SAMP	1	3672687.8	3981444.6	92.25	PASS	70-125	89561.5	102338.5	87.51	PASS	70-125
CCV4	CCV	1	3804928.6	3981444.6	95.57	PASS	70-125	97048.7	102338.5	94.83	PASS	70-125
CCB4	CCB	1	3991364.2	3981444.6	100.25	PASS	70-125	100909.2	102338.5	98.6	PASS	70-125
N036157-001A	SAMP	5	3608849.4	3981444.6	90.64	PASS	70-125	87166.5	102338.5	85.17	PASS	70-125
N036178-001B	SAMP	1	3486333.6	3981444.6	87.56	PASS	70-125	81877.8	102338.5	80.007	PASS	70-125
CCV5	CCV	1	3834135.5	3981444.6	96.3	PASS	70-125	94154.2	102338.5	92.003	PASS	70-125
CCB5	CCB	1	3982638.1	3981444.6	100.03	PASS	70-125	96648.3	102338.5	94.44	PASS	70-125
ICSA3	ICSA	1	3727226.7	3981444.6	93.61	PASS	70-125	93888.9	102338.5	91.74	PASS	70-125
ICSAB3	ICSAB	1	3734079.9	3981444.6	93.79	PASS	70-125	99590.1	102338.5	97.31	PASS	70-125
NR ICSAB3	ICSAB	1		3981444.6	N/A	---	70-125		102338.5	N/A	---	70-125
ICSA3	ICSA	1		3981444.6	N/A	---	70-125		102338.5	N/A	---	70-125
ICSAB3	ICSAB	1		3981444.6	N/A	---	70-125		102338.5	N/A	---	70-125
ICSA3	ICSA	1		3981444.6	N/A	---	70-125		102338.5	N/A	---	70-125
ICSAB3	ICSAB	1		3981444.6	N/A	---	70-125		102338.5	N/A	---	70-125

NS 7/15/2019

INTERNAL STANDARD: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	71757	71757	100	PASS	70-125	56985.2	56985.2	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	74793.8	71757	104.23	PASS	70-125	57676.1	56985.2	101.21	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	74416.8	71757	103.71	PASS	70-125	57168.1	56985.2	100.32	PASS	70-125
Std3-5/50 ppb	ICAL	1	74225.7	71757	103.44	PASS	70-125	56719.5	56985.2	99.53	PASS	70-125
Std4-10/100 ppb	ICAL	1	73956.7	71757	103.07	PASS	70-125	56940.4	56985.2	99.92	PASS	70-125
Std5-20/200 ppb	ICAL	1	67658.6	71757	94.29	PASS	70-125	51340.8	56985.2	90.095	PASS	70-125
Std6-40/400 ppb	ICAL	1	73520.4	71757	102.46	PASS	70-125	55869.8	56985.2	98.043	PASS	70-125
Std7-100/1000 ppb	ICAL	1	72423	71757	100.93	PASS	70-125	55495.4	56985.2	97.39	PASS	70-125
Std8-200/2000 ppb	ICAL	1	71612.3	71757	99.8	PASS	70-125	54493	56985.2	95.63	PASS	70-125
ICV	ICV	1	78565.2	71757	109.49	PASS	70-125	60407.1	56985.2	106	PASS	70-125
ICB	ICB	1	72736.9	71757	101.37	PASS	70-125	55619.2	56985.2	97.6	PASS	70-125
LLICV	CCV1	1	84811.3	71757	118.19	PASS	70-125	64697.6	56985.2	113.53	PASS	70-125
ICSA1	ICSA	1	66471.8	71757	92.63	PASS	70-125	48681.5	56985.2	85.43	PASS	70-125
ICSAB1	ICSAB	1	71936.7	71757	100.25	PASS	70-125	54198.8	56985.2	95.11	PASS	70-125
CCV1	CCV	1	68318.1	71757	95.21	PASS	70-125	52360.4	56985.2	91.88	PASS	70-125
CCB1	CCB	1	72633.2	71757	101.22	PASS	70-125	57079.5	56985.2	100.17	PASS	70-125
MB-74467	MBLK	1	65716.4	71757	91.58	PASS	70-125	50743.2	56985.2	89.046	PASS	70-125
LCS-74467	LCS	1	65935.1	71757	91.89	PASS	70-125	50257.3	56985.2	88.19	PASS	70-125
N036155-001B	SAMP	1	63391.6	71757	88.34	PASS	70-125	48474.2	56985.2	85.065	PASS	70-125
N036155-001B	SAMP	5	68003.3	71757	94.77	PASS	70-125	52149.7	56985.2	91.51	PASS	70-125
N036155-001B-PS	PS	1	63989.2	71757	89.17	PASS	70-125	49467.1	56985.2	86.81	PASS	70-125
N036155-001B-MS	MS	1	64310.8	71757	89.62	PASS	70-125	49351.1	56985.2	86.6	PASS	70-125
N036155-001B-MSD	MSD	1	65410.5	71757	91.16	PASS	70-125	49149.5	56985.2	86.25	PASS	70-125
N036155-002B	SAMP	1	64307.4	71757	89.62	PASS	70-125	48700.4	56985.2	85.46	PASS	70-125
N036155-003B	SAMP	1	64218.1	71757	89.49	PASS	70-125	48969.9	56985.2	85.93	PASS	70-125
CCV2	CCV	1	68851.2	71757	95.95	PASS	70-125	52521.2	56985.2	92.17	PASS	70-125
CCB2	CCB	1	72843.3	71757	101.51	PASS	70-125	56630.4	56985.2	99.38	PASS	70-125
N036155-004B	SAMP	1	64336.4	71757	89.66	PASS	70-125	48865.2	56985.2	85.75	PASS	70-125
N036155-005B	SAMP	1	64038.4	71757	89.24	PASS	70-125	48882	56985.2	85.78	PASS	70-125
N036155-006B	SAMP	1	64061.7	71757	89.28	PASS	70-125	48485.3	56985.2	85.084	PASS	70-125
N036155-007B	SAMP	1	62223.9	71757	86.71	PASS	70-125	47412.2	56985.2	83.2	PASS	70-125
N036155-008B	SAMP	1	64248.1	71757	89.54	PASS	70-125	48992.3	56985.2	85.97	PASS	70-125
N036155-009B	SAMP	1	62579.5	71757	87.21	PASS	70-125	47993.8	56985.2	84.22	PASS	70-125
N036155-010B	SAMP	1	63961.5	71757	89.14	PASS	70-125	48791.6	56985.2	85.62	PASS	70-125
N036155-011B	SAMP	1	64668.7	71757	90.12	PASS	70-125	49075.9	56985.2	86.12	PASS	70-125
N036155-012B	SAMP	1	63081.4	71757	87.91	PASS	70-125	48037.2	56985.2	84.3	PASS	70-125
N036155-013B	SAMP	1	62600.7	71757	87.24	PASS	70-125	47540.2	56985.2	83.43	PASS	70-125
CCV3	CCV	1	68243.2	71757	95.1	PASS	70-125	52114.1	56985.2	91.45	PASS	70-125
CCB3	CCB	1	71841.7	71757	100.12	PASS	70-125	54643.5	56985.2	95.89	PASS	70-125
ICSA2	ICSA	1	68430.9	71757	95.36	PASS	70-125	49595.1	56985.2	87.032	PASS	70-125
ICSAB2	ICSAB	1	73187.9	71757	101.99	PASS	70-125	54742.7	56985.2	96.065	PASS	70-125

INTERNAL STANDARD: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	72 Ge (ISTD) [2]					72 Ge (ISTD) [1]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N036155-014B	SAMP	1	68231.2	71757	95.086	PASS	70-125	53245.5	56985.2	93.44	PASS	70-125
N036157-001A	SAMP	1	61650.4	71757	85.92	PASS	70-125	45751.8	56985.2	80.29	PASS	70-125
N036178-001B	SAMP	1	60483.9	71757	84.29	PASS	70-125	45593.4	56985.2	80.009	PASS	70-125
N036155-002B	SAMP	1	63041.2	71757	87.85	PASS	70-125	47491.2	56985.2	83.34	PASS	70-125
N036155-006B	SAMP	1	64169.3	71757	89.43	PASS	70-125	48578.8	56985.2	85.25	PASS	70-125
N036155-008B	SAMP	1	64210.5	71757	89.48	PASS	70-125	47774.3	56985.2	83.84	PASS	70-125
N036155-010B	SAMP	1	62748.1	71757	87.45	PASS	70-125	47649.4	56985.2	83.62	PASS	70-125
N036155-014B	SAMP	1	63437.4	71757	88.41	PASS	70-125	47733	56985.2	83.76	PASS	70-125
CCV4	CCV	1	67558.1	71757	94.15	PASS	70-125	52533.5	56985.2	92.19	PASS	70-125
CCB4	CCB	1	70107.6	71757	97.7	PASS	70-125	53908.9	56985.2	94.6	PASS	70-125
N036157-001A	SAMP	5	61338.4	71757	85.48	PASS	70-125	48335.9	56985.2	84.82	PASS	70-125
N036178-001B	SAMP	1	58464.1	71757	81.48	PASS	70-125	44669	56985.2	78.39	PASS	70-125
CCV5	CCV	1	66461.4	71757	92.62	PASS	70-125	51966.8	56985.2	91.19	PASS	70-125
CCB5	CCB	1	68811.5	71757	95.9	PASS	70-125	53937.8	56985.2	94.65	PASS	70-125
ICSA3	ICSA	1	65477.9	71757	91.25	PASS	70-125	49036	56985.2	86.05	PASS	70-125
ICSAB3	ICSAB	1	68496.8	71757	95.46	PASS	70-125	51609.4	56985.2	90.57	PASS	70-125
ICSAB3	ICSAB	1		71757	N/A	---	70-125		56985.2	N/A	---	70-125
ICSA3	ICSA	1		71757	N/A	---	70-125		56985.2	N/A	---	70-125
ICSAB3	ICSAB	1		71757	N/A	---	70-125		56985.2	N/A	---	70-125
ICSA3	ICSA	1		71757	N/A	---	70-125		56985.2	N/A	---	70-125
ICSAB3	ICSAB	1		71757	N/A	---	70-125		56985.2	N/A	---	70-125

INTERNAL STANDARD: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	1789884.1	1789884.1	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	1852364	1789884.1	103.49	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	1842079.4	1789884.1	102.92	PASS	70-125
Std3-5/50 ppb	ICAL	1	1840638.3	1789884.1	102.84	PASS	70-125
Std4-10/100 ppb	ICAL	1	1841470.2	1789884.1	102.88	PASS	70-125
Std5-20/200 ppb	ICAL	1	1656531.3	1789884.1	92.55	PASS	70-125
Std6-40/400 ppb	ICAL	1	1802587.4	1789884.1	100.71	PASS	70-125
Std7-100/1000 ppb	ICAL	1	1786050.7	1789884.1	99.79	PASS	70-125
Std8-200/2000 ppb	ICAL	1	1730354.3	1789884.1	96.67	PASS	70-125
ICV	ICV	1	1872047.5	1789884.1	104.59	PASS	70-125
ICB	ICB	1	1765311.7	1789884.1	98.63	PASS	70-125
LLICV	CCV1	1	2100154.9	1789884.1	117.33	PASS	70-125
ICSA1	ICSA	1	1528603.8	1789884.1	85.4	PASS	70-125
ICSAB1	ICSAB	1	1631461.7	1789884.1	91.15	PASS	70-125
CCV1	CCV	1	1691712.8	1789884.1	94.52	PASS	70-125
CCB1	CCB	1	1792219.2	1789884.1	100.13	PASS	70-125
MB-74467	MBLK	1	1646858.1	1789884.1	92.009	PASS	70-125
LCS-74467	LCS	1	1622642.9	1789884.1	90.66	PASS	70-125
N036155-001B	SAMP	1	1490706.3	1789884.1	83.29	PASS	70-125
N036155-001B	SAMP	5	1606491.1	1789884.1	89.75	PASS	70-125
N036155-001B-PS	PS	1	1503263.8	1789884.1	83.99	PASS	70-125
N036155-001B-MS	MS	1	1489667.6	1789884.1	83.23	PASS	70-125
N036155-001B-MSD	MSD	1	1494841.7	1789884.1	83.52	PASS	70-125
N036155-002B	SAMP	1	1487053.1	1789884.1	83.081	PASS	70-125
N036155-003B	SAMP	1	1510697.7	1789884.1	84.4	PASS	70-125
CCV2	CCV	1	1708827.3	1789884.1	95.47	PASS	70-125
CCB2	CCB	1	1791008.8	1789884.1	100.06	PASS	70-125
N036155-004B	SAMP	1	1495729.6	1789884.1	83.57	PASS	70-125
N036155-005B	SAMP	1	1500062.7	1789884.1	83.81	PASS	70-125
N036155-006B	SAMP	1	1505103	1789884.1	84.089	PASS	70-125
N036155-007B	SAMP	1	1477814.8	1789884.1	82.56	PASS	70-125
N036155-008B	SAMP	1	1504602.4	1789884.1	84.061	PASS	70-125
N036155-009B	SAMP	1	1484143.2	1789884.1	82.92	PASS	70-125
N036155-010B	SAMP	1	1485804.3	1789884.1	83.011	PASS	70-125
N036155-011B	SAMP	1	1470544.9	1789884.1	82.16	PASS	70-125
N036155-012B	SAMP	1	1480033.7	1789884.1	82.69	PASS	70-125
N036155-013B	SAMP	1	1469450.7	1789884.1	82.098	PASS	70-125
CCV3	CCV	1	1687591.5	1789884.1	94.28	PASS	70-125
CCB3	CCB	1	1778080.2	1789884.1	99.34	PASS	70-125
ICSA2	ICSA	1	1583718.1	1789884.1	88.48	PASS	70-125
ICSAB2	ICSAB	1	1651741.6	1789884.1	92.28	PASS	70-125

INTERNAL STANDARD: 190706A

Instrument ID: ICPMS-02

Sample Name	Type	DF	103 Rh (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria
N036155-014B	SAMP	1	1581578.4	1789884.1	88.36	PASS	70-125
N036157-001A	SAMP	1	1408523.8	1789884.1	78.69	PASS	70-125
N036178-001B	SAMP	1	1399673.6	1789884.1	78.2	PASS	70-125
N036155-002B	SAMP	1	1467409.6	1789884.1	81.98	PASS	70-125
N036155-006B	SAMP	1	1485932.6	1789884.1	83.018	PASS	70-125
N036155-008B	SAMP	1	1507738.3	1789884.1	84.24	PASS	70-125
N036155-010B	SAMP	1	1484772.5	1789884.1	82.95	PASS	70-125
N036155-014B	SAMP	1	1486213.9	1789884.1	83.034	PASS	70-125
CCV4	CCV	1	1658830.8	1789884.1	92.68	PASS	70-125
CCB4	CCB	1	1771633.8	1789884.1	98.98	PASS	70-125
N036157-001A	SAMP	5	1456961.2	1789884.1	81.4	PASS	70-125
N036178-001B	SAMP	1	1358483.4	1789884.1	75.9	PASS	70-125
CCV5	CCV	1	1645662.9	1789884.1	91.94	PASS	70-125
CCB5	CCB	1	1716616.2	1789884.1	95.91	PASS	70-125
ICSA3	ICSA	1	1516298.3	1789884.1	84.71	PASS	70-125
ICSAB3	ICSAB	1	1588467.8	1789884.1	88.75	PASS	70-125
ICSAB3	ICSAB	1		1789884.1	N/A	---	70-125
ICSA3	ICSA	1		1789884.1	N/A	---	70-125
ICSAB3	ICSAB	1		1789884.1	N/A	---	70-125
ICSA3	ICSA	1		1789884.1	N/A	---	70-125
ICSAB3	ICSAB	1		1789884.1	N/A	---	70-125

INTERNAL STANDARD: 190710A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
Cal Blank	IBLK	1	96278.5	96278.5	100	PASS	70-125	61882.5	61882.5	100	PASS	70-125
Std1-0.1/1 ppb	ICAL	1	96739.1	96278.5	100.48	PASS	70-125	62144.5	61882.5	100.42	PASS	70-125
Std2-0.5/5 ppb	ICAL	1	96552.3	96278.5	100.28	PASS	70-125	62569.8	61882.5	101.11	PASS	70-125
Std3-5/50 ppb	ICAL	1	95773.5	96278.5	99.48	PASS	70-125	61866.8	61882.5	99.97	PASS	70-125
Std4-10/100 ppb	ICAL	1	96036.2	96278.5	99.75	PASS	70-125	62422.4	61882.5	100.87	PASS	70-125
Std5-20/200 ppb	ICAL	1	96570	96278.5	100.3	PASS	70-125	62594.2	61882.5	101.15	PASS	70-125
Std6-40/400 ppb	ICAL	1	96888.8	96278.5	100.63	PASS	70-125	62648.7	61882.5	101.24	PASS	70-125
Std7-100/1000 ppb	ICAL	1	97145.9	96278.5	100.9	PASS	70-125	61914.1	61882.5	100.05	PASS	70-125
Std8-200/2000 ppb	ICAL	1	96824.2	96278.5	100.57	PASS	70-125	61642.6	61882.5	99.61	PASS	70-125
ICV	ICV	1	93681.8	96278.5	97.3	PASS	70-125	60985.7	61882.5	98.55	PASS	70-125
ICB	ICB	1	92875	96278.5	96.46	PASS	70-125	60275.6	61882.5	97.4	PASS	70-125
LLICV	CCV1	1	93170.1	96278.5	96.77	PASS	70-125	60711.6	61882.5	98.11	PASS	70-125
ICSA1	ICSA	1	86020.8	96278.5	89.35	PASS	70-125	54176.3	61882.5	87.55	PASS	70-125
ICSAB1	ICSAB	1	96890.8	96278.5	100.64	PASS	70-125	61230.3	61882.5	98.95	PASS	70-125
CCV1	CCV	1	92809.3	96278.5	96.4	PASS	70-125	59335.3	61882.5	95.88	PASS	70-125
CCB1	CCB	1	91663	96278.5	95.21	PASS	70-125	59370.1	61882.5	95.94	PASS	70-125
CCV2	CCV	1	92233.4	96278.5	95.8	PASS	70-125	59043.2	61882.5	95.41	PASS	70-125
CCB2	CCB	1	92104.1	96278.5	95.66	PASS	70-125	58959.5	61882.5	95.28	PASS	70-125
MB-74512	MBLK	1	90680.7	96278.5	94.19	PASS	70-125	58188.8	61882.5	94.031	PASS	70-125
LCS-74512	LCS	1	91187	96278.5	94.71	PASS	70-125	58299.2	61882.5	94.21	PASS	70-125
N036155-001B	SAMP	1	86863.2	96278.5	90.22	PASS	70-125	56707.2	61882.5	91.64	PASS	70-125
N036155-001B	SAMP	5	89106.2	96278.5	92.55	PASS	70-125	58608.2	61882.5	94.71	PASS	70-125
N036155-001B-PS	PS	1	90363.7	96278.5	93.86	PASS	70-125	58848.1	61882.5	95.097	PASS	70-125
N036155-001B-MS	MS	1	89031.2	96278.5	92.47	PASS	70-125	57572.6	61882.5	93.035	PASS	70-125
N036155-001B-MSD	MSD	1	89906.8	96278.5	93.38	PASS	70-125	58900.4	61882.5	95.18	PASS	70-125
N036155-002B	SAMP	1	87935.8	96278.5	91.33	PASS	70-125	57803.2	61882.5	93.41	PASS	70-125
N036155-003B	SAMP	1	85373	96278.5	88.67	PASS	70-125	56214.4	61882.5	90.84	PASS	70-125
CCV3	CCV	1	90281.1	96278.5	93.77	PASS	70-125	57591.5	61882.5	93.066	PASS	70-125
CCB3	CCB	1	89250.3	96278.5	92.7	PASS	70-125	57141.9	61882.5	92.34	PASS	70-125
N036155-004B	SAMP	1	85386.4	96278.5	88.69	PASS	70-125	55770.6	61882.5	90.12	PASS	70-125
N036155-005B	SAMP	1	84306.9	96278.5	87.57	PASS	70-125	54339.2	61882.5	87.81	PASS	70-125
N036155-006B	SAMP	1	88731.8	96278.5	92.16	PASS	70-125	58323	61882.5	94.25	PASS	70-125
N036155-007B	SAMP	1	86936.7	96278.5	90.3	PASS	70-125	56240.8	61882.5	90.88	PASS	70-125
N036155-008B	SAMP	1	84582.3	96278.5	87.85	PASS	70-125	55010.6	61882.5	88.9	PASS	70-125
N036155-009B	SAMP	1	85166.8	96278.5	88.46	PASS	70-125	55767.4	61882.5	90.12	PASS	70-125
N036155-010B	SAMP	1	84558.1	96278.5	87.83	PASS	70-125	55954.5	61882.5	90.42	PASS	70-125
N036155-011B	SAMP	1	88167.8	96278.5	91.58	PASS	70-125	57118.4	61882.5	92.3	PASS	70-125
N036155-012B	SAMP	1	86233.1	96278.5	89.57	PASS	70-125	56368.2	61882.5	91.089	PASS	70-125
N036155-013B	SAMP	1	86703.2	96278.5	90.055	PASS	70-125	56663.3	61882.5	91.57	PASS	70-125
CCV4	CCV	1	91372.5	96278.5	94.9	PASS	70-125	58709.7	61882.5	94.87	PASS	70-125
CCB4	CCB	1	91867.2	96278.5	95.42	PASS	70-125	58856.8	61882.5	95.11	PASS	70-125

INTERNAL STANDARD: 190710A

Instrument ID: ICPMS-02

Sample Name	Type	DF	45 Sc (ISTD) [2]					72 Ge (ISTD) [2]				
			CPS	REF	%REC	Comment	Criteria	CPS	REF	%REC	Comment	Criteria
N036155-014B	SAMP	1	87113.3	96278.5	90.48	PASS	70-125	56793.1	61882.5	91.78	PASS	70-125
CCV5	CCV	1	91020.7	96278.5	94.54	PASS	70-125	58873.7	61882.5	95.14	PASS	70-125
CCB5	CCB	1	89691.5	96278.5	93.16	PASS	70-125	57718.5	61882.5	93.27	PASS	70-125
ICSA2	ICSA	1	87194.1	96278.5	90.56	PASS	70-125	55587.7	61882.5	89.83	PASS	70-125
ICSAB2	ICSAB	1	91497.7	96278.5	95.034	PASS	70-125	57853.1	61882.5	93.49	PASS	70-125

SERIAL DILUTION/
POST DIGESTION SPIKE

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N036155
Test Method: EPA 6020
Analysis Date: 7/6/2019

Matrix: Groundwater
Batch No.: 74467

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Hanah Glodoviza

Dilution test is not applicable to Mo, Se, Cr. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036155-001B DT 5x	Barium	Ba	µg/L	106.9802	PASS	102.9485	3.92%	10
N036155-001B DT 5x	Molybdenum	Mo	µg/L	3.924641	NA	4.16632	5.80%	10
N036155-001B DT 5x	Selenium	Se	µg/L	0	NA	1.567278	100.00%	10
N036155-001B DT 5x	Chromium	Cr	µg/L	0	NA	0		10

Note: NA - Not Applicable

ASSET Laboratories

ICP-MS-Metals in Water

Dilution Test Summary

Work Order No.: N036155
Test Method: EPA 6020
Analysis Date: 7/10/2019

Matrix: Groundwater
Batch No.: 74512

Instrument ID: ICPMS-02
Instrument Description: Agilent 7700x

Comments:

Analyzed By: Mary Claire Ignacio

Dilution test is not applicable to As & Mn. The calculated concentration is <25RL.

Sample ID	Analyte	Symbol	Units	Calc Val	Oqual	SAMPRefVal	%DIFF	%DIFFlimit
N036155-001B DT 5x	Arsenic	As	µg/L	2.095715	NA	2.302723	8.99%	10
N036155-001B DT 5x	Manganese	Mn	µg/L	0	NA	0		10

Note: NA - Not Applicable

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N036155-001B-PS** SampType: **PS** TestCode: **6020_DIS** Units: **µg/L** Prep Date: RunNo: **134931**
Client ID: **ZZZZZZ** Batch ID: **74467** TestNo: **EPA 6020** **EPA 3010A** Analysis Date: **7/6/2019** SeqNo: **3431143**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Barium	113.446	1.0	10.00	102.9	105	80	120				
Molybdenum	14.859	0.50	10.00	4.166	107	80	120				
Selenium	11.915	0.50	10.00	1.567	103	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020_DIS

Sample ID **N036155-001B-PS**	SampType: **PS**	TestCode: **6020_DIS**	Units: **µg/L**	Prep Date:	RunNo: **134984**
Client ID: **ZZZZZZ**	Batch ID: **74512**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/10/2019**	SeqNo: **3433698**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Arsenic	12.203	0.10	10.00	2.303	99.0	80	120				
Manganese	101.296	0.50	100.0	0	101	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

CLIENT: ARCADIS U.S., Inc. - California
Work Order: N036155
Project: PG&E Topock - RMP, RC000753.801D

ANALYTICAL QC SUMMARY REPORT

TestCode: 6020DIS_CrPGE

Sample ID	**N036155-001B-PS**	SampType: **PS**	TestCode: **6020DIS_CrP**	Units: **µg/L**	Prep Date:	RunNo: **134931**
Client ID:	**ZZZZZZ**	Batch ID: **74467**	TestNo: **EPA 6020**	**EPA 3010A**	Analysis Date: **7/6/2019**	SeqNo: **3431217**

Analyte	Result	PQL	SPK value	SPK Ref Val	%REC	LowLimit	HighLimit	RPD Ref Val	%RPD	RPDLimit	Qual
Chromium	9.846	1.0	10.00	0	98.5	80	120				

Qualifiers:

B	Analyte detected in the associated Method Blank	E	Value above quantitation range	H	Holding times for preparation or analysis exceeded
ND	Not Detected at the Reporting Limit	R	RPD outside accepted recovery limits	S	Spike/Surrogate outside of limits due to matrix interference
DO	Surrogate Diluted Out		Calculations are based on raw values		

MDL STUDY

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Amount of Sample: 25 mL
Units: ug/L

Analyte	AMT SPIKED, ppb	1	2	3	4	5	6	7	SD	MDL	LOD	PQL
ANTIMONY	0.50	0.525	0.514	0.473	0.500	0.492	0.486	0.530	0.0210	0.0660	0.100	0.50
ARSENIC	0.10	0.099	0.104	0.087	0.048	0.060	0.069	0.120	0.0259	0.0813	0.080	0.10
BARIUM	1.00	1.041	1.059	1.052	1.011	0.967	0.957	1.023	0.0403	0.1264	0.250	1.00
BERYLLIUM	0.50	0.469	0.476	0.473	0.495	0.480	0.488	0.507	0.0135	0.0424	0.100	0.50
CADMIUM	0.50	0.515	0.513	0.492	0.534	0.499	0.483	0.508	0.0168	0.0527	0.100	0.50
CHROMIUM	1.00	0.979	0.986	0.940	0.990	0.946	0.978	0.977	0.0197	0.0618	0.250	1.00
COBALT	0.50	0.499	0.489	0.486	0.488	0.465	0.502	0.505	0.0135	0.0424	0.100	0.50
COPPER	1.00	1.110	0.667	1.039	1.060	1.006	1.099	1.075	0.1544	0.4850	0.500	1.00
IRON	10.00	10.873	10.802	10.142	9.991	9.846	9.852	10.596	0.4463	1.4014	2.500	10.00
LEAD	1.00	0.928	0.931	0.899	0.996	0.990	0.987	0.997	0.0406	0.1274	0.250	1.00
MANGANESE	0.50	0.577	0.588	0.561	0.566	0.517	0.541	0.520	0.0276	0.0866	0.100	0.50
MOLYBDENUM	0.50	0.514	0.504	0.467	0.478	0.456	0.433	0.527	0.0338	0.1061	0.250	0.50
NICKEL	1.00	0.961	0.965	0.977	0.907	0.914	0.962	1.075	0.0551	0.1731	0.250	1.00
SELENIUM	0.50	0.450	0.478	0.419	0.693	0.707	0.495	0.555	0.1155	0.3628	0.400	0.50
SILVER	0.50	0.558	0.511	0.490	0.542	0.458	0.490	0.684	0.0745	0.2340	0.250	0.50
THALLIUM	0.50	0.437	0.428	0.408	0.538	0.446	0.438	0.525	0.0504	0.1583	0.250	0.50
URANIUM	0.50	0.478	0.467	0.461	0.517	0.510	0.521	0.521	0.0267	0.0838	0.100	0.50
VANADIUM	1.00	0.950	0.969	0.900	0.844	0.829	0.848	1.053	0.0820	0.2574	0.500	1.00
ZINC	10.00	11.259	11.279	10.915	9.620	9.849	9.745	10.241	0.7235	2.2717	2.500	10.00

Method Detection Limit

Analytical Method: EPA 6020 / 200.8
Digestion Method: EPA 3010A
Date of Analysis: 9/25,10/2,11/3/17
Digestion Date: 9/21, 9/28,10/9/17
Instrument Name: ICPMS2
Analysts: MEI

Matrix: Water
Units: ug/L

Analyte	MDLs	MDLb	MDL	LOD	PQL
ANTIMONY	0.0660	0.1564	0.1564	0.300	0.50
ARSENIC	0.0813	0.0387	0.0813	0.080	0.10
BARIUM	0.1264	0.1497	0.1497	0.300	1.00
BERYLLIUM	0.0424	0.0153	0.0424	0.100	0.50
CADMIUM	0.0527	0.0060	0.0527	0.100	0.50
CHROMIUM	0.0618	0.1298	0.1298	0.300	1.00
COBALT	0.0424	0.0339	0.0424	0.100	0.50
COPPER	0.4850	0.5459	0.5459	0.600	1.00
IRON	1.4014	4.3484	4.3484	5.000	10.00
LEAD	0.1274	0.1008	0.1274	0.300	1.00
MANGANESE	0.0866	0.2552	0.2552	0.300	0.50
MOLYBDENUM	0.1061	0.2149	0.2149	0.300	0.50
NICKEL	0.1731	0.2606	0.2606	0.300	1.00
SELENIUM	0.3628	0.0953	0.3628	0.400	0.50
SILVER	0.2340	0.2023	0.2340	0.250	0.50
THALLIUM	0.1583	0.1924	0.1924	0.300	0.50
URANIUM	0.0838	0.0020	0.0838	0.100	0.50
VANADIUM	0.2574	0.2768	0.2768	0.600	1.00
ZINC	2.2717	0.4511	2.2717	3.000	10.00